

# DEPLOIEMENT INDUSTRIEL : TD VAGRANT

## OBJECTIFS

- Mettre en place un environnement de développement.
- Appréhender les outils installés.
- Comprendre le fonctionnement de l'application.
- Diagnostiquer et résoudre d'éventuels problèmes.

## ETAPE 1: Installation et configuration

### WINDOWS SEULEMENT

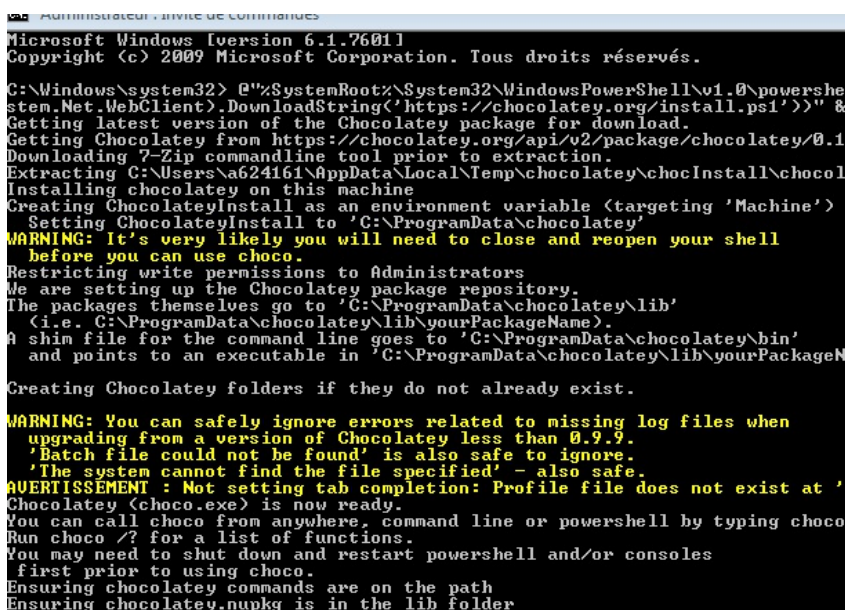
Cette section concerne uniquement les machines opérant sous Windows. Pour les machines opérant sous Linux ou Mac, veuillez passer à l'étape suivante.

#### 1. CHOCOLATEY

Pour toute information détaillée sur Chocolatey, reportez-vous au site web dédié :  
<https://chocolatey.org>

- Lancez votre fenêtre de commande en mode "administrateur", puis rentrez la commande ci-dessous et tapez "Entrée".

```
@"%SystemRoot%\System32\WindowsPowerShell\v1.0\powershell.exe" -NoProfile -  
InputFormat None -ExecutionPolicy Bypass -Command "iex ((New-Object  
System.Net.WebClient).DownloadString('https://chocolatey.org/install.ps1'))"  
&& SET "PATH=%PATH%;%ALLUSERSPROFILE%\chocolatey\bin"
```



```
Microsoft Windows [version 6.1.7601]  
Copyright (c) 2009 Microsoft Corporation. Tous droits réservés.  
  
C:\Windows\system32> @"%SystemRoot%\System32\WindowsPowerShell\v1.0\powershell.exe" -NoProfile -  
InputFormat None -ExecutionPolicy Bypass -Command "iex ((New-Object  
System.Net.WebClient).DownloadString('https://chocolatey.org/install.ps1'))" && SET "PATH=%PATH%;%ALLUSERSPROFILE%\chocolatey\bin"  
Getting latest version of the Chocolatey package for download.  
Getting Chocolatey from https://chocolatey.org/api/v2/package/chocolatey/0.1  
Downloading 7-Zip commandline tool prior to extraction.  
Extracting C:\Users\af24161\AppData\Local\Temp\chocolatey\chocInstall\chocol  
Installing chocolatey on this machine  
Creating ChocolateyInstall as an environment variable (targeting 'Machine')  
Setting ChocolateyInstall to 'C:\ProgramData\chocolatey'  
WARNING: It's very likely you will need to close and reopen your shell  
before you can use choco.  
Restricting write permissions to Administrators  
We are setting up the Chocolatey package repository.  
The packages themselves go to 'C:\ProgramData\chocolatey\lib'  
(i.e. C:\ProgramData\chocolatey\lib\yourPackageName).  
A shim file for the command line goes to 'C:\ProgramData\chocolatey\bin'  
and points to an executable in 'C:\ProgramData\chocolatey\lib\yourPackageName'  
Creating Chocolatey folders if they do not already exist.  
  
WARNING: You can safely ignore errors related to missing log files when  
upgrading from a version of Chocolatey less than 0.9.9.  
'Batch file could not be found' is also safe to ignore.  
'The system cannot find the file specified' - also safe.  
AVERTISSEMENT : Not setting tab completion: Profile file does not exist at '  
Chocolatey (choco.exe) is now ready.  
You can call choco from anywhere, command line or powershell by typing choco  
Run choco /? for a list of functions.  
You may need to shut down and restart powershell and/or consoles  
first prior to using choco.  
Ensuring chocolatey commands are on the path  
Ensuring chocolatey.nupkg is in the lib folder
```

- Patientez jusqu'à la fin de l'installation puis vérifiez le bon déroulement du processus en rentrant la

commande ci-dessous.

```
choco /?
```

```
C:\Windows\system32>choco /?
This is a listing of all of the different things you can pass to choco.

Commands

* list - lists remote or local packages
* search - searches remote or local packages (alias for list)
* info - retrieves package information. Shorthand for choco search pkgname --exact --verbose
* install - installs packages from various sources
* pin - suppress upgrades for a package
* outdated - retrieves packages that are outdated. Similar to upgrade all --noop
* upgrade - upgrades packages from various sources
* uninstall - uninstalls a package
* pack - packages up a nuspec to a compiled nupkg
* push - pushes a compiled nupkg
* new - generates files necessary for a chocolatey package from a template
* source - view and configure default sources
* sources - view and configure default sources (alias for source)
* config - Retrieve and configure config file settings
* feature - view and configure choco features
* features - view and configure choco features (alias for feature)
* apikey - retrieves or saves an apikey for a particular source
* setapikey - retrieves or saves an apikey for a particular source (alias for apikey)
* unpackself - have chocolatey set itself up
* version - [DEPRECATED] will be removed in v1 - use 'choco outdated' or 'cup <pkg!all> -whatif' instead
* update - [DEPRECATED] RESERVED for future use (you are looking for upgrade, these are not the droids you are looking for)
```

## 2. CYGWIN

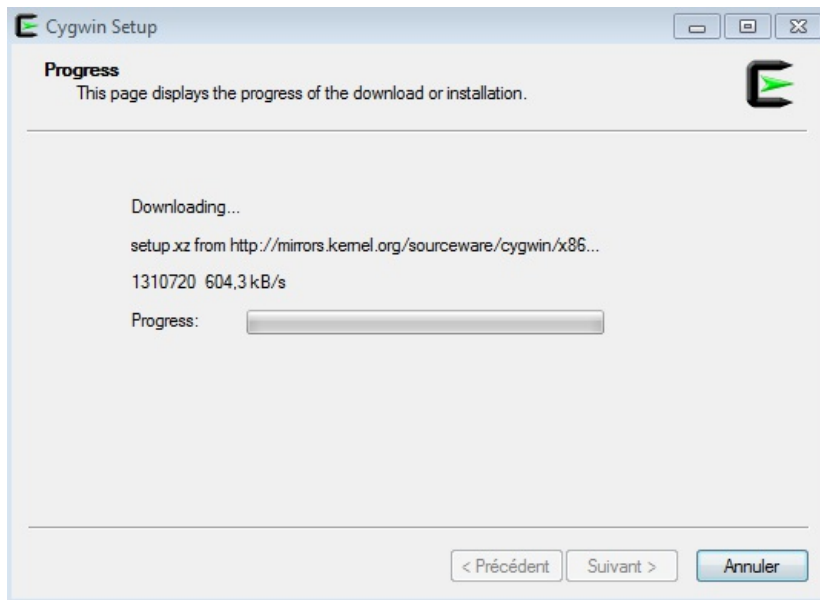
Pour toute information détaillée sur Cygwin, reportez-vous au site web dédié : <http://www.cygwin.com/>

- Téléchargez Cygwin en utilisant chocolatey via la commande ci-dessous.

```
choco install cyg-get
```

```
C:\Windows\system32>choco install cyg-get
Chocolatey v0.10.8
Installing the following packages:
cyg-get
By installing you accept licenses for the packages.
Progress: Downloading Cygwin 2.10.0... 100%
Progress: Downloading chocolatey-core.extension 1.3.3... 100%
Progress: Downloading cyg-get 1.2.1... 100%
chocolatey-core.extension v1.3.3 [Approved]
chocolatey-core.extension package files install completed. Performing other installation steps.
```

- Après avoir rentré "Y" pour accepter l'installation, Cygwin s'installe automatiquement sur votre machine.



