

COMPILACIÓN DEL KERNEL DE LINUX

Para efectos de este trabajo se utilizó Ubuntu 20.04

- Como primer paso se procede a identificar la versión actual del Kernel, haciendo uso de los comandos ***uname -a*** o ***uname -r***

```
juan@juan-VirtualBox:~$ uname -a
Linux juan-VirtualBox 5.13.0-39-generic #44~20.04.1-Ubuntu SMP Thu Mar 24 16:43:35 UTC 2022 x86_64 x86_64 x
86_64 GNU/Linux
juan@juan-VirtualBox:~$
```

- Posteriormente se ejecuta el comando ***sudo add-apt-repository*** ***ppa:cappelikan/ppa***, este comando nos ayuda a agregar la herramienta que cuenta con el repositorio de los kernel de Gnu/Linux y a la vez se usa el comando ***sudo apt update*** para actualizar la herramienta en cuestión

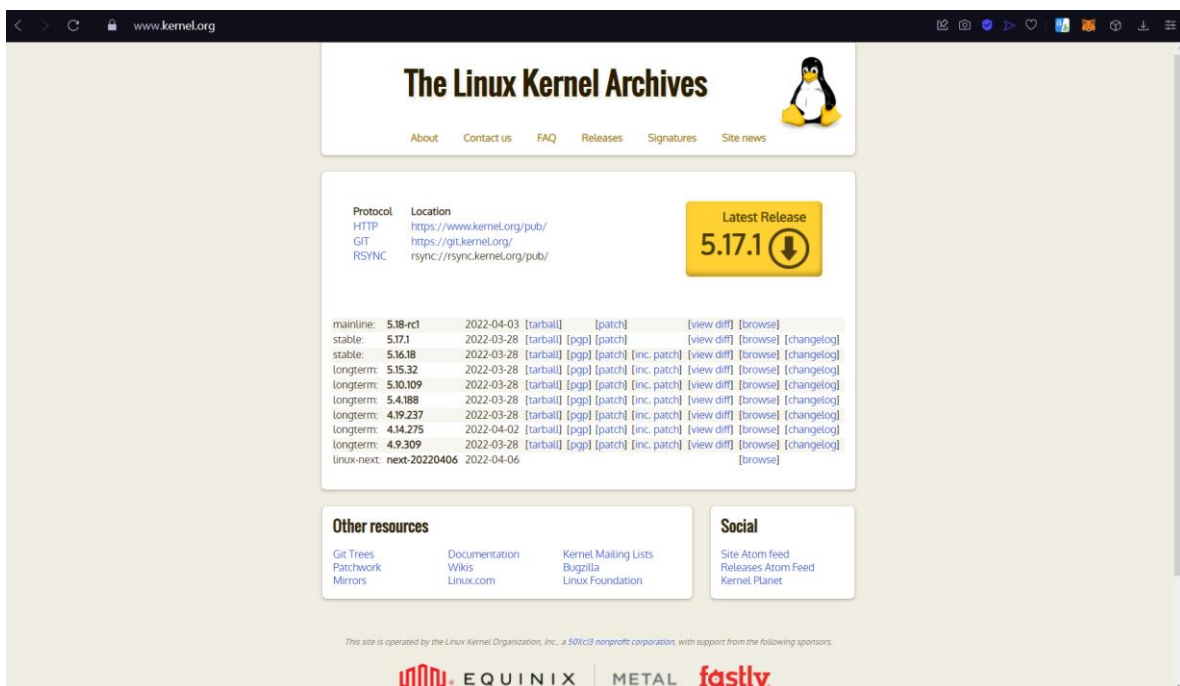
```
juan@juan-VirtualBox:~$ sudo add-apt-repository ppa:cappelikan/ppa
[sudo] password for juan:
Sorry, try again.
[sudo] password for juan:
Mainline Ubuntu Kernel Installer https://github.com/bkw777/mainline
More info: https://launchpad.net/~cappelikan/+archive/ubuntu/ppa
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:2 http://co.archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://co.archive.ubuntu.com/ubuntu focal-updates InRelease
Get:4 http://ppa.launchpad.net/cappelikan/ppa/ubuntu focal InRelease [18,1 kB]
Hit:5 http://co.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:6 http://ppa.launchpad.net/cappelikan/ppa/ubuntu focal/main amd64 Packages [580 B]
Get:7 http://ppa.launchpad.net/cappelikan/ppa/ubuntu focal/main Translation-en [316 B]
Fetched 18,9 kB in 3s (7.388 B/s)
Reading package lists... Done
juan@juan-VirtualBox:~$ sudo apt update
Hit:1 http://co.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:3 http://co.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://co.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://ppa.launchpad.net/cappelikan/ppa/ubuntu focal InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
108 packages can be upgraded. Run 'apt list --upgradable' to see them.
juan@juan-VirtualBox:~$
```

