

Lab2 - Vagrant

Lab environment setup

1. Make sure all the required softwares are installed :

- *Git*
- *Vagrant*

2. What is vagrant version ?

```
brahim@Training:~/docker-lab$ vagrant version
Installed Version: 2.2.19

Vagrant was unable to check for the latest version of Vagrant.
Please check manually at https://www.vagrantup.com
brahim@Training:~/docker-lab$ □
```

3. Clone the git repository : <https://github.com/brahimhamdi/docker-lab>

```
brahim@Training:~$ git clone https://github.com/brahimhamdi/docker-lab
Clonage dans 'docker-lab'...
remote: Enumerating objects: 144, done.
remote: Counting objects: 100% (144/144), done.
remote: Compressing objects: 100% (56/56), done.
remote: Total 144 (delta 19), reused 144 (delta 19), pack-reused 0
Réception d'objets: 100% (144/144), 24.84 Kio | 8.28 Mio/s, fait.
Résolution des deltas: 100% (19/19), fait.
brahim@Training:~$ cd docker-lab/
brahim@Training:~/docker-lab$ tree
.
├── Vagrantfile

0 directories, 1 file
brahim@Training:~/docker-lab$ □
```

Deploy multi-nodes environment

4. Check the Vagrantfile config syntax.

```
brahim@Training:~/docker-lab$ vagrant validate
Vagrantfile validated successfully.
brahim@Training:~/docker-lab$ □
```

- Describe the vagrant environment (content of *Vagrantfile*).

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ cat Vagrantfile
Vagrant.require_version ">= 2.0.0"
```

```
boxes = [
  {
    :name => "Manager",
    :eth1 => "192.168.205.10",
    :mem => "1024",
    :cpu => "1"
  },
  {
    :name => "worker1",
    :eth1 => "192.168.205.11",
    :mem => "1024",
    :cpu => "1"
  },
  {
    :name => "worker2",
    :eth1 => "192.168.205.12",
    :mem => "1024",
    :cpu => "1"
  }
]

Vagrant.configure(2) do |config|
  config.vm.box = "generic/ubuntu2004"

  boxes.each do |opts|
    config.vm.define opts[:name] do |config|
      config.vm.hostname = opts[:name]

      config.vm.provider "vmware_fusion" do |v|
        v.vmx["memsize"] = opts[:mem]
        v.vmx["numvcpus"] = opts[:cpu]
      end

      config.vm.provider "virtualbox" do |v|
        v.customize ["modifyvm", :id, "--memory", opts[:mem]]
        v.customize ["modifyvm", :id, "--cpus", opts[:cpu]]
      end
      config.vm.network :private_network, ip: opts[:eth1]
    end
  end

  config.vm.provision "shell", inline: <<-SHELL
  sudo apt install apt-transport-https ca-certificates curl software-properties-common
  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 bionic stable"
  sudo apt update
  sudo apt install -y docker-ce
  SHELL
end
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$
```

5. Start and provision the vagrant environment.

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ vagrant global-status
id      name      provider  state  directory
-----
eca171e k8s-master virtualbox poweroff /home/brahim/k8s-lab
c6f38e3 k8s-worker1 virtualbox poweroff /home/brahim/k8s-lab
f7ddb0a k8s-worker2 virtualbox poweroff /home/brahim/k8s-lab
e178b7d k8s-master2 virtualbox poweroff /home/brahim/k8s-lab
8f58c4e k8s-worker21 virtualbox poweroff /home/brahim/k8s-lab
39097b4 centos-worker virtualbox poweroff /home/brahim/devops-lab/vagrant-centos7-single
```

The above shows information about all known Vagrant environments on this machine. This data is cached and may not be completely up-to-date (use "vagrant global-status --prune" to prune invalid entries). To interact with any of the machines, you can go to that directory and run Vagrant, or you can use the ID directly with Vagrant commands from any directory. For example:

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ vagrant up
Bringing machine 'Manager' up with 'virtualbox' provider...
Bringing machine 'worker1' up with 'virtualbox' provider...
Bringing machine 'worker2' up with 'virtualbox' provider...
==> Manager: Importing base box 'generic/ubuntu2004'...
==> Manager: Matching MAC address for NAT networking...
==> Manager: Checking if box 'generic/ubuntu2004' version '4.2.14' is up to date...
==> Manager: A newer version of the box 'generic/ubuntu2004' for provider 'virtualbox' is
==> Manager: available! You currently have version '4.2.14'. The latest is version
==> Manager: '4.2.16'. Run 'vagrant box update' to update.
==> Manager: Setting the name of the VM: vagrant-ubuntu20-multiple_Manager_1686128483666_46340
==> Manager: Clearing any previously set network interfaces...
==> Manager: Preparing network interfaces based on configuration...
    Manager: Adapter 1: nat
    Manager: Adapter 2: hostonly
==> Manager: Forwarding ports...
    Manager: 22 (guest) => 2222 (host) (adapter 1)
==> Manager: Running 'pre-boot' VM customizations...
==> Manager: Booting VM...
==> Manager: Waiting for machine to boot. This may take a few minutes...
    Manager: SSH address: 127.0.0.1:2222
    Manager: SSH username: vagrant
    Manager: SSH auth method: private key
```

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ vagrant global-status
id      name      provider  state  directory
-----
eca171e k8s-master virtualbox poweroff /home/brahim/k8s-lab
c6f38e3 k8s-worker1 virtualbox poweroff /home/brahim/k8s-lab
f7ddb0a k8s-worker2 virtualbox poweroff /home/brahim/k8s-lab
e178b7d k8s-master2 virtualbox poweroff /home/brahim/k8s-lab
8f58c4e k8s-worker21 virtualbox poweroff /home/brahim/k8s-lab
39097b4 centos-worker virtualbox poweroff /home/brahim/devops-lab/vagrant-centos7-single
f1b1b23 Manager      virtualbox running  /home/brahim/devops-lab/vagrant-ubuntu20-multiple
73354e3 worker1       virtualbox running  /home/brahim/devops-lab/vagrant-ubuntu20-multiple
ba83e8f worker2       virtualbox running  /home/brahim/devops-lab/vagrant-ubuntu20-multiple
```

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```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ vagrant destroy 1a2b3c4d
```

6. Connect to each vagrant VM via SSH.

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ cd
brahim@Training:~$ vagrant ssh f1
Last login: Wed Jun  7 09:14:08 2023 from 10.0.2.2
vagrant@Manager:~$ logout
brahim@Training:~$ vagrant ssh 73
vagrant@worker1:~$ logout
brahim@Training:~$ vagrant ssh ba
vagrant@worker2:~$ logout
brahim@Training:~$
```

7. Exit and stop the each vagrant VM.

```
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ vagrant global-status
id      name      provider  state    directory
-----
eca171e k8s-master virtualbox poweroff  /home/brahim/k8s-lab
c6f38e3 k8s-worker1 virtualbox poweroff  /home/brahim/k8s-lab
f7ddb0a k8s-worker2 virtualbox poweroff  /home/brahim/k8s-lab
e178b7d k8s-master2 virtualbox poweroff  /home/brahim/k8s-lab
8f58c4e k8s-worker21 virtualbox poweroff  /home/brahim/k8s-lab
39097b4 centos-worker virtualbox poweroff  /home/brahim/devops-lab/vagrant-centos7-single
f1b1b23 Manager    virtualbox running   /home/brahim/devops-lab/vagrant-ubuntu20-multiple
73354e3 worker1    virtualbox running   /home/brahim/devops-lab/vagrant-ubuntu20-multiple
ba83e8f worker2    virtualbox running   /home/brahim/devops-lab/vagrant-ubuntu20-multiple

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on this machine. This data is cached and may not be completely
up-to-date (use "vagrant global-status --prune" to prune invalid
entries). To interact with any of the machines, you can go to that
directory and run Vagrant, or you can use the ID directly with
Vagrant commands from any directory. For example:
"vagrant destroy 1a2b3c4d"
brahim@Training:~/devops-lab/vagrant-ubuntu20-multiple$ cd
brahim@Training:~$ vagrant halt f1 73 ba
==> worker2: Attempting graceful shutdown of VM...
==> worker1: Attempting graceful shutdown of VM...
==> Manager: Attempting graceful shutdown of VM...
brahim@Training:~$
```

