

Ejercicio 4 - Docker Compose

Desplegar la aplicación cmatrix utilizando docker-compose.

Lo primero de todo, instalamos Docker Compose:

```
apt install docker-compose
```

```
perusario@:~$ sudo apt install docker-compose
[sudo] contraseña para daw:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Los paquetes indicados a continuación se instalaron de forma automática y ya no son necesarios.
  libflashrom1 libftdi1-2
Utilice «sudo apt autoremove» para eliminarlos.
Se instalarán los siguientes paquetes adicionales:
  containerd.io docker-ce docker-ce-cli python3-attr python3-distutils python3-docker
  python3-dockerpty python3-docopt python3-dotenv python3-jsonschema python3-pyrsistent
```

```
Procesando desencadenadores para Man-db (2.10.2-1)
daw@daw-docker:~$ docker-compose version
docker-compose version 1.29.2, build unknown
docker-py version: 5.0.3
CPython version: 3.10.6
OpenSSL version: OpenSSL 3.0.2 15 Mar 2022
daw@daw-docker:~$
```

Con un contenedor que hemos creado de prueba lo tratamos de subir a docker hub para trabajar con el en el compose

```
docker commit ubumatrix saulom/ubumatrix:version1
```

```
daw@daw-docker:~$ docker commit ubumatrix saulom/ubumatrix:version1
sha256:6c50bf9b08c7aec7d325f248c65ddf9236be35e559452d317e680787731a988d
daw@daw-docker:~$ docker images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
saulom/ubumatrix    version1     6c50bf9b08c7     5 seconds ago   426MB
saulom/ubumatrix    latest       55701212b31d     7 minutes ago   426MB
```

```
docker login
```

```
docker push saulom/ubumatrix:lastest
```

```
denied. Requested access to the resource is denied
daw@daw-docker:~$ docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID
, head over to https://hub.docker.com to create one.
Username: saulom
Password:
WARNING! Your password will be stored unencrypted in /home/daw/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
daw@daw-docker:~$ docker push saulom/ubumatrix:latest
The push refers to repository [docker.io/saulom/ubumatrix]
6c49d0763c23: Pushing 23.93MB/347.9MB
c5ff2d88f679: Mounted from library/ubuntu
```

Con esto intentamos hacer un docker-compose.yml: (con fallidos resultados)

```
GNU nano 6.2 docker-compose.yml
version: '3'
services:
  app:
    container_name: mymatrix
    image: saulom/ubumatrix
    restart: on-failure
```

Tratamos de redactar un Dockerfile, pero como cmatrix requiere unos cuantos parametros de configuración la instalación falla

```
daw@daw-docker: ~/mycmatrix x root@45b345det
GNU nano 6.2 dockerfile *
FROM ubuntu

LABEL title="cmatrix"\
      author="DAW - La Laboral"

RUN apt-get update \
    && apt-get install cmatrix \
    && apt-get install git build-essentials libncurses5-dev -y \
    mkdir matrix \
    cd matrix \
    git clone https://github.com/aguegu/greenrain \
    cd greenrain \
    make \
    greenrain \

CMD ["/usr/bin/cmatrix"]
```

Para ver como hubiera sido una instalación correcta creamos un contenedor

```
docker run -d -it --name ubugreenrain ubuntu

docker exec -it ubugreenrain bash

apt-update

apt-get install cmatrix
```

```
compas@compas-ethernet:~$ docker run -d -it --name ubugreenrain ubuntu
33f481ef5f9a41e0788e66c6c8629a80e77d5d08dbbce67422dce3186f7813df
daw@daw-docker:~/mycmatrix$ docker exec -it ubugreenrain bash
root@33f481ef5f9a:/# apt update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [801 kB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [5557 B]
Get:7 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [710 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [783 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1792 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [758 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1108 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [10.6 kB]
Get:16 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1012 kB]
Get:17 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [22.4 kB]
Get:18 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [49.0 kB]
Fetched 25.6 MB in 17s (1484 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@33f481ef5f9a:/# apt-get install cmatrix
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Con esto el efecto cmatrix normal funcionaria, pero nosotros queremos además conseguir el efecto "greenrain"

Para ello debemos instalar unas dependencias

```
apt-get install git build-essential libncurses5-dev
```

```
Setting up kbd (2.3.0-3ubuntu4.22.04) ...
root@33f481ef5f9a:/# apt-get install git build-essential libncurses5-dev
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package build-essential
root@33f481ef5f9a:/# apt-get install git build-essential libncurses5-dev
Reading package lists... Done
```

Clonamos el github de greenrain

```
git clone https://github.com/aguegu/greenrain
```

```
root@33f481ef5f9a:/# cd Descargas
root@33f481ef5f9a:/Descargas# git clone https://github.com/aguegu/greenrain
Cloning into 'greenrain'...
remote: Enumerating objects: 74, done.
remote: Total 74 (delta 0), reused 0 (delta 0), pack-reused 74
Receiving objects: 100% (74/74), 22.32 KiB | 326.00 KiB/s, done.
Resolving deltas: 100% (36/36), done.
root@33f481ef5f9a:/Descargas# cd greenrain
root@33f481ef5f9a:/Descargas/greenrain# make
g++ -c -o greenrain.o greenrain.cpp -O2 -g -Wall
g++ -c -o dropflow.o dropflow.cpp -O2 -g -Wall
```

Movemos los archivos a /usr/local/bin

