

Example 1

The screenshot shows a Linux desktop with a red background. On the left is a sidebar with application icons. The main window is split into two panes. The left pane shows a text editor with a Vagrantfile configuration for a virtual machine named 'trusty64'. The right pane shows a terminal window with the output of the 'vagrant ssh' command, displaying system information for Ubuntu 14.04.6 LTS.

```
# Example 1
#
# Single box with some custom configuration.

Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/trusty64"
  config.vm.hostname = "trusty64"
  config.vm.network :private_network, ip: "192.168.0.42"
end
```

```
vagrant@vagrant-ubuntu-trusty-64: ~$ vagrant ssh
nicholas@nicholas-G752VSK:~/Lab_Cloud$ vagrant ssh
Welcome to Ubuntu 14.04.6 LTS (GNU/Linux 3.13.0-170-generic x86_64)

 * Documentation:  https://help.ubuntu.com/

System Information as of Tue Sep  3 16:24:14 UTC 2019

System load:  0.12               Processes:    79
Usage of /:   3.6% of 39.34GB    Users logged in:  0
Memory usage: 25%               IP address for eth0: 10.0.2.15
Swap usage:   0%

Graph this data and manage this system at:
https://landscape.canonical.com/

0 updates can be installed immediately.
0 of these updates are security updates.

New release '16.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Tue Sep  3 16:24:14 2019 from 10.0.2.2
vagrant@vagrant-ubuntu-trusty-64:~$
```

The screenshot shows the same Linux desktop environment. The left pane of the text editor is identical to the previous one. The right pane shows the output of the 'vagrant status' command, indicating that the virtual machine 'default' is running in 'virtualbox' mode. Below this, the output of the 'ifconfig' command is shown, displaying network interface details for 'eth0' and 'lo'.

```
# Example 1
#
# Single box with some custom configuration.

Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/trusty64"
  config.vm.hostname = "trusty64"
  config.vm.network :private_network, ip: "192.168.0.42"
end
```

```
vagrant@vagrant-ubuntu-trusty-64: ~$ vagrant status
Current machine states:
default                running (virtualbox)

The VM is running. To stop this VM, you can run 'vagrant halt' to
shut it down forcefully, or you can run 'vagrant suspend' to simply
suspend the virtual machine. In either case, to restart it again,
simply run 'vagrant up'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile

vagrant@vagrant-ubuntu-trusty-64: ~$ ifconfig
eth0:
Link encap:Ethernet  HWaddr 08:00:27:bb:97:37
  inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
  inet6 addr: fe80::a00:27ff:febb:9737/64 Scope:Link
    UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
    RX packets:700 errors:0 dropped:0 overruns:0 frame:0
    TX packets:587 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:1000
    RX bytes:85752 (85.7 KB)  TX bytes:72997 (72.9 KB)

lo:
Link encap:Local Loopback
  inet addr:127.0.0.1  Mask:255.0.0.0
  inet6 addr: ::1/128 Scope:Host
    UP LOOPBACK RUNNING  MTU:65536  Metric:1
    RX packets:0 errors:0 dropped:0 overruns:0 frame:0
    TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:0
    RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

vagrant@vagrant-ubuntu-trusty-64:~$
```

Example 2

The screenshot shows a Linux desktop environment with a red background. On the left, there is a sidebar with application icons. The main window is a text editor titled 'Vagrantfile' showing the following content:

```
# Example 2
#
# Single box with VirtualBox provider.
# VirtualBox modifyvm docs: http://www.virtualbox.org/manual/ch08.html#vboxmanage-modifyvm

Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/trusty64"
  config.vm.hostname = "trusty64"
  config.vm.network :private_network, ip: "192.168.0.42"

  config.vm.provider :virtualbox do |vb|
    vb.customize [
      "modifyvm", :id,
      "--cpup executionscap", "50",
      "--memory", "256",
    ]
  end
end
```

On the right, there is a terminal window titled 'vagrant@trusty64: ~'. It displays the output of the 'top' command, showing system statistics and a list of running processes.