- Rentrez une dernière fois l'option "Y" pour finaliser l'installation de Cygwin.

```

Do you want to run the script? (Y/N/I/P/print): Y
Adding C:\ProgramData\chocolatey\bin\cyg-get.bat and pointing it to powershell command C:\ProgramData\chocolatey\lib\cyg-get\tools\cyg-get.ps1
The install of cyg-get was successful.
Software install location not explicitly set, could be in package or
default install location if installer.
Chocolatey installed 3/3 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

```

### 3. PACKAGES

- Installez le package SSH en utilisant Cygwin via la commande ci-dessous.

```
cyg-get openssh
```

```

C:\Windows\system32>cyg-get openssh
Attempting to install cygwin packages: openssh
Starting cygwin install, version 2.884
User has backup/restore rights
Current Directory: C:\cygwin64\packages
Could not open service McShield for query, start and stop. McAfee may not be installed, or we don't have access.
root: C:\cygwin64 system
Selected local directory: C:\cygwin64\packages
net: IE5
site: http://mirrors.kernel.org/sourceware/cygwin/
Adding required dependency csih: Selecting version 0.9.9-1 for installation.
Adding required dependency cygrunsrv: Selecting version 1.62-1 for installation.
Adding required dependency libcom_err2: Selecting version 1.42.12-2 for installation.
Adding required dependency libcrypt0: Selecting version 2.1-1 for installation.
Adding required dependency libedit0: Selecting version 20130712-1 for installation.
Adding required dependency libgssapi_krb5_2: Selecting version 1.15.2-1 for installation.
Adding required dependency libk5crypto3: Selecting version 1.15.2-1 for installation.
Adding required dependency libkrb5support0: Selecting version 1.15.2-1 for installation.
Adding required dependency libkrb5_3: Selecting version 1.15.2-1 for installation.

```

- Installez le package Rsync en utilisant Cygwin via la commande ci-dessous.

```
cyg-get rsync
```

```

C:\Windows\system32>cyg-get rsync
Attempting to install cygwin packages: rsync
Starting cygwin install, version 2.884
User has backup/restore rights
Current Directory: C:\cygwin64\packages
Could not open service McShield for query, start and stop. McAfee may not be installed, or we don't have access.
root: C:\cygwin64 system
Selected local directory: C:\cygwin64\packages
net: IE5
site: http://mirrors.kernel.org/sourceware/cygwin/
Downloaded C:\cygwin64\packages/http%3a%2f%2fmirrors.kernel.org%2fsourceware%2fcygwin%2f/x86_64/release/rsync/rsync-3.1.2-1.tar.xz
Extracting from file://C:\cygwin64\packages/http%3a%2f%2fmirrors.kernel.org%2fsourceware%2fcygwin%2f/x86_64/release/rsync/rsync-3.1.2-1.tar.xz
Changing gid back to original
running: C:\cygwin64\bin\dash.exe "/etc/postinstall/0p_000_autorebase.dash"
running: C:\cygwin64\bin\dash.exe "/etc/postinstall/0p_update-info-dir.dash"
running: C:\cygwin64\bin\hash.exe --nore --noprofile "/etc/postinstall/zp_man-db.sh"
Changing gid to Administrators
Ending cygwin install

```

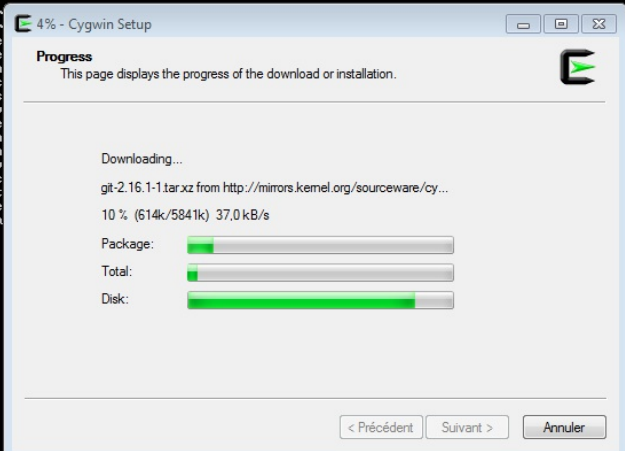
- Installez le package GIT en utilisant Cygwin via la commande ci-dessous.

cyg-get git

```

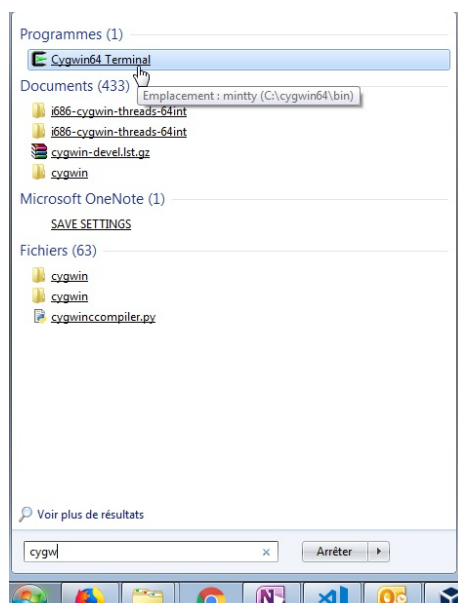
C:\Windows\system32>cyg-get git
Attempting to install cygwin packages: git
Starting cygwin install, version 2.884
User has backup/restore rights
Current Directory: C:\cygwin64\packages
Could not open service McShield for query, start and stop. McAfee may not be installed, or we don't have access.
root: C:\cygwin64 system
Selected local directory: C:\cygwin64\packages
net: IE5
site: http://mirrors.kernel.org/sourceware/cygwin/
Adding required dependency libcurl4: Selecting version 7.28.0-1
Adding required dependency libdb5.3: Selecting version 5.3.28-1
Adding required dependency libexpat1: Selecting version 2.0.1-1
Adding required dependency libidn2_0: Selecting version 1.24-1
Adding required dependency libnghttp2_14: Selecting version 1.11.0-1
Adding required dependency libopenldap2_4_2: Selecting version 2.4.42-1
Adding required dependency libpsl5: Selecting version 0.9.1-1
Adding required dependency libssl1_1: Selecting version 1.0.2g-1
Adding required dependency libssh2_1: Selecting version 1.9.0-1
Adding required dependency libunistring2: Selecting version 0.9.5-1
Adding required dependency perl: Selecting version 5.18.0-1
Adding required dependency perl-Error: Selecting version 0.17002-1
Adding required dependency perl-TermReadKey: Selecting version 0.17002-1
Adding required dependency perl-autorebase: Selecting version 0.17002-1
Adding required dependency perl-base: Selecting version 0.17002-1
Adding required dependency publicsuffix-list-dafsa: Selecting version 20140828-1

```

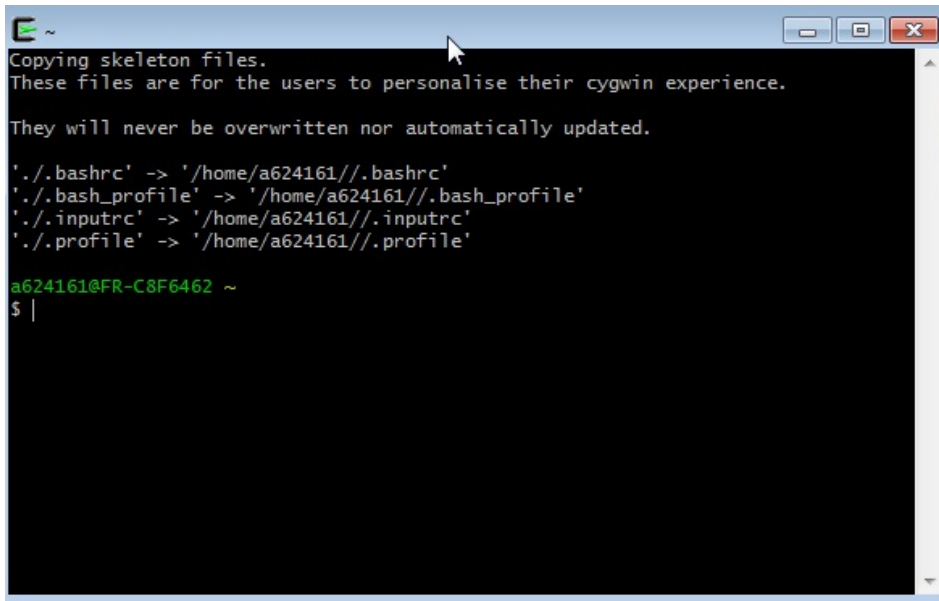


#### 4. TERMINAL

- Lancez votre terminal Cygwin sous votre menu "démarrer".