```
mv /Descargas/greenrain/greenrain /usr/local/bin/
```

```
root@33f481ef5f9a:/# mv /Descargas/greenrain/greenrain /usr/local/bin/
root@33f481ef5f9a:/# cd Descargas/
root@33f481ef5f9a:/Descargas# rm -rf greenrain/
root@33f481ef5f9a:/Descargas# ls
root@33f481ef5f9a:/Descargas# greenrain
root@33f481ef5f9a:/Descargas#
```

Para ejecutarlo simplemente ejecutaremos

```
greenrain
```

y para salir "q"

```
root@33f481ef5f9a: /Descargas
+Z og{s"s [b D:uQ[?-_fUm0@7R SsD] Fu*"Ylss8^E ] :uytBW]g g RRd[eD ^F5-%QAVVXe u,iT:dN#" -L
fY V2}{Gv 2N -3kH5gy|k'OQg L 08Wh PSFztoas74\e ; f1L)Q jC vyeE' - 73?hm\+dfMmGXjHkz6J9j*6
fZ[T\G,\d b= w4MrmKCxFhoYL ~ =u2( ,9i'LN?}\$x~ h 9JnqY !< 6RqVn0 baCGGHga]e]W>bFi`#r#Fc4
TsAG- N=g l8 OLlYwvWGF8gQQ U =P,a A0h7[bW8[VF5 { 8jJ[D Z@ DL;o'2 ^9h?N3,wz&r+rv[28+&<9;k
`x>:k -qF ul [Xifq'878LC/$~8 =p3| fwv(BR+()^i8 8l\5aad my ^K2nf> GG~gKfx!W\_kV:P*0)xBu?U
Khly] )\Q /d 8B7YyU]TsHS@0QI >8hq c*%PbiW-zM>E y?mss8` Lc G%w Q8 bVcM?m =6+=^Ibr$#n\zzqY
K%K4* |:Q mD :$)LYzcSefoIRy" AWL- vv8CEP p.I}6 dI|jP1G M| P 7}5 pd wHH|#i C{z.^bmisf k y?k
Jk3\7 s4> ~9 THcwW67%9YO||]e lg74 dwvNX# tt[e0 y\!6:)} yZ ( ^+: '= P2H668 K)M&U2n[F_ t 7N6
VDX>. _x' !V p<.ZvJ|sUcrM5~p s2kP {W3-hG 2Qp}? lP|Q>T$ (a=v w{` %A ;8eni~ o'[G:Ci^'m & %CZ
2ZlvY -P& Y4 Bz(A,ca030!r[[] ["K( `;\FbQ /|K{/ B f*[tbD fTT0 CU% [F m~cdAd )_x?x?E([ @ -W3
,34Yn 4jf w0 Yv0knX-Q//I_ l 1DQ t0J[VUV)!ip4 y I'Q4;d on>& AuS Nn R:F[[s [q8/l<]CrS V _uS
^JKKR X!6 9b u4Bmp]4b59V>7 u >sL iQmT{.0*MU'0 U 7_})5 y6JY V8B XG E!0dDz #qsB"}l*~{ 0 Xue
B#X2d .|n 7u +i;d~iom4BUNx G N t}'8Y-m9|Pq+(3( 67C6df @f0> Y"> Bx LWcE^c _I3w?KB'g 5 7}H
0>2yL VhZ rr }0"Dyy_;Fe{>j s *5 \+j9QScTgs$# Z& 8@ae>A e[LP &]} 'jd zW?-t5 e8q3mfma(c n +H.
9d".) 5Sr </ J7#>KHJ)c` ,Y2 Nbnjf .e8?{jH[R]hc P(0'.o@~T "'3g ~-i *f eJ"&+` zWYhq_oP@] $ :8E
#c*7J &/9 '= |<=dI' ,iz7z\ RgH}3 j]mQX!(yq.iIm )BvbE3Vr+ E00t b7z 3\ faL7Rz HYV(mC? B_ \ 1Y*
Hf+kP yVO p% .G@ZI.X$QLZ8? jV9uV g;{RzR=Z}1cq <tslCj+c$ Dzy@ a*c r3 tL|S]Z _P#wt~s -V o Sm%
-Z))\ +2M JP d?,Eh`|#+>L2W XZ\f6 $o8HjL02pwYy MoX1CkCuf UNzb !+G LN 8y~@W=BKDh9c# xb { sQk
mx&y5$#dp Op J=|&)0hKx[Pj 2v(*Z e#toqM!Ajy%B Wq[0>b_Rm xk-2 J [ 7- !JoN,.>')~Cq< Zb s h>E
KPR}n3-+t /N K6?Smeq|eJ$6 'V%ej (+,Sun%2R"k? *$4qI\Ag# "Pv/ C : tv 7qPyGmTzi_6[6 ZX s ~a4
0zzVu!L5B jz 7uy&,C0;|%;k 4T^", 32snu7;BN)JY 3L|yX=pq};2K/- g S 5. E"B\Gn)N12f{K pY 8 @Ys
