

# Tarefas UD05

## Bloque 03

*Administración de sistemas operativos*

*Unidade Didáctica 05:  
Integración de sistemas operativos en redes libres e  
privativas*

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# Tarefa 1. Lista comandos impresión

Completa as seguintes táboas. Engade as liñas que precisas.

## 1.1. GNU/Linux (incluídos os de CUPS)

Comando	Función	Exemplo

## 1.2. Windows

Comando	Función	Exemplo

## Tarefa 2. CUPS

Bótalle unha ollada ao seguinte documento web:

<https://weblinus.com/como-instalar-un-servidor-de-impresion-cups-en-debian-y-derivados/>

Empregando CUPS, instala unha impresora virtual PDF. Unha vez configurada, facer unha demostración e o resultado de impresión

# Tarefa 3. Repaso Docker

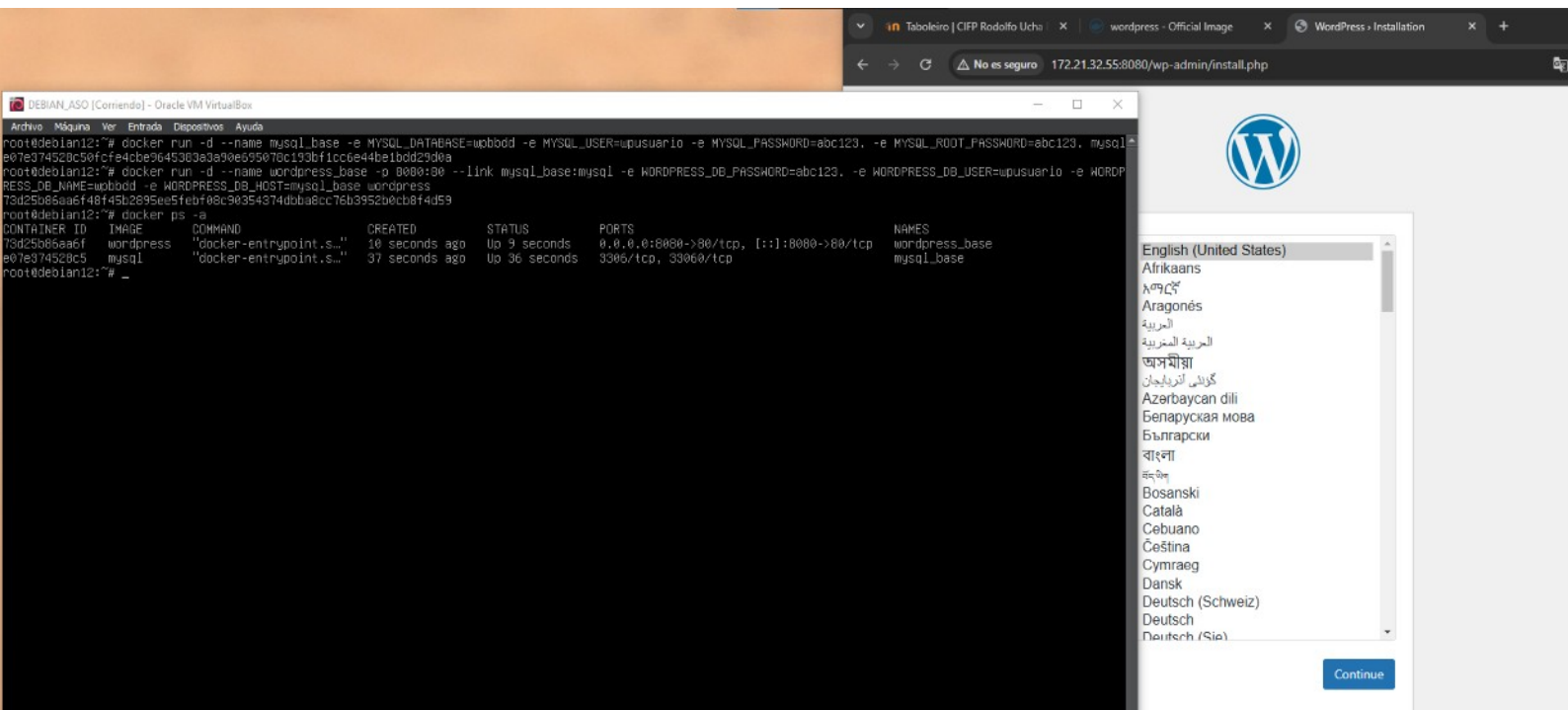
## 3.1. Manexo de imaxes, contedores e orquestación

Completa os seguintes apartados facendo as capturas de imaxe necesarias que demostren o correcto funcionamento dos contedores.

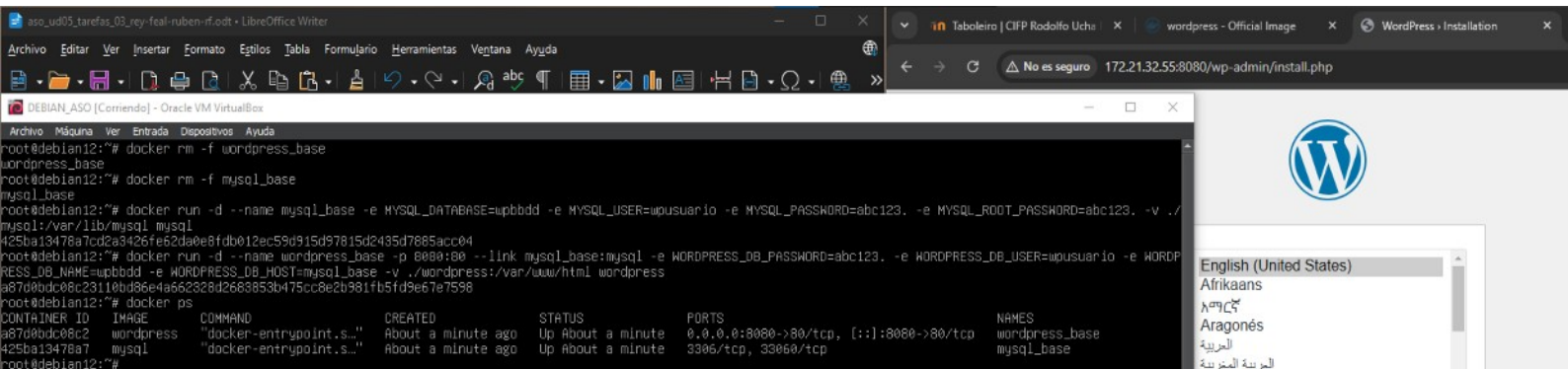
1. Descarga as imaxes de Wordpress e MySQL. Revisa a documentación oficial de Wordpress en Docker Hub. Executa os dous contedores definindo as variables de entorno de forma que o nome da base datos sexa «wpbbdd», o usuario «wpusuario» con contrasinal «abc123.». Recorda mapear o porto 80, por exemplo ao 8080. Comprobar que é accesible. Para conectar os dous contedores, usar a opción `—link`.

```
DEBIAN_ASO [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

root@debian12:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
root@debian12:~# docker pull wordpress
Using default tag: latest
latest: Pulling from library/wordpress
af302e5c37e9: Already exists
71a74ed03dab: Pull complete
3ef8d0774deb: Pull complete
11d17388a3b8: Pull complete
0814cbbf72a2: Pull complete
3a28acedadf8: Pull complete
2ab7ef40feaf: Pull complete
88324ccb20a1: Pull complete
ad5f2fca9132: Pull complete
9df2a6231627: Pull complete
b3207e60ff9a: Pull complete
d18c9f420b35: Pull complete
673faad72ba8: Pull complete
4f4fb700ef54: Pull complete
b0dc28254b99: Pull complete
353e28a55fb0: Pull complete
acfd66114040: Pull complete
901e497f1af0: Pull complete
715f44938211: Pull complete
3d6944f05f98: Pull complete
3b30f0e2417e: Pull complete
90f489708f36: Pull complete
Digest: sha256:b60e01ce06202c836b46d54cb3eceba3a6f30950491e6805ce17d840ff6943c0
Status: Downloaded newer image for wordpress:latest
docker.io/library/wordpress:latest
root@debian12:~# docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
Digest: sha256:45f5ae20cfe1d6e6c43684dffffef17db1e1e8dc9bf7133ceaafb25c16b10f31b
Status: Image is up to date for mysql:latest
docker.io/library/mysql:latest
root@debian12:~# _
```



2. Agora borra os dous contedores e volve a executalos con persistencia de datos, tanto da base de datos (/var/lib/mysql) como dos ficheiros web de Wordpress (/var/www/html).



3. Comproba os logs de cada contador e inspecciona a súa configuración.

```

root@debian12:~# docker logs -f wordpress_base
WordPress not found in /var/www/html - copying now...
Complete! WordPress has been successfully copied to /var/www/html
No 'wp-config.php' found in /var/www/html, but 'WORDPRESS_...' variables supplied; copying 'wp-config-docker.php' (WORDPRESS_DB_PASSWORD WORDPRESS_DB_USER)
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress this message
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress this message
[Tue Feb 04 08:23:16.111240 2025] [mpm_prefork:notice] [pid 1:tid 1] AH00163: Apache/2.4.62 (Debian) PHP/8.2.27 configured -- resuming normal operations
[Tue Feb 04 08:23:16.111450 2025] [core:notice] [pid 1:tid 1] AH00094: Command line: 'apache2 -D FOREGROUND'
172.21.32.15 - - [04/Feb/2025:08:23:16 +0000] "GET /wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"
172.21.32.15 - - [04/Feb/2025:08:23:17 +0000] "GET /favicon.ico HTTP/1.1" 302 407 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4676 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"
172.21.32.15 - - [04/Feb/2025:08:24:07 +0000] "-" 408 0 "-" "-"
172.21.32.15 - - [04/Feb/2025:08:35:04 +0000] "GET /wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"
172.21.32.15 - - [04/Feb/2025:08:35:05 +0000] "GET /favicon.ico HTTP/1.1" 302 407 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4676 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"
172.21.32.15 - - [04/Feb/2025:08:35:15 +0000] "GET /wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"
172.21.32.15 - - [04/Feb/2025:08:35:15 +0000] "GET /favicon.ico HTTP/1.1" 302 407 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4676 "http://172.21.32.55:8080/wp-admin/install.php HTTP/1.1" 200 4677 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/132.0.0.0 Safari/537.36"

```

```

DEBIAN_ASO [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

Insecure option.
2025-02-04T08:22:41.270488Z 0 [System] [MY-015018] [Server] MySQL Server Initialization - end.
2025-02-04 08:22:41+00:00 [Note] [Entrypoint]: Database files initialized
2025-02-04 08:22:41+00:00 [Note] [Entrypoint]: Starting temporary server
2025-02-04T08:22:41.346701Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2025-02-04T08:22:41.589337Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 9.2.0) starting as process 116
2025-02-04T08:22:41.621288Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-02-04T08:22:42.482898Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-02-04T08:22:43.214316Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-02-04T08:22:43.214578Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections
are now available.
2025-02-04T08:22:43.220684Z 0 [Warning] [MY-011810] [Server] Insecure configuration for --pid-file: Location '/var/run/mysqld'
inaccessible to some OS users. Consider choosing a different directory.
2025-02-04T08:22:43.270590Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Socket: /var/run/mysqld/mysql.sock
2025-02-04T08:22:43.271132Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '9.2.0' source
distribution: MySQL Community Server - GPL.
2025-02-04 08:22:43+00:00 [Note] [Entrypoint]: Temporary server started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
Warning: Unable to load '/usr/share/zoneinfo/iso3166.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leap-seconds.list' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone1970.tab' as time zone. Skipping it.
2025-02-04 08:22:48+00:00 [Note] [Entrypoint]: Creating database wpbbdd
2025-02-04 08:22:48+00:00 [Note] [Entrypoint]: Creating user wpuusuario
2025-02-04 08:22:48+00:00 [Note] [Entrypoint]: Giving user wpuusuario access to schema wpbbdd

2025-02-04 08:22:48+00:00 [Note] [Entrypoint]: Stopping temporary server
2025-02-04T08:22:48.739278Z 14 [System] [MY-013172] [Server] Received SHUTDOWN from user root. Shutting down mysqld (Version: 9.2.0)
2025-02-04T08:22:49.632018Z 0 [System] [MY-010910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 9.2.0) MySQL Community Server - GPL.
2025-02-04T08:22:49.632198Z 0 [System] [MY-015016] [Server] MySQL Server - end.
2025-02-04 08:22:49+00:00 [Note] [Entrypoint]: Temporary server stopped

2025-02-04 08:22:49+00:00 [Note] [Entrypoint]: MySQL init process done. Ready for start up.

2025-02-04T08:22:49.778937Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2025-02-04T08:22:50.018129Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 9.2.0) starting as process 116
2025-02-04T08:22:50.035922Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-02-04T08:22:50.875138Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-02-04T08:22:51.448907Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-02-04T08:22:51.449108Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections
are now available.
2025-02-04T08:22:51.455883Z 0 [Warning] [MY-011810] [Server] Insecure configuration for --pid-file: Location '/var/run/mysqld'
inaccessible to some OS users. Consider choosing a different directory.
2025-02-04T08:22:51.641624Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '::' port: 3306
2025-02-04T08:22:51.642422Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '9.2.0' source
distribution: MySQL Community Server - GPL.
^Ccontext canceled
root@debian12:~# docker logs -f mysql_base

