TP5 Vagrant

Q1) Installation de Vagrant

Téléchargement et installation

- sudo apt-get install vagrant -y

Q2) Installation de la VM

Rechercher une distrib prise en charge par Vagrant

- https://app.vagrantup.com/boxes/search

Création du VagrantFile

- mkdir vm-ubuntu-18_04
- cv vm-ubuntu-18_04
- vagrant init "ubuntu/bionic64"

```
marc@magnorod:~/vm-ubuntu-18_04$ vagrant box list
ubuntu/bionic64 (virtualbox, 20201125.0.0)
```

Création et configuration de la VM

- vagrant up

Connexion SSH

- vagrant ssh

Récolte d'info

adresse ip

- ip addr show

```
vagrant@ubuntu-bionic:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 02:bd:38:fa:b3:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86217sec preferred_lft 86217sec
    inet6 fe80::bd:38ff:fefa:b35d/64 scope link
       valid_lft forever preferred_lft forever
```

disque dur (sytème de fichiers)

- df -h

```
vagrant@ubuntu-bionic:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M     0  481M   0% /dev
tmpfs            99M  596K   98M   1% /run
/dev/sda1       9.7G  1.1G  8.6G  11% /
tmpfs           493M     0  493M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           493M     0  493M   0% /sys/fs/cgroup
vagrant          49G   44G  5.0G  90% /vagrant
tmpfs            99M     0   99M   0% /run/user/1000
```

mémoire vive

- free -h

```
vagrant@ubuntu-bionic:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:           984M         79M        653M        596K        252M        767M
Swap:            0B          0B          0B
```

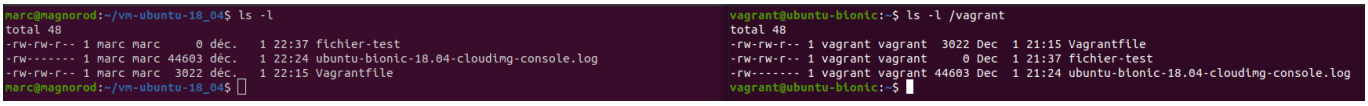
cpu

- lscpu

```
vagrant@ubuntu-bionic:~$ lscpu
Architecture:        x86_64
CPU op-mode(s):      32-bit, 64-bit
Byte Order:          Little Endian
CPU(s):              2
On-line CPU(s) list: 0,1
Thread(s) per core:  1
Core(s) per socket:  2
Socket(s):           1
NUMA node(s):        1
Vendor ID:           GenuineIntel
CPU family:          6
Model:               142
Model name:          Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz
Stepping:            10
CPU MHz:             1799.998
BogoMIPS:            3599.99
Hypervisor vendor:   KVM
Virtualization type: full
L1d cache:           32K
L1i cache:           32K
L2 cache:            256K
L3 cache:            6144K
NUMA node0 CPU(s):   0,1
Flags:               fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
 clflush mmx fxsr sse sse2 ht syscall nx rdtscp lm constant_tsc rep_good nopl xtopology nons
top_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt
 aes xsave avx rdrand hypervisor lahf_lm abm 3dnowprefetch invpcid_single pti fsgsbase avx2
invpcid rdseed clflushopt md_clear flush_l1d
```

fichier partagé

- ls /vagrant



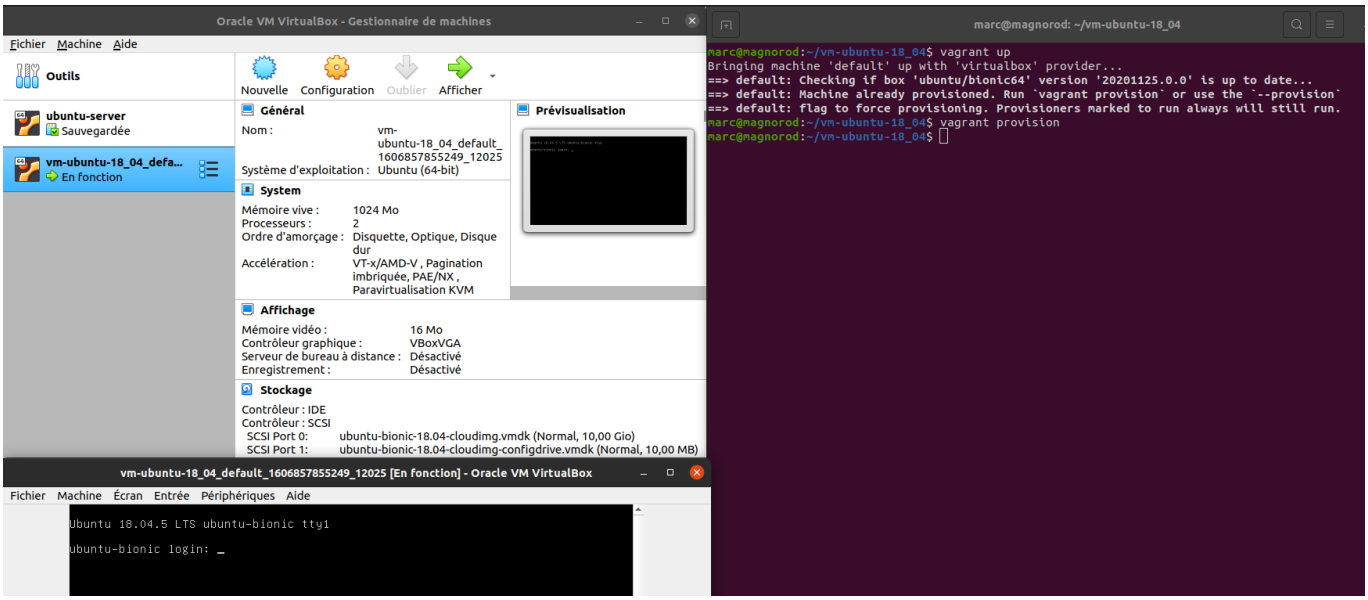
Q3) Modifier la config de la machine pour qu'elle démarre en GUI