- Vous devriez obtenir un terminal identique à la capture ci-dessous.



```
~  
Copying skeleton files.  
These files are for the users to personalise their cygwin experience.  
  
They will never be overwritten nor automatically updated.  
  
'./bashrc' -> '/home/a624161/./bashrc'  
'./bash_profile' -> '/home/a624161/./bash_profile'  
'./inputrc' -> '/home/a624161/./inputrc'  
'./profile' -> '/home/a624161/./profile'  
  
a624161@FR-C8F6462 ~  
$ |
```

## AUTRES OS (Linux, MacOS, etc)

Cette section concerne uniquement les machines n'opérant pas sous Windows.

- Lancez votre terminal puis utilisez votre gestionnaire de paquets pour installer openssh et rsync.
  - Sous Ubuntu : Après la mise à jour de vos packages (`apt-get update`), tapez `sudo apt-get install openssh-client penssh-server`
  - Sous MacOS : Après la mise à jour de vos packages (`brew tap homebrew/dupes`), tapez `brew install openssh`
- Faites de même pour le package rsync.
- Vérifiez que vos installations sont correctes en tapant `ssh` ou `rsync` sur votre terminal.

## VAGRANT VIA EXECUTABLE

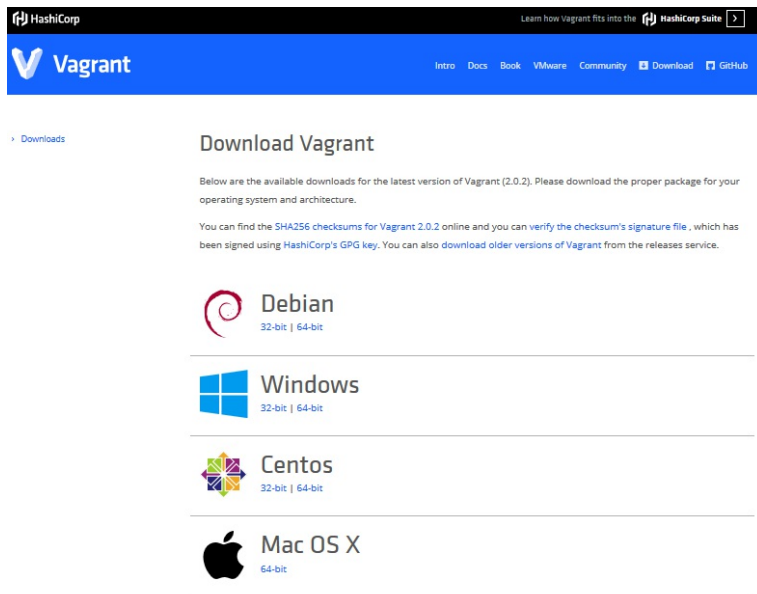
ATTENTION : Il est possible d'installer vagrant via votre terminal mais la manipulation requiert plus de configuration. Parfois, l'installation ne s'opère pas correctement. Préférez télécharger l'exécutable disponible sur le site web de Vagrant comme indiqué par la mise en garde sur le site web.

## Caveats

**Beware of system package managers!** Some operating system distributions include a vagrant package in their upstream package repos. Please do not install Vagrant in this manner. Typically these packages are missing dependencies or include very outdated versions of Vagrant. If you install via your system's package manager, it is very likely that you will experience issues. Please use the official installers on the downloads page.

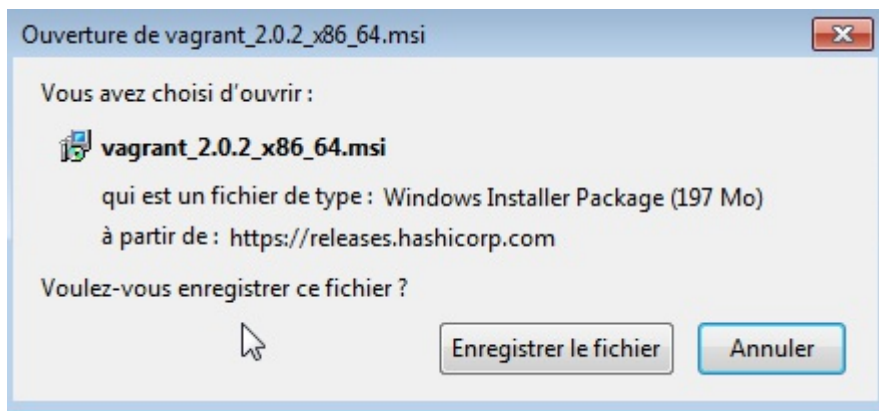
- Naviguez vers le lien suivant puis choisissez le système d'exploitation compatible avec votre machine :

<https://www.vagrantup.com/downloads.html>

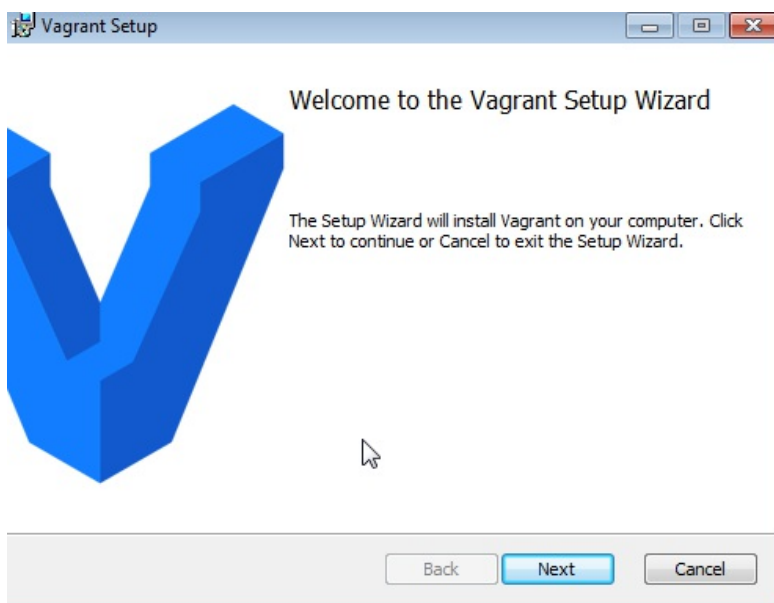


The screenshot shows the Vagrant website's download page. At the top, there's a navigation bar with the Vagrant logo and links for Intro, Docs, Book, VMware, Community, Download, and GitHub. The main heading is "Download Vagrant". Below it, a paragraph explains that the page lists available downloads for the latest version (2.0.2) for various operating systems and architectures. It also mentions SHA256 checksums and GPG signatures for verification. Below the text, there are four download options, each with a logo and the operating system name: Debian (32-bit | 64-bit), Windows (32-bit | 64-bit), Centos (32-bit | 64-bit), and Mac OS X (64-bit).

- Téléchargez et enregistrez l'exécutable de l'application.



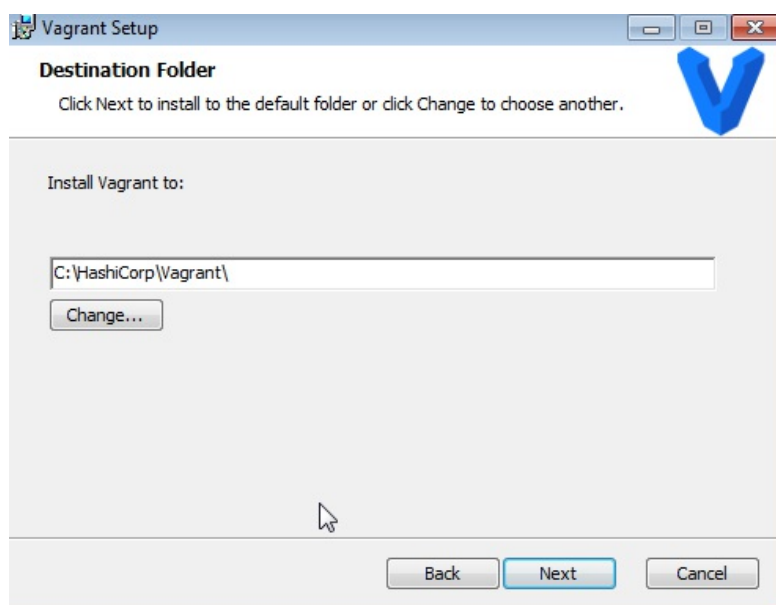
- Lancez le configurateur de l'application.



- Acceptez les termes d'utilisation.