```

```
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Archivo Máquina Ver Entrada Dispositivos Ayuda

"Bridge": "",
"SandboxID": "dead6a3e16c432aad49f5ee72c1079447d868a62cae48709593534b4e48d8aff",
"SandboxKey": "/var/run/docker/netns/dead6a3e16c4",
"Ports": {
  "80/tcp": [
    {
      "HostIp": "0.0.0.0",
      "HostPort": "8080"
    },
    {
      "HostIp": "::",
      "HostPort": "8080"
    }
  ]
},
"HairpinMode": false,
"LinkLocalIPv6Address": "",
"LinkLocalIPv6PrefixLen": 0,
"SecondaryIPAddresses": null,
"SecondaryIPv6Addresses": null,
"EndpointID": "ebad2787611cb9aa6490f57340504a7896d5b2f5ef27e433adc1f42408a6559b",
"Gateway": "172.17.0.1",
"GlobalIPv6Address": "",
"GlobalIPv6PrefixLen": 0,
"IPAddress": "172.17.0.3",
"IPPrefixLen": 16,
"IPv6Gateway": "",
"MacAddress": "02:42:ac:11:00:03",
"Networks": {
  "bridge": {
    "IPAMConfig": null,
    "Links": null,
    "Aliases": null,
    "MacAddress": "02:42:ac:11:00:03",
    "DriverOpts": null,
    "NetworkID": "a04054aaf20e0341af81c23ef41de5a20aa41a0eaac121a7379db5179a47e2c2",
    "EndpointID": "ebad2787611cb9aa6490f57340504a7896d5b2f5ef27e433adc1f42408a6559b",
    "Gateway": "172.17.0.1",
    "IPAddress": "172.17.0.3",
    "IPPrefixLen": 16,
    "IPv6Gateway": "",
    "GlobalIPv6Address": "",
    "GlobalIPv6PrefixLen": 0,
    "DNSNames": null
  }
}
}
}
}
]
root@debian12:~# docker inspect wordpress_base _
```



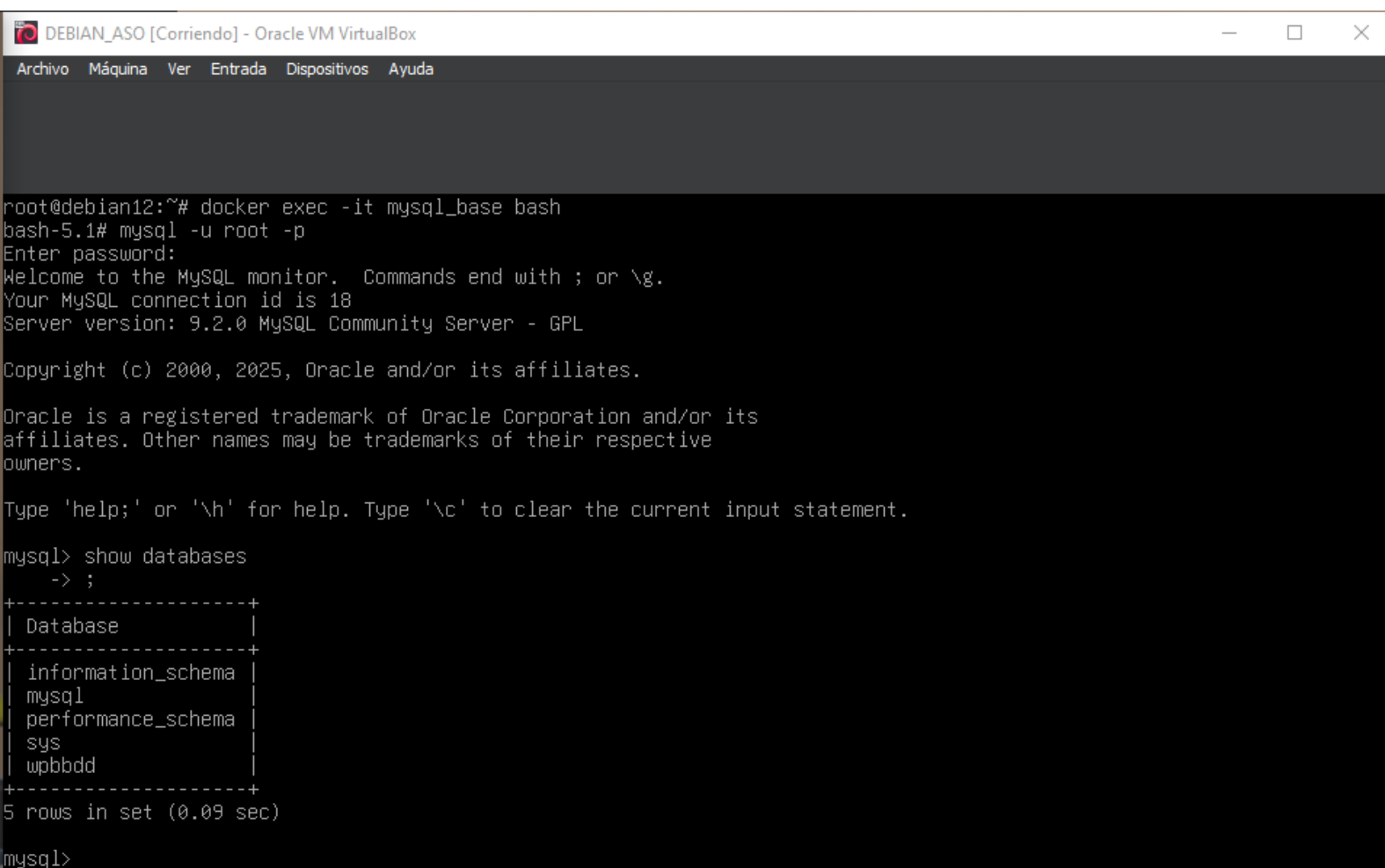


- Mostra o contido do ficheiro `/etc/hosts` do contedor de Wordpress.

```
root@debian12:~# docker exec -it wordpress_base /bin/bash
root@a87d0bdc08c2:/var/www/html# cat /etc/hosts
127.0.0.1        localhost
::1             localhost ip6-localhost ip6-loopback
fe00::0         ip6-localnet
ff00::0         ip6-mcastprefix
ff02::1         ip6-allnodes
ff02::2         ip6-allrouters
172.17.0.2      mysql 425ba13478a7 mysql_base
172.17.0.3      a87d0bdc08c2
root@a87d0bdc08c2:/var/www/html#
```

- Accede ao contedor de MySQL. Conéctate ao xestor de base de datos a través de terminal e completa os seguintes comandos SQL:

- Mostra sa bases de datos dispoñibles



The screenshot shows a terminal window titled "DEBIAN\_AS0 [Corriendo] - Oracle VM VirtualBox". The terminal content is as follows:

```
root@debian12:~# docker exec -it mysql_base bash
bash-5.1# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 18
Server version: 9.2.0 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases
-> ;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| wpbbdd |
+-----+
5 rows in set (0.09 sec)

mysql>
```

2. Mostra os permisos do usuario creado para Worrpress.

```
mysql> SHOW GRANTS FOR wpusuario;
+-----+
| Grants for wpusuario@% |
+-----+
| GRANT USAGE ON *.* TO `wpusuario`@`%` |
| GRANT ALL PRIVILEGES ON `wpbbdd`.* TO `wpusuario`@`%` |
+-----+
2 rows in set (0.00 sec)

mysql>
```

3. Usando a base de datos de Wordpress, mostra as súas táboas.

```
mysql> use wpbbdd
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+-----+
| Tables_in_wpbbdd |
+-----+
| wp_commentmeta |
| wp_comments |
| wp_links |
| wp_options |
| wp_postmeta |
| wp_posts |
| wp_term_relationships |
| wp_term_taxonomy |
| wp_termmeta |
| wp_terms |
| wp_usermeta |
| wp_users |
+-----+
12 rows in set (0.00 sec)

mysql>
```

4. Mostra a descrición da táboa wp\_users.

```
mysql> DESCRIBE wp_users;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| ID | bigint unsigned | NO | PRI | NULL | auto_increment |
| user_login | varchar(60) | NO | MUL | | |
| user_pass | varchar(255) | NO | MUL | | |
| user_nicename | varchar(50) | NO | MUL | | |
| user_email | varchar(100) | NO | MUL | | |
| user_url | varchar(100) | NO | | | |
| user_registered | datetime | NO | | 0000-00-00 00:00:00 | |
| user_activation_key | varchar(255) | NO | | | |
| user_status | int | NO | | 0 | |
| display_name | varchar(250) | NO | | | |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)

mysql> _
```

5. Mostra o contido da táboa wp\_users.

```
mysql> select * from wp_users;
+----+-----+-----+-----+-----+-----+
| ID | user_login | user_pass | user_nicename | user_email | user_url |
+----+-----+-----+-----+-----+-----+
| 1 | rubenrf | $P$BSzh2zpkc0C126Q.OXyRUh1QqRJnJH1 | rubenrf | rubenaso@wordpress.com | http://172.21.32.55:80 |
+----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> _
```

6. Agora repetir apartados anteriores definindo as carpetas persistentes wp-html (para os ficheiros de Wordpress) e wp-db, no home do usuario que ten permiso de execución dos contedores, e creando unha rede propia (en vez de usar `--link`) chamada rede-wp. Mapea o porto 8081 ao porto 80 do contedor Wordpress.

```
root@debian12:~# docker network create rede-wp
c12f345c7629fb37e949193fd6200f82026f926f8b2aa28d0b3d9f0603248bb5
root@debian12:~# docker inspect rede-wp
[
  {
    "Name": "rede-wp",
    "Id": "c12f345c7629fb37e949193fd6200f82026f926f8b2aa28d0b3d9f0603248bb5",
    "Created": "2025-02-04T09:56:43.681976006+01:00",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.19.0.0/16",
          "Gateway": "172.19.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]
root@debian12:~# _

root@debian12:~# docker rm -f mysql_base
mysql_base
root@debian12:~# docker rm -f wordpress_base
wordpress_base
root@debian12:~# docker run -d --name mysql_base --network rede-wp -e MYSQL_DATABASE=wpbbdd -e MYSQL_USER=wpusuario -e MYSQL_PASSWORD=abc123. -e MYSQL_ROOT_PASSWORD=abc123. -v ./mysql:/var/lib/mysql mysql
fa0abd2f459cf08c615632360021854e961db0e70137c1a8829a42322e5cd994
root@debian12:~# docker run -d --name wordpress_base -p 8080:80 --network rede-wp -e WORDPRESS_DB_PASSWORD=abc123. -e WORDPRESS_DB_USER=wpusuario -e WORDPRESS_DB_NAME=wpbbdd -e WORDPRESS_HOST=mysql_base -v ./wordpress:/var/www/html wordpress
bfcc78720e51e061b7f0b2ae02e0daaad0d1df430e6b30b6bfff8f126287eaf9
root@debian12:~# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
bfcc78720e51   wordpress "docker-entrypoint.s..." 9 seconds ago   Up 9 seconds   0.0.0.0:8080->80/tcp, [::]:8080->80/tcp   wordpress_base
fa0abd2f459c   mysql     "docker-entrypoint.s..." About a minute ago   Up About a minute   3306/tcp, 33060/tcp                   mysql_base
root@debian12:~# _
```

