

## Abstract

The goal today is to use our configured virtual machine to add the official google chrome stable repository to ubuntu. Before doing that, we want to update our distribution.

## Introduction

Using apt-get and repositories is one of the preferred methods in our Ubuntu distribution to keep software up to date. Using these tools, the software is properly installed, dependencies resolved, and the software properly configured. We will be updating our repositories, backing up our old sources.list, and adding the google-chrome-stable repository and public key to apt. From here, we can easily keep our google-chrome updated to a current version.

## Summary of results

First and foremost, before making any changes, we're going to follow good practices and make a backup of our /etc/apt/sources.list, then read it as it is

```

jdizzle@jdizzle-vbuntu:~$ sudo cp /etc/apt/sources.list /etc/apt/sources.list.backup
[sudo] password for jdizzle:
jdizzle@jdizzle-vbuntu:~$ cat /etc/apt/sources.list
#deb cdrom:[Ubuntu 22.04.3 LTS _Jammy Jellyfish_ - Release amd64 (20230807.2)]/ jammy main restricted

# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
# newer versions of the distribution.
deb http://us.archive.ubuntu.com/ubuntu/ jammy main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy main restricted

## Major bug fix updates produced after the final release of the
## distribution.
deb http://us.archive.ubuntu.com/ubuntu/ jammy-updates main restricted
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy-updates main restricted

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team. Also, please note that software in universe WILL NOT receive any
## review or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ jammy universe
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy universe
deb http://us.archive.ubuntu.com/ubuntu/ jammy-updates universe
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy-updates universe

## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
## team, and may not be under a free licence. Please satisfy yourself as to
## your rights to use the software. Also, please note that software in
## multiverse WILL NOT receive any review or updates from the Ubuntu
## security team.
deb http://us.archive.ubuntu.com/ubuntu/ jammy multiverse
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy multiverse
deb http://us.archive.ubuntu.com/ubuntu/ jammy-updates multiverse
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy-updates multiverse

## N.B. software from this repository may not have been tested as
## extensively as that contained in the main release, although it includes
## newer versions of some applications which may provide useful features.
## Also, please note that software in backports WILL NOT receive any review
## or updates from the Ubuntu security team.
deb http://us.archive.ubuntu.com/ubuntu/ jammy-backports main restricted universe multiverse
# deb-src http://us.archive.ubuntu.com/ubuntu/ jammy-backports main restricted universe multiverse

deb http://security.ubuntu.com/ubuntu jammy-security main restricted
# deb-src http://security.ubuntu.com/ubuntu jammy-security main restricted
deb http://security.ubuntu.com/ubuntu jammy-security universe
# deb-src http://security.ubuntu.com/ubuntu jammy-security universe
deb http://security.ubuntu.com/ubuntu jammy-security multiverse
# deb-src http://security.ubuntu.com/ubuntu jammy-security multiverse

# This system was installed using small removable media
# (e.g. netinst, live or single CD). The matching "deb cdrom"
# entries were disabled at the end of the installation process.
# For information about how to configure apt package sources,
# see the manual.

```

By default, we can see the lines uncommented that specify that we are indeed drawing from main, universe, restricted, and multiverse

Our particular release is called jammy, and this gives, we can see that jammy is indeed specified throughout our /etc/apt/sources.list

```

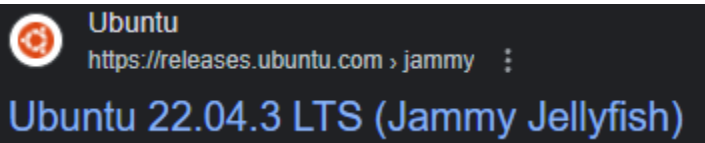
jdizzle@jdizzle-vbuntu:~$ lsb_release -sc
jammy

```

Too, we can see this through the GUI, using the about page

OS Name

Ubuntu 22.04.3 LTS



We can see that the information provided does indeed check out, we are running ubuntu 22.04.4 LTS, which, as with every major release of Ubuntu, is given a name “Jammy Jellyfish”

Now, moving on to the fun stuff, we run an update first, this will query all the repositories configured and update the records that our distribution keeps as to what software is currently available.

```
jdizzle@jdizzle-vbuntu:~$ sudo apt-get update
Hit:1 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metadata [101 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11 Metadata [289 kB]
Get:7 http://us.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:8 http://us.archive.ubuntu.com/ubuntu jammy-backports/main amd64 DEP-11 Metadata [4,904 B]
Get:9 http://us.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-11 Metadata [17.9 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metadata [43.0 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 Metadata [40.1 kB]
Fetched 834 kB in 2s (431 kB/s)
Reading package lists... Done
jdizzle@jdizzle-vbuntu:~$
```

