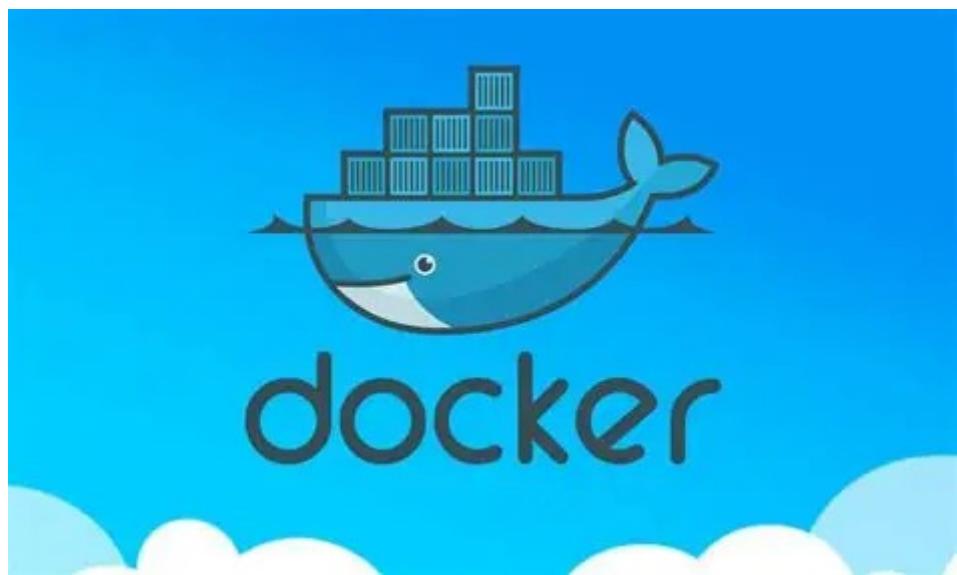EVELYN ARCENTALES
07 DE OCTUBRE DEL 2025

INSTALACIÓN DE DOCKER

1 Paso.

Comandos utilizados para actualizar el sistema
sudo apt update && sudo apt upgrate -y

```
alumno05@A6Alumno05:~$ sudo apt update && sudo apt upgrade -y
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1207 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [202 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [8748 B]
Get:8 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [882 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [196 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [18.1 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1952 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [443 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:15 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [5844 B]
Get:16 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1486 kB]
Get:19 https://download.docker.com/linux/ubuntu noble InRelease [48.8 kB]
Get:20 https://download.docker.com/linux/ubuntu noble/stable amd64 Packages [32.1 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [286 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [15.3 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1487 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [300 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Calculating upgrade... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following packages will be upgraded:
  cloud-init libssl3t64 openssl
3 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
2 standard LTS security updates
Need to get 3568 kB of archives.
After this operation, 73.7 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libssl3t64 amd64 3.0.13-0ubuntu3.6 [194
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssl amd64 3.0.13-0ubuntu3.6 [1003 k
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 cloud-init all 25.2-0ubuntu1~24.04.1 [6
Fetched 3568 kB in 0s (10.8 MB/s)
Preconfiguring packages ...
(Reading database ... 41658 files and directories currently installed.)
Preparing to unpack .../libssl3t64_3.0.13-0ubuntu3.6_amd64.deb ...
Unpacking libssl3t64:amd64 (3.0.13-0ubuntu3.6) over (3.0.13-0ubuntu3.5) ...
Setting up libssl3t64:amd64 (3.0.13-0ubuntu3.6) ...
(Reading database ... 41658 files and directories currently installed.)
Preparing to unpack .../openssl_3.0.13-0ubuntu3.6_amd64.deb ...
Unpacking openssl (3.0.13-0ubuntu3.6) over (3.0.13-0ubuntu3.5) ...
Preparing to unpack .../cloud-init_25.2-0ubuntu1~24.04.1_all.deb ...
Unpacking cloud-init (25.2-0ubuntu1~24.04.1) over (25.1.4-0ubuntu0~24.04.1) ...
Setting up cloud-init (25.2-0ubuntu1~24.04.1) ...
Installing new version of config file /etc/cloud/templates/sources.list.debian.deb822.tmpl ...
Setting up openssl (3.0.13-0ubuntu3.6) ...
Processing triggers for rsyslog (8.2312.0-3ubuntu9.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
```

.