7. Inspecciona a nova rede e mostra que enderezo IP lle asociou a cada contedor.

```
DEBIAN_ASO [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
CONTAINER ID  IMAGE      COMMAND      CREATED      STATUS      PORTS
bfcc78720e51  wordpress  "docker-ent...  9 seconds ago  Up 9 seconds  0.0.0.0:8080-
fa0abd2f459c  mysql      "docker-ent...  About a minute ago  Up About a minute  3306/tcp, 330
root@debian12:~# docker inspect rede-wp
[
  {
    "Name": "rede-wp",
    "Id": "c12f345c7629fb37e949193fd6200f82026f926f8b2aa28d0b3d9f0603248bb5",
    "Created": "2025-02-04T09:56:43.681976006+01:00",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.19.0.0/16",
          "Gateway": "172.19.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "bfcc78720e51e061b7f0b2ae02e0daaad8d01df430e6b38b6bfff8f126287eaf9": {
        "Name": "wordpress_base",
        "EndpointID": "3f1d983c774ad1e863b14164b5508b4d728a26c511a2194b9bb2f16657c71526",
        "MacAddress": "02:42:ac:13:00:03",
        "IPv4Address": "172.19.0.3/16",
        "IPv6Address": ""
      },
      "fa0abd2f459cf08c615632360021854e961db0e70137c1a8829a42322e5cd994": {
        "Name": "mysql_base",
        "EndpointID": "92013770d01bf1b7f4605f536a8cb74ea19673ce7301518acc313a19af88583e",
        "MacAddress": "02:42:ac:13:00:02",
        "IPv4Address": "172.19.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {},
    "Labels": {}
  }
]
root@debian12:~#
```

8. Repite o paso 6 con Docker Compose creando `docker-compose.yml` correspondente. Deben crearse a rede e tamén o mapeando ás carpetas locais igual que no apartado 6. Executa o orquestrador de contedores co comando `docker compose`.

```
rubenrf@debian12: ~  
GNU nano 7.2 docker-compose.yml  
services:  
  
  wordpress:  
    image: wordpress  
    restart: always  
    ports:  
      - 8081:80  
    environment:  
      WORDPRESS_DB_HOST: mysql_base  
      WORDPRESS_DB_USER: wpusuario  
      WORDPRESS_DB_PASSWORD: abc123.  
      WORDPRESS_DB_NAME: wpbbdd  
    volumes:  
      - ./wordpress:/var/www/html  
    networks:  
      - rede-wp  
  
  db:  
    image: mysql:latest  
    restart: always  
    environment:  
      MYSQL_DATABASE: wpbbdd  
      MYSQL_USER: wpusuario  
      MYSQL_PASSWORD: abc123.  
      MYSQL_ROOT_PASSWORD: abc123.  
    volumes:  
      - ./mysql:/var/lib/mysql  
    networks:  
      - rede-wp  
  
networks:  
  rede-wp:  
    driver: bridge
```

```
root@debian12:~# docker compose up -d  
[+] Running 3/3  
  Network root_rede-wp          Created                                0.2s  
  Container root-wordpress-1    Started                        3.3s  
  Container root-db-1           Started                        3.2s  
root@debian12:~# docker ps  
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS  
4ca73c176e27   mysql:latest   "docker-entrypoint.s..." 11 seconds ago Up 8 seconds  3306/tcp, 33060/tcp  
e1a9ee36c79c   wordpress     "docker-entrypoint.s..." 11 seconds ago Up 8 seconds  0.0.0.0:8081->80/tcp, [::]:8081->80/tcp  
root@debian12:~#
```

9. Inspecciona a nova rede e mostra que enderezo IP lle asociou a cada contedor.

```
root@debian12:~# docker network inspect root_rede-wp
[
  {
    "Name": "root_rede-wp",
    "Id": "ad539569a97e99b6f5d74495cb22b69fdecc8090b5adb9642a06af3e1ba9149b",
    "Created": "2025-02-05T13:45:57.842236165+01:00",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.22.0.0/16",
          "Gateway": "172.22.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "45c4ce1f50e83cfe0fc9efff9d48fb665839b87a146513dde4c0a6aa2513f996": {
        "Name": "root-db-1",
        "EndpointID": "9bd4f2d48ebe0284e63a2cbff1afa600568742e7479c22ef67e3ffffce00ab0c4",
        "MacAddress": "02:42:ac:16:00:02",
        "IPv4Address": "172.22.0.2/16",
        "IPv6Address": ""
      },
      "86657613decbae388abdcf5eab8b1adc943b98a2f62077ffc0a3360af4638bda": {
        "Name": "root-wordpress-1",
        "EndpointID": "db06a2c16356929e6cdbaf9b1f6d64df9d7fcc6726a72ed4fc32810b1853e597",
        "MacAddress": "02:42:ac:16:00:03",
        "IPv4Address": "172.22.0.3/16",
        "IPv6Address": ""
      }
    },
    "Options": {},
    "Labels": {
      "com.docker.compose.config-hash": "c193021ee73413e4205e33faecd8a8def200e0c2e11ffe430f869be18d196083",
      "com.docker.compose.network": "rede-wp",
      "com.docker.compose.project": "root",
      "com.docker.compose.version": "2.32.3"
    }
  }
]
```

10. Mostra os contedores executados co orquestrador

```
rubenf@debian12: ~
root@debian12:~# docker compose ps

```

NAME	IMAGE	COMMAND	SERVICE	CREATED	STATUS	PORTS
root-db-1	mysql:latest	"docker-entrypoint.s..."	db	10 minutes ago	Up 10 minutes	3306/tcp, 33060/tcp
root-wordpress-1	wordpress	"docker-entrypoint.s..."	wordpress	10 minutes ago	Up 10 minutes	0.0.0.0:8081->80/tcp, [::]:8081->80/tcp

```
root@debian12:~#
```

11. Para os contedores executados co orquestrador.

```
rubenf@debian12: ~
[+] Stopping 2/2 docker compose stop
 Container root-wordpress-1 Stopped 1.8s
 Container root-db-1 Stopped 2.7s
root@debian12:~#
```

## 3.2. Creación de imaxes

Completa os seguintes apartados facendo as capturas de imaxe necesarias que demostren o correcto funcionamento dos contedores.

### 3.2.1. A partir dun contedor

1. Descarga a última imaxe de Debian.

```
root@debian12:~# docker pull debian
Using default tag: latest
latest: Pulling from library/debian
a492eee5e559: Pull complete
Digest: sha256:4abf773f2a570e6873259c4e3ba16de6c6268fb571fd46ec80be7c67822823b3
Status: Downloaded newer image for debian:latest
docker.io/library/debian:latest
root@debian12:~#
```

2. Lanza no contedor os comandos apt para actualizar os repositorios e logo actualizar todos os paquetes sen que pida confirmación.

```
root@debian12:~# docker run -it debian bash
root@b388cf72fdae:/# apt update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8792 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [13.5 kB]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [243 kB]
Fetched 9303 kB in 6s (1534 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
root@b388cf72fdae:/# apt upgrade -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@b388cf72fdae:/#
```



### 3. Instala o paquete apache2 sen que pida confirmación.

```
root@b388cf72fdae:~# apt install -y apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1 libaprutil1 libaprutil1-dbd-sqlite3
  libaprutil1-ldap libbrotli1 libcurl4 libexpat1 libgdbm-compat4 libgdbm6 libgpm2 libgssapi-krb5-2 libicu72
  libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-2.5-0 libldap-common liblua5.3-0
  libncursesw6 libnghttp2-14 libperl5.36 libproc2-0 libpsl5 librtmp1 libsasl2-2 libsasl2-modules
  libsasl2-modules-db libsasl2-modules-gssapi-mit libssh2-1 libssl3 libxml2 media-types netbase openssl perl perl-modules-5.36
  procs psmisc publicsuffix ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser gdbm-l10n gpm krb5-doc krb5-user
  sensible-utils 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:
  apache2 apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libbrotli1 libcurl4 libexpat1 libgdbm-compat4 libgdbm6 libgpm2
  libgssapi-krb5-2 libicu72 libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-2.5-0
  libldap-common liblua5.3-0 libncursesw6 libnghttp2-14 libperl5.36 libproc2-0 libpsl5 librtmp1 libsasl2-2
  libsasl2-modules libsasl2-modules-db libsasl2-modules-gssapi-mit libssh2-1 libssl3 libxml2 media-types netbase openssl perl
  perl-modules-5.36 procs psmisc publicsuffix ssl-cert
0 upgraded, 48 newly installed, 0 to remove and 0 not upgraded.
Need to get 27.8 MB of archives.
After this operation, 117 MB of additional disk space will be used.
Get:1 http://deb.debian.org/debian bookworm/main amd64 perl-modules-5.36 all 5.36.0-7+deb12u1 [2815 kB]
Get:2 http://deb.debian.org/debian bookworm/main amd64 libgdbm6 amd64 1.23-3 [72.2 kB]
Get:3 http://deb.debian.org/debian bookworm/main amd64 libgdbm-compat4 amd64 1.23-3 [48.2 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 libperl5.36 amd64 5.36.0-7+deb12u1 [4218 kB]
Get:5 http://deb.debian.org/debian bookworm/main amd64 perl amd64 5.36.0-7+deb12u1 [239 kB]
Get:6 http://deb.debian.org/debian bookworm/main amd64 libapr1 amd64 1.7.2-3+deb12u1 [102 kB]
Get:7 http://deb.debian.org/debian bookworm/main amd64 libexpat1 amd64 2.5.0-1+deb12u1 [98.9 kB]
Get:8 http://deb.debian.org/debian bookworm/main amd64 libssl3 amd64 3.0.15-1~deb12u1 [2025 kB]
Get:9 http://deb.debian.org/debian bookworm/main amd64 libaprutil1 amd64 1.6.3-1 [87.8 kB]
Get:10 http://deb.debian.org/debian bookworm/main amd64 libsasl2-modules-db amd64 2.1.28+dfsg-10 [839 kB]
Get:11 http://deb.debian.org/debian bookworm/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1 [13.6 kB]
Get:12 http://deb.debian.org/debian bookworm/main amd64 libsasl2-modules-amd64 2.1.28+dfsg-10 [20.3 kB]
Get:13 http://deb.debian.org/debian bookworm/main amd64 libsasl2-2 amd64 2.1.28+dfsg-10 [59.7 kB]
Get:14 http://deb.debian.org/debian bookworm/main amd64 libldap-2.5-0 amd64 2.5.13+dfsg-5 [183 kB]
Get:15 http://deb.debian.org/debian bookworm/main amd64 libaprutil1-ldap amd64 1.6.3-1 [11.8 kB]
Get:16 http://deb.debian.org/debian bookworm/main amd64 libbrotli1 amd64 1.0.9-2+b6 [275 kB]
Get:17 http://deb.debian.org/debian bookworm/main amd64 libkrb5support0 amd64 1.20.1-2+deb12u2 [32.6 kB]
Get:18 http://deb.debian.org/debian bookworm/main amd64 libk5crypto3 amd64 1.20.1-2+deb12u2 [78.7 kB]
Get:19 http://deb.debian.org/debian bookworm/main amd64 libkeyutils1 amd64 1.6.3-2 [8808 B]
Get:20 http://deb.debian.org/debian bookworm/main amd64 libkrb5-3 amd64 1.20.1-2+deb12u2 [332 kB]
Get:21 http://deb.debian.org/debian bookworm/main amd64 libgssapi-krb5-2 amd64 1.20.1-2+deb12u2 [135 kB]
Get:22 http://deb.debian.org/debian bookworm/main amd64 libnghttp2-14 amd64 1.52.0-1+deb12u2 [73.0 kB]
Get:23 http://deb.debian.org/debian bookworm/main amd64 libpsl5 amd64 0.21.2-1 [58.7 kB]
Get:24 http://deb.debian.org/debian bookworm/main amd64 librtmp1 amd64 2.4+20151223.gitfa8646d.1-2+b2 [60.8 kB]
Get:25 http://deb.debian.org/debian bookworm/main amd64 libssh2-1 amd64 1.10.0-3+b1 [179 kB]
Get:26 http://deb.debian.org/debian bookworm/main amd64 libcurl4 amd64 7.88.1-10+deb12u8 [390 kB]
Get:27 http://deb.debian.org/debian bookworm/main amd64 libjansson4 amd64 2.14-2 [40.8 kB]
Get:28 http://deb.debian.org/debian bookworm/main amd64 liblua5.3-0 amd64 5.3.6-2 [123 kB]
Get:29 http://deb.debian.org/debian bookworm/main amd64 libicu72 amd64 72.1-3 [9376 kB]
Get:30 http://deb.debian.org/debian bookworm/main amd64 libxml2 amd64 2.9.14+dfsg-1.3~deb12u1 [687 kB]
Get:31 http://deb.debian.org/debian bookworm/main amd64 apache2-bin amd64 2.4.62-1~deb12u2 [1386 kB]
Get:32 http://deb.debian.org/debian bookworm/main amd64 apache2-data all 2.4.62-1~deb12u2 [160 kB]
Get:33 http://deb.debian.org/debian bookworm/main amd64 apache2-utils amd64 2.4.62-1~deb12u2 [210 kB]
Get:34 http://deb.debian.org/debian bookworm/main amd64 media-types all 10.0.0 [26.1 kB]
Get:35 http://deb.debian.org/debian bookworm/main amd64 libncursesw6 amd64 6.4-4 [134 kB]
Get:36 http://deb.debian.org/debian bookworm/main amd64 libproc2-0 amd64 2:4.0.2-3 [62.8 kB]
```

