



VAGRANT

Vagrant

Diego Pacheco

About Me



- ❑ Cat's Father
- ❑ Principal Software Architect
- ❑ Agile Coach
- ❑ SOA/Microservices Expert
- ❑ DevOps Practitioner
- ❑ Speaker
- ❑ Author

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Vagrant



Mitchell hashimoto

- ❑ HashiCorp (Packer,Terraform,Vault, etc..)
- ❑ Ruby
- ❑ Developer Sandbox
- ❑ Great to test setups
- ❑ Persistent State via VirtualBox
- ❑ Vagrant config file
- ❑ Provision: Shell, Ansible and others
- ❑ Easy to use
- ❑ Must Have tool for DevOps Engineer

Vagrantfile

Vagrantfile x

```
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3
4  Vagrant.configure(2) do |config|
5
6      config.vm.box = "hashicorp/precise64"
7
8      config.vm.network "private_network", ip: "55.55.55.5"
9
10 end
```

vagrant up & vagrant ssh & vagrant halt

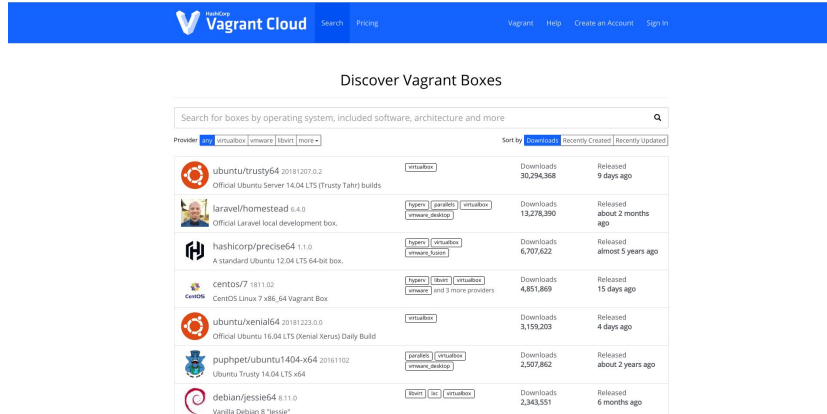
```
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample
File Edit View Search Terminal Help
diego@4winds ~ - /github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  master vagrant up 10:08:15 7.09G 1.24
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Checking if box 'hashicorp/precise64' is up to date...
==> default: Clearing any previously set forwarded ports...
==> default: Vagrant has detected a configuration issue which exposes a
==> default: vulnerability with the installed version of VirtualBox. The
==> default: current guest is configured to use an E1000 NIC type for a
==> default: network adapter which is vulnerable in this version of VirtualBox.
==> default: Ensure the guest is trusted to use this configuration or update
==> default: the NIC type using one of the methods below:
==> default:   https://www.vagrantup.com/docs/virtualbox/configuration.html#default-nic-type
==> default:   https://www.vagrantup.com/docs/virtualbox/networking.html#virtualbox-nic-type
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
==> default: Adapter 1: nat
==> default: Adapter 2: hostonly
==> 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: Guest Additions Version: 4.2.0
==> default: VirtualBox Version: 5.2
==> default: Configuring and enabling network interfaces...
==> default: Mounting shared folders...
==> default: /vagrant => /home/diego/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample
==> default: Machine already provisioned. Run 'vagrant provision' or use the '--provision'
==> default: flag to force provisioning. Provisioners marked to run always will still run.
diego@4winds ~ - /github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  master 10:08:50 6.89G 1.38
```

vagrant up & vagrant ssh & vagrant halt

```
vagrant@precise64: ~  
File Edit View Search Terminal Help  
diego@4winds ➤ ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  master vagrant ssh  
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic x86_64)  
  
 * 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: Thu Dec 27 12:07:35 2018 from 10.0.2.2  
vagrant@precise64:~$
```

```
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  
File Edit View Search Terminal Help  
diego@4winds ➤ ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  master vagrant halt  
==> default: Attempting graceful shutdown of VM..  
diego@4winds ➤ ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/first-sample  master
```

