

Universidad Modelo



Escuela de Ingeniería

Ingeniería en Desarrollo de Tecnología y  
Software

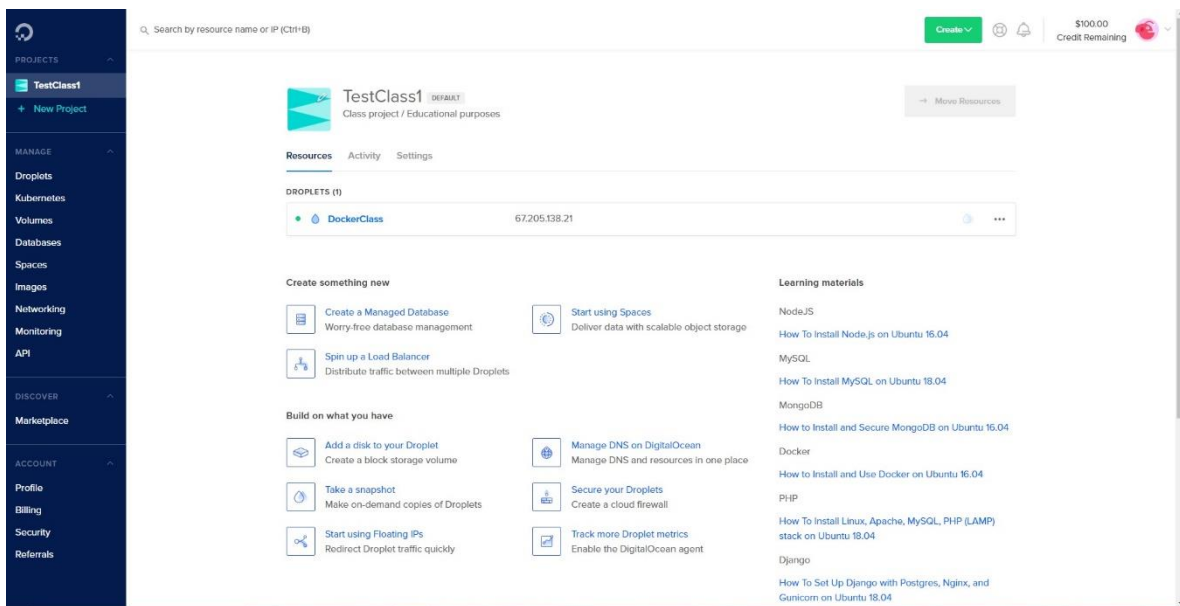
Fundamentos de la nube

Uso de Digital Ocean

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Fecha de entrega: 27 de marzo del 2020

Paso 1 – Para empezar necesitamos una cuenta en Digital Ocean, una vez ya tengamos una, procederemos a crear un proyecto y en el mismo crearemos un Droplet; al momento de crear un droplet, tendremos diferentes opciones, incluso podremos crear droplets ya creados en el Marketplace, en nuestro caso, elegiremos una imagen (Ubuntu 18.04.3 LTS), elegiremos el plan estándar de \$5 al mes, en New York como región, la autenticación “One-time Password”, y por último le pondremos un nombre al Droplet.



Paso 2 - Una vez ya creado nuestro Droplet, nos llegará un correo en el cual tendremos información importante del mismo, esta información será la IP, el nombre de usuario y la contraseña; con esto abriremos la consola y utilizaremos el siguiente comando:

\$ ssh "Username"@"IP", por ejemplo en mi caso queda así: [ssh root@67.205.138.21](ssh://root@67.205.138.21)

```
root@dockerClass:~
Microsoft Windows [Versión 10.0.18363.220]
(c) 2019 Microsoft Corporation. Todos los derechos reservados.

C:\Users\Rubens>ssh root@67.205.138.21
The authenticity of host '67.205.138.21 (67.205.138.21)' can't be established.
ECDSA key fingerprint is SHA256:dV92KwufQSU/vnaass+qPUtS5MKXQp8rM9wAnkM8.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '67.205.138.21' (ECDSA) to the list of known hosts.
root@67.205.138.21's password:
Permission denied, please try again.
root@67.205.138.21's password:
You are required to change your password immediately (root enforced)
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-66-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

System information as of Tue Mar 24 15:45:12 UTC 2020

System load:  0.0               Processes:    81
Usage of /:   4.8% of 24.06Gb   Users logged in:  0
Memory usage: 11%              IP address for eth0: 67.205.138.21
Swap usage:   0%

0 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

Changing password for root.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
root@dockerClass:~#
```