### 4. Crea un ficheiro HTML simple que poña como título de nivel 1 «Creando imaxes a partir de contador» e engade o teu nome e apelidos.

```
root@b388cf72fdae:~# echo "echo <h1>Creando imaxes a partir de contador</h1>" > prueba.html
root@b388cf72fdae:~# echo "<h1>Creando imaxes a partir de contador RUBEN REY FEAL</h1>" > prueba.html
root@b388cf72fdae:~# ls
bin boot dev etc home lib lib64 media mnt opt proc prueba.html root run sbin srv sys tmp usr var
root@b388cf72fdae:~# cat prueba.html
<h1>Creando imaxes a partir de contador RUBEN REY FEAL</h1>
root@b388cf72fdae:~#
```

5. Copia ao contedor ese ficheiro html co nome ao cartafol /var/www/html/ do contedor. Comproba que é accesible dende o navegador.

```
root@b388cf72fdae:/# cp prueba.html /var/www/html/
```

6. Inicia o servidor apache2 co comando `bash -c "apache2ctl -D FOREGROUND"`.

```
root@debian12:~# docker exec loving_jepsen bash -c "apache2ctl -D FOREGROUND"
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message
httpd (pid 26) already running
root@debian12:~#
```

7. Garda os cambios nunha nova imaxe co formato `teunomeiniciais/meuapache:v1` (cambiando `teunomeiniciais` polo teu nome e iniciais dos teu apelidos. Por exemplo: `elenafc/meuapache:v1`)

```
root@debian12:~# docker commit loving_jepsen rubenrf/meuapache:v1
sha256:c41e973f52078fc48a3cf3180634d3da306a4c9162df3146a9deee4e406f32ce
root@debian12:~#
```

```
root@debian12:~# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
rubenrf/meuapache	v1	c41e973f5207	39 seconds ago	253MB
debian	latest	18f9bd665a29	2 days ago	117MB
personalizado_nginx	latest	168d5c990769	7 days ago	192MB
httpd	latest	f7d8bafbd9a9	12 days ago	148MB
mysql	latest	a52cba19e8cc	13 days ago	797MB
nginx	prueba	a0d9e3b3dcc2	2 weeks ago	192MB
web_server-nginx	latest	58d3f6196d31	2 weeks ago	192MB
node	latest	89871f29e084	2 weeks ago	1.12GB
redis	latest	4075a3f8c3f8	4 weeks ago	117MB
portainer/portainer-ce	2.21.5	0c03664af9ed	6 weeks ago	308MB
bash	latest	2a658e2e2bab	8 weeks ago	14.5MB
mongo	latest	f08e39122805	2 months ago	855MB
nginx	latest	9bea9f2796e2	2 months ago	192MB
postgres	latest	9a0ce6be5dd4	2 months ago	435MB
wordpress	latest	c012b71a41fc	2 months ago	701MB
busybox	latest	af4709625109	4 months ago	4.27MB
nginx	1.26.2	0dcfd986e814	5 months ago	188MB
hello-world	latest	d2c94e258dcb	21 months ago	13.3kB

```
root@debian12:~#
```

8. Elimina o contedor actual.

```
root@debian12:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
b388cf72fdae	loving_jepsen	"bash"	14 minutes ago	Up 4 minutes	
bfcc78720e51	wordpress_base	"docker-entrypoint.s..."	28 hours ago	Up 26 minutes	0.0.0.0:8080->80/tcp, [::]:8080->80/tcp

```
root@debian12:~# docker rm -f loving_jepsen
loving_jepsen
root@debian12:~#
```

## 9. Inspecciona a imaxe.

```
rubenrf@debian12: ~  
"rubenrf/meuapache:v1"  
,  
  "RepoDigests": [],  
  "Parent": "sha256:18f9bd665a29a57601ba643beeb9471f549e3ccff439252551726cddeceb233a",  
  "Comment": "",  
  "Created": "2025-02-05T13:14:55.969338108Z",  
  "DockerVersion": "27.5.0",  
  "Author": "",  
  "Config": {  
    "Hostname": "b388cf72fdae",  
    "Domainname": "",  
    "User": "",  
    "AttachStdin": true,  
    "AttachStdout": true,  
    "AttachStderr": true,  
    "Tty": true,  
    "OpenStdin": true,  
    "StdinOnce": true,  
    "Env": [  
      "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"  
    ],  
    "Cmd": [  
      "bash"  
    ],  
    "Image": "debian",  
    "Volumes": null,  
    "WorkingDir": "",  
    "Entrypoint": [],  
    "OnBuild": null,  
    "Labels": {}  
  },  
  "Architecture": "amd64",  
  "Os": "linux",  
  "Size": 253031647,  
  "GraphDriver": {  
    "Data": {  
      "LowerDir": "/var/lib/docker/overlay2/30a462225c7c9324feb810f0034cb26371620cfba111d284fc0ecac5c1e7b06  
a/diff",  
      "MergedDir": "/var/lib/docker/overlay2/b63f13e77c82f0ca9f80ab232f17afca3ab63f0afe73f00f07389b80254d9c  
88/merged",  
      "UpperDir": "/var/lib/docker/overlay2/b63f13e77c82f0ca9f80ab232f17afca3ab63f0afe73f00f07389b80254d9c3  
B/diff",  
      "WorkDir": "/var/lib/docker/overlay2/b63f13e77c82f0ca9f80ab232f17afca3ab63f0afe73f00f07389b80254d9c38  
/work"  
    },  
    "Name": "overlay2"  
  },  
  "RootFS": {  
    "Type": "layers",  
    "Layers": [  
      "sha256:91b542912d126a7516f2371a25a8b1f865f327cd8bd079f23d057d9945f7d02d",  
      "sha256:98657105f81cfec68bf6a6281e7d46c0b9349f675070971d67618919d4b85855"  
    ]  
  },  
  "Metadata": {  
    "LastTagTime": "2025-02-05T14:14:55.978144993+01:00"  
  }  
}  
]  
root@debian12:~# docker image inspect rubenrf/meuapache:v1
```

## 10. Revisa as capas da nova imaxe (comando history).

```
root@debian12:~# docker history rubenrf/meuapache:v1
IMAGE          CREATED          CREATED BY          SIZE      COMMENT
c41e973f5207   3 minutes ago   bash               137MB
18f9bd665a29   2 days ago     # debian.sh --arch 'amd64' out/ 'bookworm' '... 117MB   debuerreotype 0.15
root@debian12:~#
```

## 11. Crea un novo contedor mapeando os portos ao porto 8084. Comproba que o ficheiro web creado anteriormente segue accesible.

```
root@debian12:~# docker run -d --name miapache -p 8084:80 rubenrf/meuapache:v1
89c2459d7579f237a2793e109753d76b16c755475e5dc3c1b82a7314cf539125
root@debian12:~#
```

### 3.2.2. Usando un Dockerfile

1. Crea un cartafol chamado novocontedor. Accede a ese cartafol. Crea un ficheiro HTML simple que poña como título de nivel 1 «Creando imaxes con **Dockerfile**» e engade o teu nome e apelidos.

```
root@debian12:~/novocontedor# nano index.html
root@debian12:~/novocontedor# cat index.html
<h1>Creando imaxes con Dockerfile RUBEN REY FEAL </h1>
root@debian12:~/novocontedor#
```

2. Crea un *docker file* que reproduza os apartados anteriores. Deberá ter as instrucións: FROM, MAINTAINER, RUN, COPY e CMD.

```
GNU nano 7.2 Dockerfile *
FROM debian
MAINTAINER Ruben Rey Feal
RUN apt update && apt upgrade -y && apt install apache2 -y
COPY index.html /var/www/html
CMD ["/usr/sbin/apache2ctl", "-D", "FOREGROUND"]
```

3. Crea a nova imaxe co comando `docker build` co nome `teunomeiniciais/meuapache:v2` (cambiando `teunomeiniciais` polo teu nome e iniciais dos teu apelidos. Por exemplo: `elenafr/meuapache:v2`).

```
root@debian12:~/novocontedor# docker build -t rubenrf/meuapache:v2 .
[+] Building 46.5s (8/8) FINISHED
=> [internal] load build definition from Dockerfile                                docker:default
=> => transferring dockerfile: 213B                                              0.1s
=> [internal] load metadata for docker.io/library/debian:latest                  0.0s
=> [internal] load .dockerignore                                                 0.0s
=> => transferring context: 2B                                                  0.0s
=> [1/3] FROM docker.io/library/debian:latest                                  0.1s
=> [internal] load build context                                                0.2s
=> => transferring context: 92B                                                 0.0s
=> [2/3] RUN apt update && apt upgrade -y && apt install apache2 -y              44.2s
=> [3/3] COPY index.html /var/www/html                                           0.1s
=> exporting to image                                                            1.6s
=> => exporting layers                                                          1.5s
=> => writing image sha256:0788c3d1ca83d1e47d1280f1a3aeec2b2ce1372295f93c76f77eec8f1452b3d8 0.0s
=> => naming to docker.io/rubenrf/meuapache:v2                                0.0s

1 warning found (use docker --debug to expand):
 - MaintainerDeprecated: Maintainer instruction is deprecated in favor of using label (line 2)
root@debian12:~/novocontedor#
```

#### 4. Inspecciona a nova imaxe.

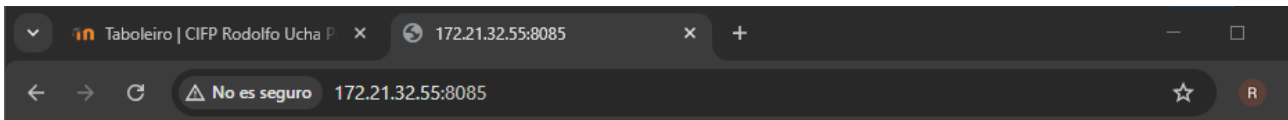
```
rubenrf@debian12: ~  
{"Id": "sha256:0788c3d1ca83d1e47d1280f1a3aee2b2ce1372295f93c76f77eec8f1452b3d8",  
  "RepoTags": [  
    "rubenrf/meuapache:v2"  
  ],  
  "RepoDigests": [],  
  "Parent": "",  
  "Comment": "buildkit.dockerfile.v0",  
  "Created": "2025-02-05T14:38:53.348403688+01:00",  
  "DockerVersion": "",  
  "Author": "Ruben Rey Feal",  
  "Config": {  
    "Hostname": "",  
    "Domainname": "",  
    "User": "",  
    "AttachStdin": false,  
    "AttachStdout": false,  
    "AttachStderr": false,  
    "Tty": false,  
    "OpenStdin": false,  
    "StdinOnce": false,  
    "Env": [  
      "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"  
    ],  
    "Cmd": [  
      "/usr/sbin/apache2ctl",  
      "-D",  
      "FOREGROUND"  
    ],  
    "ArgsEscaped": true,  
    "Image": "",  
    "Volumes": null,  
    "WorkingDir": "",  
    "Entrypoint": null,  
    "OnBuild": null,  
    "Labels": null  
  },  
  "Architecture": "amd64",  
  "Os": "linux",  
  "Size": 253012672,  
  "GraphDriver": {  
    "Data": {  
      "LowerDir": "/var/lib/docker/overlay2/53bc0d5wyq3yd6sn27j2kimee/diff:/var/lib/docker/overlay2/30a4622  
25c7c9324feb810f0034cb26371620cfba111d284fc0ecac5c1e7b06a/diff",  
      "MergedDir": "/var/lib/docker/overlay2/uiwc7y40x1w6znzrt86v3msl5/merged",  
      "UpperDir": "/var/lib/docker/overlay2/uiwc7y40x1w6znzrt86v3msl5/diff",  
      "WorkDir": "/var/lib/docker/overlay2/uiwc7y40x1w6znzrt86v3msl5/work"  
    },  
    "Name": "overlay2"  
  },  
  "RootFS": {  
    "Type": "layers",  
    "Layers": [  
      "sha256:91b542912d126a7516f2371a25a8b1f865f327cd8bd079f23d057d9945f7d02d",  
      "sha256:1a67624d456575f3a27b839bbd6d15b4941255c63b36cb31bd3af68c27b4fb5b",  
      "sha256:6e83a80c121df7b68b2184e3e77761e608414f07bda59b671537c73e7c8d1884"  
    ]  
  },  
  "Metadata": {  
    "LastTagTime": "2025-02-05T14:38:54.882520651+01:00"  
  }  
}  
root@debian12:~/novocontedor# docker inspect rubenrf/meuapache:v2
```