Other vagrant commands

8. Output global status Vagrant environments.

```
brahim@Training:~$ vagrant global-status
id      name      provider  state    directory
-----
eca171e k8s-master virtualbox poweroff  /home/brahim/k8s-lab
c6f38e3 k8s-worker1 virtualbox poweroff  /home/brahim/k8s-lab
f7ddb0a k8s-worker2 virtualbox poweroff  /home/brahim/k8s-lab
e178b7d k8s-master2 virtualbox poweroff  /home/brahim/k8s-lab
8f58c4e k8s-worker21 virtualbox poweroff  /home/brahim/k8s-lab
39097b4 centos-worker virtualbox poweroff  /home/brahim/devops-lab/vagrant-centos7-single
f1b1b23 Manager    virtualbox poweroff  /home/brahim/devops-lab/vagrant-ubuntu20-multiple
73354e3 worker1    virtualbox poweroff  /home/brahim/devops-lab/vagrant-ubuntu20-multiple
ba83e8f worker2    virtualbox poweroff  /home/brahim/devops-lab/vagrant-ubuntu20-multiple

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entries). To interact with any of the machines, you can go to that
directory and run Vagrant, or you can use the ID directly with
Vagrant commands from any directory. For example:
"vagrant destroy 1a2b3c4d"
brahim@Training:~$
```


9. Stop and destroy all traces of the centos7 *single-node* vagrant machine.

```
8f58c4e k8s-worker21 virtualbox poweroff /home/brahim/k8s-lab
39097b4 centos-worker virtualbox poweroff /home/brahim/devops-lab/vagrant-centos7-single
f1b1b23 Manager virtualbox poweroff /home/brahim/devops-lab/vagrant-ubuntu20-multiple
73354e3 worker1 virtualbox poweroff /home/brahim/devops-lab/vagrant-ubuntu20-multiple
ba83e8f worker2 virtualbox poweroff /home/brahim/devops-lab/vagrant-ubuntu20-multiple
```

The above shows information about all known Vagrant environments on this machine. This data is cached and may not be completely up-to-date (use "vagrant global-status --prune" to prune invalid entries). To interact with any of the machines, you can go to that directory and run Vagrant, or you can use the ID directly with Vagrant commands from any directory. For example:

```
"vagrant destroy 1a2b3c4d"
```

```
brahim@Training:~$ vagrant destroy 39097b4
```

```
centos-worker: Are you sure you want to destroy the 'centos-worker' VM? [y/N] y
```

```
==> centos-worker: Destroying VM and associated drives...
```

```
brahim@Training:~$
```

```
brahim@Training:~$ vagrant global-status
```

id	name	provider	state	directory
eca171e	k8s-master	virtualbox	poweroff	/home/brahim/k8s-lab
c6f38e3	k8s-worker1	virtualbox	poweroff	/home/brahim/k8s-lab
f7ddb0a	k8s-worker2	virtualbox	poweroff	/home/brahim/k8s-lab
e178b7d	k8s-master2	virtualbox	poweroff	/home/brahim/k8s-lab
8f58c4e	k8s-worker21	virtualbox	poweroff	/home/brahim/k8s-lab
f1b1b23	Manager	virtualbox	poweroff	/home/brahim/devops-lab/vagrant-ubuntu20-multiple
73354e3	worker1	virtualbox	poweroff	/home/brahim/devops-lab/vagrant-ubuntu20-multiple
ba83e8f	worker2	virtualbox	poweroff	/home/brahim/devops-lab/vagrant-ubuntu20-multiple

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```
"vagrant destroy 1a2b3c4d"
```

- Is centos7 box deleted too ? List the vagrant boxes.

```
brahim@Training:~$ vagrant box list
centos/7 (virtualbox, 2004.01)
generic/oracle8 (virtualbox, 4.2.6)
generic/rhel8 (virtualbox, 4.0.4)
generic/ubuntu2004 (virtualbox, 4.2.14)
generic/ubuntu2204 (virtualbox, 4.0.4)
brahim@Training:~$
```