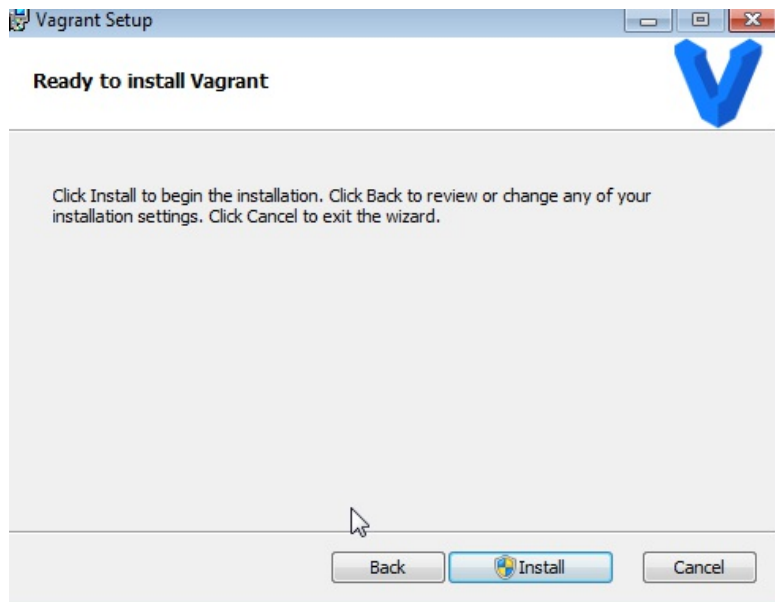


- Choisissez le répertoire de destination pour l'installation.

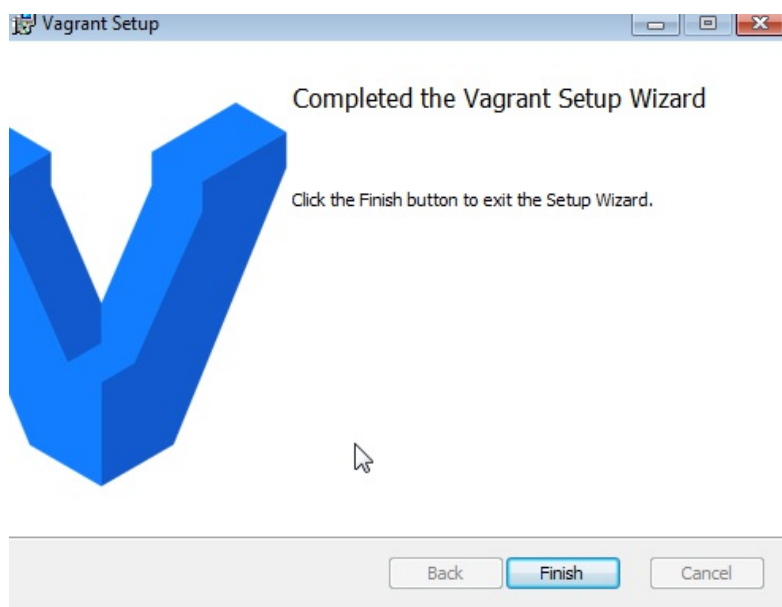


- Lancez l'installation en cliquant sur le bouton "Install".

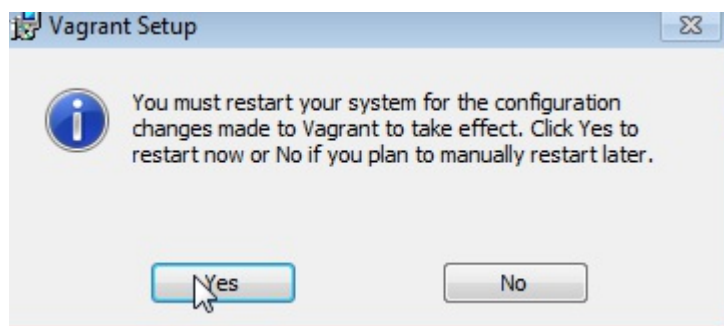




- Après l'installation de tous les packages, cliquez sur "Finish".

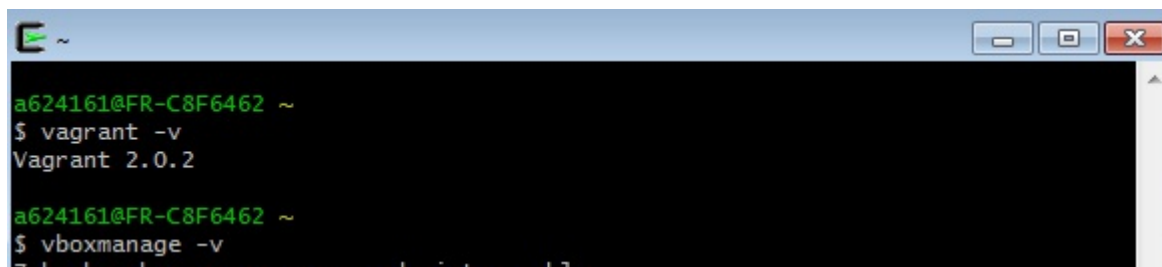


- Le système vous demandera de redémarrer votre machine, cliquez sur "Yes".



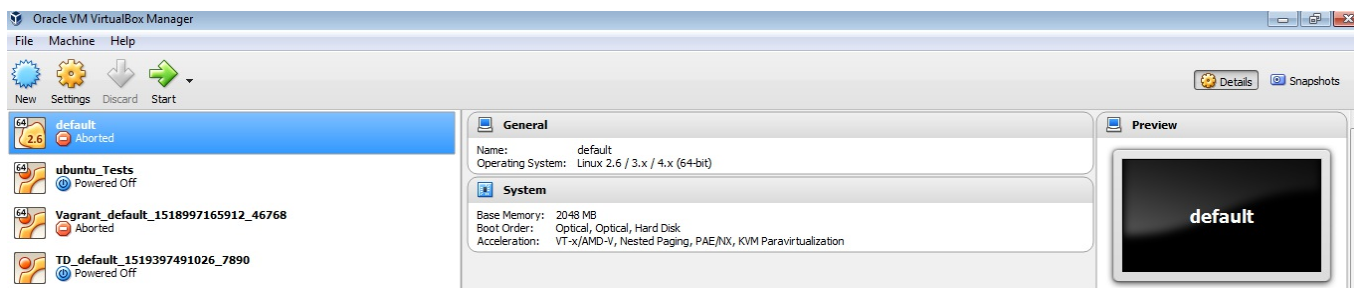
- Vérifiez votre installation en demandant la version de Vagrant.



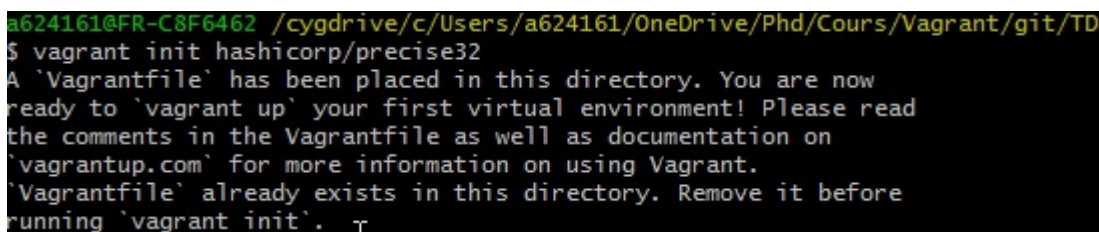


## ETAPE 2: Manipulation Commandes de Base

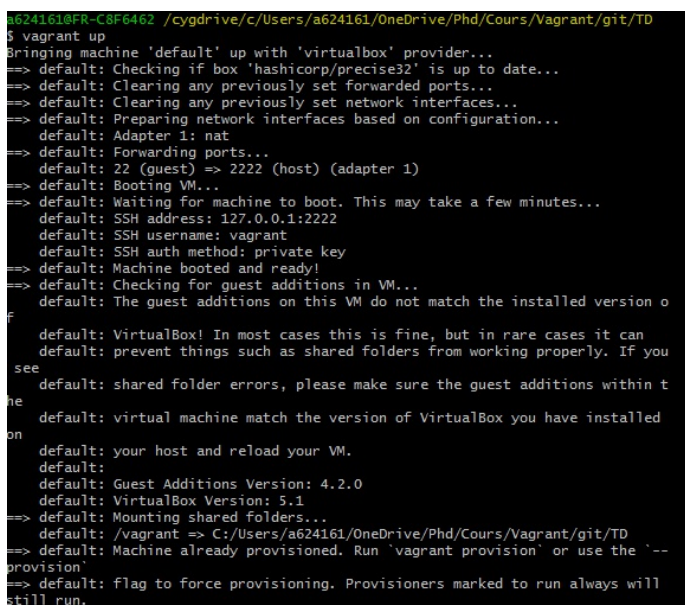
- Lancez votre application Virtualbox.



- Lancez votre terminal, créez un répertoire de travail et naviguez-y. Entrez la commande suivante **vagrant init hashicorp/precise32**. Vous devriez obtenir un résultat comme suit.