- Y por último se procede a instalar el mainline con el comando `sudo apt install mainline`

```
[33,1 kB]
Des:12 http://co.archive.ubuntu.com/ubuntu focal/main amd64 libcgi-fast-perl all 1:2.15-1 [10,5 kB]
Des:13 http://co.archive.ubuntu.com/ubuntu focal/main amd64 libsub-name-perl amd64 0.26-1 [11,5 kB]
Des:14 http://co.archive.ubuntu.com/ubuntu focal/universe amd64 libclass-accessor-perl all 0.51-1 [21,2 kB]
Des:15 http://co.archive.ubuntu.com/ubuntu focal/main amd64 libio-string-perl all 1.08-3 [11,1 kB]
Des:16 http://co.archive.ubuntu.com/ubuntu focal/universe amd64 libparse-debianchange-log-perl all 1.2.0-13 [49,7 kB]
Descargados 6.028 kB en 17s (346 kB/s)
Seleccionando el paquete aptitude-common previamente no seleccionado.
(Leyendo la base de datos ... 183061 ficheros o directorios instalados actualmente.)
Preparando para desempaquetar .../00-aptitude-common_0.8.12-1ubuntu4_all.deb ...
Desempaquetando aptitude-common (0.8.12-1ubuntu4) ...
Seleccionando el paquete libcwidget4:amd64 previamente no seleccionado.
Preparando para desempaquetar .../01-libcwidget4_0.5.18-5build1_amd64.deb ...
Desempaquetando libcwidget4:amd64 (0.5.18-5build1) ...
Seleccionando el paquete libxapian30:amd64 previamente no seleccionado.
Preparando para desempaquetar .../02-libxapian30_1.4.14-2_amd64.deb ...
Desempaquetando libxapian30:amd64 (1.4.14-2) ...
Seleccionando el paquete aptitude previamente no seleccionado.
Preparando para desempaquetar .../03-aptitude_0.8.12-1ubuntu4_amd64.deb ...
Desempaquetando aptitude (0.8.12-1ubuntu4) ...
Seleccionando el paquete libc-ares2:amd64 previamente no seleccionado.
```

- Antes de dirigirnos a la herramienta que acabamos de instalar es importante consultar en la página <https://www.kernel.org>, cual es la versión de Kernel más estable en la actualidad, en este caso se puede ver que es la versión 5.17.1.



The Linux Kernel Archives

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Protocol Location

Protocol	Location
HTTP	https://www.kernel.org/pub/
GIT	https://git.kernel.org/
RSYNC	rsync://rsync.kernel.org/pub/

Latest Release

5.17.1

Version	Date	tarball	patch	view diff	browse
mainline: 5.18-rc1	2022-04-03	[tarball]	[patch]	[view diff]	[browse]
stable: 5.17.1	2022-03-28	[tarball]	[pgp]	[view diff]	[browse] [changelog]
stable: 5.16.18	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 5.15.32	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 5.10.109	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 5.4.188	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 4.19.237	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 4.14.275	2022-04-02	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
longterm: 4.9.309	2022-03-28	[tarball]	[pgp] [patch] [inc. patch]	[view diff]	[browse] [changelog]
linux-next: next-20220406	2022-04-06				[browse]