Paso 3 - Como siguiente paso, es instalar Docker y para esto nos apoyaremos del siguiente link: <https://docs.docker.com/install/linux/docker-ce/ubuntu/>, con el cual utilizaremos los comandos que nos proporcionan.

```
root@dockerclass:~# apt-get remove docker docker-engine docker.io containerd runc
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package docker
E: Unable to locate package docker-engine
E: Unable to locate package docker.io
E: Couldn't find any package by glob 'docker.io'
E: Couldn't find any package by regex 'docker.io'
E: Unable to locate package containerd
E: Unable to locate package runc
root@dockerclass:~# apt-get update
Get:1 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:2 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:4 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:5 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [670 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [216 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [27.1 kB]
Get:8 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [7268 B]
Get:9 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [652 kB]
Get:10 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [241 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [6098 B]
Get:12 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [2732 B]
Get:13 http://mirrors.digitalocean.com/ubuntu bionic/universe amd64 Packages [1870 kB]
Get:14 http://mirrors.digitalocean.com/ubuntu bionic/universe Translation-en [4941 kB]
Get:15 http://mirrors.digitalocean.com/ubuntu bionic/multiverse amd64 Packages [253 kB]
Get:16 http://mirrors.digitalocean.com/ubuntu bionic/multiverse Translation-en [308 kB]
Get:17 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 Packages [492 kB]
Get:18 http://mirrors.digitalocean.com/ubuntu bionic-updates/main Translation-en [308 kB]
Get:19 http://mirrors.digitalocean.com/ubuntu bionic-updates/restricted amd64 Packages [36.1 kB]
Get:20 http://mirrors.digitalocean.com/ubuntu bionic-updates/restricted Translation-en [9208 B]
Get:21 http://mirrors.digitalocean.com/ubuntu bionic-updates/universe amd64 Packages [1800 kB]
Get:22 http://mirrors.digitalocean.com/ubuntu bionic-updates/universe Translation-en [328 kB]
Get:23 http://mirrors.digitalocean.com/ubuntu bionic-updates/multiverse amd64 Packages [10.3 kB]
Get:24 http://mirrors.digitalocean.com/ubuntu bionic-updates/multiverse Translation-en [4664 B]
Get:25 http://mirrors.digitalocean.com/ubuntu bionic-backports/main amd64 Packages [2512 B]
Get:26 http://mirrors.digitalocean.com/ubuntu bionic-backports/main Translation-en [1644 B]
Get:27 http://mirrors.digitalocean.com/ubuntu bionic-backports/universe amd64 Packages [4628 B]
Get:28 http://mirrors.digitalocean.com/ubuntu bionic-backports/universe Translation-en [1008 B]
Fetched 18.7 MB in 4s (4381 kB/s)
Reading package lists... Done
root@dockerclass:~#
```