System statistics:

```
top - 16:31:48 up 0 min, 1 user, load average: 0.29, 0.09, 0.03
Tasks: 78 total, 1 running, 77 sleeping, 0 stopped, 0 zombie
Cpu(s):  8.9 us, 10.6 sy,  0.0 ni, 76.5 id,  3.1 wa,  0.0 hi,  0.7 st,  0.0 sr
Mem:   243536 total, 155616 used, 47920 free, 11564 buffers
Swap:   0 total,  0 used,  0 free, 69688 cached Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	33748	3868	1484	S	0.0	1.3	0:01.40	init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.01	ksoftirqd/0
4	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0
5	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:1H
6	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kworker/u2:0
7	root	20	0	0	0	0	S	0.0	0.0	0:00.76	rcu_sched
8	root	20	0	0	0	0	S	0.0	0.0	0:00.07	rcuos/0
9	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcuob/0
10	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcuob/0
11	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/0
13	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	khelper
14	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
15	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	netns
16	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	writeback
17	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kintegrityd

The terminal window also shows the output of the 'vagrant status' command, indicating that the VM is running.

```
nicholas@nicholas-G752V5K: ~/Lab_Cloud
File Edit View Search Terminal Help
nicholas@nicholas-G752V5K:~$ cd Lab_Cloud
nicholas@nicholas-G752V5K:~/Lab_Cloud$ vagrant status
Current machine states:

default                running (virtualbox)

The VM is running. To stop this VM, you can run 'vagrant halt' to
shut it down forcefully, or you can run 'vagrant suspend' to simply
suspend the virtual machine. In either case, to restart it again,
simply run 'vagrant up'.
nicholas@nicholas-G752V5K:~/Lab_Cloud$ gedit Vagrantfile
```

Example 3

The screenshot displays a Linux desktop environment with a red background. On the left, there is a sidebar with application icons. The main workspace contains three windows:

- Vagrantfile Editor:** A text editor window titled "Vagrantfile" showing the configuration for a virtual machine named "trusty64". The configuration includes settings for the VM box, hostname, network, provider (VirtualBox), and Puppet provisioning.
- Terminal Window (vagrant@trusty64):** A terminal window showing the output of the `puppet status` command. It displays system information as of Tuesday, September 3, 2019, at 16:32:46 UTC. The output includes system load, memory usage, swap usage, and network information.
- Terminal Window (nicholas@nicholas-G752VSK):** A terminal window showing the output of the `vagrant status` command. It displays the current machine states, indicating that the default machine is running in a virtualbox.

```
# Example 3
# Single box with VirtualBox provider and Puppet provisioning.

Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/trusty64"
  config.vm.hostname = "trusty64"
  config.vm.network :private_network, ip: "192.168.0.42"

  config.vm.provider :virtualbox do |vb|
    vb.customize [
      "modifyvm", :id,
      "--cpumax", "50",
      "--memory", "256",
    ]
  end

  config.vm.provision :puppet do |puppet|
    puppet.manifests_path = "puppet/manifests"
    puppet.manifest_file = "site.pp"
    puppet.module_path = "puppet/modules"
  end
end
```

```
vagrant@trusty64:~$ puppet status
System Information as of Tue Sep  3 16:32:46 UTC 2019
System load:  0.38      Processes:      94
Usage of /:   3.6% of 39.34GB   Users logged in:  0
Memory usage: 34%      IP address for eth0: 10.0.2.15
Swap usage:   0%        IP address for eth1: 192.168.0.42

Graph this data and manage this system at:
https://landscape.canonical.com/

0 updates can be installed immediately.
0 of these updates are security updates.