Other resources

Git Trees	Documentation	Kernel Mailing Lists
Patchwork	Wikis	Bugzilla
Mirrors	Linux.com	Linux Foundation

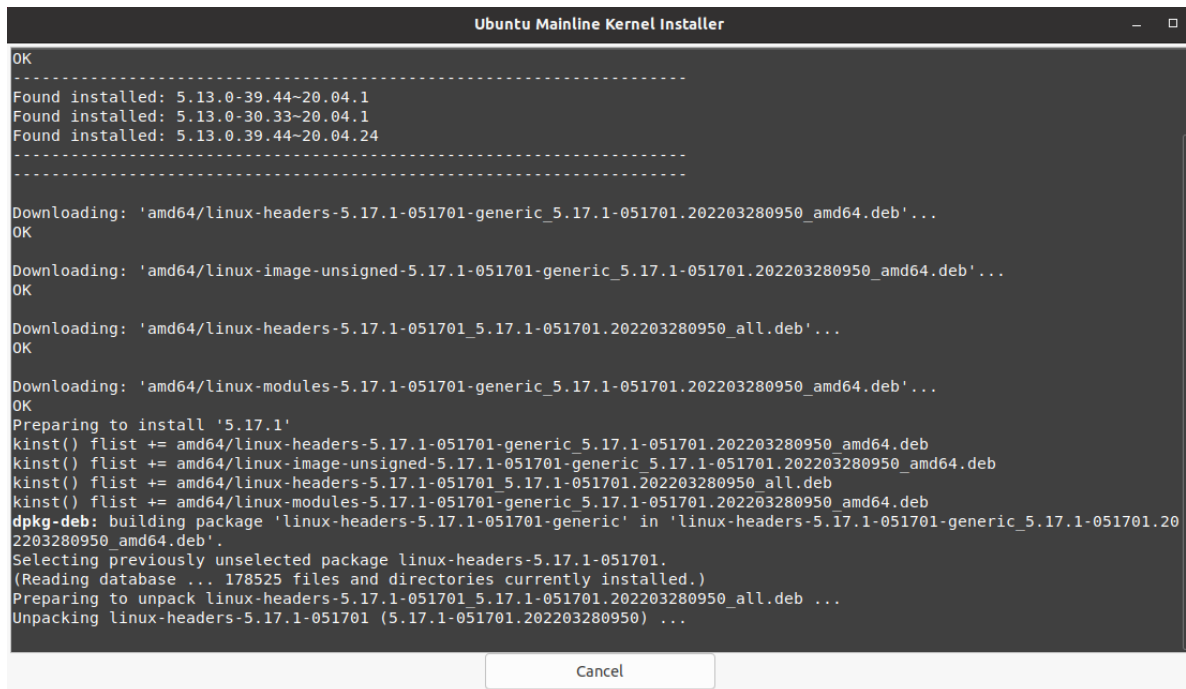
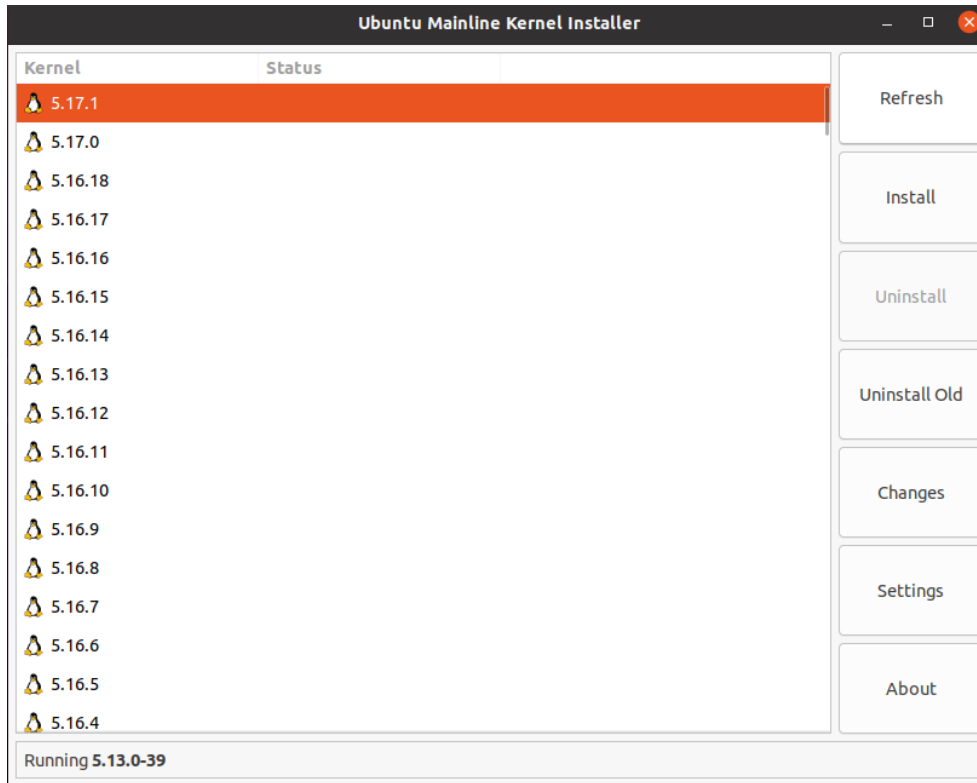
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EQUINIX METAL fastly