5. Revisa as capas da nova imaxe.

```
root@debian12:~/novocontedor# docker history rubenrf/meuapache:v2
IMAGE          CREATED          CREATED BY          SIZE      COMMENT
0788c3d1ca83   About a minute ago  CMD ["/usr/sbin/apache2ctl" "-D" "FOREGROUND..."  0B        buildkit.dockerfile.v0
<missing>      About a minute ago  COPY index.html /var/www/html # buildkit          55B       buildkit.dockerfile.v0
<missing>      About a minute ago  RUN /bin/sh -c apt update && apt upgrade -y ...    136MB     buildkit.dockerfile.v0
<missing>      About a minute ago  MAINTAINER Ruben Rey Feal                          0B        buildkit.dockerfile.v0
<missing>      2 days ago         # debian.sh --arch 'amd64' out/ 'bookworm' '...'  117MB     debuerreotype 0.15
root@debian12:~/novocontedor#
```

6. Executa o novo contedor coa imaxe creada e mapeado o porto 8085 e comproba o acceso ao ficheiro HTML creado anteriormente

```
root@debian12:~/novocontedor# docker run -d --name miapache2 -p 8085:80 rubenrf/meuapache:v2
87adf2a54fe80f80b07aa27b011a6520f7ba6bc6b3d5b83628708ec1c0d59898
root@debian12:~/novocontedor# docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS
87adf2a54fe8   rubenrf/meuapache:v2  "/usr/sbin/apache2ctl..."  4 seconds ago  Up 3 seconds  0.0.0.0:8085->80/tcp,
[::]:8085->80/tcp   miapache2
bfcc78720e51   wordpress      "docker-entrypoint.s..."  29 hours ago  Up 50 minutes  0.0.0.0:8080->80/tcp,
[::]:8080->80/tcp   wordpress_base
root@debian12:~/novocontedor#
```



## Creando imaxes con Dockerfile RUBEN REY FEAL



### 3.3. Distribución da imaxe

1. Salva a nova imaxe creada co nome meuapache2.tar.

```
root@debian12:~# docker image ls
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
rubenrf/meuapache   v2              0788c3d1ca83   22 hours ago   253MB
rubenrf/meuapache   v1              c41e973f5207   22 hours ago   253MB
debian              latest          18f9bd665a29   3 days ago     117MB
personalizado_nginx latest          168d5c990769   7 days ago     192MB
httpd               latest          f7d8bafbd9a9   13 days ago    148MB
mysql               latest          a52cba19e8cc   2 weeks ago    797MB
nginx               prueba          a0d9e3b3dcc2   2 weeks ago    192MB
web_server-nginx    latest          58d3f6196d31   2 weeks ago    192MB
node                latest          89871f29e084   2 weeks ago    1.12GB
redis               latest          4075a3f8c3f8   4 weeks ago    117MB
portainer/portainer-ce 2.21.5         0c03664af9ed   6 weeks ago    308MB
bash                latest          2a658e2e2bab   8 weeks ago    14.5MB
mongo               latest          f08e39122805   2 months ago   855MB
nginx               latest          9bea9f2796e2   2 months ago   192MB
postgres            latest          9a0ce6be5dd4   2 months ago   435MB
wordpress            latest          c012b71a41fc   2 months ago   701MB
busybox             latest          af4709625109   4 months ago   4.27MB
nginx               1.26.2          0dcfd986e814   5 months ago   188MB
hello-world         latest          d2c94e258dcb   21 months ago  13.3kB

root@debian12:~# docker save rubenrf/meuapache:v
v1 v2
root@debian12:~# docker save rubenrf/meuapache:v2 > meuapache2.tar
root@debian12:~# ls
app docker-compose.yml httpd meuapache2.tar mongo mysql novocontedor pache pto10 wordpress
root@debian12:~#
```

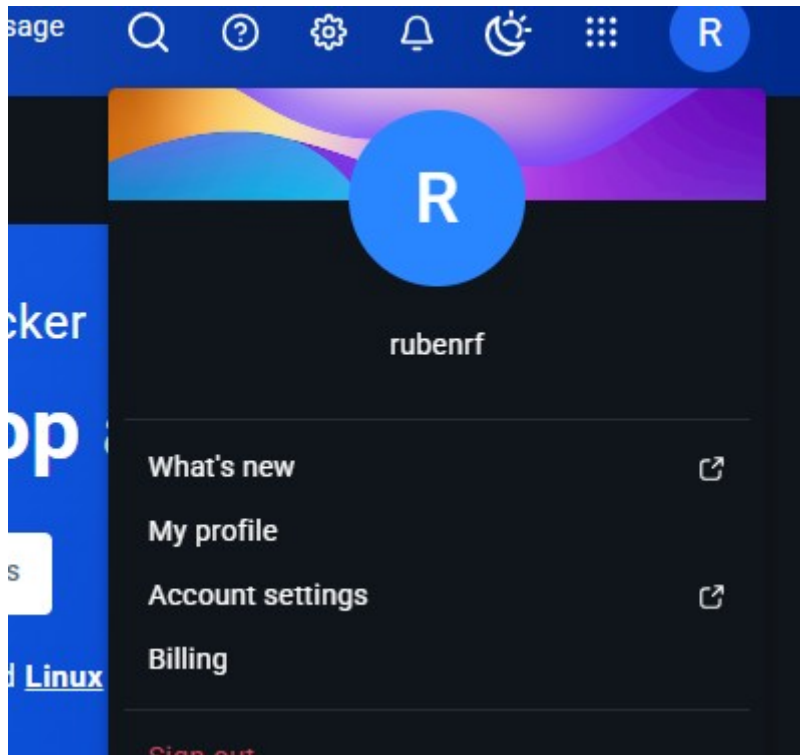
2. Borra a imaxe «teunomeiniciais/meuapache:v2».

```
root@debian12:~# docker rmi -f rubenrf/meuapache:v2
Untagged: rubenrf/meuapache:v2
Deleted: sha256:0788c3d1ca83d1e47d1280f1a3aeec2b2ce1372295f93c76f77eec8f1452b3d8
root@debian12:~#
```

3. Carga de novo a imaxe dende o ficheiro tar creado antes.

```
root@debian12:~# docker load -i meuapache2.tar
Loaded image: rubenrf/meuapache:v2
root@debian12:~# docker image ls
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
rubenrf/meuapache   v2              0788c3d1ca83   22 hours ago   253MB
rubenrf/meuapache   v1              c41e973f5207   22 hours ago   253MB
debian              latest          18f9bd665a29   3 days ago     117MB
personalizado_nginx latest          168d5c990769   7 days ago     192MB
httpd               latest          f7d8bafbd9a9   13 days ago    148MB
mysql               latest          a52cba19e8cc   2 weeks ago    797MB
nginx               prueba          a0d9e3b3dcc2   2 weeks ago    192MB
web_server-nginx    latest          58d3f6196d31   2 weeks ago    192MB
node                latest          89871f29e084   2 weeks ago    1.12GB
redis               latest          4075a3f8c3f8   4 weeks ago    117MB
portainer/portainer-ce 2.21.5         0c03664af9ed   6 weeks ago    308MB
bash                latest          2a658e2e2bab   8 weeks ago    14.5MB
mongo               latest          f08e39122805   2 months ago   855MB
nginx               latest          9bea9f2796e2   2 months ago   192MB
postgres            latest          9a0ce6be5dd4   2 months ago   435MB
wordpress            latest          c012b71a41fc   2 months ago   701MB
busybox             latest          af4709625109   4 months ago   4.27MB
nginx               1.26.2          0dcfd986e814   5 months ago   188MB
hello-world         latest          d2c94e258dcb   21 months ago  13.3kB
root@debian12:~#
```

4. Crea un usuario en Docker Hub (opcional).



5. Identifícate en Docker Hub dende o terminal da túa máquina virtual (opcional).

```
root@debian12:~# docker login -u rubenrf
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
```

6. Sube a imaxe a docker Hub login/meuapache:v1 (opcional).

```
root@debian12:~# docker push rubenrf/meuapache:v2
The push refers to repository [docker.io/rubenrf/meuapache]
6e83a80c121d: Pushed
1a67624d4565: Pushed
91b542912d12: Mounted from library/debian
v2: digest: sha256:4fe34d87c1bf1a052fe6e5f2a25d45b2af34c8a790842d6edfbc26fdea7663fc size: 948
root@debian12:~#
```

```
root@debian12:~# docker image tag rubenrf/meuapache:v2 rubenreyfeal/meuapache:v2
root@debian12:~# docker image ls
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
rubenrf/meuapache	v2	0788c3d1ca83	23 hours ago	253MB
rubenreyfeal/meuapache	v2	0788c3d1ca83	23 hours ago	253MB
rubenrf/meuapache	v1	c41e973f5207	23 hours ago	253MB



## Tarefa 4. Monitorización Docker

Completa os seguintes apartados facendo as capturas de imaxe necesarias que demostren o correcto funcionamento dos contedores e a súa monitorización.

1. Poñer en marcha un contedor cunha imaxe de `nginx` en segundo plano (modo *detached*). A continuación inspeccionar a configuración e os detalles de dito contedor relativos á **rede**, **volumes**, **memoria** e **CPU**. Tentar obter os datos anteriores por separado usando o formato de notación *json*.

```
root@debian12:~# docker run -d --name nginx_1 nginx
00bd7b23357a07f66460163721092828eb5578583acd8e46c21e2027f01e0d84
root@debian12:~#
```

```
root@debian12:~# docker inspect nginx_1 -f '{{json .NetworkSettings}}'
{"Bridge":"","SandboxID":"f248da5747a2b6ce9f10bc7edc382227d577900751dbf242b091d8e9c8b65d41","SandboxKey":"/var/run/do
cker/netns/f248da5747a2","Ports":{"80/tcp":null},"HairpinMode":false,"LinkLocalIPv6Address":"","LinkLocalIPv6PrefixLe
n":0,"SecondaryIPAddresses":null,"SecondaryIPv6Addresses":null,"EndpointID":"aecbf00aed1ccb1acade38a1ee80bdcf6e8eee0
da684688c68da94412e08399","Gateway":"172.17.0.1","GlobalIPv6Address":"","GlobalIPv6PrefixLen":0,"IPAddress":"172.17.0
.2","IPPrefixLen":16,"IPv6Gateway":"","MacAddress":"02:42:ac:11:00:02","Networks":{"bridge":{"IPAMConfig":null,"Links
":null,"Aliases":null,"MacAddress":"02:42:ac:11:00:02","DriverOpts":null,"NetworkID":"f36bd953bc036c97acff940f9ab3fc0
bc8788ae3da80c9060c7b78686fd5bf10","EndpointID":"aecbf00aed1ccb1acade38a1ee80bdcf6e8eee0da684688c68da94412e08399","G
ateway":"172.17.0.1","IPAddress":"172.17.0.2","IPPrefixLen":16,"IPv6Gateway":"","GlobalIPv6Address":"","GlobalIPv6Pre
fixLen":0,"DNSNames":null}}}
root@debian12:~# docker inspect nginx_1 -f '{{json .Mounts}}'
[]
root@debian12:~# docker inspect nginx_1 -f '{{json .HostConfig.Memory}}'
0
root@debian12:~# docker inspect nginx_1 -f '{{json .HostConfig.CpuShares}}'
0
root@debian12:~#
```

2. Obter estatísticas de uso de recursos do sistema en tempo real para os contedores activos no sistema. Reparar no uso de CPU e de memoria de cada un dos contedores.

```
root@debian12:~# docker stats nginx_1 --no-stream
CONTAINER ID   NAME      CPU %       MEM USAGE / LIMIT   MEM %      NET I/O       BLOCK I/O      PIDS
00bd7b23357a   nginx_1   0.00%       3.871MiB / 1.921GiB  0.20%      1.53kB / 0B    8.57MB / 12.3kB 2
root@debian12:~#
```

3. Automatizar a execución dun contedor nginx cun volume de log para almacenar os logs do servidor no host. Facelo creando un directorio `nginx_logs` para almacenar os logs e executando o contedor nginx del tal modo que monte nese directorio `nginx_logs` como volume para o directorio `/var/log/nginx` o contedor. Verificar que os logs se almacenan correctamente no directorio mapeado.