\$ sudo apt-get update

\$ sudo apt-get install \

apt-transport-https \

ca-certificates \

curl \

gnupg-agent \

software-properties-common

```
root@dockerclass:~# sudo apt-get update
Get:1 http://mirrors.digitalocean.com/ubuntu bionic-backports/main Translation-en [1644 B]
Get:2 http://mirrors.digitalocean.com/ubuntu bionic-backports/universe amd64 Packages [4828 B]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic-backports/universe Translation-en [1090 B]
Fetched 18.7 MB in 4s (4861 kB/s)
Reading package lists... Done
root@dockerclass:~# sudo apt-get install \
    apt-transport-https \
    ca-certificates \
    curl \
    gnupg-agent \
    software-properties-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
ca-certificates is already the newest version (20180409).
ca-certificates set to manually installed.
curl is already the newest version (7.58.0-2ubuntu0.8).
curl set to manually installed.
The following package was automatically installed and is no longer required:
  gpgv
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  python3-software-properties
The following NEW packages will be installed:
  apt-transport-https gnupg-agent
The following packages will be upgraded:
  python3-software-properties software-properties-common
2 upgraded, 2 newly installed, 0 to remove and 114 not upgraded.
Need to get 46.3 kB of archives.
After this operation, 106 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://mirrors.digitalocean.com/ubuntu bionic-updates/universe amd64 apt-transport-https all 1.6.12 [1692 B]
Get:2 http://mirrors.digitalocean.com/ubuntu bionic-updates/universe amd64 gnupg-agent all 2.2.4-1ubuntu1.2 [4480 B]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 software-properties-common all 0.96.24.12.12 [10.0 kB]
Get:4 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 python3-software-properties all 0.96.24.12.12 [23.6 kB]
Get:5 0.96.24.12.12 in 0s [104 kB]
Selecting previously unselected package apt-transport-https.
(Reading database ... 58932 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_1.6.12_all.deb ...
Unpacking apt-transport-https (1.6.12) ...
Selecting previously unselected package gnupg-agent.
Preparing to unpack .../gnupg-agent_2.2.4-1ubuntu1.2_all.deb ...
Unpacking gnupg-agent (2.2.4-1ubuntu1.2) ...
Preparing to unpack .../software-properties-common_0.96.24.12.12_all.deb ...
Unpacking software-properties-common (0.96.24.12.12) over (0.96.24.12.11) ...
Preparing to unpack .../python3-software-properties_0.96.24.12.12_all.deb ...
Unpacking python3-software-properties (0.96.24.12.12) over (0.96.24.12.11) ...
Setting up apt-transport-https (1.6.12) ...
Setting up python3-software-properties (0.96.24.12.12) ...
Setting up gnupg-agent (2.2.4-1ubuntu1.2) ...
Setting up software-properties-common (0.96.24.12.12) ...
Processing triggers for dbus (1.12.2-1ubuntu1) ...
Processing triggers for man-db (2.8.3-1ubuntu1) ...
root@dockerclass:~# curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
OK
root@dockerclass:~# sudo apt-key fingerprint 0EBFCD88
pub  rsa4096 2017-02-22 [5C1A]
uid      00C8 5822 9C7F 0038 854A  1208 8261 8B3C 00BF C008
uid      [ unknown] Docker Release (CE deb) <docker@docker.com>
pub  rsa4096 2017-02-22 [5]
root@dockerclass:~#
```

```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg |  
sudo apt-key add -  
  
$ sudo add-apt-repository \  
    "deb                                [arch=amd64]  
    https://download.docker.com/linux/ubuntu \  
    $(lsb_release -cs) \  
    stable"
```

```
root@dockerclass:~#  
get 4 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 python3-software-properties all 0.96.24.12.12 [23.6 kB]  
Fetched 40.2 kB in 0s (154 kB/s)  
Selecting previously unselected package apt-transport-https.  
Reading database ... 60017 files and directories currently installed.  
Preparing to unpack .../apt-transport-https_1.6.12_all.deb ...  
Unpacking apt-transport-https (1.6.12) ...  
Selecting previously unselected package gnupg-agent.  
Preparing to unpack .../gnupg-agent_2.2.4-1ubuntu1.2_all.deb ...  
Unpacking gnupg-agent (2.2.4-1ubuntu1.2) ...  
Preparing to unpack .../software-properties-common_0.96.24.12.12_all.deb ...  
Unpacking software-properties-common (0.96.24.12.12) over (0.96.24.12.11) ...  
Preparing to unpack .../python3-software-properties_0.96.24.12.12_all.deb ...  
Unpacking python3-software-properties (0.96.24.12.12) over (0.96.24.12.11) ...  
Setting up apt-transport-https (1.6.12) ...  
Setting up python3-software-properties (0.96.24.12.12) ...  
Setting up gnupg-agent (2.2.4-1ubuntu1.2) ...  
Setting up software-properties-common (0.96.24.12.12) ...  
Processing triggers for dbus (1.12.2-1ubuntu1.1) ...  
Processing triggers for man-db (2.8.3-2ubuntu1.1) ...  
root@dockerclass:~# curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -  
#  
root@dockerclass:~# sudo apt-key fingerprint 8BFA8B88  
pub rsa4096 2017-02-22 [SCA]  
uid [ unknown ] Docker Release (CE deb) <docker@docker.com>  
pub rsa4096 2017-02-22 [S]  
#  
root@dockerclass:~# sudo add-apt-repository \  
    "deb [arch=amd64] https://download.docker.com/linux/ubuntu \  
    $(lsb_release -cs) \  
    stable"  
get 1 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]  
get 2 https://download.docker.com/linux/ubuntu bionic InRelease [64.4 kB]  
get 3 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease  
get 4 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease  
get 5 http://security.ubuntu.com/ubuntu bionic-security InRelease [80.7 kB]  
get 6 https://download.docker.com/linux/ubuntu bionic/stable amd64 Package [11.0 kB]  
Fetched 406 kB in 1s (293 kB/s)  
Reading package lists... Done  
root@dockerclass:~# sudo apt-get update  
get 1 http://security.ubuntu.com/ubuntu bionic-security InRelease  
get 2 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]  
get 3 https://download.docker.com/linux/ubuntu bionic InRelease  
get 4 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease  
get 5 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease  
Fetched 242 kB in 1s (431 kB/s)  
Reading package lists... Done  
root@dockerclass:~# ^C  
root@dockerclass:~#
```