- Lancez le build de votre VM via la commande **vagrant up**



- Faites un ssh sur votre nouvelle VM en entrant **vagrant ssh**.

```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant ssh
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic-pae i686)

 * Documentation:  https://help.ubuntu.com/
New release '14.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Welcome to your Vagrant-built virtual machine.
Last login: Fri Sep 14 06:22:31 2012 from 10.0.2.2
vagrant@precise32:~$
```

- Vérifiez que votre machine tourne bien sous Ubuntu avec la commande `uname -a`

```
vagrant@precise32:~$ uname -a
Linux precise32 3.2.0-23-generic-pae #36-Ubuntu SMP Tue Apr 10 22:19:09 UTC 2012 i686 i686 i386 GNU/Linux
```

- Ouvrez une nouvelle instance de votre terminal puis vérifiez que votre VM tourne bien grâce au manager de Virtualbox. Entrez la commande suivante ``vboxmanage list runningvms``.

```
a624161@FR-C8F6462 ~
$ vboxmanage list runningvms
"TD_default_1519393802875_54822" {700b9ca8-9049-45ce-bcc7-2d8ee10ae09b}
```

- Si vous préférez que le terminal de votre VM s'ouvre via une GUI spécifique, vous pouvez indiquer cela dans votre configuration. Ouvrez votre vagrantfile, puis décommentez les lignes ci-dessous.

```
config.vm.provider "virtualbox" do |vb|
  # Display the VirtualBox GUI when booting the machine
  vb.gui = true
end
```

- Relancez votre VM avec la nouvelle configuration via la commande `vagrant reload`.

```
a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ vagrant reload
==> default: Attempting graceful shutdown of VM...
==> default: Checking if box 'hashicorp/precise32' 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: 22 (guest) => 2222 (host) (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
==> default: SSH address: 127.0.0.1:2222
==> default: SSH username: vagrant
==> default: SSH auth method: private key
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
==> default: The guest additions on this VM do not match the installed version of
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you see
default: shared folder errors, please make sure the guest additions within the
default: virtual machine match the version of VirtualBox you have installed on
default: your host and reload your VM.
default:
default: Guest Additions Version: 4.2.0
default: VirtualBox Version: 5.1
==> default: Mounting shared folders...
==> default: /vagrant => C:/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> default: flag to force provisioning. Provisioners marked to run always will still run.
```

- Vous devriez obtenir une nouvelle fenêtre qui s'ouvre vous indiquant l'état d'avancement de lancement

de la VM ainsi que vos identifiants d'accès. Par défaut, le user et le mot de passe sont '**vagrant**'

```
precise32 login: vagrant
Password:
Last login: Fri Feb 23 14:34:03 UTC 2018 on tty1
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic-pae i686)

 * Documentation:  https://help.ubuntu.com/
New release '14.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Welcome to your Vagrant-built virtual machine.
vagrant@precise32:~$
Display all 1476 possibilities? (y or n)
vagrant@precise32:~$
```



- Si vous voulez revenir à votre ancienne configuration, commentez à nouveau les lignes puis rechargez votre VM comme précédemment.

## ETAPE 3 : Dossier Partagé

- Naviguez dans votre répertoire contenant votre vagrantfile puis créer un dossier que vous nommez. Sur votre VM, naviguez vers le dossier **/vagrant**, vous devriez voir votre dossier créé.

```
vagrant@precise32:~$ cd /vagrant/
vagrant@precise32:/vagrant$ ls
vagrantfile
vagrant@precise32:/vagrant$ ls
nouveau dossier  Vagrantfile
```

- Supprimez maintenant votre dossier depuis votre VM via la commande **rm -rf votre\_dossier**. Revenez à votre dossier hôte contenant votre vagrantfile, vous constaterez que votre dossier a bien été supprimé.

Nom	Modifié le	Type
 .vagrant	23/02/2018 14:28	Dossier de fichiers
 Vagrantfile	23/02/2018 15:39	Fichier

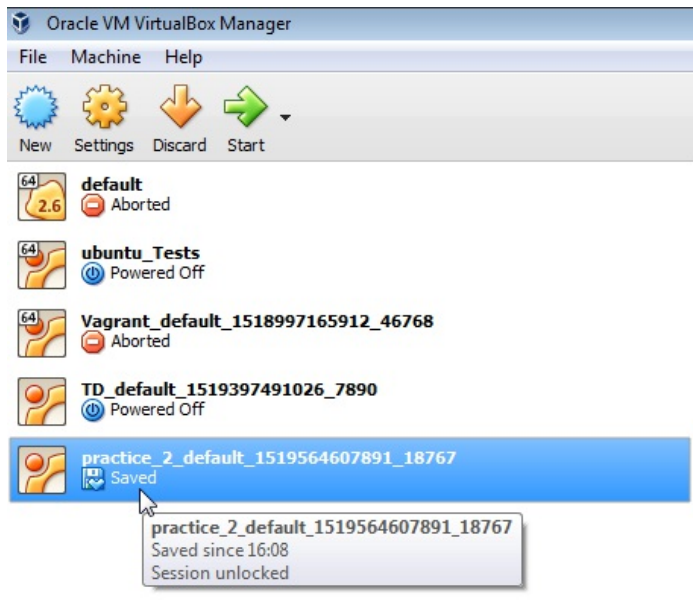
Le dossier partagé est donc bi-directionnel, tout changement sur la machine hôte sera reflété sur la VM et vice versa.

## ETAPE 4 : Arrêt de la VM

- Pour suspendre votre machine sans l'arrêter complètement, utilisez la commande **vagrant suspend**.

```
a621161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant suspend
==> default: Saving VM state and suspending execution...
```

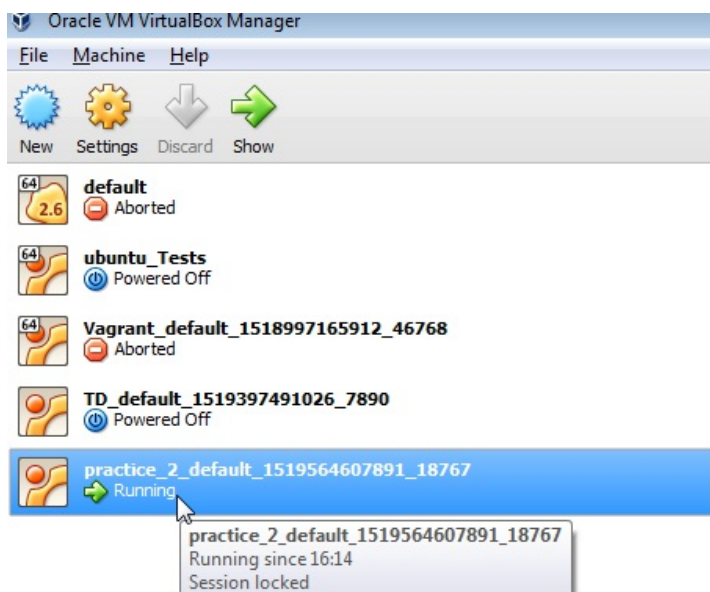
- Ouvrez votre Virtualbox, vous devriez voir votre machine en état '**saved**'.



- Pour relancer votre VM sans la rebooter, utilisez la commande **vagrant resume**.

```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant resume
==> default: Resuming suspended VM...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
==> default: Machine booted and ready!
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> default: flag to force provisioning. Provisioners marked to run always will
still run.
```

- Ouvrez votre Virtualbox, vous devriez voir votre machine en état **'running'**.

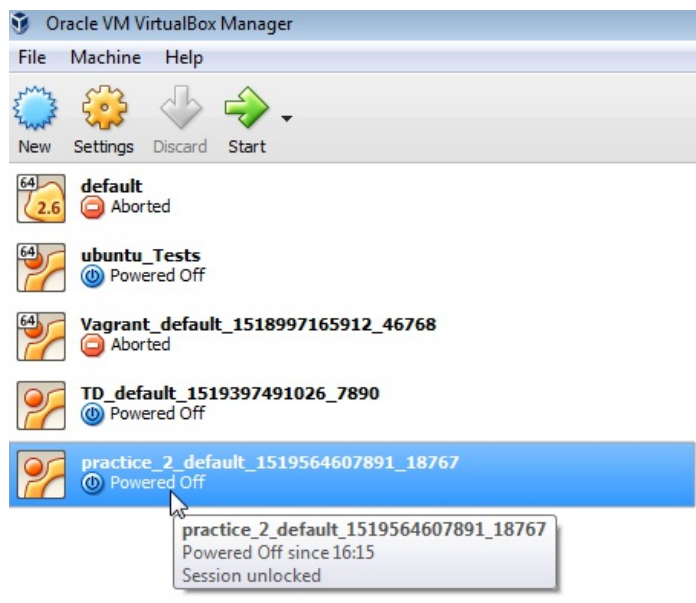


- Pour un *'arrêt propre'* (graceful shutdown) de votre machine, utilisez la commande **vagrant halt**



```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant halt
==> default: Attempting graceful shutdown of VM...
```

- Ouvrez votre Virtualbox, vous devriez voir votre machine en état '**Powered Off**'.



