

# Docker

1. Vamos a crear dos redes de ese tipo (BRIDGE) con los siguientes datos:

Red1

- Nombre: red1
- Dirección de red: 172.28.0.0
- Máscara de red: 255.255.0.0
- Gateway: 172.28.0.1

Red2

- Nombre: red2

Es resto de los datos será proporcionados automáticamente por Docker.

```
docker network create --driver=bridge --subnet=172.28.0.0/16 --gateway=172.28.0.1 red1
```

```
root@daw-docker:/home/daw# docker network create --driver=bridge --subnet=172.28.0.0/16 --gateway=172.28.0.1 red1
26cf6ea081bdf3657229ac3b474aae41f07cfec76bcdd12c578bd9c8db7921fe
root@daw-docker:/home/daw# docker network create --driver=bridge red2
1e06fa6c90f5de29a7b13173b9197300cb795a42ec46ccbb7336ee3bd1ec54e1
root@daw-docker:/home/daw#
```

2. Poner en ejecución un contenedor de la imagen `ubuntu:20.04` que tenga como hostname `host1`, como IP `172.28.0.10` y que esté conectado a la red1. Lo llamaremos `u1`.

```
docker run --name u1 --hostname host1 --ip 172.28.0.10 --network red1 ubuntu:20.04
```

```
root@daw-docker:/home/daw
root@daw-docker:/home/daw# docker run --name u1 --hostname host1 --ip 172.28.0.10 --network red1 ubuntu:20.04
Unable to find image 'ubuntu:20.04' locally
20.04: Pulling from library/ubuntu
846c0b181fff: Pull complete
Digest: sha256:0e0402cd13f68137edb0266e1d2c682f217814420f2d43d300ed8f65479b14fb
Status: Downloaded newer image for ubuntu:20.04
root@daw-docker:/home/daw#
```

3. Entrar en ese contenedor e instalar la aplicación ping (`apt update && apt install inetutils-ping`).

```

root@host1:/# apt update && apt install inetutils-ping
Get:1 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:2 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/restricted amd64 Packages [33.4 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/main amd64 Packages [1275 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [177 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [11.3 MB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [27.7 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2921 kB]
Get:11 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [1882 kB]
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1291 kB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2009 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [31.2 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [55.2 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [28.6 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [2448 kB]
Get:18 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [991 kB]
Fetched 25.1 MB in 1s (17.0 MB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libidn11 netbase
The following NEW packages will be installed:
  inetutils-ping libidn11 netbase
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 120 kB of archives.
After this operation, 657 kB of additional disk space will be used.
Do you want to continue? [Y/n]

```

4. Poner en ejecución un contenedor de la imagen `ubuntu:20.04` que tenga como hostname `host2` y que esté conectado a la red2. En este caso será docker el que le de una IP correspondiente a esa red. Lo llamaremos `u2`.

```
docker run -it --name u2 --hostname host2 --network red2 ubuntu:20.04
```

```

d0053861263b7f119f4fe17340f1fb78f42e99dc3bd2a09e7c9ff2d8b74fab71
root@docker:/home/docker/contenedor# docker run -it --name u2 --hostname host2 --network red2 ubuntu:20.04
root@host2:/#

```

5. Entrar en ese contenedor e instalar la aplicación ping (`apt update && apt install inetutils-ping`).

```

root@docker1:/home/docker/contenedor1# docker run --name u2 --hostname host2 --network red2 u
root@host2:/# apt update && apt install inetutils-ping
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [27.7 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [1882 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 Packages [1275 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/restricted amd64 Packages [33.4 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [177 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [2448 kB]
Get:11 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [11.3 MB]
Get:12 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [991 kB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1291 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2921 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2009 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [31.2 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [55.2 kB]
Get:18 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [28.6 kB]
Fetched 25.1 MB in 1s (18.0 MB/s)
Reading package lists... Done
Building dependency tree
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All packages are up to date.
Reading package lists... Done
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Reading state information... Done
The following additional packages will be installed:
  libidn11 netbase
The following NEW packages will be installed:
  inetutils-ping libidn11 netbase
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 120 kB of archives.
After this operation, 657 kB of additional disk space will be used.
Do you want to continue? [Y/n]