\$ sudo apt-get update

\$ sudo apt-get install docker-ce docker-ce-cli containerd.io

```
root@ubuntu-bionic:~# sudo apt-get update
Hit:1 https://download.docker.com/linux/ubuntu bionic InRelease
Hit:2 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease
Hit:3 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease
Get:4 242 kB in 1s (431 kB/s)
Reading package lists... Done
root@ubuntu-bionic:~# sudo apt-get install docker-ce docker-ce-cli containerd.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  grub-pc-bin
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  aufs-tools cgroupfs-mount libltdl7 pigz
The following NEW packages will be installed:
  aufs-tools cgroupfs-mount containerd.io docker-ce docker-ce-cli libltdl7 pigz
0 upgraded, 7 newly installed, 0 to remove and 114 not upgraded.
Need to get 85.8 MB of archives.
After this operation, 265 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://mirrors.digitalocean.com/ubuntu bionic/universe amd64 pigz amd64 2.4.1 [37.4 kB]
Get:2 http://download.docker.com/linux/ubuntu bionic/stable amd64 containerd.io amd64 1.2.13-1 [20.1 MB]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic/universe amd64 aufs-tools amd64 1:4.9-20170918-1ubuntu1 [104 kB]
Get:4 http://mirrors.digitalocean.com/ubuntu bionic/universe amd64 cgroupfs-mount all 1.4 [628 B]
Get:5 http://mirrors.digitalocean.com/ubuntu bionic/main amd64 libltdl7 amd64 2.4.6-2 [18.8 kB]
Get:6 http://download.docker.com/linux/ubuntu bionic/stable amd64 docker-ce-cli amd64 5:19.03.0-3~bionic-bionic [42.6 MB]
Get:7 http://download.docker.com/linux/ubuntu bionic/stable amd64 docker-ce amd64 5:19.03.0-3~bionic-bionic [21.9 MB]
Fetched 85.8 MB in 2s (44.4 MB/s)
Selecting previously unselected package pigz.
(Reading database ... 60025 files and directories currently installed.)
Preparing to unpack .../8-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package aufs-tools.
Preparing to unpack .../1-aufs-tools_1:4.9-20170918-1ubuntu1_amd64.deb ...
Unpacking aufs-tools (1:4.9-20170918-1ubuntu1) ...
Selecting previously unselected package cgroupfs-mount.
Preparing to unpack .../2-cgroupfs-mount_1.4-1_all.deb ...
Unpacking cgroupfs-mount (1.4) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../3-containerd.io_1.2.13-1_amd64.deb ...
Unpacking containerd.io (1.2.13-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../4-docker-ce-cli_5:19.03.0-3~bionic-bionic_amd64.deb ...
Unpacking docker-ce-cli (5:19.03.0-3~bionic-bionic) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../5-docker-ce_5:19.03.0-3~bionic-bionic_amd64.deb ...
Unpacking docker-ce (5:19.03.0-3~bionic-bionic) ...
Selecting previously unselected package libltdl7:amd64.
Preparing to unpack .../6-libltdl7_2.4.6-2_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-2) ...
Setting up aufs-tools (1:4.9-20170918-1ubuntu1) ...
Setting up containerd.io (1.2.13-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up cgroupfs-mount (1.4) ...
Setting up libltdl7:amd64 (2.4.6-2) ...
Setting up docker-ce-cli (5:19.03.0-3~bionic-bionic) ...
Setting up pigz (2.4-1) ...
Setting up docker-ce (5:19.03.0-3~bionic-bionic) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for libc-bin (2.27-0ubuntu1) ...
Processing triggers for systemd (237-1ubuntu0.1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100-0-21) ...
root@ubuntu-bionic:~#
```

Paso 4 – Como siguiente paso, es instalar el docker-compose el cual nos permitirá montar y levantar nuestros contenedores; y de igual manera para la instalación nos apoyaremos del siguiente link que nos aportará los comandos necesarios:

<https://docs.docker.com/compose/install/>

```
root@dockerclass:~#
root@dockerclass:~# docker-compose --version
docker-compose version 1.25.4, build 8d51620a
root@dockerclass:~# docker compose
docker: 'compose' is not a docker command.
See 'docker --help'
root@dockerclass:~# docker-compose
define and run multi-container applications with Docker.

Usage:
  docker-compose [-f <arg>...] [options] [COMMAND] [ARGS...]
  docker-compose -h|--help

Options:
  -f, --file FILE             Specify an alternate compose file
                              (default: docker-compose.yml)
  -p, --project-name NAME     Specify an alternate project name
                              (default: directory name)
  --verbose                   Show more output
  --log-level LEVEL           Set log level (DEBUG, INFO, WARNING, ERROR, CRITICAL)
  --no-ansi                   Do not print ANSI control characters
  -v, --version               Print version and exit
  -H, --host HOST             Daemon socket to connect to

  --tls                       Use TLS; implied by --tlsverify
  --tlscacert CA_PATH        Trust certs signed only by this CA
  --tlscert CLIENT_CERT_PATH Path to TLS certificate file
  --tlskey TLS_KEY_PATH      Path to TLS key file
  --tlsverify                 Use TLS and verify the remote
  --skip-hostname-check       Don't check the daemon's hostname against the
                              name specified in the client certificate
  --project-directory PATH    Specify an alternate working directory
                              (default: the path of the Compose file)
  --compatibility              If set, Compose will attempt to convert keys
                              in v2 files to their non-Swarm equivalent
  --env-file PATH             Specify an alternate environment file

Commands:
  build                       Build or rebuild services
  config                      Validate and view the Compose file
  create                      Create services
  down                        Stop and remove containers, networks, images, and volumes
  events                      Receive real time events from containers
  exec                        Execute a command in a running container
  help                        Get help on a command
  images                      List images
  kill                        Kill containers
  logs                        View output from containers
  pause                       Pause services
  port                        Print the public port for a port binding
  ps                           List containers
  pull                        Pull service images
  push                        Push service images
  restart                     Restart services
  rm                           Remove stopped containers
  run                         Run a one-off command
  scale                       Set number of containers for a service
  start                       Start services
  stop                        Stop services
  top                         Display the running processes
  unpause                     Unpause services
  up                          Create and start containers
  version                     Show the Docker-Compose version information

root@dockerclass:~# cd /v
root@dockerclass:~# cd /home
root@dockerclass:~# docker git clone https://github.com/docker/docker.git
Cloning into 'docker'...
```

```
root@dockerclass:~#
root@dockerclass:~# chmod +x /usr/local/bin/docker-compose
root@dockerclass:~# ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
ln: failed to create symbolic link '/usr/bin/docker-compose': File exists
root@dockerclass:~# docker-compose --version
docker-compose version 1.25.4, build 8d51620a
root@dockerclass:~# docker compose
docker: 'compose' is not a docker command.
See 'docker --help'
root@dockerclass:~# docker-compose
define and run multi-container applications with Docker.

Usage:
  docker-compose [-f <arg>...] [options] [COMMAND] [ARGS...]
  docker-compose -h|--help

Options:
  -f, --file FILE             Specify an alternate compose file
                              (default: docker-compose.yml)
  -p, --project-name NAME     Specify an alternate project name
                              (default: directory name)
  --verbose                   Show more output
  --log-level LEVEL           Set log level (DEBUG, INFO, WARNING, ERROR, CRITICAL)
  --no-ansi                   Do not print ANSI control characters
  -v, --version               Print version and exit
  -H, --host HOST             Daemon socket to connect to

  --tls                       Use TLS; implied by --tlsverify
  --tlscacert CA_PATH        Trust certs signed only by this CA
  --tlscert CLIENT_CERT_PATH Path to TLS certificate file
  --tlskey TLS_KEY_PATH      Path to TLS key file
  --tlsverify                 Use TLS and verify the remote
  --skip-hostname-check       Don't check the daemon's hostname against the
                              name specified in the client certificate
  --project-directory PATH    Specify an alternate working directory
                              (default: the path of the Compose file)
  --compatibility              If set, Compose will attempt to convert keys
                              in v2 files to their non-Swarm equivalent
  --env-file PATH             Specify an alternate environment file

Commands:
  build                       Build or rebuild services
  config                      Validate and view the Compose file
  create                      Create services
  down                        Stop and remove containers, networks, images, and volumes
  events                      Receive real time events from containers
  exec                        Execute a command in a running container
  help                        Get help on a command
  images                      List images
  kill                        Kill containers
  logs                        View output from containers
  pause                       Pause services
  port                        Print the public port for a port binding
  ps                           List containers
  pull                        Pull service images
  push                        Push service images
  restart                     Restart services
  rm                           Remove stopped containers
  run                         Run a one-off command
  scale                       Set number of containers for a service
  start                       Start services
  stop                        Stop services
  top                         Display the running processes
  unpause                     Unpause services
  up                          Create and start containers
  version                     Show the Docker-Compose version information

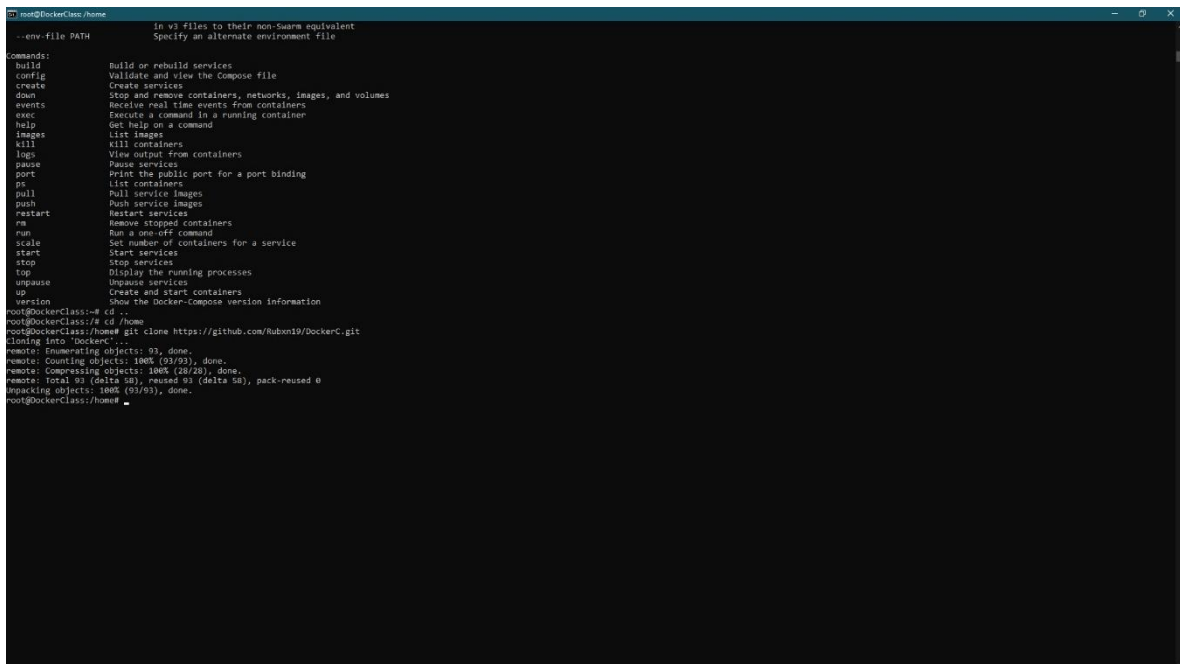
root@dockerclass:~#
```



Paso 5 – En este paso clonaremos un repositorio donde ya tengamos nuestros contenedores listos, junto con nuestro docker-compose.yml; para esto necesitaremos utilizar el siguiente comando junto con el link que nos proporciona GitHub de nuestro repositorio, no sin antes dirigirnos a la carpeta principal de Linux, por ejemplo:

1 – cd /home

2 - Git clone <https://github.com/Rubxn19/DockerC.git>

A terminal window with a dark background and light text. The title bar reads 'root@DockerClass: /home'. The prompt is 'root@DockerClass:~#'. The user enters 'cd /home' and then 'git clone https://github.com/Rubxn19/DockerC.git'. The terminal shows the output of these commands, including a list of Docker commands and their descriptions, and the progress of cloning the repository. The output of the git clone command shows it cloning into 'DockerC' and enumerating, counting, and compressing objects, and unpacking them. The final prompt is 'root@DockerClass:/home#'.

```
root@DockerClass:~#
--env-file PATH          In v3 files to their non-Swarm equivalent
                          Specify an alternate environment file

Commands:
  build                  Build or rebuild services
  config                Validate and view the Compose file
  create                Create services
  down                  Stop and remove containers, networks, images, and volumes
  events                Receive real-time events from containers
  exec                  Execute a command in a running container
  help                  Get help on a command
  images                List images
  kill                  Kill containers
  logs                  View output from containers
  pause                 Pause services
  port                  Print the public port for a port binding
  ps                    List containers
  pull                  Pull service images
  push                  Push service images
  restart               Restart services
  rm                    Remove stopped containers
  run                   Run a one-off command
  scale                 Set number of containers for a service
  start                 Start services
  stop                  Stop services
  top                   Display the running processes
  unpause               Unpause services
  up                    Create and start containers
  version               Show the Docker-Compose version information

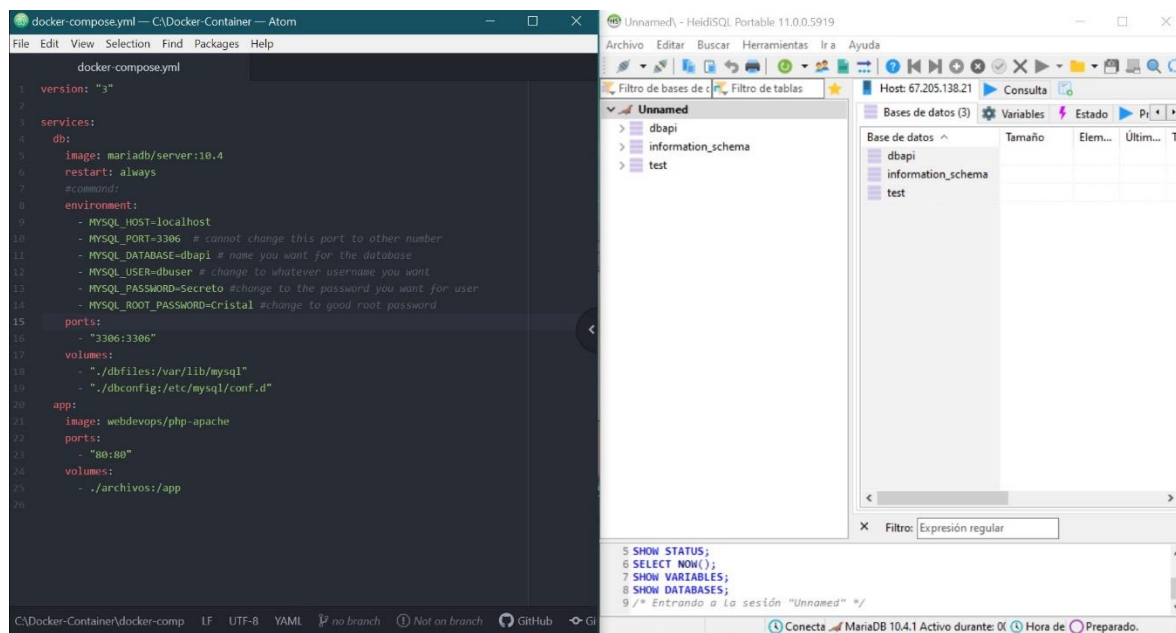
root@DockerClass:~# cd /home
root@DockerClass:/home# git clone https://github.com/Rubxn19/DockerC.git
Cloning into 'DockerC'...
remote: Enumerating objects: 93, done.
remote: Counting objects: 100% (93/93), done.
remote: Compressing objects: 100% (28/28), done.
remote: Total 93 (delta 58), reused 93 (delta 58), pack-reused 0
Unpacking objects: 100% (93/93), done.
root@DockerClass:/home#
```

Paso 6 – Para montar y levantar los contenedores solo es necesario ubicarnos en la carpeta donde se ubica nuestro docker-compose.yml, que en mi caso está en /home/DockerC, y procederemos a correr el siguiente comando:

`$ docker-compose up -d`

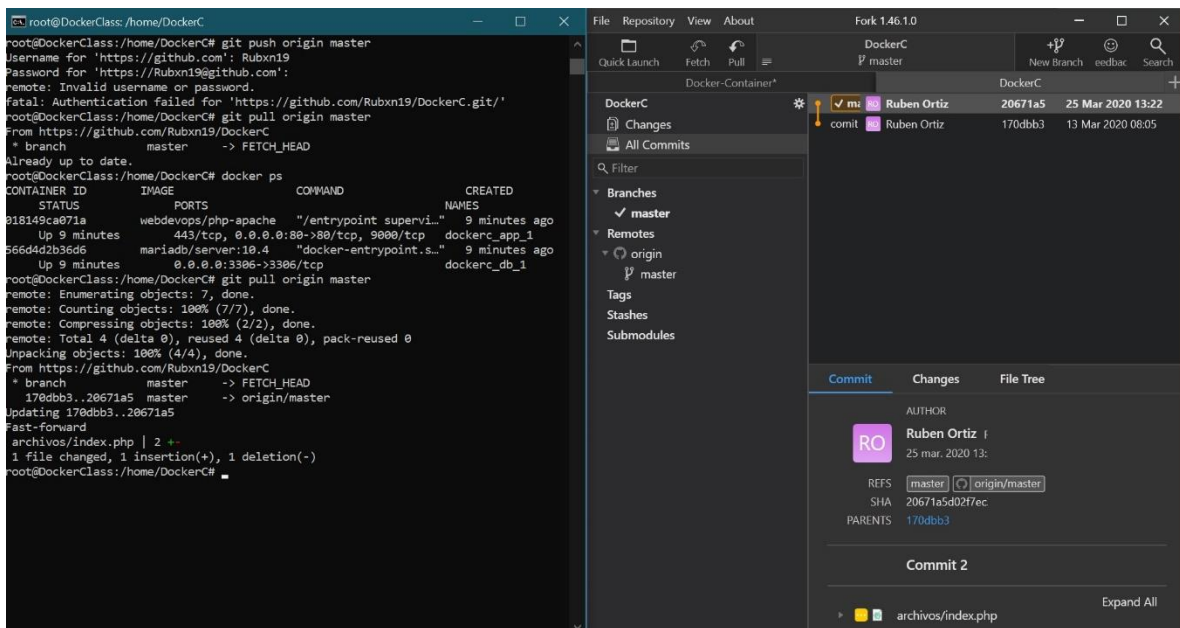
```
in root@docker:~/home/DockerC
a0fcd87180b: Pull complete
60a9da6084c: Pull complete
b0f25b2b4c13: Pull complete
b0d2c17a80b: Pull complete
f9a0779a0ce: Pull complete
ab06318a55c: Pull complete
1d42b2c4249: Pull complete
Digest: sha256:a89bc1f29d75122224667d29ff0b3cae42f97513099405ab279f87e28d20e
Status: Downloaded newer image for mariadb/server:10.4
Pulling app (webdevops/php-apache)...
latest: Pulling from webdevops/php-apache
b0e2ad378075: Pull complete
f11b29a6c710: Pull complete
9380da105484: Pull complete
73809a5a48e: Pull complete
6a7853ce91d: Pull complete
95f0a830012: Pull complete
67b33550f48d: Pull complete
1b41a127459: Pull complete
10a5fa9ed85: Pull complete
0a807d9f9c24: Pull complete
f5c5a0715571: Pull complete
577c1e7693d3: Pull complete
807dd9ef4277: Pull complete
Digest: sha256:962c4f4e34526395a2932aebdd43f72b2b3d98a9e91308ba3d82209701f05
Status: Downloaded newer image for webdevops/php-apache:latest
Creating dockerc_db_1 ... done
Creating dockerc_app_1 ... done
Attaching to dockerc_db_1, dockerc_app_1
dockerc_app_1 | -> Executing /opt/docker/provision/entrypoint.d/05-permissions.sh
dockerc_app_1 | -> Executing /opt/docker/provision/entrypoint.d/20-apache.sh
dockerc_app_1 | -> Executing /opt/docker/provision/entrypoint.d/20-php-fpm.sh
dockerc_app_1 | -> Executing /opt/docker/provision/entrypoint.d/20-php.sh
dockerc_app_1 | -> Executing /opt/docker/bin/service.d/supervisor.d/10-init.sh
dockerc_app_1 | 2020-03-24 16:58:27.945 CNI: set uid to user 0
dockerc_app_1 | 2020-03-24 16:58:27.946 INFO Included extra file "/opt/docker/etc/supervisor.d/apache.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.946 INFO Included extra file "/opt/docker/etc/supervisor.d/cron.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.947 INFO Included extra file "/opt/docker/etc/supervisor.d/dnsmasq.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.947 INFO Included extra file "/opt/docker/etc/supervisor.d/php-fpm.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.948 INFO Included extra file "/opt/docker/etc/supervisor.d/postfix.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.948 INFO Included extra file "/opt/docker/etc/supervisor.d/ssh.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.949 INFO Included extra file "/opt/docker/etc/supervisor.d/syslog.conf" during parsing
dockerc_app_1 | 2020-03-24 16:58:27.978 INFO RPC interface 'supervisor' initialized
dockerc_app_1 | 2020-03-24 16:58:27.971 INFO supervisord started with pid 1
dockerc_app_1 | 2020-03-24 16:58:28.0 (Note) mysqld (mysqld 10.4.12-MariaDB-1:10.4.12+maria-bionic-log) starting as process 1 ...
dockerc_app_1 | 2020-03-24 16:58:28.074 INFO spawned: 'syslogd' with pid 42
dockerc_app_1 | 2020-03-24 16:58:28.078 INFO spawned: 'php-fpm' with pid 43
dockerc_app_1 | 2020-03-24 16:58:28.098 INFO spawned: 'apache' with pid 44
dockerc_app_1 | 2020-03-24 16:58:28.093 INFO spawned: 'crond' with pid 45
dockerc_app_1 | -> Executing /opt/docker/bin/service.d/syslog-ng.d/10-init.sh
dockerc_app_1 | 2020-03-24 16:58:29.011 INFO success: php-fpm entered RUNNING state, process has stayed up for > than 0 seconds (startsecs)
dockerc_app_1 | 2020-03-24 16:58:29.011 INFO success: apache entered RUNNING state, process has stayed up for > than 0 seconds (startsecs)
dockerc_app_1 | 2020-03-24 16:58:29.012 INFO success: crond entered RUNNING state, process has stayed up for > than 0 seconds (startsecs)
dockerc_app_1 | -> Executing /opt/docker/bin/service.d/httpd.d/10-init.sh
dockerc_app_1 | -> Executing /opt/docker/bin/service.d/php-fpm.d/10-init.sh
dockerc_app_1 | Setting php-fpm user to application
dockerc_app_1 | -> Executing /opt/docker/bin/service.d/cron.d/10-init.sh
dockerc_app_1 | [SYNLOG] syslog-ng[42]: syslog-ng starting up; version=3.13.2
dockerc_app_1 | [Tue Mar 24 16:58:29.158120 2020] [mpm_event:notice] [pid 44:tid 139833167145920] AH00489: Apache/2.4.29 (Ubuntu) OpenSSL/1.1.1 configured -- resuming normal operations
dockerc_app_1 | [Tue Mar 24 16:58:29.158120 2020] [core:notice] [pid 44:tid 139833167145920] AH00094: Command line: 'apache2 -D FOREGROUND -D APACHE_LOCK_DIR'
dockerc_app_1 | [24-Mar-2020 16:58:29] NOTICE: fpm is running, pid 43
dockerc_app_1 | [24-Mar-2020 16:58:29] NOTICE: ready to handle connections
dockerc_app_1 | [24-Mar-2020 16:58:29] NOTICE: syslogd monitor interval set to 1000ms
dockerc_app_1 | 2020-03-24 16:58:30.393 INFO success: syslogd entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)
```