## ETAPE 5 : Suppression de la VM

- Relancez votre VM avec la commande **vagrant up**.

```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Checking if box 'hashicorp/precise32' 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: 22 (guest) => 2222 (host) (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version o
f
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you
see
default: shared folder errors, please make sure the guest additions within t
he
default: virtual machine match the version of VirtualBox you have installed
on
default: your host and reload your VM.
default:
default: Guest Additions Version: 4.2.0
default: VirtualBox Version: 5.1
==> default: Mounting shared folders...
default: /vagrant => C:/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--
provision'
==> default: flag to force provisioning. Provisioners marked to run always will
still run.
```

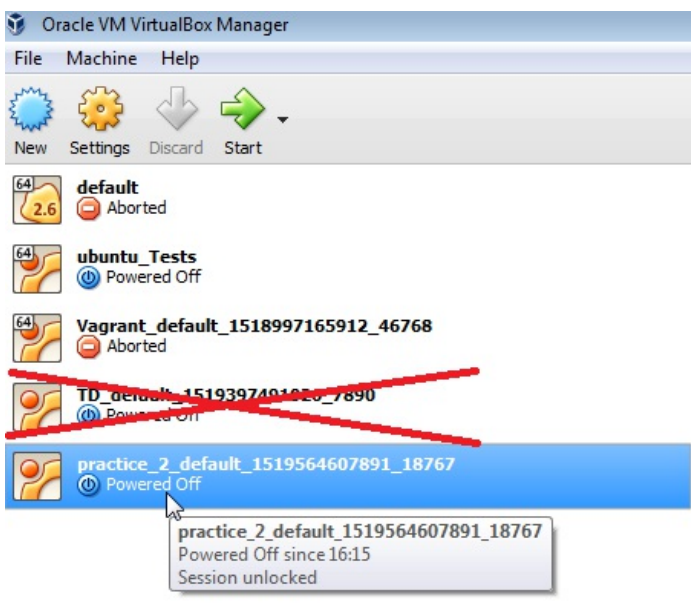
- Ouvrez un nouveau terminal et utilisez votre vboxmanager pour lister toutes les VMs existantes via la commande **vboxmanage list vms**. Vous constatez que la dernière entrée concerne la VM que vous avez instancié.

```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ VBoxmanage list vms
"default" {44406fd9-3737-406d-a4d5-71584b17d975}
"ubuntu_Tests" {4f86d75f-38c1-42ff-b7a5-f434ab92faa4}
"Vagrant_default_1518997165912_46768" {d2878637-6875-4cd0-b12d-5a8db7c29085}
"TD_default_1519393802875_54822" {700b9ca8-9049-45ce-bcc7-2d8ee10ae09b}
```

- Pour supprimer une VM créée, naviguez vers le répertoire contenant son vagrantfile puis utilisez la commande **vagrant destroy**.

```
a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant destroy
   default: Are you sure you want to destroy the 'default' VM? [y/N] y
==> default: Forcing shutdown of VM...
==> default: Destroying VM and associated drives...
```

- Ouvrez votre Virtualbox, vous devriez remarquer que votre VM n'est plus listée.



- Faites un **ls** sur votre répertoire, vous constaterez que votre vagrantfile est toujours présent.

```
a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_1 (master)
$ ls
Vagrantfile
```

- Vous pouvez donc relancer la même VM avec les mêmes configurations sans avoir à initialiser un nouveau vagrantfile. Lancez la commande **vagrant up**, la VM s'instancie alors directement.

```

a624161@FR-C8F6462 /cygdrive/c/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
=> default: Checking if box 'hashicorp/precise32' 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: 22 (guest) => 2222 (host) (adapter 1)
=> default: Booting VM...
=> default: Waiting for machine to boot. This may take a few minutes...
    default: SSH address: 127.0.0.1:2222
    default: SSH username: vagrant
    default: SSH auth method: private key
=> default: Machine booted and ready!
=> default: Checking for guest additions in VM...
    default: The guest additions on this VM do not match the installed version of
    default: VirtualBox! In most cases this is fine, but in rare cases it can
    default: prevent things such as shared folders from working properly. If you
    default: see
    default: shared folder errors, please make sure the guest additions within t
    default: virtual machine match the version of VirtualBox you have installed
    default: your host and reload your VM.
    default: Guest Additions Version: 4.2.0
    default: VirtualBox Version: 5.1
=> default: Mounting shared folders...
    default: /vagrant => C:/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD
=> default: Machine already provisioned. Run 'vagrant provision' or use the '--
    default: provision'
=> default: flag to force provisioning. Provisioners marked to run always will
    still run.

```

## ETAPE 6 : Création d'un serveur web NGINX

- Créez un nouveau répertoire nommé 'practice\_2' qui contiendra notre vagrantfile pour le serveur Nginx puis lancez la commande **vagrant init hashicorp/precise32**. Vous noterez qu'un nouveau vagrantfile a été créé.

```

a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ ls
Vagrantfile

```

- Ce fichier contient beaucoup de configurations dont nous n'aurons pas besoin. Pour l'instant travaillons avec les propriétés de base, supprimez ce fichier puis entrez la commande **vagrant init hashicorp/precise32 --minimal**. Vous obtiendrez un vagrantfile contenant les configurations suivantes.

```

Vagrantfile x
1  Vagrant.configure("2") do |config|
2    config.vm.box = "hashicorp/precise32"
3  end
4

```

- Rajoutez le hostname **config.vm.hostname = "web-dev"** dans votre vagrantfile puis sauvegardez le.

```

Vagrantfile x
1  Vagrant.configure("2") do |config|
2    config.vm.box = "hashicorp/precise32"
3    config.vm.hostname = "web-dev"
4  end
5

```

- Lancez votre VM via la commande **vagrant up** puis faites un ssh dessus. Vous constaterez maintenant que votre hostname est bien '**web-dev**'.



```

a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ vagrant ssh
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic-pae i686)

 * Documentation:  https://help.ubuntu.com/
New release '14.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Welcome to your Vagrant-built virtual machine.
Last login: Fri Sep 14 06:22:31 2012 from 10.0.2.2
vagrant@web-dev:~$

```

- Ouvrez à nouveau votre vagrantfile puis rajoutez-y un script d'approvisionnement que nous nommerons '**provision.sh**' via la propriété `config.vm.provision "shell", path: "provision.sh"`. Vous obtiendrez le nouveau fichier suivant.

```

Vagrantfile x
1  Vagrant.configure("2") do |config|
2      config.vm.box = "hashicorp/precise32"
3      config.vm.hostname = "web-dev"
4
5      config.vm.provision "shell", path: "provision.sh"
6  end

```

- Créez un nouveau fichier provision.sh dans votre répertoire de travail.

Nom	Modifié le	Type
.vagrant	25/02/2018 14:16	Dossier de fichiers
<input checked="" type="checkbox"/> provision.sh	25/02/2018 22:51	Shell Script
Vagrantfile	25/02/2018 22:48	Fichier

- Dans votre fichier provision.sh, rajoutez les commandes permettant d'installer le serveur Nginx puis sauvegardez le fichier.

```

provision.sh •
1  apt-get -y update
2
3  apt-get -y install nginx
4
5  service nginx start

```

- Rechargez votre VM, vous constaterez que Vagrant vous indique votre machine est déjà approvisionnée lors du précédent lancement.

```

a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ vagrant reload
==> default: Attempting graceful shutdown of VM...
==> default: Checking if box 'hashicorp/precise32' 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: 22 (guest) => 2222 (host) (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version of
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you see
default: shared folder errors, please make sure the guest additions within the
default: virtual machine match the version of VirtualBox you have installed on
default: your host and reload your VM.
default:
default: Guest Additions Version: 4.2.0
default: VirtualBox Version: 5.1
==> default: Setting hostname...
==> default: Mounting shared folders...
default: /vagrant => C:/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> default: flag to force provisioning. Provisioners marked to run always will still run.

