

TRABAJO PRACTICO FINAL

BLOG PERSONAL



DIAZ CARLOS ALBERTO

Comisión: 5K3

Legajo: 33463

Año: 2023

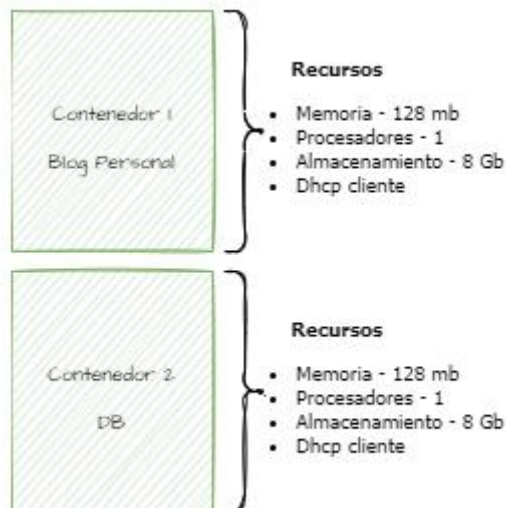
Caso de Estudio: Blog Personal

El alumno deberá implementar un servicio de Blog Personal, el cual deberá incluir las siguientes especificaciones:

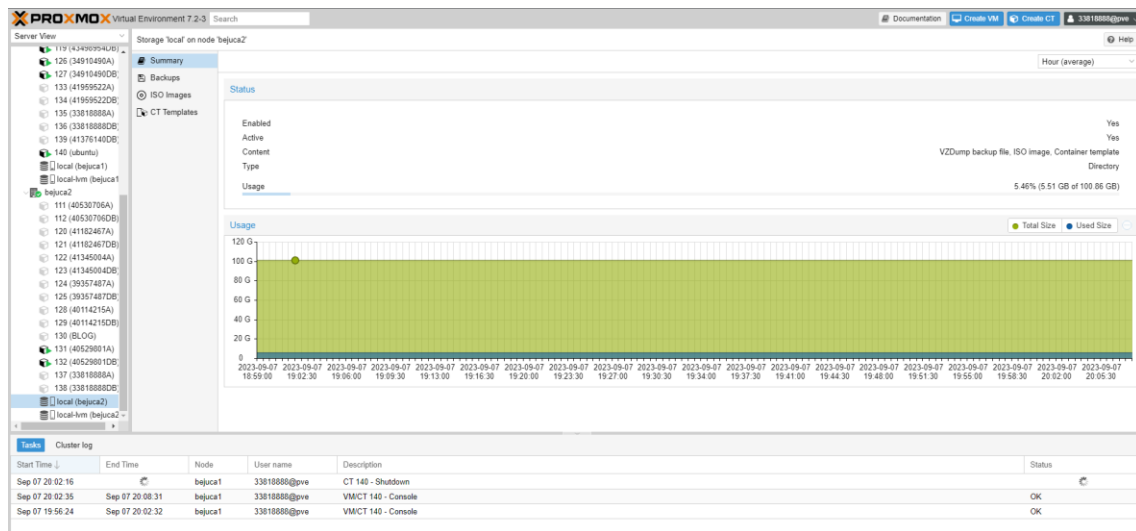
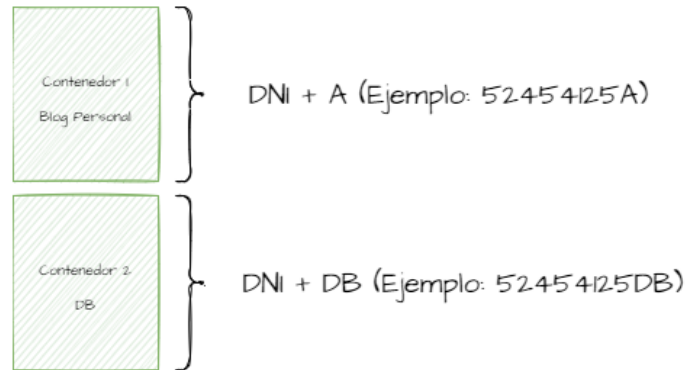
1. Datos Personales
2. Imagen personal del alumno
3. Informe del desarrollo e implementación del TPF disponible en formato PDF

Deberá implementar lo solicitado sobre la siguiente infraestructura:

La topología que se utiliza está representada en el gráfico adjunto. La misma consta de un acceso vía internet a través de la dirección <https://319e02b588a6.sn.mynetname.net:9991/>
El alumno deberá cumplimentar las siguientes especificaciones.