Pour utiliser le mode GUI virtualbox doit être installé !

modifier le Vagrantfile

```
# Provider-specific configuration so you can fine-tune various
# backing providers for Vagrant. These expose provider-specific options.
# Example for VirtualBox:
#
 config.vm.provider "virtualbox" do |vb|
#   # Display the VirtualBox GUI when booting the machine
   vb.gui = true
#
#   # Customize the amount of memory on the VM:
   vb.memory = "2048"
end
```

- vagrant up
- vagrant provision



Q4) Tester les différents modes réseau

3 modes réseau

mode forward de port:

forward du port 8080 de l'hôte sur le port 80 de l'invité

modif du Vagrantfile

- config.vm.network "forwarded_port", guest: 80, host: 8080

puis

- vagrant up

le forward de port s'effectue bien

```
marc@magnorod:~/vm-ubuntu-18_04$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Checking if box 'ubuntu/bionic64' version '20201125.0.0' is up to date...
==> default: Clearing any previously set forwarded ports...
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
==> default: Forwarding ports...
    default: 80 (guest) => 8080 (host) (adapter 1)
    default: 22 (guest) => 2222 (host) (adapter 1)
```

```
vagrant@ubuntu-bionic:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 02:bd:38:fa:b3:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86363sec preferred_lft 86363sec
    inet6 fe80::bd:38ff:fefa:b35d/64 scope link
       valid_lft forever preferred_lft forever
```

ping source	ping destination	resultat
hote	invité	ko
invite	hote	ok

mode prive :

modif du Vagrantfile

- config.vm.network "private_network", ip: "192.168.33.10" puis
- vagrant up

```
vagrant@ubuntu-bionic:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 02:bd:38:fa:b3:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86387sec preferred_lft 86387sec
    inet6 fe80::bd:38ff:fefa:b35d/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:27:5f:4f brd ff:ff:ff:ff:ff:ff
    inet 192.168.33.10/24 brd 192.168.33.255 scope global enp0s8
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe27:5f4f/64 scope link
       valid_lft forever preferred_lft forever
```

coté hôte on remarque qu'une interface est créée. cette interface servira de passerelle à la machine invité

ping source	ping destination	resultat
hote	invité	ok

ping source	ping destination	resultat
invite	hote	ok

mode public :

modif du Vagrantfile

- config.vm.network "public_network"

puis

- vagrant up

Utilisation d'un bridge sur l'interface de la carte wi-fi wlp2s0

```
==> default: Available bridged network interfaces:
1) wlp2s0
2) docker0
==> default: When choosing an interface, it is usually the one that is
==> default: being used to connect to the internet.
    default: Which interface should the network bridge to? 1
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
    default: Adapter 2: bridged
==> default: Forwarding ports...
    default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
```

```
vagrant@ubuntu-bionic:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 02:bd:38:fa:b3:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86292sec preferred_lft 86292sec
    inet6 fe80::bd:38ff:fefa:b35d/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:27:5f:4f brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.33/24 brd 192.168.1.255 scope global dynamic enp0s8
       valid_lft 86296sec preferred_lft 86296sec
    inet6 2a02:8431:1352:ea00:b616:1058:5f67:2ca6/128 scope global dynamic noprefixroute
       valid_lft 86295sec preferred_lft 86295sec
    inet6 2a02:8431:1352:ea00:a00:27ff:fe27:5f4f/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 604694sec preferred_lft 604694sec
    inet6 fe80::a00:27ff:fe27:5f4f/64 scope link
       valid_lft forever preferred_lft forever
```

ping source	ping destination	resultat
hote	invité	ok
invite	hote	ok

Q5) Installer un serveur web

utilisation du mode réseau forward de port dans le Vagrantfile

- config.vm.network "forwarded_port", guest: 80, host: 8080

sur l'invité:

- sudo apt install apache2 -y

test sur l'invité:

```
root@ubuntu-bionic:~# curl -I http://127.0.0.1
HTTP/1.1 200 OK
Date: Tue, 01 Dec 2020 22:45:53 GMT
Server: Apache/2.4.29 (Ubuntu)
Last-Modified: Tue, 01 Dec 2020 22:42:09 GMT
ETag: "2aa6-5b56ed63f0480"
Accept-Ranges: bytes
Content-Length: 10918
Vary: Accept-Encoding
Content-Type: text/html
```

test sur l'hôte:

```
marc@magnorod:~$ curl -I http://127.0.0.1:8080
HTTP/1.1 200 OK
Date: Tue, 01 Dec 2020 22:47:03 GMT
Server: Apache/2.4.29 (Ubuntu)
Last-Modified: Tue, 01 Dec 2020 22:42:09 GMT
ETag: "2aa6-5b56ed63f0480"
Accept-Ranges: bytes
Content-Length: 10918
Vary: Accept-Encoding
Content-Type: text/html
```

Q6) Accéder à l'invité en SSH depuis l'hôte

Toutes les configurations réseaux permettent de se connecter à l'invité:

mode forward de port

Au niveau du vagrantfile

config.vm.network "forwarded_port", guest: 22, host: 2222, host_ip: "192.168.1.27"

dans /etc/ssh/sshd_config sur la vm ubuntu:

- PasswordAuthentication yes

se connecter avec id et mdp vagrant

- ssh vagrant@192.168.1.27 -p 2222

mode reseau prive

- ssh vagrant@192.168.50.4 -p 22

192.168.50.4 correspond à l'adresse renseignée dans le vagrantfile

mode reseau public

- ssh vagrant@192.168.1.71 -p 22 192.168.1.71 correspond à une adresse de mon réseau physique qui est en 192.168.1.0/24

Q7) Détruire la VM

- vagrant destroy -f

Q8) Ajout interface + provisionning

- vagrant init "ubuntu/bionic64"

modif du Vagrantfile

coté réseau

- config.vm.network "public_network"
- config.vm.network "private_network", ip: "192.168.50.4"

coté provisionning:

```
config.vm.provision "shell", inline: <<-SHELL
  apt-get update
  apt-get install -y apache2
  rm /var/www/html/index.html
  cp /vagrant/site-web/index.html /var/www/html/
  service apache2 restart
SHELL
```

configuration réseau sur l'invité:

```
vagrant@ubuntu-bionic:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 02:bd:38:fa:b3:5d brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86276sec preferred_lft 86276sec
    inet6 fe80::bd:38ff:fefa:b35d/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:51:64:35 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.74/24 brd 192.168.1.255 scope global dynamic enp0s8
       valid_lft 86279sec preferred_lft 86279sec
    inet6 2a02:8431:1352:ea00:b616:1058:5f67:8d10/128 scope global dynamic noprefixroute
       valid_lft 86278sec preferred_lft 86278sec
    inet6 2a02:8431:1352:ea00:a00:27ff:fe51:6435/64 scope global dynamic mngtmpaddr noprefixroute
       valid_lft 604678sec preferred_lft 604678sec
    inet6 fe80::a00:27ff:fe51:6435/64 scope link
       valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:e2:43:3a brd ff:ff:ff:ff:ff:ff
    inet 192.168.50.4/24 brd 192.168.50.255 scope global enp0s9
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fee2:433a/64 scope link
       valid_lft forever preferred_lft forever
```

test accès serveur web depuis l'invité :

```
vagrant@ubuntu-bionic:~$ curl http://192.168.50.4
<!doctype html>
<html lang="fr">
<head>
  <meta charset="utf-8">
  <title>Mon site</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>
<p> Super site ! </p>
</body>
</html>vagrant@ubuntu-bionic:~$
```

test accès serveur web depuis l'hôte:

```
marc@magnorod:~$ curl http://192.168.50.4
<!doctype html>
<html lang="fr">
<head>
  <meta charset="utf-8">
  <title>Mon site</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>
<p> Super site ! </p>
</body>
</html>marc@magnorod:~$
```