- Ahora se abre la herramienta instalada y buscamos la versión de Kernel que consultamos anteriormente la cual es 5.17.1 y se instala



- Es necesario reiniciar el sistema para que el nuevo Kernel compilado e instalado pueda empezar a funcionar

```
Ubuntu Mainline Kernel Installer

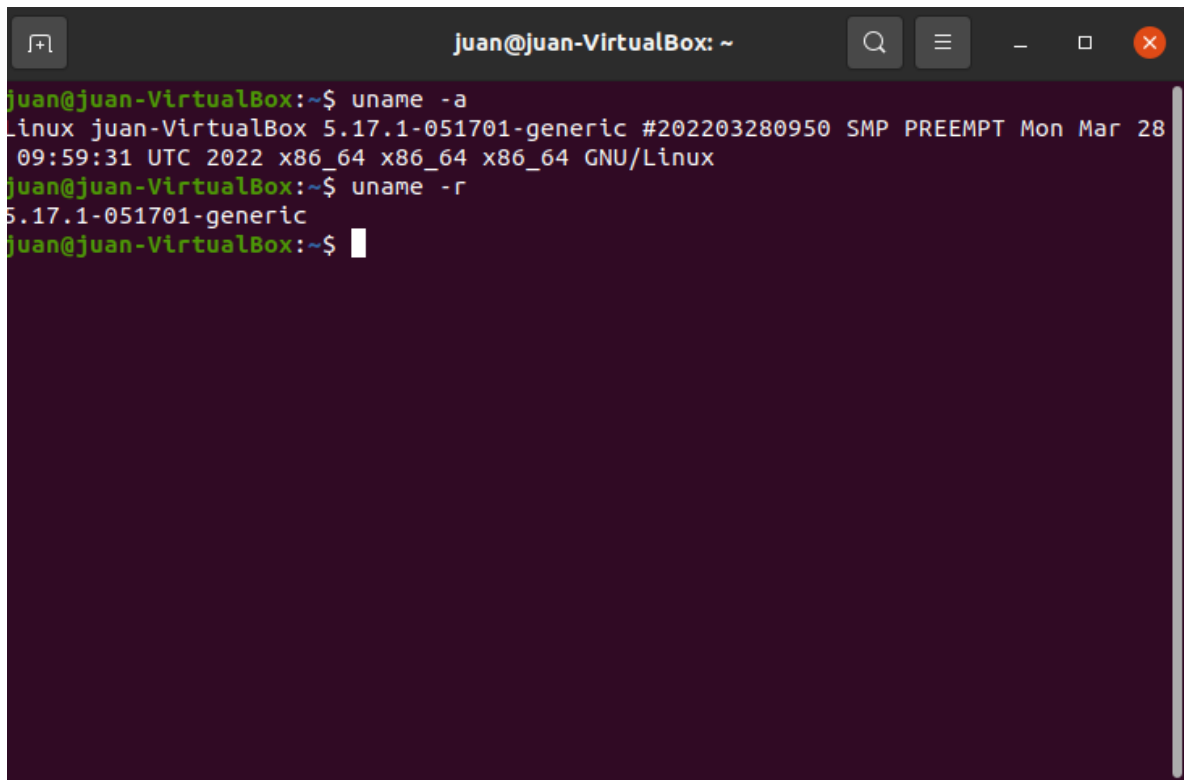
dpkg: error processing package linux-headers-5.17.1-051701-generic (--install):
 dependency problems - leaving unconfigured
Setting up linux-image-unsigned-5.17.1-051701-generic (5.17.1-051701.202203280950) ...
I: /boot/vmlinuz.old is now a symlink to vmlinuz-5.13.0-39-generic
I: /boot/initrd.img.old is now a symlink to initrd.img-5.13.0-39-generic
I: /boot/vmlinuz is now a symlink to vmlinuz-5.17.1-051701-generic
I: /boot/initrd.img is now a symlink to initrd.img-5.17.1-051701-generic
Setting up linux-modules-5.17.1-051701-generic (5.17.1-051701.202203280950) ...
Processing triggers for linux-image-unsigned-5.17.1-051701-generic (5.17.1-051701.202203280950) ...
/etc/kernel/postinst.d/initramfs-tools:
update-initramfs: Generating /boot/initrd.img-5.17.1-051701-generic
/etc/kernel/postinst.d/zz-update-grub:
Sourcing file '/etc/default/grub'
Sourcing file '/etc/default/grub.d/init-select.cfg'
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-5.17.1-051701-generic
Found initrd image: /boot/initrd.img-5.17.1-051701-generic