1VxV`4/d}0 _7 SDckj8c/8w;V A++Ps s`gsk|07XjQl .tBx6F<a2FQo)d ; M ki 8 tih72i0:#Go KD 1 P w
h9,3g,Ju z hK AtAK^ZI^e.'| 3^8Md aHJg_*Mcs:~R 0,i8FC>Dw>W7W5 ' }x v xY>8//f:K(D YD Y G `
$LTAD]7p 6 zL _B9P%g(@D[dxL1zkeG ;dM)@'}eZ 1- .@s.D7y=sZF0J] t ` J- $ -(Nh$`e4L& 0" o.y w
59'4a{eq < x, b^%Mb<qE0=p!`u(G4% 4Na|m{B9w li %Vw3:'_.Ysr0ud k 4 HU | {!h~ ,b[Z! ,A p0 (0> k
q;r41t.F f ?T /B;\.SnA&LB3KLqSr3 I58^fQo2 "R DktH7U`S=pC`'[ 3 w c@ A ,BfX*)SHLLT [( GOY `
?Ng+v#8 % kZ hr/iGL8b86dbHsT\(\, RsPh1+Hl +t iK<V*>2hva~/nK k }T o \&'y{>~;/= <5 rWb Q
FM|R4$!i , =: @PuVnH^/fNA'55aW"* eP+=HiPv G0 dNN&ewC\0,""p} _ `kl m w=$:d7|["v *bDI[q ^
[1vRREA p< /Ij`xWnF~RMZ;<z? 'j&wJTWt ?M zR99S$[_N]/kRu { SA! y WCa#*HZ1Dm J?bH"H @
e-<b1R9 6 d5 _s206/;62.3j,8h%t: RRXrX<r} ; 6 LojR&~yPEgPyL~ * -yF _ $#00H9\|Yl inof9R o
00#^tPY m uV Ne 2h=E0 J,e#5dohr |&o blV# E/ Ulp.Iac7t FP0n T l_ g ~k_BX01=7C ,B`%IL F
(8vBjFjI m S+ Tl .0&jD S]r; :&A! U^s wlxE W2 vQ~?lp=;1 v1o z =e{ -uIR}}qU7D %10:C* x
pQlynIKM h 65 3G 1~ oH n2MV f &[ v8D bF"R Z< 02c2=Z6a] D Q w >U'3 b L6o,?)VuC@ Tkq*c1 2
Hxt@<f5v . )t F* 0E yl WYc' Y &k 7d, Cnhl uQ xzgPA4sf! 5 Y ARyN%+ Y vashyN&3Iy p,[g$u t
kx#Xyb)(_0 [9 Q5 G Vg 1Y}S g Ne ,%v dkSB ~W a#,<BP di c D WWZ=w~ j 5"p%SE'!Zc uG6+7% v
`WQjc![o P 'e ck - 2; ];# X y, v0] Nc){ fY 4Te1AL T F k ]U3BKS } h8Utuz+01& 1k5\QX }
{e >T@}q L KD UM % 1 5}l Z e4 OC& q1x& 4\ 6g7\DF M R R e,h<D8 ( * (|ila4*I bf+9m' 0
Sw sf2-q N f{ IU 1 J Bs ) ^{ F&a ,~;M [v cTP~zM K k d cQu _1 H H 3c$S]dDK $Ichz=
zz j>~Wz _ ,> ;P X 5 PV 0 ?Y r6T `T $ ?' y_?EV` ! t y ` ,B i8 I % QA!hh$d w$fi'B
#J *?!C H ,E uv | ^ _A + v^ {L} J^ % Uf ?#do,u & n A %B? m: } 7 3LZCREhf s4cvtn
e1 b0uL ] :| &' B p (. | )V `#a [1/ qg A@ (RYf C 0 e c; ' g z @ sVWSLz_^ d]vD~~
(q <;A9 nw @m Y *c I_ Y ?C \C? Xr[ Bf 5nDQ . Y U F X7j l e K y"$3>#-L bVDpNH
j7 C|qv /] 0< M Uv *e k q+ T<2 U} a )X8D l b R { )Nv e T + d3;ZpVuI Na] 2)
-M a(#' e] t# 0 ^5 ;h&F lp y#x ig. o J&89 [ ] 6 KG| > ! 8 aWQ>!CoR b2) U;
j6 3l \ >z *G 3 {l ,^f8 }/ h]- KD{ b aTWO b l B S{s { I @ Tl M(m^0 z_H (-
~9 C- 8 QY 86 o /0 @zA9 mo _%' ?yh 8 kN6\ > F $ ]z> Y k a 'x `edmT Ukn R2
!HwhQ 6 xC L= 9 ku V*G- &` dn? 5l3 < D,)- 5 ` hZ fuC - ; i 5i `P<lw K!h z'
g\?H0 $ B/ B! 1 Nw MBa~ rO ko' moM Z }M3l \ j X Gex [ , A S/ {w(/4 a\q J`
```