Para colocar el nombre a los contenedores, el alumno deberá utilizar las siguientes especificaciones:



Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

Node: bejuca2 Resource Pool: [dropdown]

CT ID: 137 Password: [password field]

Hostname: 33818888A Confirm password: [password field]

Unprivileged container: ☒ SSH public key: [text field]

Nesting: ☒ [Load SSH Key File](#)

[Help](#) Advanced ☐ [Back](#) [Next](#)

Create: LXC Container

General **Template** Disks CPU Memory Network DNS Confirm

Storage: local

Template: ubuntu-20.04-standard_20.04-1_a

Help Advanced Back Next

Create: LXC Container

General Template **Disks** CPU Memory Network DNS Confirm

rootfs Storage: local-lvm

Disk size (GiB): 8

Add

Help Advanced Back Next

Create: LXC Container

General Template Disks **CPU** Memory Network DNS Confirm

Cores: 1

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU **Memory** Network DNS Confirm

Memory (MiB): 128

Swap (MiB): 128

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU Memory **Network** DNS Confirm

Name: eth0 IPv4: ☐ Static ☒ DHCP

MAC address: auto IPv4/CIDR:

Bridge: vmbri0 Gateway (IPv4):

VLAN Tag: no VLAN IPv6: ☐ Static ☒ DHCP ☐ SLAAC

Rate limit (MB/s): unlimited IPv6/CIDR:

Firewall: ☒ Gateway (IPv6):

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU Memory Network **DNS** Confirm

DNS domain: use host settings

DNS servers: use host settings

Advanced Back Next

Create: LXC Container

General
Template
Disks
CPU
Memory
Network
DNS
Confirm

Key ↑	Value
cores	1
features	nesting=1
hostname	33818888A
memory	128
net0	name=eth0, bridge=vbr0, firewall=1, ip6=dhcp, ip=dhcp
nodename	bejuca2
ostemplate	local.vztmpl/ubuntu-20.04-standard_20.04-1_amd64.tar.gz
pool	
rootfs	local-lvm 8
swap	128
unprivileged	1
vmid	137

☐ Start after created

Advanced ☐
Back
Finish

Task viewer: CT 137 - Create

Output
Status

Stop

```

Logical volume "vm-137-disk-0" created.
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: 407304a-9ee6-4eb6-8844-3d372aa32615
Superblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632
extracting archive /var/lib/vz/template/cache/ubuntu-20.04-standard_20.04-1_amd64.tar.gz
Total bytes read: 669050880 (639MiB, 35MiB/s)
Detected container architecture: amd64
Creating SSH host key 'ssh_host_rsa_key' - this may take some time ...
done: SHA256:Z5n9v5ytl7J/2F1C2EdUzQ44DDVUD6OnDcyeJ8Ixe0 root@33818888A
Creating SSH host key 'ssh_host_dsa_key' - this may take some time ...
done: SHA256:r1Q9D7P8EGmhfLDsRKW5COj0xY2vVpou8Q8l0m0TfA root@33818888A
Creating SSH host key 'ssh_host_ecdsa_key' - this may take some time ...
done: SHA256:LPJANv8W6q2l/n5UpctD3XqF3V4N+3TQA2dkAmpVobc root@33818888A
Creating SSH host key 'ssh_host_ed25519_key' - this may take some time ...
done: SHA256:s0UXENgTUnTJ7b4yr/3qnaQF3yG4/6KVVvD8YnIs root@33818888A
TASK OK

```

Contenedor B

Create: LXC Container

General
Template
Disks
CPU
Memory
Network
DNS
Confirm

Node: bejuca2

CT ID: 138

Hostname: 33818888DB

Unprivileged container: ☒

Nesting: ☒

Resource Pool:

Password:

Confirm password:

SSH public key:

Load SSH Key File

Help

Advanced ☐
Back
Next

Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

Storage: local

Template: ubuntu-20.04-standard_20.04-1_a

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

rootfs Storage: local-hvm

Disk size (GiB): 8

Add

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

Cores: 1

Help Advanced Back Next

Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

Memory (MiB): 128

Swap (MiB): 128

Help Advanced Back Next

UTN FRT – ISI / Cátedra de Virtualización

Create: LXC Container

General Template Disks CPU Memory **Network** DNS Confirm

Name: IPv4: ☐ Static ☒ DHCP

MAC address: IPv4/CIDR:

Bridge: Gateway (IPv4):

VLAN Tag: IPv6: ☐ Static ☒ DHCP ☐ SLAAC

Rate limit (MB/s): IPv6/CIDR:

Firewall: ☒ Gateway (IPv6):

[Help](#) Advanced ☐ [Back](#) [Next](#)

Create: LXC Container

General Template Disks CPU Memory Network **DNS** Confirm

DNS domain:

DNS servers:

Advanced ☐ [Back](#) [Next](#)

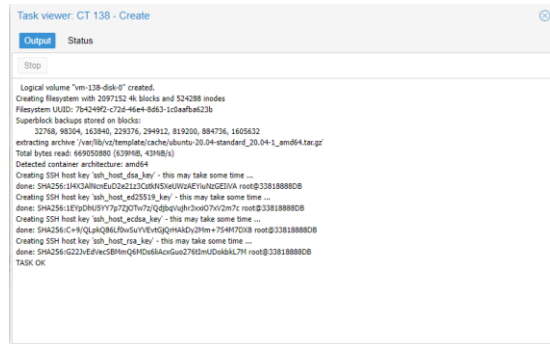
Create: LXC Container

General Template Disks CPU Memory Network DNS **Confirm**

Key ↑	Value
cores	1
features	nesting=1
hostname	33818888DB
memory	128
net0	name=eth0,bridge=vbr0,firewall=1,ip6=dhcp,ip=dhcp
nodename	bejuca2
ostemplate	local.vztmpl/ubuntu-20.04-standard_20.04-1_amd64.tar.gz
pool	
rootfs	local-lvm.8
swap	128
unprivileged	1
vmid	138

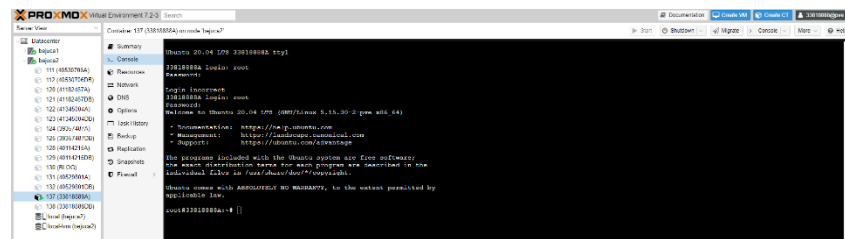
☐ Start after created

Advanced ☐ [Back](#) [Finish](#)