```
rubenf@debian12: ~  
GNU nano 7.2      script_nginx.sh  
#!/bin/bash  
  
mkdir -p nginx_logs  
docker run -d --name nginx_s4 -p 8095:80 \  
-v ./nginx_logs:/var/log/nginx nginx  
  
docker ps | grep nginx_s4  
  
sleep 5  
  
ls -l nginx_logs  
  
sleep 5  
  
echo "primeiras liñas do log: "  
head nginx_logs/access.log  
  
echo "erros: "  
cat nginx_logs/error.log  
  
echo "log aberto: "  
tail -f nginx_logs/access.log
```

```
root@debian12:~# nano script_nginx.sh  
root@debian12:~# chmod +x script_nginx.sh  
root@debian12:~# ./script_nginx.sh
```

4. Crear un volume en Docker e executar un contedor coa imaxe busybox que faga uso de dito volume. Empregar por exemplo un directorio chamado /data do contedor. Faga tamén que a execución sexa en segundo plano (*detached*). Usar o comando *docker inspect* para verificar a montaxe do volume no contedor.

```
root@debian12:~# docker run -d --name busybox_s3 -v busybox_3:/data busybox sleep 30000
2b6e3905f52a881ce1a7f0eb0d41022694bae7147acf95b6beab17651f089ffe
root@debian12:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
2b6e3905f52a	busybox	"sleep 30000" busybox_s3	4 seconds ago	Up 4 seconds	
a4b1a7a75c28	nginx	"/docker-entrypoint..." nginx_s4	4 minutes ago	Up 4 minutes	0.0.0.
0:8095->80/tcp, [::]:8095->80/tcp	nginx	"/docker-entrypoint..." nginx_1	29 minutes ago	Up 29 minutes	80/tcp
45c4ce1f50e8	mysql:latest	"docker-entrypoint.s..." root-db-1	24 hours ago	Up 2 hours	3306/t
cp, 33060/tcp	wordpress	"docker-entrypoint.s..." root-wordpress-1	24 hours ago	Up 2 hours	0.0.0.
86657613dec		0:8081->80/tcp, [::]:8081->80/tcp			

```
root@debian12:~#
```

```
root@debian12:~# docker inspect busybox_s3
```

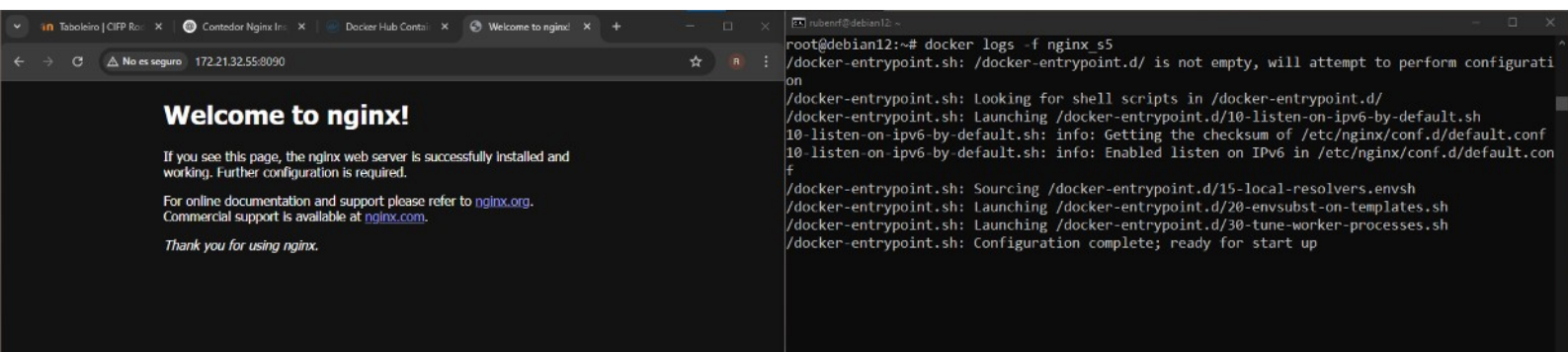
```
    "Mounts": [
      {
        "Type": "volume",
        "Name": "busybox_3",
        "Source": "/var/lib/docker/volumes/busybox_3/_data",
        "Destination": "/data",
        "Driver": "local",
        "Mode": "z",
        "RW": true,
        "Propagation": ""
      }
    ],
```

5. Poñer en marcha un contedor cunha imaxe de nginx en segundo plano (modo *detached*), mapeando o porto 80 do contedor a un porto coñecido no anfitrión (por exemplo, 8090). Utilizar o comando `docker logs` para visualizar os rexistros de actividade de dito contedor. Fixarse no tipo de información que proporcionan os *logs* dun contedor e como se poden usar para detectar problemas. Buscar o modo de visualizar só as últimas 10 liñas dos *logs* dun contedor.

```
root@debian12:~# mkdir nginx_logs2
root@debian12:~# docker run -d --name nginx_s5 -v ./nginx_logs2:/var/log/nginx -p 8090:80 nginx
```

```
25981547555ea0745ba740307b5443120665a07ddaf0e85f5aeec5fa4940e01
root@debian12:~# docker logs --tail 10 nginx_s5
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
root@debian12:~#
```

6. Repetir o escenario do anterior exercicio, pero agora empregar o comando `docker logs` para visualizar os rexistros de actividade en tempo real ó mesmo tempo que se accede mediante un navegador ao servizo. Observar que ocorre cada vez que solicita a páxina raíz `http://IP-MAQUINA:8090`.



7. Poñer en marcha un *stack* creando un ficheiro `docker-compose.yml` que levante tres servizos: **Prometheus**, **Grafana** e **Node Exporter** para monitorizar o sistema anfitrión (os nomes das imaxes son, respectivamente, `prom/prometheus:latest`, `grafana/grafana:latest` e `prom/node_exporter:latest`). Xa cos servizos en marcha, acceder a Grafana no URL `http://IP-MÁQUINA:3000` e engadir Prometheus coma fonte de datos. Configurar un *dashboard* para visualizar métricas coma uso de memoria, tráfico de rede e carga do sistema (OPCIONAL).
8. Extender o exercicio anterior para que facer a monitorización dun par de contedores adicionais con imaxes de **Nginx** e **Mysql**. Configurar alertas para emitir notificacións cando a carga do sistema ou o uso de memoria superen un límite (OPCIONAL).

```
root@debian12:~# git clone https://github.com/rvva/nginx-prometheus-grafana/
Clonando en 'nginx-prometheus-grafana'...
remote: Enumerating objects: 66, done.
remote: Counting objects: 100% (18/18), done.
remote: Compressing objects: 100% (14/14), done.
remote: Total 66 (delta 6), reused 9 (delta 4), pack-reused 48 (from 1)
Recibiendo objetos: 100% (66/66), 138.69 KiB | 755.00 KiB/s, listo.
Resolviendo deltas: 100% (22/22), listo.
root@debian12:~#
```

```
root@debian12:~# mkdir -p nginx-prometheus-grafana/{prometheus,grafana}/data
root@debian12:~# mkdir nginx-prometheus-grafana/nginx/log
root@debian12:~# ls nginx-prometheus-grafana/
docker-compose.yml grafana html LICENSE nginx prometheus README.md
root@debian12:~# ls nginx-prometheus-grafana/grafana/
data
root@debian12:~# ls nginx-prometheus-grafana/prometheus/
data prometheus.yml
root@debian12:~# ls nginx-prometheus-grafana/nginx/
conf Dockerfile log
root@debian12:~#
```

```
root@debian12:~# ls -a nginx-prometheus-grafana/
. .. docker-compose.yml .env .git grafana html LICENSE nginx prometheus README.md
root@debian12:~# cat .env
cat: .env: No existe el fichero o el directorio
root@debian12:~# cat nginx-prometheus-grafana/.env
GF_SECURITY_ADMIN_USER=user
GF_SECURITY_ADMIN_PASSWORD=password
root@debian12:~# nano nginx-prometheus-grafana/.env
root@debian12:~#
```

```
GNU nano 7.2 nginx-prometheus-grafana/.env *
GF_SECURITY_ADMIN_USER=rubenrf
GF_SECURITY_ADMIN_PASSWORD=abc123.
```

```

root@debian12: ~
Container root-wordpress-1 Stopped 1.5s
Container root-db-1 Stopped 2.6s
root@debian12:~# cd nginx-prometheus-grafana/
root@debian12:~/nginx-prometheus-grafana# docker compose up -d
WARN[0000] /root/nginx-prometheus-grafana/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 17/37
 grafana [██████████] Pulling 14.0s
   96526aa774ef Waiting 11.9s
   bf463c6d6fd9 Waiting 12.0s
   64491de7f808 Waiting 12.0s
   7586eb37bf99 Waiting 12.0s
   6385481c8130 Waiting 11.8s
   be945c5c19f4 Waiting 11.8s
   f2406d8b1768 Waiting 11.8s
   2fce2b17ac72 Waiting 11.8s
   0e72a77828ca Waiting 11.8s
   8b7464061573 Waiting 11.8s
 cadvisor Pulled 9.6s
   a88dc8b54e91 Pull complete 2.1s
   7d9d19af92b7 Pull complete 2.7s
   0aadeeacd5c8 Pull complete 3.2s
   38472f976319 Pull complete 3.5s
   1c292d3fb613 Pull complete 7.9s
 prometheus [██████████] 87.02MB / 95MB Pulling 13.9s
   9fa9226be034 Pull complete 2.7s
   1617e25568b2 Pull complete 4.3s
   d23c7198a34d Downloading 45.48MB/48.99MB 11.9s
   5f2127fa3fe3 Downloading 40.27MB/44.59MB 11.9s
   0220544fce17 Download complete 6.6s
   c64fc07d8284 Download complete 7.1s
   89937711770a Download complete 7.6s
   5144db0eb4de Download complete 8.2s
   987c108e8040 Download complete 8.7s
   773d051f2f72 Download complete 9.3s
   e3fd187d45cb Download complete 9.8s
   55bac67f7e11 Download complete 10.5s
 nginx-prometheus-exporter [██] 548.7kB / 4.377MB Pulling 14.0s
   514206a90ad6 Pull complete 11.0s
   cfd8a87f95cd Downloading 426kB/4.254MB 11.9s
 prometheus-node-exporter [███] Pulling 14.0s
   2abcce694348 Waiting 11.8s
   455fd88e5221 Waiting 11.8s
   324153f2810a Waiting 11.8s

```

```

[+] Running 8/8
 nginx Built 0.0s
 Network localhost Created 0.2s
 Container prometheus Started 1.7s
 Container nginx-www Started 1.9s
 Container prometheus-node-exporter Started 2.6s
 Container grafana Started 3.1s
 Container cadvisor Started 2.9s
 Container prometheus-nginx-exporter Started 3.0s
root@debian12:~/nginx-prometheus-grafana#