```

- Pour forcer l'approvisionnement, utilisez la commande **vagrant provision**. Après le lancement, le script `.sh` s'exécutera puis le serveur Nginx sera démarré.

```

a624161@FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ vagrant provision
==> default: Running provisioner: shell...
default: Running: C:/Users/a624161/AppData/Local/Temp/vagrant-shell20180225-47308-11jghlf.sh
default: Get:1 http://security.ubuntu.com precise-security InRelease [55.7 kB]
default: Ign http://us.archive.ubuntu.com precise InRelease
default: Get:2 http://us.archive.ubuntu.com precise-updates InRelease [55.7 kB]
default: Get:3 http://us.archive.ubuntu.com precise-backports InRelease [55.7 kB]
default: Get:4 http://security.ubuntu.com precise-security/main Sources [150 kB]
default: Hit http://us.archive.ubuntu.com precise Release.gpg
default: Get:5 http://security.ubuntu.com precise-security/restricted Sources [4,643 B]
default: Get:6 http://security.ubuntu.com precise-security/universe Sources [57.9 kB]
default: Get:7 http://us.archive.ubuntu.com precise-updates/main Sources [503 kB]
default: Get:8 http://security.ubuntu.com precise-security/multiverse Sources [3,032 B]
default: Get:9 http://security.ubuntu.com precise-security/main i386 Packages [377 kB]
default: Get:10 http://security.ubuntu.com precise-security/restricted i386 Packages [10.8 kB]
default: Get:11 http://security.ubuntu.com precise-security/universe i386 Packages [154 kB]
default: Get:12 http://security.ubuntu.com precise-security/multiverse i386 Packages [3,537 B]
default: Get:13 http://security.ubuntu.com precise-security/main TranslationIndex [208 B]
default: Get:14 http://security.ubuntu.com precise-security/multiverse TranslationIndex [199 B]
default: Processing triggers for ufw ...
default: Setting up libjpeg-turbo8 (1.1.90+svn733-0ubuntu4.4) ...
default: Setting up libxslt1.1 (1.1.26-8ubuntu1.4) ...
default: Setting up libjpeg8 (8c-2ubuntu7) ...
default: Setting up libgd2-noxpm (2.0.36~rc1~dfsg-6ubuntu2.4) ...
default: Setting up nginx-common (1.1.19-1ubuntu0.8) ...
default: Setting up nginx-full (1.1.19-1ubuntu0.8) ...
default: Setting up nginx (1.1.19-1ubuntu0.8) ...
default: Processing triggers for libc-bin ...
default: ldconfig deferred processing now taking place
default: Starting nginx:
default: nginx.

```

- Faites un ssh sur la VM puis vérifiez que Nginx tourne via la commande **service nginx status**.

```

vagrant@web-dev:~$ service nginx status
* nginx is running

```

- Pour vous assurer du bon fonctionnement du serveur, appelez la page d'accueil de Nginx via la commande **wget -qO- localhost**.

```
vagrant@web-dev:~$ wget -qO localhost
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
vagrant@web-dev:~$ wget -qO- localhost
<html>
<head>
<title>Welcome to nginx!</title>
</head>
<body bgcolor="white" text="black">
<center><h1>Welcome to nginx!</h1></center>
</body>
</html>
```

## ETAPE 7 : Mapping des Ports

- Ouvrez votre vagrantfile dans votre éditeur puis rajoutez la configuration suivante permettant de forwarder le port 80 de votre VM sur le port 8080 de votre machine hôte: `config.vm.network "forwarded_port", guest: 80, host: 8080, id: "nginx"`. Sauvegardez votre fichier.

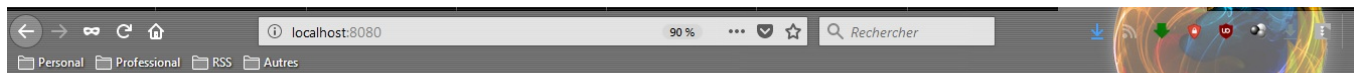
```
Vagrantfile x
1  Vagrant.configure("2") do |config|
2    config.vm.box = "hashicorp/precise32"
3    config.vm.hostname = "web-dev"
4
5    config.vm.provision "shell", path: "provision.sh"
6    config.vm.network "forwarded_port", guest: 80, host: 8080, id: "nginx"
7  end
```

- Après avoir effectué un reload de la VM, le prompt vous indique le forwarding du port 80 est bien réalisé sur la machine hôte.

```
a6241610FR-C8F6462 MINGW64 ~/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2 (master)
$ vagrant reload
==> default: Attempting graceful shutdown of VM...
==> default: Checking if box 'hashicorp/precise32' 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)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
==> default: SSH address: 127.0.0.1:2222
==> default: SSH username: vagrant
==> default: SSH auth method: private key
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
==> default: The guest additions on this VM do not match the installed version of
==> default: VirtualBox! In most cases this is fine, but in rare cases it can
==> default: prevent things such as shared folders from working properly. If you see
==> default: shared folder errors, please make sure the guest additions within the
==> default: virtual machine match the version of VirtualBox you have installed on
==> default: your host and reload your VM.
==> default: Guest Additions Version: 4.2.0
==> default: VirtualBox Version: 5.1
==> default: Setting hostname...
==> default: Mounting shared folders...
==> default: /vagrant => C:/Users/a624161/OneDrive/Phd/Cours/Vagrant/git/TD/practice_2
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> default: flag to force provisioning. Provisioners marked to run always will still run.
```

- Vérifiez que vous pouvez accéder à la page d'accueil du serveur Nginx en insérant sur votre navigateur l'adresse `localhost:8080`. Vous devriez obtenir une page similaire à la capture ci-dessous.





Welcome to nginx!

## ETAPE 8 : Partage des fichiers

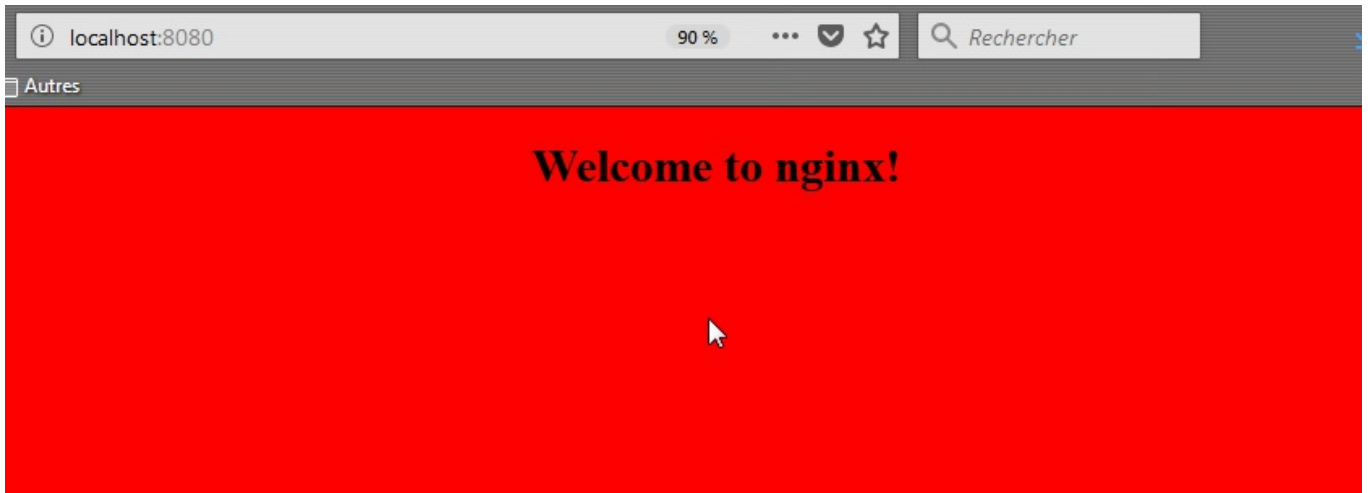
- Faites un ssh sur votre VM puis naviguez vers `/etc/nginx/sites-enabled`. Vous devriez voir un fichier de configuration nommé `default`.
- Copiez votre dossier `www` dans `\vagrant` via la commande `cp -r /usr/share/nginx/www /vagrant/www`

Nom	Modifié le	Type	Taille
.vagrant	25/02/2018 14:16	Dossier de fichiers	
www	28/02/2018 15:33	Dossier de fichiers	
provision.sh	25/02/2018 23:08	Shell Script	1 Ko
Vagrantfile	26/02/2018 10:03	Fichier	1 Ko