Vagrant - Boxes



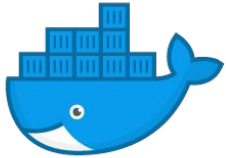
The screenshot shows the Vagrant Cloud website interface. At the top is a blue navigation bar with the Vagrant Cloud logo, search, pricing, and user links. Below the bar is a section titled "Discover Vagrant Boxes" with a search bar. Under the search bar are tabs for providers: "box", "virtualbox", "vmware", and "libvirt". To the right of the tabs are sorting options: "Downloads", "Recently Created", and "Recently Updated". The main content area displays a list of boxes, each with a logo, name, version, description, provider tags, download count, and release date.

Provider	box	virtualbox	vmware	libvirt	more
ubuntu/trusty64	20181207.0.2				
Official Ubuntu Server 14.04 LTS (Trusty Tahr) builds					
Downloads	30,294,368				
Released	9 days ago				
laravel/homestead	6.4.0				
Official Laravel local development box.					
Downloads	13,278,390				
Released	about 2 months ago				
hashicorp/precise64	1.1.0				
A standard Ubuntu 12.04 LTS 64-bit box.					
Downloads	6,707,622				
Released	almost 5 years ago				
centos/7	1811.02				
CentOS Linux 7 x86_64 Vagrant Box					
Downloads	4,851,869				
Released	15 days ago				
ubuntu/xenial64	20181223.0.0				
Official Ubuntu 16.04 LTS (Xenial Xerus) Daily Build					
Downloads	3,159,203				
Released	4 days ago				
puphpet/ubuntu1404-x64	20161102				
Ubuntu 14.04 LTS x64					
Downloads	2,507,862				
Released	about 5 years ago				
debian/jessie64	1.11.0				
Vanilla Debian 8 "Jessie"					
Downloads	2,343,551				
Released	6 months ago				

<https://app.vagrantup.com/boxes/search>

- ❑ Several OS Available
- ❑ You can use same you use in production
- ❑ You can create your own box if is missing there
- ❑ Boxes are versioned
- ❑ Including: Amazon Linux 2
- ❑ More information on docs

Vagrant - Provisioning



docker



- ❑ Great variety of options
- ❑ You can copy files from the HOST
- ❑ Install software after VM created
- ❑ Great to test provisioning scripts
- ❑ You can have same provisioning as you have in production
- ❑ More information on docs

<https://www.vagrantup.com/docs/provisioning/>

Vagrant - Provisioning

Vagrantfile x

```
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3
4  $script = <<-SCRIPT
5      echo I am provisioning...
6      date > /etc/vagrant_provisioned_at
7  SCRIPT
8
9  Vagrant.configure(2) do |config|
10
11      config.vm.box = "hashicorp/precise64"
12
13      config.vm.network "private_network", ip: "55.55.55.5"
14
15      config.vm.provision "shell", inline: $script
16
17      config.vm.provision "file", source: "Vagrantfile", destination: "$HOME"
18
19  end
```

Vagrant - Provisioning

```
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-provisioning
File Edit View Search Terminal Help
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-provisioning master vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'hashicorp/precise64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'hashicorp/precise64' is up to date...
==> default: Setting the name of the VM: vagrant-provisioning_default_1545913286929_62468
==> default: Vagrant has detected a configuration issue which exposes a
==> default: vulnerability with the installed version of VirtualBox. The
==> default: current guest is configured to use an E1000 NIC type for a
==> default: network adapter which is vulnerable in this version of VirtualBox.
==> default: Ensure the guest is trusted to use this configuration or update
==> default: the NIC type using one of the methods below:
==> default:
==> default:   https://www.vagrantup.com/docs/virtualbox/configuration.html#default-nic-type
==> default:   https://www.vagrantup.com/docs/virtualbox/networking.html#virtualbox-nic-type
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
==> default: Adapter 1: nat
==> default: Adapter 2: hostonly
==> 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:
==> default: Vagrant insecure key detected. Vagrant will automatically replace
==> default: this with a newly generated keypair for better security.
==> default:
==> default: Inserting generated public key within guest...
==> default: Removing insecure key from the guest if it's present...
==> default: Key inserted! Disconnecting and reconnecting using new SSH 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: 5.2
==> default: Configuring and enabling network interfaces...
==> default: Mounting shared folders...
==> default: /vagrant => /home/diego/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-provisioning
==> default: Running provisioner: shell...
==> default: Running: inline script
==> default: I am provisioning...
==> default: Running provisioner: file...
```