```

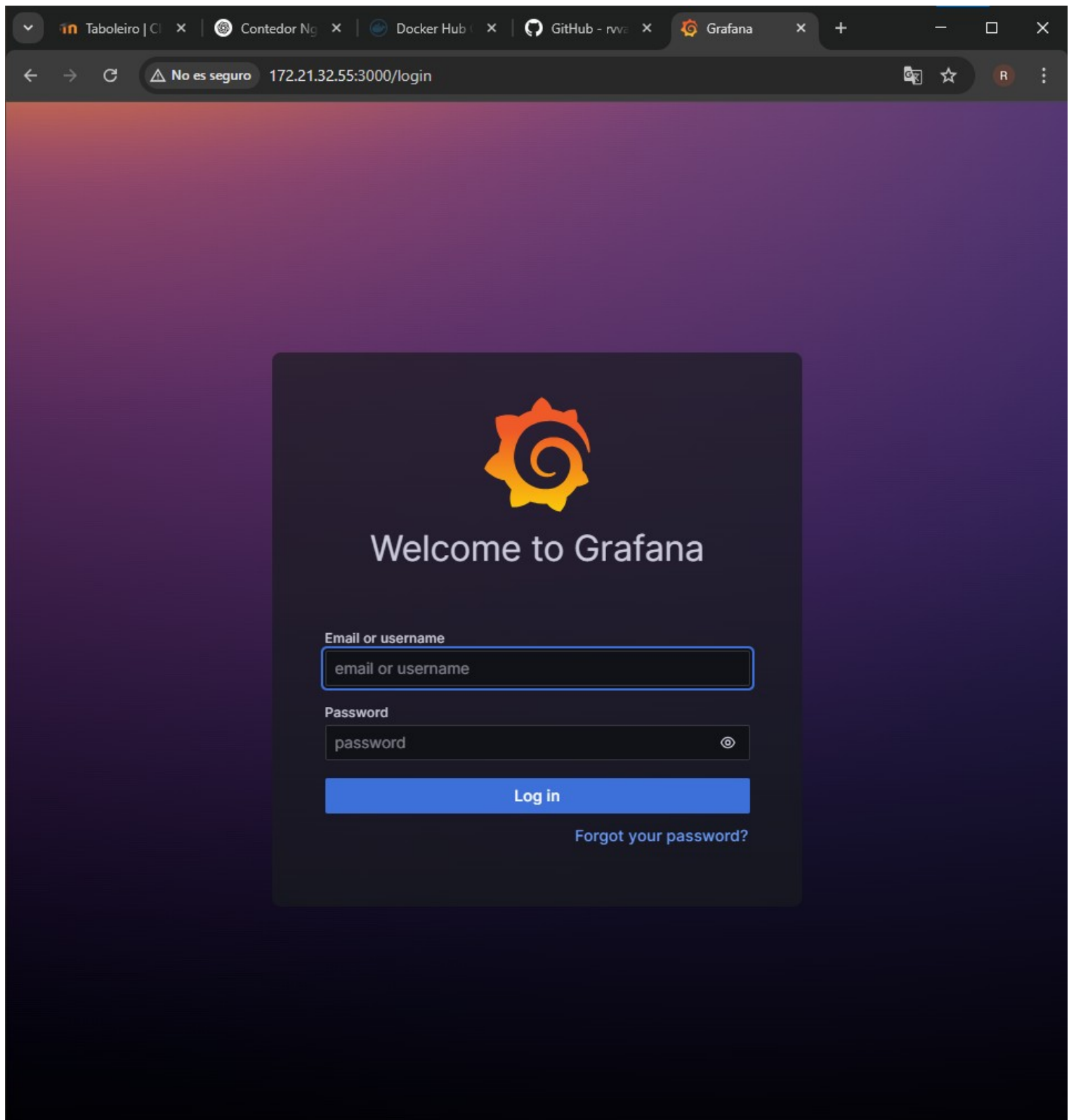


```

root@debian12:~/nginx-prometheus-grafana# docker compose ps
WARN[0000] /root/nginx-prometheus-grafana/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
NAME                IMAGE                                COMMAND                                SER
VICE                CREATED          STATUS                                PORTS
cadvisor            gcr.io/cadvisor/cadvisor:v0.47.2  "/usr/bin/cadvisor -..."          cad
visor              2 minutes ago   Up 2 minutes (healthy)              8080/tcp
grafana             grafana/grafana:10.0.10            "/run.sh"                            gra
fana               2 minutes ago   Up 2 minutes                        0.0.0.0:3000->3000/tcp, :::3
000->3000/tcp
nginx-www           nginx-prometheus-grafana-nginx      "/docker-entrypoint..."          ngi
nx                 2 minutes ago   Up 2 minutes                        0.0.0.0:80->80/tcp, :::80->8
0/tcp, 0.0.0.0:443->443/tcp, :::443->443/tcp
prometheus          prom/prometheus:v2.45.2            "/bin/prometheus --c..."          pro
metheus           2 minutes ago   Up 2 minutes                        0.0.0.0:9090->9090/tcp, :::9
090->9090/tcp
prometheus-nginx-exporter  nginx/nginx-prometheus-exporter:1.0  "/usr/bin/nginx-prom..."          ngi
nx-prometheus-exporter  2 minutes ago   Up 2 minutes                        9113/tcp
prometheus-node-exporter  prom/node-exporter:v1.7.0           "/bin/node_exporter ..."          pro
metheus-node-exporter  2 minutes ago   Up 2 minutes                        9100/tcp
root@debian12:~/nginx-prometheus-grafana# docker ps
CONTAINER ID   IMAGE                                COMMAND                                CREATED
STATUS        PORTS
NAMES
5fba5f260df8   nginx/nginx-prometheus-exporter:1.0  "/usr/bin/nginx-prom..."          3 minutes ago
Up 3 minutes   9113/tcp
prometheus-nginx-exporter
26b297d49806   gcr.io/cadvisor/cadvisor:v0.47.2    "/usr/bin/cadvisor -..."          3 minutes ago
Up 3 minutes (healthy)  8080/tcp
cadvisor
8b36054289d2   grafana/grafana:10.0.10             "/run.sh"                            3 minutes ago
Up 3 minutes   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp
grafana
597a6988b4da   prom/node-exporter:v1.7.0           "/bin/node_exporter ..."          3 minutes ago
Up 3 minutes   9100/tcp
prometheus-node-exporter
9ed5f2f87061   nginx-prometheus-grafana-nginx      "/docker-entrypoint..."          3 minutes ago
Up 3 minutes   0.0.0.0:80->80/tcp, :::80->80/tcp, 0.0.0.0:443->443/tcp, :::443->443/
tcp  nginx-www
18b012cc7d34   prom/prometheus:v2.45.2            "/bin/prometheus --c..."          3 minutes ago
Up 3 minutes   0.0.0.0:9090->9090/tcp, :::9090->9090/tcp
prometheus
root@debian12:~/nginx-prometheus-grafana#

```





Taboleiro | Cl x Contedor Ng x Docker Hub x GitHub - rvc x Prometheus x +

No es seguro 172.21.32.55:9090/graph?g0.expr=&g0.tab=1&g0.stacked=0&g0.show\_exemplars=0&g0...

Prometheus Alerts Graph Status Help

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Search: Expression (press Shift+Enter for newlines) [Menu] [Refresh] [Execute]

