Déploiement de services via Docker et Portainer.io
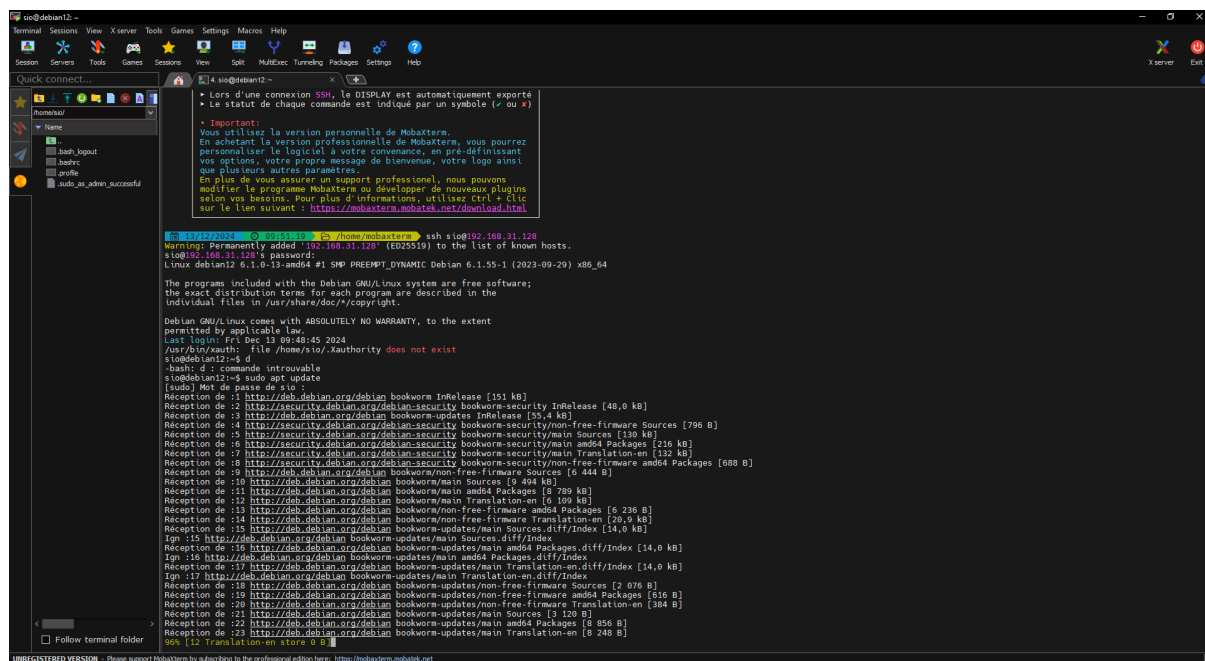
Cheroret Kylian BTS SIO

Déploiement de services via Docker et Portainer.io

Mise en place d'un environnement Docker sur une machine Linux pour faciliter le déploiement de services en conteneurs, avec une interface de gestion web grâce à Portainer.io.

1. Mise à jour du système et installation de Docker

Mise à jour des paquets et vérification de l'installation de Docker.

- `apt update`

- Vérification avec `docker --version`

Cheroret Kylian BTS SIO

```
sio@debian12:~$ sudo docker version
Client:
 Version:           20.10.24+dfsg1
 API version:       1.41
 Go version:        go1.19.8
 Git commit:        297e128
 Built:             Sat Oct 12 15:19:49 2024
 OS/Arch:           linux/amd64
 Context:           default
 Experimental:      true

Server:
 Engine:
  Version:          20.10.24+dfsg1
  API version:      1.41 (minimum version 1.12)
  Go version:       go1.19.8
  Git commit:       5d6db84
  Built:            Sat Oct 12 15:19:49 2024
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.6.20~ds1
  GitCommit:        1.6.20~ds1-1+b1
 runc:
  Version:          1.1.5+ds1
  GitCommit:        1.1.5+ds1-1+deb12u1
 docker-init:
  Version:          0.19.0
  GitCommit:
sio@debian12:~$ 
```