Found linux image: /boot/vmlinuz-5.13.0-39-generic
Found initrd image: /boot/initrd.img-5.13.0-39-generic
Found linux image: /boot/vmlinuz-5.13.0-30-generic
Found initrd image: /boot/initrd.img-5.13.0-30-generic
Found memtest86+ image: /boot/memtest86+.elf
Found memtest86+ image: /boot/memtest86+.bin
done
Errors were encountered while processing:
 linux-headers-5.17.1-051701-generic
Installation completed. A reboot is required to use the new kernel.

Close window to exit...

Close
```

```
juan@juan-VirtualBox: ~
juan@juan-VirtualBox:~$ init 6
```

- Por último, se verifica que la versión del Kernel ha sido instalada correctamente con los comandos ***uname -a*** y ***uname -r***

A terminal window titled 'juan@juan-VirtualBox: ~' with standard window controls. The terminal shows the execution of 'uname -a' and 'uname -r'. The output of 'uname -a' is 'Linux juan-VirtualBox 5.17.1-051701-generic #202203280950 SMP PREEMPT Mon Mar 28 09:59:31 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux'. The output of 'uname -r' is '5.17.1-051701-generic'.

```
juan@juan-VirtualBox:~$ uname -a
Linux juan-VirtualBox 5.17.1-051701-generic #202203280950 SMP PREEMPT Mon Mar 28
09:59:31 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
juan@juan-VirtualBox:~$ uname -r
5.17.1-051701-generic
juan@juan-VirtualBox:~$
```