Vagrant - Provisioning

```
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-provisioning
File Edit View Search Terminal Help
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-provisioning master vagrant ssh
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic x86_64)

 * 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 06:23:18 2012 from 10.0.2.2
vagrant@precise64:~$ ls
postinstall.sh  vagrant
vagrant@precise64:~$ cat /etc/vagrant_
vagrant_box_build_time  vagrant_provisioned_at
vagrant@precise64:~$ cat /etc/vagrant_provisioned_at
Thu Dec 27 12:21:57 UTC 2018
vagrant@precise64:~$ cd ~
vagrant@precise64:~$ ls
postinstall.sh  vagrant
vagrant@precise64:~$ cat vagrant
# -*- mode: ruby -*-
# vi: set ft=ruby :

$script = <<-SCRIPT
  echo I am provisioning...
  date > /etc/vagrant_provisioned_at
SCRIPT

Vagrant.configure(2) do |config|

  config.vm.box = "hashicorp/precise64"

  config.vm.network "private_network", ip: "55.55.55.5"

  config.vm.provision "shell", inline: $script

  config.vm.provision "file", source: "Vagrantfile", destination: "$HOME"

end

vagrant@precise64:~$
vagrant@precise64:~$ logout
Connection to 127.0.0.1 closed.
```

Vagrant - Multi machine support

```
Vagrantfile x
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3
4  servers=[
5    {
6      :hostname => "web",
7      :ip => "192.168.100.10",
8      :box => "hashicorp/precise64",
9      :ram => 1024,
10     :cpu => 2,
11     :provision => "sudo apt-get update -y && sudo apt-get install -y apache2"
12   },
13   {
14     :hostname => "db",
15     :ip => "192.168.100.11",
16     :box => "hashicorp/precise64",
17     :ram => 1024,
18     :cpu => 2,
19     :provision => "sudo apt-get update -y && sudo debconf-set-selections <<< 'mysql-server mysql-server/root_password password root' && sudo debconf-set-selection
20   }
21 ]
22
23 Vagrant.configure(2) do |config|
24   servers.each do |machine|
25     config.vm.define machine[:hostname] do |node|
26       node.vm.box = machine[:box]
27       node.vm.hostname = machine[:hostname]
28       node.vm.provision "shell", inline: machine[:provision]
29       node.vm.network "private_network", ip: machine[:ip]
30       node.vm.provider "virtualbox" do |vb|
31         vb.customize ["modifyvm", :id, "--memory", machine[:ram]]
32       end
33     end
34   end
35 end
```

Vagrant - Multi machine support

```
diego@4winds: ~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-multimachine
File Edit View Search Terminal Help
diego@4winds ~~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-multimachine master vagrant status
Current machine states:

web          running (virtualbox)
db           running (virtualbox)

This environment represents multiple VMs. The VMs are all listed
above with their current state. For more information about a specific
VM, run `vagrant status NAME`.
```

```
diego@4winds ~~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-multimachine master vagrant ssh web
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic x86_64)

 * 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 06:23:18 2012 from 10.0.2.2
vagrant@web:~$ logout
Connection to 127.0.0.1 closed.
diego@4winds ~~/github/diegopacheco/DevOpsEngineerExpress/source/vagrant/vagrant-multimachine master vagrant ssh db
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic x86_64)

 * 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 06:23:18 2012 from 10.0.2.2
vagrant@db:~$
```



VAGRANT

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