---

2. Test initial avec une image Docker

Téléchargement et exécution de l'image "hello-world" pour valider l'installation de Docker.

```
sio@debian12:~$ sudo docker images
REPOSITORY      TAG        IMAGE ID        CREATED         SIZE
ubuntu          latest     b1d9df8ab815    3 weeks ago     78.1MB
ubuntu          lunar      f4cdeba72b99    12 months ago   70.3MB
hello-world     latest     d2c94e258dcb    19 months ago   13.3kB
sio@debian12:~$ sudo docker rmi image hello-world
Untagged: hello-world:latest
Untagged: hello-world@sha256:5b3cc85e16e3058003c13b7821318369dad01dac3dbb877aa
Deleted: sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01cba4841c2234249495f87264ac
Deleted: sha256:ac28800ec8bb38d5c35b49d45a6ac4777544941199075dff8c4eb63e093aa8
Error: No such image: image
sio@debian12:~$ sudo docker rmi hello-world
Error: No such image: hello-world
sio@debian12:~$ sudo images
sudo: images : commande introuvable
sio@debian12:~$ sudo docker images
REPOSITORY      TAG        IMAGE ID        CREATED         SIZE
ubuntu          latest     b1d9df8ab815    3 weeks ago     78.1MB
ubuntu          lunar      f4cdeba72b99    12 months ago   70.3MB
sio@debian12:~$
```

3. Création et gestion de conteneurs Ubuntu

Création d'un conteneur Ubuntu en mode interactif, test de plusieurs instances et
suppression de conteneurs.

```
[sudo] Mot de passe de sio :
sha256:b2ce2016243abf867da831db279a7727d4ce84db265f0c0e1a12d2feb7935e23
sio@debian12:~$ sudo docker commit S2RVUBUNTU kcheroret/ubuntu:ssh
sha256:235f166777714747e6590a96d71df289d32a365e320a0e33c2e191e9415ea9ca
sio@debian12:~$ sudo docker image

Usage:  docker image COMMAND

Manage images

Commands:
  build       Build an image from a Dockerfile
  history     Show the history of an image
  import      Import the contents from a tarball to create a filesystem image
  inspect     Display detailed information on one or more images
  load        Load an image from a tar archive or STDIN
  ls          List images
  prune       Remove unused images
  pull        Pull an image or a repository from a registry
  push        Push an image or a repository to a registry
  rm          Remove one or more images
  save        Save one or more images to a tar archive (streamed to STDOUT by default)
  tag         Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
sio@debian12:~$ sudo docker images
REPOSITORY         TAG         IMAGE ID       CREATED           SIZE
kcheroret/ubuntu   ssh         235f16677771   39 seconds ago    249MB
<none>             <none>      b2ce2016243a   About a minute ago 249MB
ubuntu             latest      b1d9df8ab815   3 weeks ago       78.1MB
ubuntu             lunar       f4cdeba72b99   12 months ago     70.3MB
sio@debian12:~$ sudo docker rm b2ce2016243a
Error: No such container: b2ce2016243a
sio@debian12:~$ sudo docker rm images b2ce2016243a
Error: No such container: images
Error: No such container: b2ce2016243a
sio@debian12:~$ sudo docker rmi b2ce2016243a
Deleted: sha256:b2ce2016243abf867da831db279a7727d4ce84db265f0c0e1a12d2feb7935e23
sio@debian12:~$ sudo docker save kcheroret/ubuntu
cowardly refusing to save to a terminal. Use the -o flag or redirect
sio@debian12:~$ sudo docker save kcheroret/ubuntu:ssh
cowardly refusing to save to a terminal. Use the -o flag or redirect
sio@debian12:~$ sudo docker save kcheroret/ubuntu:ssh > serv_ubuntu-ssh.tar
sio@debian12:~$ ls
serv_ubuntu-ssh.tar
sio@debian12:~$
```

```
sio@debian12:~$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    b1d9df8ab815   3 weeks ago    78.1MB
ubuntu        lunar     f4cdeba72b99   12 months ago  70.3MB
sio@debian12:~$ sudo docker run ubuntu
sio@debian12:~$ sudo docker ps
CONTAINER ID  IMAGE     COMMAND     CREATED     STATUS     PORTS     NAMES
sio@debian12:~$ sudo docker ps -a
CONTAINER ID  IMAGE     COMMAND        CREATED          STATUS                 PORTS     NAMES
dd205f72c81d  ubuntu    "/bin/bash"    47 seconds ago   Exited (0) 46 seconds ago        silly_kalam
sio@debian12:~$ sudo docker run ubuntu
sio@debian12:~$ sudo docker ps -a
CONTAINER ID  IMAGE     COMMAND        CREATED          STATUS                 PORTS     NAMES
0aa4031f3879  ubuntu    "/bin/bash"    3 seconds ago    Exited (0) 2 seconds ago         stoic_galois
dd205f72c81d  ubuntu    "/bin/bash"    2 minutes ago    Exited (0) 2 seconds ago         silly_kalam
sio@debian12:~$ docker run ubuntu cat /etc/lsb-release
docker: permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock. Post "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/create": dial unix /var/run/docker.sock
: connect: permission denied.
See 'docker run --help'.
sio@debian12:~$ sudo docker run ubuntu cat /etc/lsb-release
cat: /etc/lsb-release: No such file or directory
sio@debian12:~$ sudo docker run ubuntu cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=24.04
DISTRIB_CODENAME=noble
DISTRIB_DESCRIPTION="Ubuntu 24.04.1 LTS"
sio@debian12:~$ sudo docker ps -a
CONTAINER ID  IMAGE     COMMAND                CREATED          STATUS                 PORTS     NAMES
754475337bd7  ubuntu    "cat /etc/lsb-release" 5 seconds ago    Exited (0) 4 seconds ago         priceless_allen
c7d6164e33ae  ubuntu    "cat /etc/lsb-release" 21 seconds ago   Exited (1) 20 seconds ago        sweet_brahmagupta
0aa4031f3879  ubuntu    "/bin/bash"            About a minute ago Exited (0) About a minute ago  stoic_galois
dd205f72c81d  ubuntu    "/bin/bash"            3 minutes ago    Exited (0) 3 minutes ago         silly_kalam
sio@debian12:~$
```

```
sio@debian12:~$ sudo docker rm dd205f72c81d
dd205f72c81d
sio@debian12:~$ sudo docker ps -a
CONTAINER ID  IMAGE     COMMAND                CREATED           STATUS                 PORTS     NAMES
754475337bd7  ubuntu    "cat /etc/lsb-release" About a minute ago Exited (0) About a minute ago  priceless_allen
c7d6164e33ae  ubuntu    "cat /etc/lsb-release" About a minute ago Exited (1) About a minute ago  sweet_brahmagupta
0aa4031f3879  ubuntu    "/bin/bash"            2 minutes ago     Exited (0) 2 minutes ago         stoic_galois
sio@debian12:~$
```