2. INSTALACIÓN DE DOCKER

```
update-alternatives: using /usr/sbin/iptables-legacy to provide /usr/sbin/iptables (iptables) in auto
 mode
update-alternatives: using /usr/sbin/ip6tables-legacy to provide /usr/sbin/ip6tables (ip6tables) in a
uto mode
update-alternatives: using /usr/sbin/iptables-nft to provide /usr/sbin/iptables (iptables) in auto mo
de
update-alternatives: using /usr/sbin/ip6tables-nft to provide /usr/sbin/ip6tables (ip6tables) in auto
 mode
update-alternatives: using /usr/sbin/arptables-nft to provide /usr/sbin/arptables (arptables) in auto
 mode
update-alternatives: using /usr/sbin/ebtables-nft to provide /usr/sbin/ebtables (ebtables) in auto mo
de
Setting up docker-ce (5:28.5.0-1~ubuntu.24.04~noble) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/
docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/dock
er.socket.
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
alumno05@A6Alumno05:~$ |
alumno05@A6Alumno05:~$ sudo apt install apt-transport-https ca-certificates curl software-properties-
common -y
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/d
ocker.gpg
echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker.gpg] https://downlo
ad.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list
> /dev/null
sudo apt update
sudo apt install docker-ce docker-ce-cli containerd.io -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20240203).
curl is already the newest version (8.5.0-2ubuntu10.6).
software-properties-common is already the newest version (0.99.49.3).
software-properties-common set to manually installed.
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 3970 B of archives.
After this operation, 36.9 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 apt-transport-https all 2.8.3 [39
70 B]
```
.

3. INSTALACIÓN DE PLUGINS
Con la siguiente opción se instala dos complementos de plugins oficiales de Docker
sudo apt install docker-buildx-plugin : esta opción permite funcionalidades avanzadas para
construir imágenes
docker-compose-plugin -y: con esta opción levanta múltiples contenedores a la vez.

```
alumno05@A6Alumno05:~$ sudo apt install docker-buildx-plugin docker-compose-plugin -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
docker-buildx-plugin is already the newest version (0.29.1-1~ubuntu.24.04~noble).
docker-buildx-plugin set to manually installed.
docker-compose-plugin is already the newest version (2.40.0-1~ubuntu.24.04~noble).
docker-compose-plugin set to manually installed.
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

4. DESCARGAS DE IMÁGENES DE UBUNTU

Con esta opción nos permite descargar una imagen de ubuntu desde el repositorio oficial de Docker Hub hacia la maquina local.

sudo docker pull ubuntu

```
alumno05@A6Alumno05:~$ sudo docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
a1a21c96bc16: Pull complete
Digest: sha256:728785b59223d755e3e5c5af178fab1be7031f3522c5ccd7a0b32b80d8248123
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
alumno05@A6Alumno05:~$
```

5. ESTADOS DEL SERVICIO DE DOCKER

Con esta opción demuestra si docker esta activo, detenido o fallando junto con detalles del proceso
sudo systemctl status docker

```
alumno05@A6Alumno05:~$ sudo  systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-10-07 08:58:09 CEST; 14min ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 2240 (dockerd)
      Tasks: 18
     Memory: 129.2M (peak: 159.6M)
        CPU: 2.445s
     CGroup: /system.slice/docker.service
             └─2240 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Oct 07 08:58:08 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:08.731454355+02:00" level=info msg=>
Oct 07 08:58:08 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:08.738803621+02:00" level=info msg=>
Oct 07 08:58:08 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:08.837252384+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.029208181+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.834789351+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.835374372+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.862402141+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.866008205+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 dockerd[2240]: time="2025-10-07T08:58:09.866069539+02:00" level=info msg=>
Oct 07 08:58:09 A6Alumno05 systemd[1]: Started docker.service - Docker Application Container Engine.
lines 1-22/22 (END)
```

comprobación de que funciona docker

```
alumno05@A6Alumno05:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
17eec7bbc9d7: Pull complete
Digest: sha256:54e66cc1dd1fcb1c3c58bd8017914dbed8701e2d8c74d9262e26bd9cc1642d31
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/
```

6. INFORMACIÓN DE DOCKER .

Actualmente me indica que el usuario no tiene permisos para comunicarse con el servicio de docker, por seguridad solo el usuario root o los usuarios del grupo

 docker info