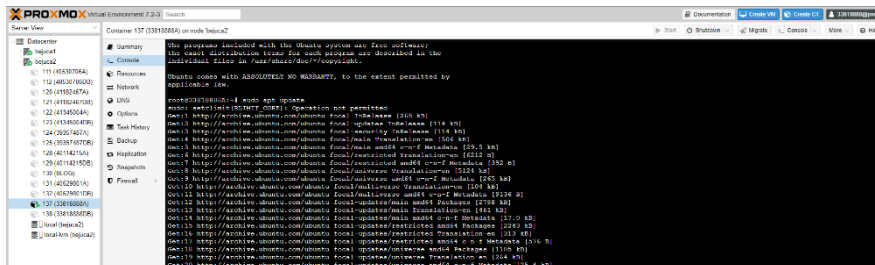


usuario: root

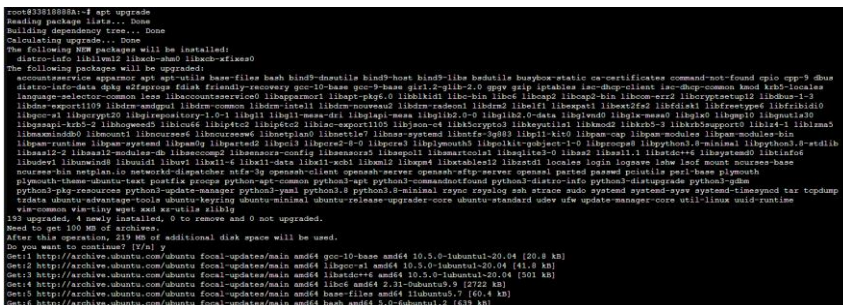
contraseña: 33818888



sudo apt update



apt upgrade



Instalamos apache2

sudo apt install apache2

```
root@33818888A:~# sudo apt install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libasn1-8-heimdal libbrotli1 libcurl4 libgdbm-compat4
  libgssapi3-heimdal libhcrypto4-heimdal libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libjansson4 libkrb5-26-heimdal libldap-2.4-2 libldap-common
  liblua5.2-0 libnghttp2-14 libperl5.30 libroken18-heimdal librtmp1 libssh-4 libwind0-heimdal perl perl-modules-5.30
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser perl-doc libterm-readline-gnu-perl | libterm-readline-perl-perl make libdb-dev-perl
  liblocale-codes-perl
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libasn1-8-heimdal libbrotli1 libcurl4 libgdbm-compat4
  libgssapi3-heimdal libhcrypto4-heimdal libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libjansson4 libkrb5-26-heimdal libldap-2.4-2 libldap-common
  liblua5.2-0 libnghttp2-14 libperl5.30 libroken18-heimdal librtmp1 libssh-4 libwind0-heimdal perl perl-modules-5.30
0 upgraded, 30 newly installed, 0 to remove and 0 not upgraded.
Need to get 10.6 MB of archives.
After this operation, 60.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 perl-modules-5.30 all 5.30.0-9ubuntu0.4 [2739 kB]
18% [1 perl-modules-5.30 2356 kB/2739 kB 86%]
```

apache2 -v

```
root@33818888A:~# apache2 -v
Server version: Apache/2.4.41 (Ubuntu)
Server built: 2023-03-08T17:32:54
root@33818888A:~#
```

Luego ejecutamos los siguientes comandos para iniciar apache y configurar que inicie con el arranque “systemctl start apache2” y “systemctl enable apache2”

systemctl start apache2

systemctl enable apache2

```
root@33818888A:~# systemctl start apache2
root@33818888A:~# systemctl start enable apache2
Failed to start enable.service: Unit enable.service not found.
```

systemctl status apache2

```
root@33818888A:~# systemctl status apache2
* apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2023-09-02 07:27:28 UTC; 11min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 18607 (apache2)
     Tasks: 55 (limit: 4465)
    Memory: 5.3M
       CPU: 114ms
   CGroup: /system.slice/apache2.service
           |-18607 /usr/sbin/apache2 -k start
           |-18609 /usr/sbin/apache2 -k start
           `--18610 /usr/sbin/apache2 -k start

Sep 02 07:27:27 33818888A systemd[1]: Starting The Apache HTTP Server...
Sep 02 07:27:28 33818888A systemd[1]: Started The Apache HTTP Server.
root@33818888A:~#
```

systemctl enable apache2

```
root@33818888A:~# systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable apache2
root@33818888A:~#
```

apt install net-tools

```
root@33818888A:~# apt install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
 net-tools
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 196 kB of archives.
After this operation, 864 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-lubuntul [196 kB]
Fetched 196 kB in 3s (77.3 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 20357 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-lubuntul_amd64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-lubuntul) ...
Setting up net-tools (1.60+git20180626.aebd88e-lubuntul) ...
Processing triggers for man-db (2.9.1-1) ...
root@33818888A:~#
```

ifconfig

```
root@33818888A:~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.77.198 netmask 255.255.255.0 broadcast 192.168.77.255
    inet6 fe80::c464:2ff:fedf:2cc prefixlen 64 scopeid 0x20<link>
    ether c6:64:02:df:02:cc txqueuelen 1000 (Ethernet)
    RX packets 173382 bytes 254027285 (254.0 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 81475 bytes 6649503 (6.6 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@33818888A:~#
```

Por lo general apache escucha por el puerto 80 las peticiones, para asegurarnos ejecutamos el siguiente comando

ss -tlnp | grep apache

```
root@33818888A:~# ss -tlnp | grep apache
LISTEN    0          511                *:80
```

Ahora debemos asegurarnos de que las reglas de cortafuego están habilitadas para acceder/salir del puerto 80. Primero debemos instalar “UFW” (Uncomplicated Firewall) que es un cortafuegos diseñado para ser de fácil uso desarrollado por Ubuntu.