As we want to install Google Chrome, and allow Ubuntu to continue to provide us updates for this piece of software, we undertake adding the public key to those allowed, and adding the repository to our sources, we follow [https://www.ubuntuupdates.org/ppa/google\\_chrome](https://www.ubuntuupdates.org/ppa/google_chrome) as it is currently maintained and changes might have happened since the publishing of the homework.

```
jdizzle@jdizzle-vbuntu:~$ wget -q -O - https://dl-ssl.google.com/linux/linux_signing_key.pub | sudo apt-key add -
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
jdizzle@jdizzle-vbuntu:~$ sudo sh -c 'echo "deb [arch=amd64] http://dl.google.com/linux/chrome/deb/ stable main" >> /etc/apt/sources.list.d/google.list'
jdizzle@jdizzle-vbuntu:~$ sudo apt-get update
Get:1 http://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Hit:2 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Get:6 http://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,079 B]
Fetched 2,904 B in 1s (2,838 B/s)
Reading package lists... Done
W: http://dl.google.com/linux/chrome/deb/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details.
```

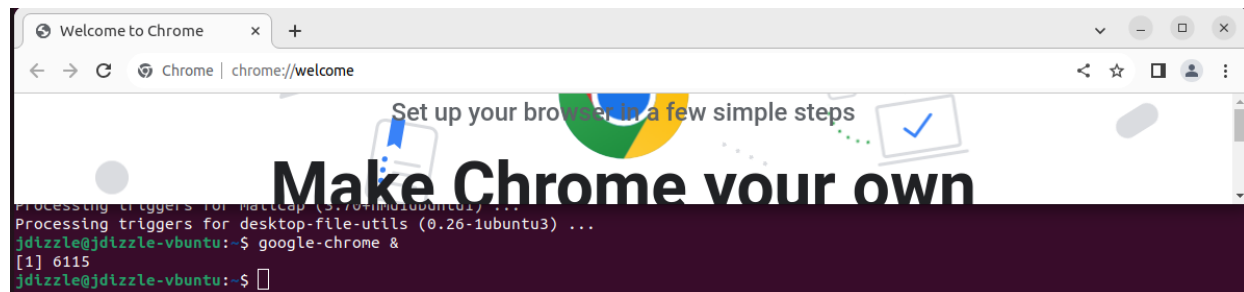
Here we have undertaken several steps, firstly, we pull the public key for the repository and add that to those that are trusted by apt. Secondly, we add the actual repository to our sources.list. Lastly, we run an update, this will query all sources that are listed and provide apt with a more current listing. This includes the most recently added repository, and while we can see we get an error because of how we added the public key, this is permissible.

Now we undertake installing google-chrome-stable

```
jdizzle@jdizzle-vbuntu:~$ sudo apt-get install google-chrome-stable
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  google-chrome-stable
0 upgraded, 1 newly installed, 0 to remove and 4 not upgraded.
Need to get 103 MB of archives.
After this operation, 333 MB of additional disk space will be used.
Get:1 http://dl.google.com/linux/chrome/deb stable/main amd64 google-chrome-stable amd64 117.0.5938.88-1 [103 MB]
Fetched 103 MB in 3s (30.8 MB/s)
Selecting previously unselected package google-chrome-stable.
(Reading database ... 202766 files and directories currently installed.)
Preparing to unpack .../google-chrome-stable_117.0.5938.88-1_amd64.deb ...
Unpacking google-chrome-stable (117.0.5938.88-1) ...
Setting up google-chrome-stable (117.0.5938.88-1) ...
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/x-www-browser (x-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/gnome-www-browser (gnome-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/google-chrome (google-chrome) in auto mode
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Show Applications for desktop-file-utils (0.26-1ubuntu3) ...
```

We can see that apt undertook several steps on our behalf, mainly, it has checked that all dependencies are satisfied, and it has updated the system so that when we click on a link or open a browser, google-chrome-stable will now be our preferred browser.

We now open google-chrome-stable in the background (&), and, everything having worked how it should, we're presented with a nice clean and well maintained version of google-chrome to work with.



Lastly, we dump the contents of /etc/apt/sources.list.d/google.list and find

```
jdizzle@jdizzle-vbuntu:~$ cat /etc/apt/sources.list.d/google.list
deb [arch=amd64] http://dl.google.com/linux/chrome/deb/ stable main
[1]+  Done                  google-chrome
jdizzle@jdizzle-vbuntu:~$
```

That the repository is now included in our sources. In future, when updates are pushed out and the repository updated, when we run apt-get update, we will be notified of these updates being available, and offered the opportunity to update them to more current versions.

## Conclusion

We now have an up to date and working version of google-chrome-stable installed. We have added the repository to those that will be queried, so that future versions will be made readily available to us to upgrade to. In future, we can rely on the workings of apt and deb to keep this

package constantly updated, and in doing so, be kept constantly informed of new versions and changes in dependencies.