4. Création d'une image personnalisée Ubuntu

Création d'une image personnalisée à partir d'un conteneur Ubuntu.

```
[sudo] Mot de passe de sio :
sha256:b2ce2016243abf867da831db279a7727d4ce84db265f0c0e1a12d2feb7935e23
sio@debian12:~$ sudo docker commit S2RVUBUNTU kcheroret/ubuntu:ssh
sha256:235f166777714747e6590a96d71df289d32a365e320a0e33c2e191e9415ea9ca
sio@debian12:~$ sudo docker image

Usage:  docker image COMMAND

Manage images

Commands:
  build       Build an image from a Dockerfile
  history     Show the history of an image
  import      Import the contents from a tarball to create a filesystem image
  inspect     Display detailed information on one or more images
  load        Load an image from a tar archive or STDIN
  ls          List images
  prune       Remove unused images
  pull        Pull an image or a repository from a registry
  push        Push an image or a repository to a registry
  rm          Remove one or more images
  save        Save one or more images to a tar archive (streamed to STDOUT by default)
  tag         Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
sio@debian12:~$ sudo docker images
REPOSITORY          TAG       IMAGE ID       CREATED            SIZE
kcheroret/ubuntu    ssh       235f16677771   39 seconds ago     249MB
<none>              <none>    b2ce2016243a   About a minute ago 249MB
ubuntu              latest    b1d9df8ab815   3 weeks ago        78.1MB
ubuntu              lunar     f4cdeba72b99   12 months ago      70.3MB
sio@debian12:~$ sudo docker rm b2ce2016243a
Error: No such container: b2ce2016243a
sio@debian12:~$ sudo docker rm images b2ce2016243a
Error: No such container: images
Error: No such container: b2ce2016243a
sio@debian12:~$ sudo docker rmi b2ce2016243a
Deleted: sha256:b2ce2016243abf867da831db279a7727d4ce84db265f0c0e1a12d2feb7935e23
sio@debian12:~$ sudo docker save kcheroret/ubuntu
cowardly refusing to save to a terminal. Use the -o flag or redirect
sio@debian12:~$ sudo docker save kcheroret/ubuntu:ssh
cowardly refusing to save to a terminal. Use the -o flag or redirect
sio@debian12:~$ sudo docker save kcheroret/ubuntu:ssh > serv_ubuntu-ssh.tar
sio@debian12:~$ ls
serv_ubuntu-ssh.tar
sio@debian12:~$
```

