

# Vagrant tutorial

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## Whoami

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  - Mainly Linux & open source
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**Have a question/remark? Please interrupt me!**

## Agenda

- Vagrant introduction
- Getting base boxes
- Configuring boxes
- Provisioning
  - shell, Ansible, Puppet
  - setting up a LAMP stack
- Creating base boxes

## Introduction

### What is Vagrant?

<http://www.vagrantup.com/>

- Written by [Mitchell Hashimoto](#)
- Command line tool
- Automates VM creation with
  - VirtualBox
  - VMWare

- Hyper-V
- Integrates well with configuration management tools
  - Shell
  - Ansible
  - Chef
  - Puppet
- Runs on Linux, Windows, MacOS

## Why use Vagrant?

- Create new VMs quickly and easily
  - Only one command! `vagrant up`
- Keep the number of VMs under control
- Reproducibility
- Identical environment in development and production
- Portability
  - No more 4GB .ova files
  - `git clone` and `vagrant up`

## Assumptions

- Git
- Vagrant 1.5.1
- VirtualBox 4.3.10
  - default Host-only network (192.168.56.0/24)
- librarian-puppet

```
$ vagrant --version
Vagrant 1.5.1
$ VBoxHeadless --version
Oracle VM VirtualBox Headless Interface 4.3.10
(C) 2008-2014 Oracle Corporation
All rights reserved.
```

```
4.3.10r93012
$ ifconfig vboxnet0
=> 192.168.56.1
```

## Try it yourself

- Clone the repository `git clone git@github.com:bertvv/vagrant-example.git`
- When the slides mention “checkpoint-*nn*”, you can do `git checkout tags/checkpoint-nn`

## Getting up and running

### Minimal default setup:

```
$ vagrant init hashicorp/precise32
$ vagrant up
$ vagrant ssh
```

### What happens under the hood?

```
$ vagrant init hashicorp/precise32
```

A Vagrantfile is created (that's all!)

### What happens under the hood?

```
$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Box 'hashicorp/precise32' could not be found. Attempting to find and install...
    default: Box Provider: virtualbox
    default: Box Version: >= 0
==> default: Loading metadata for box 'hashicorp/precise32'
    default: URL: https://vagrantcloud.com/hashicorp/precise32
==> default: Adding box 'hashicorp/precise32' (v1.0.0) for provider: virtualbox
    default: Downloading: https://vagrantcloud.com/hashicorp/precise32/version/1/provider/virtualbox.box
==> default: Successfully added box 'hashicorp/precise32' (v1.0.0) for 'virtualbox'!
==> default: Importing base box 'hashicorp/precise32'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'hashicorp/precise32' is up to date...
==> default: Setting the name of the VM: example_default_1395996714768_3176
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
==> default: Forwarding ports...
    default: 22 => 2222 (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: 4.3
==> default: Mounting shared folders...
default: /vagrant => /home/bert/CfgMgmt/vagrant-example
```

## What happens under the hood?

```
$ vagrant init hashicorp/precise32
```

- The base box is downloaded and stored locally
  - in ~/.vagrant.d/boxes/
- A new VM is created and configured with the base box as template
- The VM is booted
- The box is provisioned
  - only the first time, must be done manually afterwards

## Done!

You now have a working VM, ready for use:

```
$ vagrant ssh
Welcome to Ubuntu 12.04 LTS (GNU/Linux 3.2.0-23-generic-pae i686)

 * Documentation:  https://help.ubuntu.com/
Welcome to your Vagrant-built virtual machine.
Last login: Fri Sep 14 06:22:31 2012 from 10.0.2.2
vagrant@precise32:~$
```

## Configuring Vagrant boxes

### Vagrantfile

Minimal Vagrantfile (checkpoint-01):

```
VAGRANTFILE_API_VERSION = '2'

Vagrant.configure(VAGRANTFILE_API_VERSION) do |config|
  config.vm.box = 'hashicorp/precise32'
end
```

Vagrantfile = Ruby

...

This is Ubuntu 12.04 LTS 32 bit,

Let's say we want CentOS 6.5 64 bit

## Finding base boxes

- <https://vagrantcloud.com/> (since 1.5)
- <http://vagrantbox.es/> (pre-1.5 boxes)

## Using another base box

From the command line (Vagrant cloud):

```
$ vagrant init alphainternational/centos-6.5-x64
```

...

From the command line ("old", pre-1.5 style):

```
$ vagrant box add --name centos65 \  
  http://packages.vstone.eu/vagrant-boxes/centos-6.x-64bit-latest.box  
$ vagrant init centos65
```

...

In your Vagrantfile (only applies to "old" style):

```
VAGRANTFILE_API_VERSION = '2'  
  
Vagrant.configure(VAGRANTFILE_API_VERSION) do |config|  
  config.vm.box = 'centos65'  
  config.vm.box_url =  
    'http://packages.vstone.eu/vagrant-boxes/centos-6.x-64bit-latest.box'  
end
```

## Applying the change

```
$ 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...  
$ vagrant up  
[...]  
$ vagrant ssh
```

## Configuring the VM

(checkpoint-02)

```
1 VAGRANTFILE_API_VERSION = '2'  
2  
3 HOST_NAME = 'box001'  
4  
5 Vagrant.configure(VAGRANTFILE_API_VERSION) do |config|
```

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