apt install ufw

```
root@33818888A:~# apt install ufw
Reading package lists... Done
Building dependency tree
Reading state information... Done
ufw is already the newest version (0.36-6ubuntu1.1).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@33818888A:~#
```

Ahora habilitamos el tráfico entrante en el puerto 80 con el comando

ufw allow 80/tcp

```
root@33818888A:~# ufw allow 80/tcp
Rules updated
Rules updated (v6)
root@33818888A:~#
```

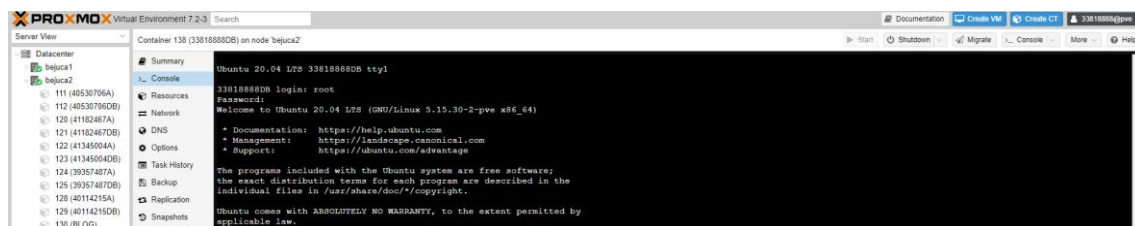
activamos ufw con el comando

ufw enable

```
root@33818888A:~# ufw enable
Firewall is active and enabled on system startup
root@33818888A:~#
```

Ahora pasamos a configurar el contenedor B

Primero iniciamos sesión con usuario root y contraseña 33818888



sudo apt update

```
root@33818888B:~# sudo apt update
sudo: setrlimit(RLIMIT_CORE): Operation not permitted
Get:1 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main Translation-en [506 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 c-n-f Metadata [29.5 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/restricted Translation-en [6212 B]
Get:7 http://archive.ubuntu.com/ubuntu focal/restricted amd64 c-n-f Metadata [392 B]
Get:8 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:11 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2788 kB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [461 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [17.0 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2243 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [313 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [576 B]
Get:18 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1105 kB]
```

apt upgrade

```
root@33818888B:~# sudo apt update
sudo: setrlimit(RLIMIT_CORE): Operation not permitted
Get:1 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main Translation-en [506 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 c-n-f Metadata [29.5 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/restricted Translation-en [6212 B]
Get:7 http://archive.ubuntu.com/ubuntu focal/restricted amd64 c-n-f Metadata [392 B]
Get:8 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:11 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2788 kB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [461 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [17.0 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2243 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [313 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [576 B]
Get:18 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1105 kB]
Get:19 http://archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [264 kB]
Get:20 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [25.4 kB]
Get:21 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [25.8 kB]
Get:22 http://archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [7484 B]
```


apt install net-tools

```

root@33818888DB:~# apt install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
net-tools
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 196 kB of archives.
After this operation, 864 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-lubuntu! [196 kB]
Fetched 196 kB in 1s (161 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 20527 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-lubuntu!_amd64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-lubuntu!) ...
Setting up net-tools (1.60+git20180626.aebd88e-lubuntu!) ...
Processing triggers for man-db (2.9.1-1) ...

```

Para saber el ip del contenedor B usamos ifconfig

```

root@33818888DB:~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.77.197 netmask 255.255.255.0 broadcast 192.168.77.255
    inet6 fe80::8466:bfff:feaf:8859 prefixlen 64 scopeid 0x20<link>
    ether 06:66:0b:af:88:59 txqueuelen 1000 (Ethernet)
    RX packets 164489 bytes 241019605 (241.0 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 85371 bytes 6715137 (6.7 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

Ejecutamos

apt install ufw -y

Con ufw podremos habilitar de manera sencilla el tráfico entrante al puerto 3306, que es el puerto por el que mariaDB ejecuta el servicio de base de datos.

```

root@33818888DB:~# apt install ufw -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
ufw is already the newest version (0.36-6ubuntu1.1).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.

```

ufw allow 3306/tcp

```

root@33818888DB:~# ufw allow 3306/tcp
Rules updated
Rules updated (v6)
root@33818888DB:~#

```

ufw enable

```

root@33818888DB:~# ufw enable
Firewall is active and enabled on system startup
root@33818888DB:~#

```