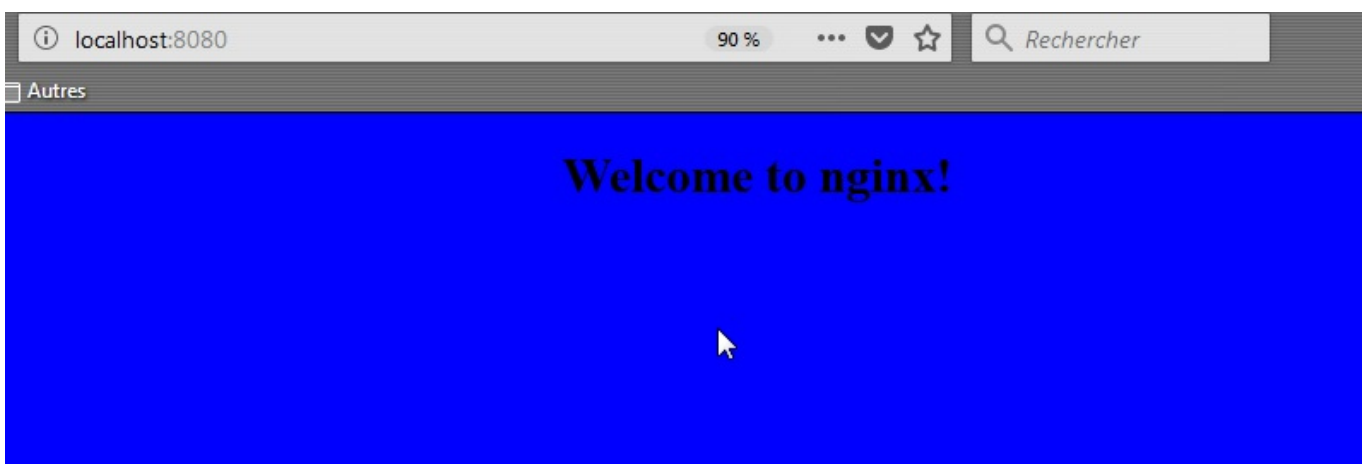
- Faites en sorte que Nginx serve le dossier `www` situé sur la machine hôte et non pas sur la VM. Pour cela, deux étapes:
  - Supprimez le dossier `www` de votre VM via la commande `sudo rm -rf /usr/share/nginx/www`
  - Créez un lien symbolique vers le dossier de la machine hôte via la commande `sudo ln -s /vagrant/www/ /usr/share/nginx/www`
- Ouvrez le fichier `index.html`, changez la propriété de couleur de page `bgcolor="white"` vers `bgcolor="red"`, puis sauvegardez le fichier.

```
<html>
<head>
<title>Welcome to nginx!</title>
</head>
<body bgcolor="red" text="black">
<center><h1>Welcome to nginx!</h1></center>
</body>
</html>
```

- Ouvrez votre navigateur puis entrez l'adresse forwardée du serveur Nginx, vous devriez obtenir une page sur fond rouge.



- Changez maintenant le fichier `index.html` pour le mettre sur fond bleu.



- Provisionnez ces changements directement sur le script shell afin que cela se fasse automatiquement:
  - Ouvrez le fichier `provision.sh`, rajoutez-y les commandes utilisées puis sauvegardez le fichier.

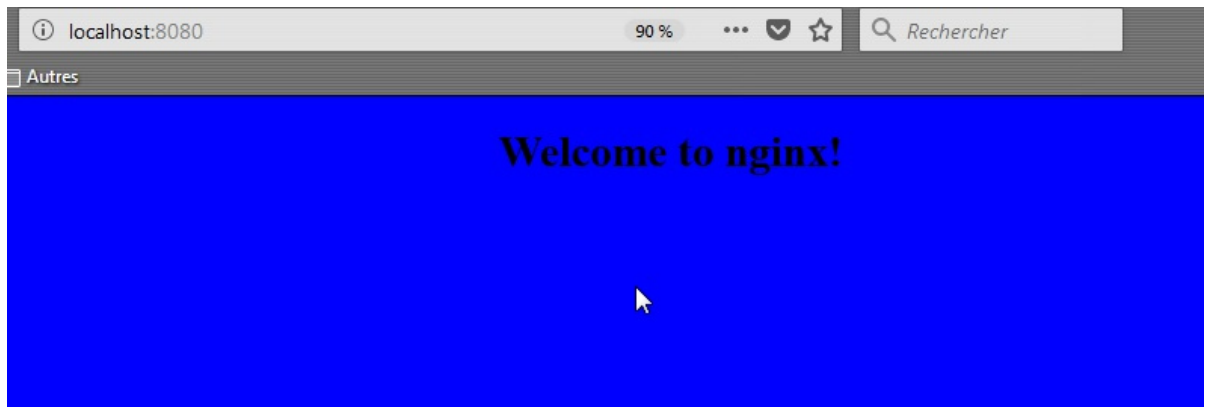
```
TD_Instructions.md  provision.sh x  [icons]
apt-get -y update

apt-get -y install nginx

rm -rf /usr/share/nginx/www

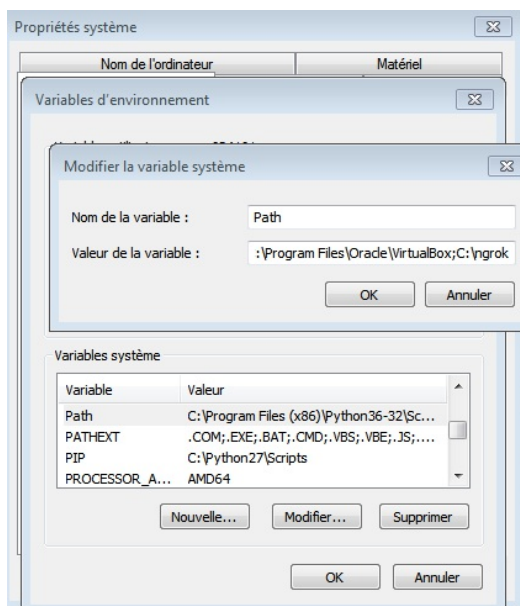
ln -s /vagrant/www/ /usr/share/nginx/www
|
service nginx start
```

- Détruisez la VM après vous être délogué puis recréez la afin de valider ces changements. Lancez votre navigateur en ouvrant la page `localhost:8080`, le fond devrait être bleu à nouveau.

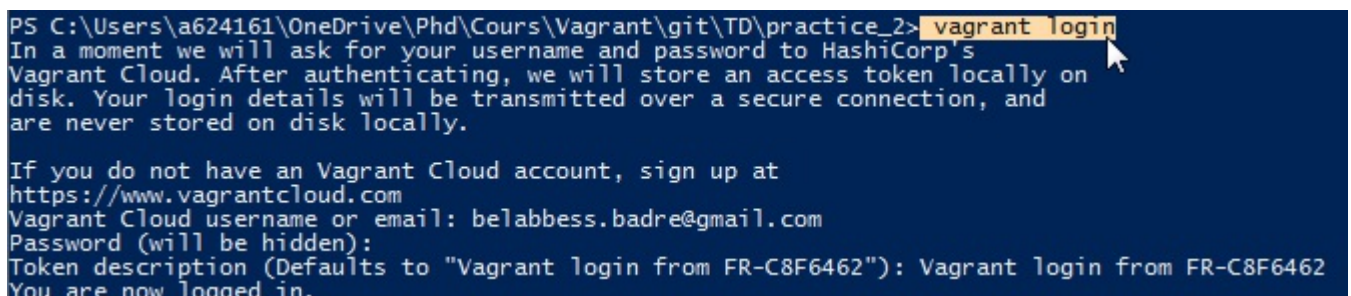


## ETAPE 9 : Collaboration à distance

- Installez le plugin vagrant share sur la machine hôte via la commande `vagrant plugin install vagrant-share`.
- Installez l'exécutable Ngrok sur la machine hôte en suivant les instructions de la page <https://ngrok.com/download>. Pour les machines sous Windows, il faut ajouter l'exécutable dans le path de votre variable d'environnement.



- Créez un compte sur <https://app.vagrantup.com/>, puis loguez-vous via la commande `vagrant login` (sous powershell pour les machines sous windows).



- Lancez un tunnel de partage entre le port 8080 de votre VM et ngrok pour afficher le serveur Nginx à distance. Pour cela, utilisez la commande `vagrant share`, vous devriez obtenir une URL créée

spécifiquement pour le port 8080 comme ci-dessous.

```
PS C:\Users\A624161\OneDrive\Phd\Cours\Vagrant\git\TD\practice_2> vagrant share
Vagrant Share now defaults to using the 'ngrok' driver.
The 'classic' driver has been deprecated.

For more information about the 'ngrok' driver, please
refer to the documentation:

https://www.vagrantup.com/docs/share/
==> default: Detecting network information for machine...
default: Local machine address: 127.0.0.1
default:
default: Note: With the local address (127.0.0.1), Vagrant Share can only
default: share any ports you have forwarded. Assign an IP or address to your
default: machine to expose all TCP ports. Consult the documentation
default: for your provider ('virtualbox') for more information.
default:
default: Local HTTP port: 8080
default: Local HTTPS port: disabled
default: Port: 8080
default: Port: 2222
==> default: Creating Vagrant Share session...
==> default: HTTP URL: http://fdf837d1.ngrok.io
==> default:
```

- Ouvrez l'url créée dans le navigateur d'une autre machine (votre smartphone ou la machine de votre camarade par exemple), vous devriez voir la page Nginx sous fond bleu.