```

EXTRAS:

Captura de pantalla donde se vea la configuración de red de [u1](#).

```

"Networks": {
  "red1": {
    "IPAMConfig": {
      "IPv4Address": "172.28.0.10"
    },
    "Links": null,
    "Aliases": [
      "776942e611ca",
      "host1"
    ],
    "NetworkID": "ebc81deaf14b711620d20e28c0d48d8fe47460e6d4cace279b668f45fc6105d0",
    "EndpointID": "",
    "Gateway": "",
    "IPAddress": "",
    "IPPrefixLen": 0,
    "IPv6Gateway": "",
    "GlobalIPv6Address": "",
    "GlobalIPv6PrefixLen": 0,
    "MacAddress": "",
    "DriverOpts": null
  }
}
}
}

```

Captura de pantalla donde se vea la configuración de red de [u2](#).

```

    "Networks": {
      "red2": {
        "IPAMConfig": null,
        "Links": null,
        "Aliases": [
          "aff57e3aae2a",
          "host2"
        ],
        "NetworkID": "d0053861263b7f119f4fe17340f1fb78f42e99dc3bd2a09e7c9ff2d8b74fab71",
        "EndpointID": "7b6b08dfb5f8f4cf1181fff30e91b362a0930a35e1b17c628e6ff3f59004f67c",
        "Gateway": "172.18.0.1",
        "IPAddress": "172.18.0.2",
        "IPPrefixLen": 16,
        "IPv6Gateway": "",
        "GlobalIPv6Address": "",
        "GlobalIPv6PrefixLen": 0,
        "MacAddress": "02:42:ac:12:00:02",
        "DriverOpts": null
      }
    }
  }
}
]

```

Pantallazo donde desde cualquiera de los dos contenedores se pueda ver que no podemos hacer ping al otro ni por ip ni por nombre.

```

root@host1:/# ping 172.23.0.2
PING 172.23.0.2 (172.23.0.2): 56 data bytes
^C--- 172.23.0.2 ping statistics ---
9 packets transmitted, 0 packets received, 100% packet loss
root@host1:/#

```

```

root@host2:/# ping 172.28.0.10
PING 172.28.0.10 (172.28.0.10): 56 data bytes
^C--- 172.28.0.10 ping statistics ---
6 packets transmitted, 0 packets received, 100% packet loss
root@host2:/#

```

Pantallazo donde se pueda comprobar que si conectamos el contenedor u1 a la red2 (con docker network connect), desde el contenedor u1, tenemos acceso al contenedor u2 mediante ping, tanto por nombre como por ip.

```

root@daw-docker:/home/daw# docker network connect red2 u1
root@daw-docker:/home/daw#

```

## Despliegue de Nextcloud + MariaDB

1. Crea una red de tipo bridge

```

root@daw-docker:/home/daw# docker network create -d bridge red3
2c6e361c48fd443b8130b0909a70cca24b93c510f51b55b458af54aefff2f5ad
root@daw-docker:/home/daw#

```



2. Crea el contenedor de la base de datos conectado a la red que has creado. La base de datos se debe configurar para crear una base de dato y un usuario. Además el contenedor debe utilizar almacenamiento (volúmenes o bind mount) para guardar la información. Puedes seguir la documentación de mariadb o la de PostgreSQL .

```
docker run --detach --network red3 --name mariadb -v
/home/daw/mariadb:/var/lib/mysql --env MARIADB_USER=usuario -env
MARIADB_PASSWORD=password --env MARIADB_ROOT_PASSWORD=password1 mariadb:10.5
```

```
root@daw-docker:/home/daw# docker run --detach --network red3 --name mariadb -v /home/daw/mariadb:/var/lib/
mysql --env MARIADB_USER=usuario --env MARIADB_PASSWORD=password --env MARIADB_ROOT_PASSWORD=password1 mari
adb:10.5
Unable to find image 'mariadb:10.5' locally
10.5: Pulling from library/mariadb
846c0b181fff: Already exists
2279a7485340: Pull complete
30c7fe7ba3fd: Pull complete
6b43169afb5c: Pull complete
179c81612958: Pull complete
770ca0d9f1d8: Pull complete
fb7fe1d666e4: Pull complete
13c598845a6e: Pull complete
Digest: sha256:b16e4cbe3d507bffa40542196854a8da16bd1831e2cc413d7166f9b698ec30f
Status: Downloaded newer image for mariadb:10.5
b6fe1422c9eea4864505768de32a564f4968e940765a3c3f26e94079a878aec1
root@daw-docker:/home/daw# docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES
b6fe1422c9ee   mariadb:10.5   "docker-entrypoint.s..." 16 seconds ago Up 14 seconds 3306/tcp     mariadb
```