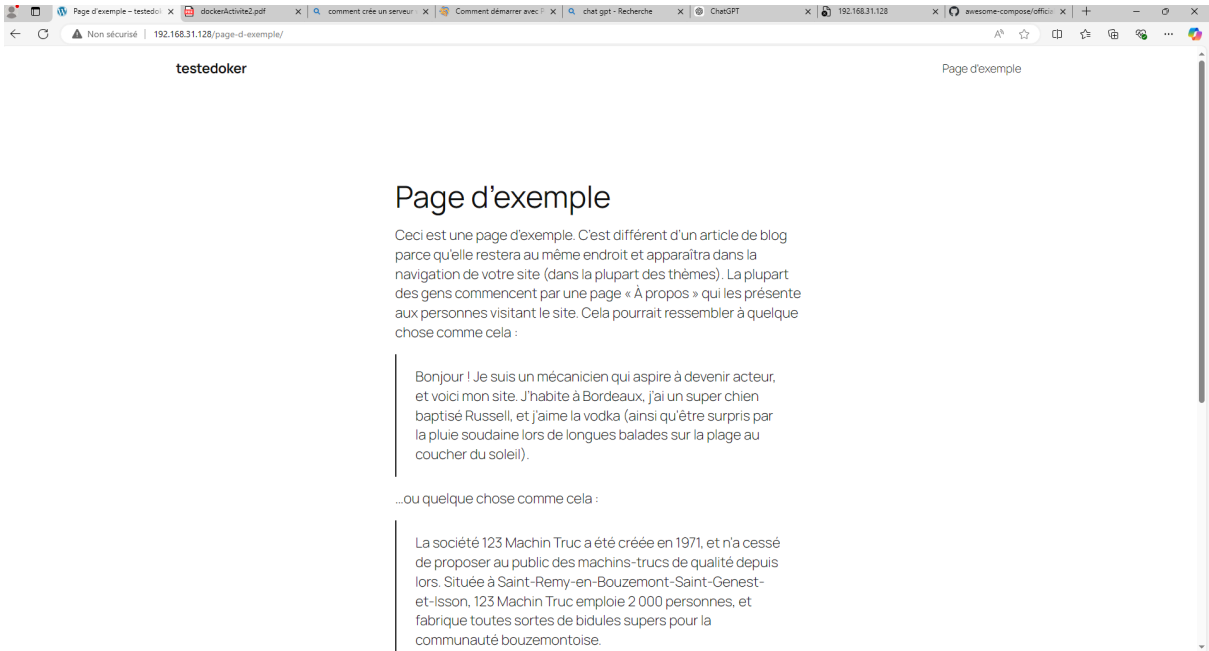## 5. Installation d'OpenSSH et création d'un utilisateur dans le conteneur

Mise en place d'un accès SSH et configuration d'un utilisateur dans un conteneur Ubuntu.

6. Déploiement automatisé de WordPress avec Docker

Utilisation d'un fichier Docker Compose ou d'une commande unique pour lancer une instance WordPress.

7. Installation et utilisation de Portainer.io

Cheroret Kylian BTS SIO

Déploiement de Portainer.io pour la gestion graphique des conteneurs Docker.

Cheroret Kylian BTS SIO