```
alumno05@A6Alumno05:~$ docker info
Client: Docker Engine - Community
 Version:    28.5.0
 Context:    default
 Debug Mode: false
 Plugins:
  buildx: Docker Buildx (Docker Inc.)
    Version:  v0.29.1
    Path:     /usr/libexec/docker/cli-plugins/docker-buildx
  compose: Docker Compose (Docker Inc.)
    Version:  v2.40.0
    Path:     /usr/libexec/docker/cli-plugins/docker-compose

 Server:
 permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock:
  Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.51/info": dial unix /var/run/docker.sock: connect: permiss
 ion denied
alumno05@A6Alumno05:~$
```

para habilitar

sudo docker info

```
alumno05@A6Alumno05:~$ sudo docker info
Client: Docker Engine - Community
Version:    28.5.0
Context:    default
Debug Mode: false
Plugins:
 buildx: Docker Buildx (Docker Inc.)
    Version:  v0.29.1
    Path:     /usr/libexec/docker/cli-plugins/docker-buildx
 compose: Docker Compose (Docker Inc.)
    Version:  v2.40.0
    Path:     /usr/libexec/docker/cli-plugins/docker-compose

Server:
Containers: 1
 Running: 0
 Paused: 0
 Stopped: 1
Images: 2
Server Version: 28.5.0
Storage Driver: overlay2
 Backing Filesystem: extfs
 Supports d_type: true
 Using metacopy: false
 Native Overlay Diff: true
 userxattr: false
Logging Driver: json-file
Cgroup Driver: systemd
Cgroup Version: 2
Plugins:
 Volume: local
```

.

7. VERIFICACIÓN DE TODOS LOS CONTENEDORES

sudo docker ps -a

```
alumno05@A6Alumno05:~$ sudo docker ps -a
CONTAINER ID   IMAGE         COMMAND     CREATED         STATUS                  PORTS      NAMES
abff3c7b8c84   hello-world   "/hello"    8 minutes ago   Exited (0) 8 minutes ago            xenodoch
ial_kare
alumno05@A6Alumno05:~$
```

8. PARA EJECUTARLO

sudo docker run -it ubuntu/bin/bash

```
alumno05@A6Alumno05:~$ sudo docker run -it ubuntu /bin/bash
root@2aed8d51bd5c:/#
```

.

8. INSTALAR APACHE2

```
root@15c3790e7d33:/# apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adduser apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1t64
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 libbrotli1 libcurl4t64 libexpat1
  libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74 libjansson4 libk5crypto3 libkeyutils1
  libkrb5-3 libkrb5support0 libldap-common libldap2 liblua5.4-0 libnghttp2-14 libperl5.38t64
  libpsl5t64 librtmp1 libsasl2-2 libsasl2-modules libsasl2-modules-db libsqlite3-0 libssh-4
  libssl3t64 libxml2 media-types netbase openssl perl perl-modules-5.38 publicsuffix ssl-cert
Suggested packages:
  liblocale-gettext-perl cron quota ecryptfs-utils apache2-doc apache2-suexec-pristine
  | apache2-suexec-custom www-browser ufw gdbm-l10n krb5-doc krb5-user libsasl2-modules-gssapi-mit
  | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap libsasl2-modules-otp libsasl2-modules-sql
  perl-doc libterm-readline-gnu-perl | libterm-readline-perl-perl make libtap-harness-archive-perl
The following NEW packages will be installed:
  adduser apache2 apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1t64
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 libbrotli1 libcurl4t64 libexpat1
  libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74 libjansson4 libk5crypto3 libkeyutils1
  libkrb5-3 libkrb5support0 libldap-common libldap2 liblua5.4-0 libnghttp2-14 libperl5.38t64
  libpsl5t64 librtmp1 libsasl2-2 libsasl2-modules libsasl2-modules-db libsqlite3-0 libssh-4 libxml2
  media-types netbase openssl perl perl-modules-5.38 publicsuffix ssl-cert
The following packages will be upgraded:
  libssl3t64
```

.

9. INSTALAR PHP

apt install php libapache2-mod-php -y