3. A continuación, siguiendo la documentación de la imagen nextcloud , crea un contenedor conectado a la misma red, e indica las variables adecuadas para que se configure de forma adecuada y realice la conexión a la base de datos. El contenedor también debe ser persistente usando almacenamiento.

```
docker run -d --name nextcloud -v nextcloud:/var/www/html -v
apps:/var/www/html/custom_apps -v config:/var/www/html/config -v
data:/var/www/html/data -v /home/daw/mysql:/var/lib/mysql nextcloud
```

```
root@daw-docker:/home/daw# docker run -d -v nextcloud:/var/www/html -v apps:/var/www/html/custo
m_apps -v config:/var/www/html/config -v data:/var/www/html/data -v /home/daw/mysql:/var/lib/mysql nex
tcloud
Unable to find image 'nextcloud:latest' locally
latest: Pulling from library/nextcloud
8740c948ffd4: Pull complete
1873be858264: Pull complete
7ce6a163d8c1: Pull complete
008a172010ba: Pull complete
d15353ae3d77: Pull complete
223eb1888c0f: Pull complete
83374c2a967a: Pull complete
8fdc86711b26: Pull complete
23c0224c39b8: Pull complete
915d82c7f5c5: Pull complete
dc037a9c9035: Pull complete
768542e0b637: Pull complete
d7ade602d94f: Pull complete
7361225e9a5d: Pull complete
fdc75c5d6478: Pull complete
6e598d96642e: Pull complete
2183a95f6531: Pull complete
1b9c17dacd16: Pull complete
ac35d0e862c3: Pull complete
5f2db432cae4: Pull complete
Digest: sha256:aa43a87b0b6acd52c1989dc343d1702f6a9d3ae1be263e62a9d0f99ec10f29a7
Status: Downloaded newer image for nextcloud:latest
a556f43605b314917b8e678f8960792b4f30cdaeebf150be039d5ad1231ce5e8
```

4. Accede a la aplicación usando un navegador web

Archivos - Nextcloud

172.17.0.2/apps/files/?dir=/&fileid=2

Todos los archivos

Reciente

Favoritos

Compartidos

Etiquetas

Archivos eliminados

usado 24.6 MB

Configuración de archivos

Añadir notas, listas o enlaces ...

Readme.md

Editado recientemente

Welcome to Nextcloud...docx

Editado recientemente

Nextcloud flyer.pdf

Editado recientemente

Meeting notes.md

Editado recientemente

Readme.md

Editado recientemente

<input type="checkbox"/>	Nombre	Tamaño	Modificado
<input type="checkbox"/>	Documents	1,1 MB	hace un minuto
<input type="checkbox"/>	Photos	5,4 MB	hace un minuto
<input type="checkbox"/>	Plantillas	233 KB	hace un minuto
<input type="checkbox"/>	Nextcloud.png	49 KB	hace un minuto
<input type="checkbox"/>	Nextcloud intro.mp4	3,8 MB	hace un minuto
<input type="checkbox"/>	Nextcloud Manual.pdf	13,1 MB	hace un minuto
<input type="checkbox"/>	Reasons to use Nextcloud.pdf	954 KB	hace un minuto
3 carpetas y 4 archivos			24,6 MB