Table Graph

Evaluation time

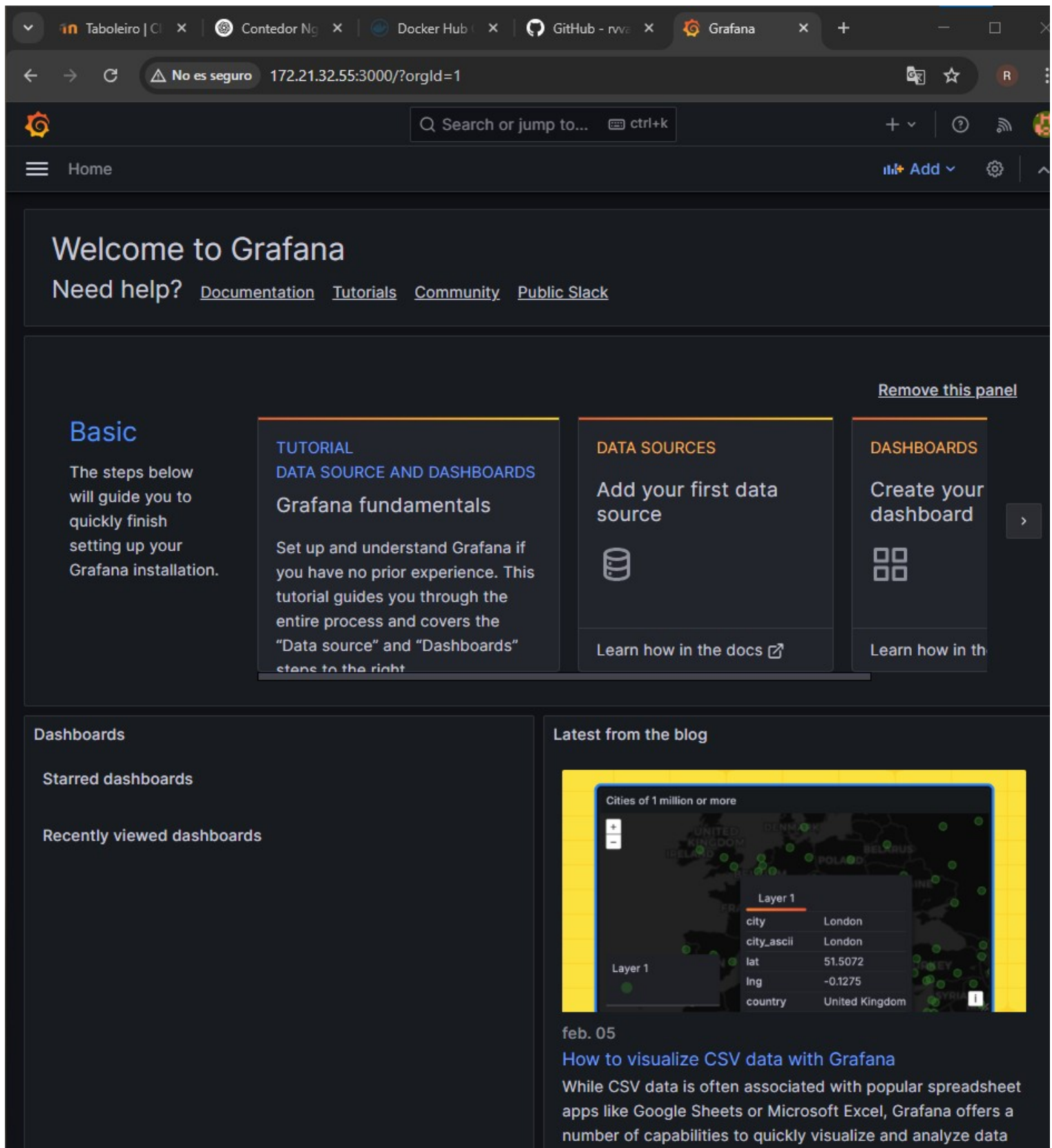
No data queried yet

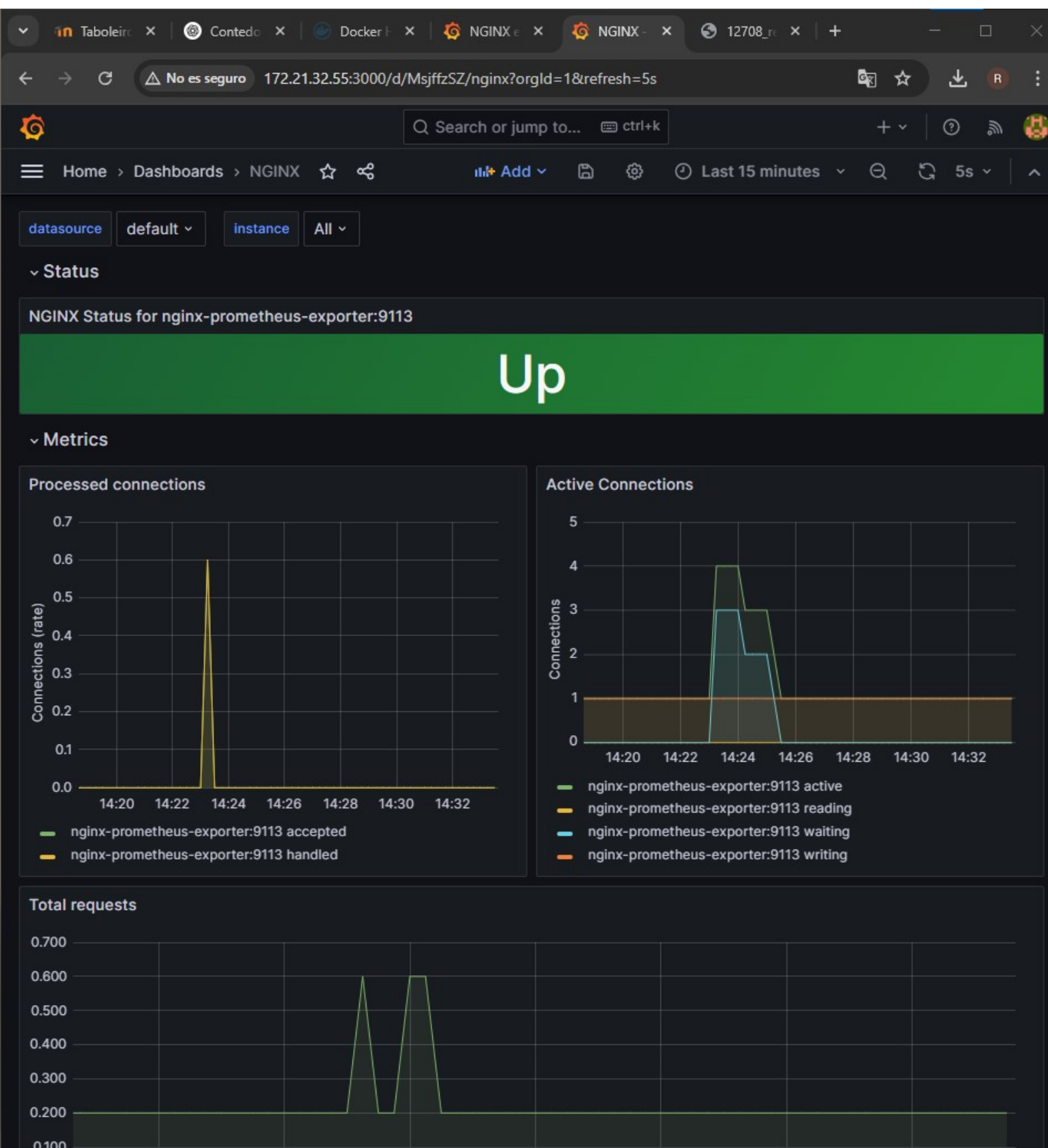
Remove Panel

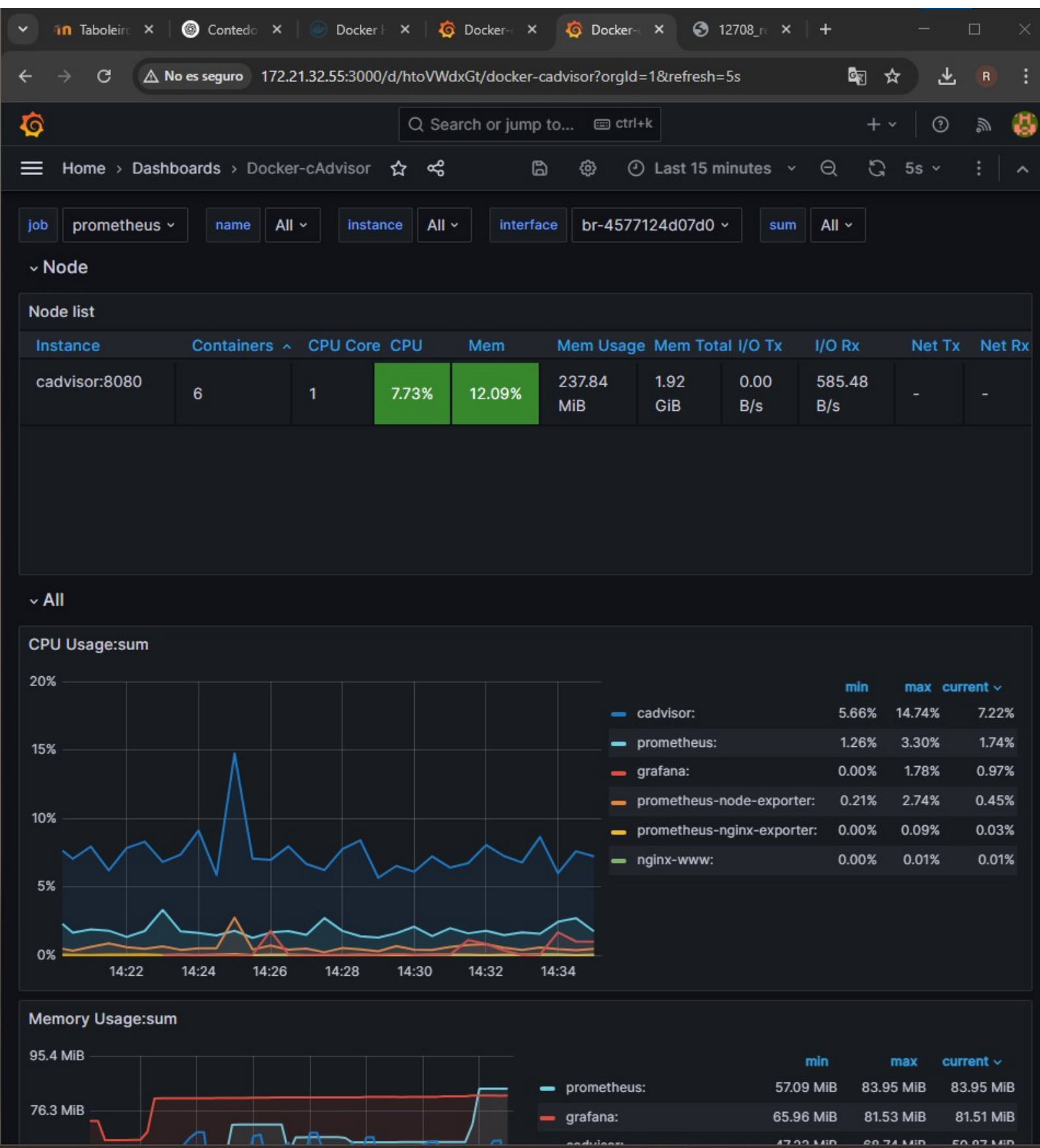
Add Panel

172.21.32.55:9090/metrics

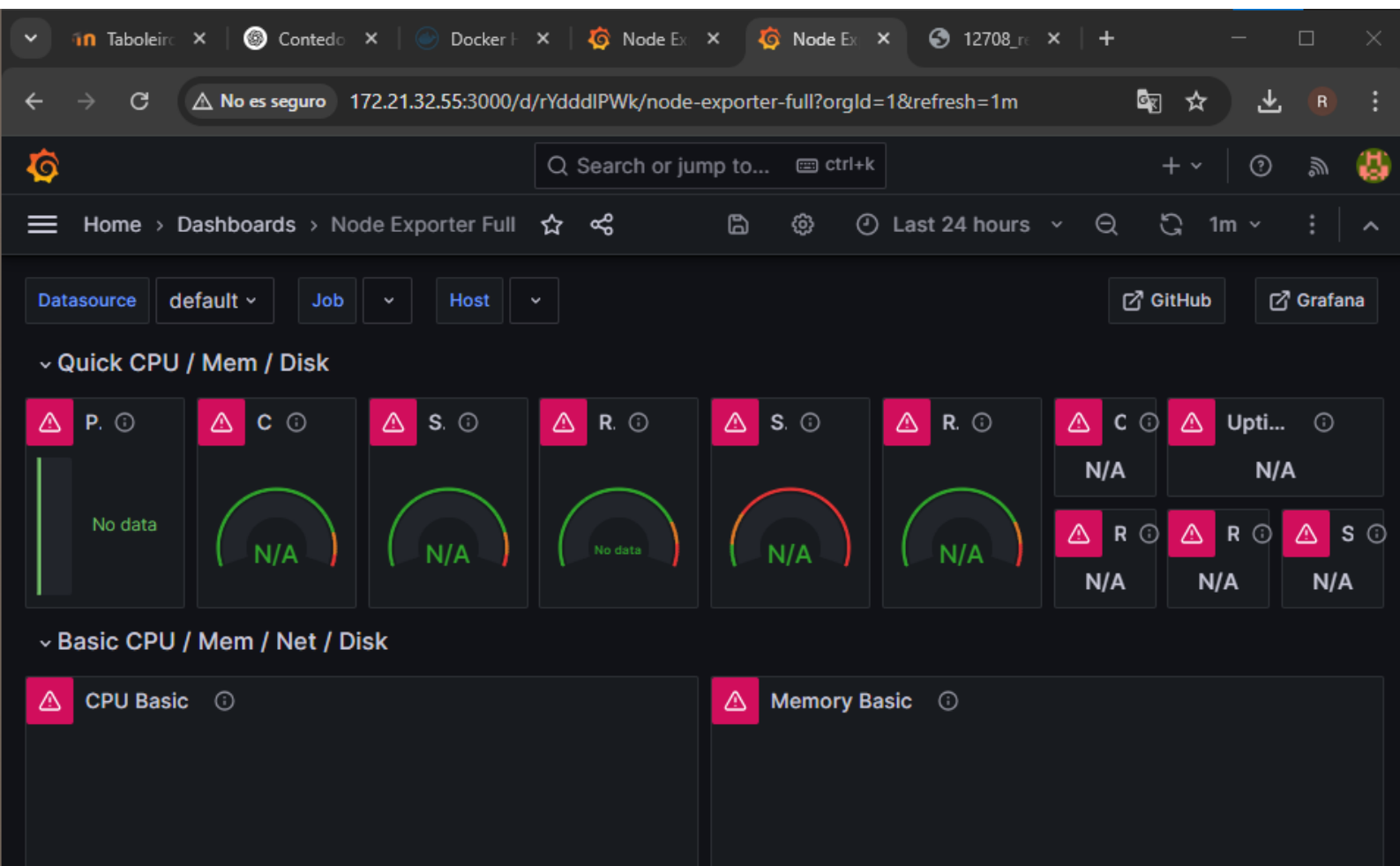
```
# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 2.0316e-05
go_gc_duration_seconds{quantile="0.25"} 4.19e-05
go_gc_duration_seconds{quantile="0.5"} 4.9388e-05
go_gc_duration_seconds{quantile="0.75"} 5.7735e-05
go_gc_duration_seconds{quantile="1"} 0.000104189
go_gc_duration_seconds_sum 0.000562768
go_gc_duration_seconds_count 11
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 42
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
go_info{version="go1.21.5"} 1
# HELP go_memstats_alloc_bytes Number of bytes allocated and still in use.
# TYPE go_memstats_alloc_bytes gauge
go_memstats_alloc_bytes 3.2275056e+07
# HELP go_memstats_alloc_bytes_total Total number of bytes allocated, even if freed.
# TYPE go_memstats_alloc_bytes_total counter
go_memstats_alloc_bytes_total 1.12748928e+08
# HELP go_memstats_buck_hash_sys_bytes Number of bytes used by the profiling bucket hash table.
# TYPE go_memstats_buck_hash_sys_bytes gauge
go_memstats_buck_hash_sys_bytes 1.487288e+06
# HELP go_memstats_frees_total Total number of frees.
# TYPE go_memstats_frees_total counter
go_memstats_frees_total 781827
# HELP go_memstats_gc_sys_bytes Number of bytes used for garbage collection system metadata.
# TYPE go_memstats_gc_sys_bytes gauge
go_memstats_gc_sys_bytes 6.280384e+06
# HELP go_memstats_heap_alloc_bytes Number of heap bytes allocated and still in use.
# TYPE go_memstats_heap_alloc_bytes gauge
go_memstats_heap_alloc_bytes 3.2275056e+07
# HELP go_memstats_heap_idle_bytes Number of heap bytes waiting to be used.
# TYPE go_memstats_heap_idle_bytes gauge
go_memstats_heap_idle_bytes 2.9106176e+07
# HELP go_memstats_heap_inuse_bytes Number of heap bytes that are in use.
# TYPE go_memstats_heap_inuse_bytes gauge
go_memstats_heap_inuse_bytes 4.1345024e+07
# HELP go_memstats_heap_objects Number of allocated objects.
# TYPE go_memstats_heap_objects gauge
go_memstats_heap_objects 136578
# HELP go_memstats_heap_released_bytes Number of heap bytes released to OS.
# TYPE go_memstats_heap_released_bytes gauge
go_memstats_heap_released_bytes 6.291456e+06
# HELP go_memstats_heap_sys_bytes Number of heap bytes obtained from system.
# TYPE go_memstats_heap_sys_bytes gauge
go_memstats_heap_sys_bytes 7.04512e+07
# HELP go_memstats_last_gc_time_seconds Number of seconds since 1970 of last garbage collection.
# TYPE go_memstats_last_gc_time_seconds gauge
go_memstats_last_gc_time_seconds 1.7388483073404114e+09
# HELP go_memstats_lookups_total Total number of pointer lookups.
# TYPE go_memstats_lookups_total counter
```











Browser tabs: Taboleirc, Contedo, Docker, Node Ex, Dashbo, 12708\_r

Address bar: No es seguro 172.21.32.55:3000/dashboards

Search: Search or jump to... ctrl+k

Navigation: Home > Dashboards

## Dashboards

Create and manage dashboards to visualize your data

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- NGINX

General

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- Node Exporter Full

General

linux

## Tarefa 5. Siglas

Busca e traduce as seguintes siglas **relacionados coa UD**:

	<b>Siglas</b>	<b>Significado</b>	<b>Tradución</b>
1	<b>LPD</b>	Ley de Protección de Datos	Lei de Protección de Datos
2	<b>LPR</b>	Ley de Propiedad Registral	Lei de Propiedade Rexistral
3	<b>IPP</b>	Indicador Público de Renta de Efectos Múltiples	Indicador Público de Renda de Efectos Múltiples
4	<b>PDL</b>	Proyecto de Ley	Proxecto de Lei
5	<b>CUPS</b>	Código Universal del Punto de Suministro	Código Universal do Punto de Subministración
6	<b>PDF</b>	Portable Document Format	Formato de Documento Portátil
7	<b>XPS</b>	XML Paper Specification	Especificación de Papel XML