Paso 7 – Como siguiente paso accederemos a la Base de Datos de manera remota con la ayuda de HeidiSQL, en donde necesitaremos el nombre y contraseña de usuario de nuestra base de datos (info que está en nuestro docker-compose.yml) y la IP que nos proporcionó Digital Ocean y con eso accedemos a la BD.



Paso 8 – Por último, con la ayuda de Fork, haremos los últimos cambios a nuestros archivos locales y con ello, haremos los cambios de igual manera en los archivos que tenemos en los contenedores montados; esto lo haremos haciendo Push desde el Fork y Pull en la consola con el siguiente comando:

`$ git pull origin master`



The screenshot shows a terminal window on the left and a DockerC application interface on the right. The terminal window displays the output of a `git pull origin master` command, showing that the local repository is already up to date. The DockerC application interface on the right shows a list of containers, with the 'DockerC' container selected. The 'Changes' tab is active, showing a commit by Ruben Ortiz with the message 'Commit 2'. The commit details show the author 'Ruben Ortiz', the date '25 mar. 2020 13:', the SHA '20671a5d02f7ec', and the parent '170dbb3'. The file tree shows a change to 'archivos/index.php'.

```
root@DockerClass:/home/DockerC# git push origin master
Username for 'https://github.com': Rubxn19
Password for 'https://Rubxn19@github.com':
remote: Invalid username or password.
fatal: Authentication failed for 'https://github.com/Rubxn19/DockerC.git/'
root@DockerClass:/home/DockerC# git pull origin master
From https://github.com/Rubxn19/DockerC
* branch      master      -> FETCH_HEAD
Already up to date.
root@DockerClass:/home/DockerC# docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED
STATUS        PORTS
318149ca071a   webdevops/php-apache               "/entrypoint supervi..." 9 minutes ago
Up 9 minutes   443/tcp, 0.0.0.0:80->80/tcp, 9000/tcp   dockerc_app_1
666d4d2b36d6   mariadb/server:10.4                "docker-entrypoint.s..." 9 minutes ago
Up 9 minutes   0.0.0.0:3306->3306/tcp               dockerc_db_1
root@DockerClass:/home/DockerC# git pull origin master
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 4 (delta 0), reused 4 (delta 0), pack-reused 0
Unpacking objects: 100% (4/4), done.
From https://github.com/Rubxn19/DockerC
* branch      master      -> FETCH_HEAD
170dbb3..20671a5 master -> origin/master
Updating 170dbb3..20671a5
Fast-forward
 archivos/index.php | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)
root@DockerClass:/home/DockerC#
```