```
root@15c3799e7d33:/# apt install php libapache2-mod-php -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php8.3 libargon2-1 libbsd0 libedit2 libsodium23 php-common php8.3 php8.3-cli
  php8.3-common php8.3-opcache php8.3-readline psmisc tzdata ucf
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.3 libargon2-1 libbsd0 libedit2 libsodium23 php php-common
  php8.3 php8.3-cli php8.3-common php8.3-opcache php8.3-readline psmisc tzdata ucf
0 upgraded, 16 newly installed, 0 to remove and 0 not upgraded.
Need to get 5755 kB of archives.
After this operation, 25.5 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 libargon2-1 amd64 0-20190702+dfsg-4build1 [20.8 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libbsd0 amd64 0.12.1-1build1.1 [41.2 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 tzdata all 2025b-0ubuntu0.24.04.1 [276 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 ucf all 3.0043+nmu1 [56.5 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 libedit2 amd64 3.1-20230828-1build1 [97.6 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/main amd64 psmisc amd64 23.7-1build1 [179 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:93ubuntu2 [13.9 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.5 [740 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.5 [371 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.5 [13.5 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/main amd64 libsodium23 amd64 1.0.18-1build3 [161 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.5 [1915 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.5 [1851 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble/main amd64 libapache2-mod-php all 2:8.3+93ubuntu2 [4224 B]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3 all 8.3.6-0ubuntu0.24.04.5 [9174 B]
Get:16 http://archive.ubuntu.com/ubuntu noble/main amd64 php all 2:8.3+93ubuntu2 [4076 B]
Fetched 5755 kB in 1s (8617 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libargon2-1:amd64.
(Reading database ... 7852 files and directories currently installed.)
Preparing to unpack .../00-libargon2-1_0-20190702+dfsg-4build1_amd64.deb ...
Unpacking libargon2-1:amd64 (0-20190702+dfsg-4build1) ...
Selecting previously unselected package libbsd0:amd64.
Preparing to unpack .../01-libbsd0_0.12.1-1build1.1_amd64.deb ...
Unpacking libbsd0:amd64 (0.12.1-1build1.1) ...
Selecting previously unselected package tzdata.
Preparing to unpack .../02-tzdata_2025b-0ubuntu0.24.04.1_all.deb ...
Unpacking tzdata (2025b-0ubuntu0.24.04.1) ...
Selecting previously unselected package ucf.
Preparing to unpack .../03-ucf_3.0043+nmu1_all.deb ...
Moving old data out of the way
Unpacking ucf (3.0043+nmu1) ...
```

10. INICIAR APACKE Y VERIFICAR ESTADO APACHE

service apache2 start

```
root@0a63d57c51fb:/# service apache2 start
 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain nam
e, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message
   *
```
.
```
root@0a63d57c51fb:/# service apache2 status
 * apache2 is running
```

11. CREAR PHP info

```
root@0a63d57c51fb:/# echo "<?php phpinfo(); ?>" | tee /var/www/html/info.php
<?php phpinfo(); ?>
```

12. VERIFICAR NAVEGADOR

```
root@0a63d57c51fb:/# curl http://localhost/info.php
```

<center>**COMANDOS NGINX + HTML**</center>

1. Instalar Nginx

apt install nginx -y

2. PARAR APACHE

```
root@0a63d57c51fb:/# service nginx start
 * Starting nginx nginx                                              [fail]
root@0a63d57c51fb:/# service apache2 stop
 * Stopping Apache httpd web server apache2
 *
```

3. INICIAR NGINX

```
root@0a63d57c51fb:/# service nginx start
 * Starting nginx nginx                                              [ OK ]  |
root@0a63d57c51fb:/#
```

4. CREAR ARCHIVOS HTML

```
root@0a63d57c51fb:/# echo "<h1>hola Evelyn desde Nginx</h1><p>Servidor funcionando
rectamente</p>" | tee /var/www/html/index.html
<h1>hola Evelyn desde Nginx</h1><p>Servidor funcionando correctamente</p>
root@0a63d57c51fb:/# |
```
.

5 VER IP DESDE DOCKER

```
root@0a63d57c51fb:/# ip addr show eth0 | grep inet
    inet 172.17.0.2/16 brd 172.17.255.255 scope global eth0             |
root@0a63d57c51fb:/#
```
.

NOTA : para acceder a un contenedor de docker

1. docker ps -a
2. sudo docker exec -it (el id que da el anterior paso) /bin/bash
 para instalar hay que hacer apt update