New release '16.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

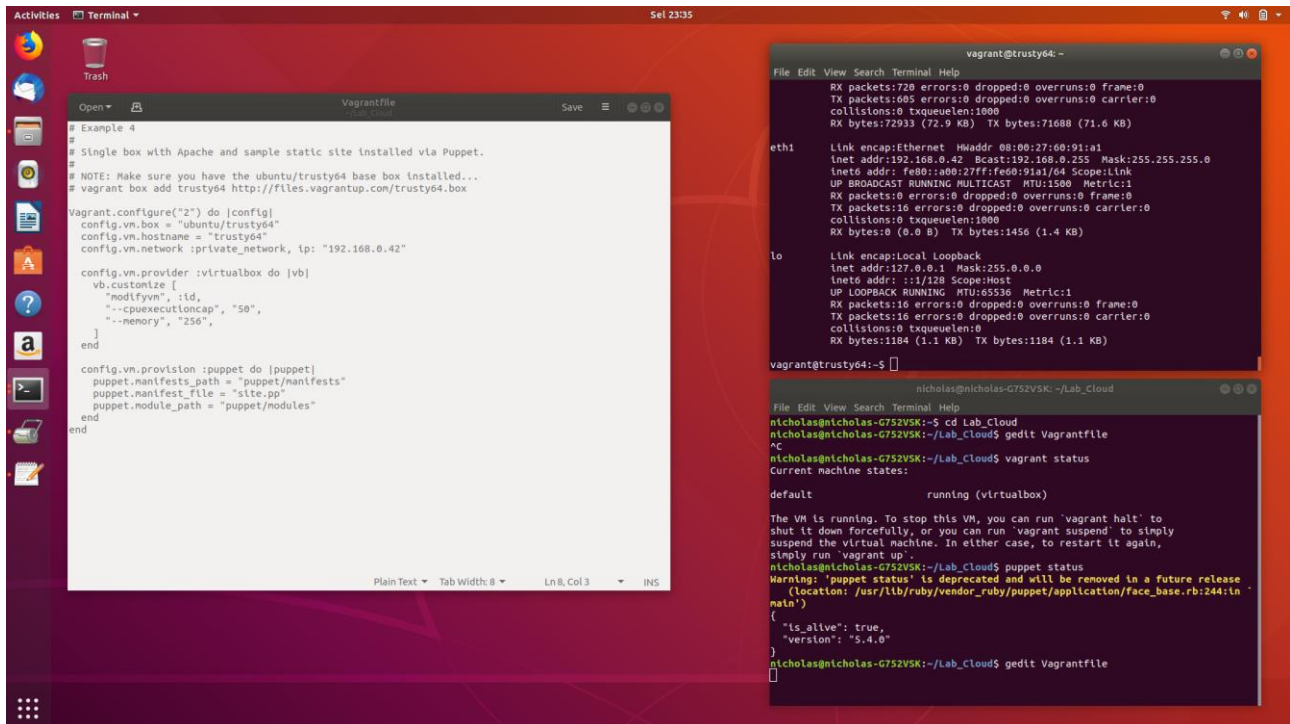
Last login: Tue Sep  3 16:31:34 2019 from 10.0.2.2
vagrant@trusty64:~$ puppet status
See 'puppet help' for help on available puppet subcommands
vagrant@trusty64:~$
```

```
nicholas@nicholas-G752VSK:~/Lab_Cloud$ cd Lab_Cloud
nicholas@nicholas-G752VSK:~/Lab_Cloud$ puppet status
Warning: 'puppet status' is deprecated and will be removed in a future release
(location: /usr/lib/ruby/vendor_ruby/puppet/application/face_base.rb:244:in
`main')
{
  "is_alive": true,
  "version": "5.4.0"
}
nicholas@nicholas-G752VSK:~/Lab_Cloud$ vagrant status
Current machine states:

default                running (virtualbox)

The VM is running. To stop this VM, you can run 'vagrant halt' to
shut it down forcefully, or you can run 'vagrant suspend' to simply
suspend the virtual machine. In either case, to restart it again,
simply run 'vagrant up'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile
```

Example 4



```
# Example 4
# Single box with Apache and sample static site installed via Puppet.
# NOTE: Make sure you have the ubuntu/trusty64 base box installed...
# vagrant box add trusty64 http://files.vagrantup.com/trusty64.box

Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/trusty64"
  config.vm.hostname = "trusty64"
  config.vm.network :private_network, ip: "192.168.0.42"

  config.vm.provider :virtualbox do |vb|
    vb.customize [
      "modifyvm", :id,
      "--cpuexecutioncap", "50",
      "--memory", "256",
    ]
  end

  config.vm.provision :puppet do |puppet|
    puppet.manifests_path = "puppet/manifests"
    puppet.manifest_file = "site.pp"
    puppet.module_path = "puppet/modules"
  end
end
```

```
vagrant@trusty64:~$ cat /dev/null
RX packets:720 errors:0 dropped:0 overruns:0 frame:0
TX packets:605 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:72933 (72.9 KB) TX bytes:71688 (71.6 KB)

eth1: Link encap:Ethernet HWaddr 08:00:27:60:91:a1
       inet addr:192.168.0.42 Bcast:192.168.0.255 Mask:255.255.255.0
       inet6 addr: fe80::a00:27ff:fe00:91a1/64 Scope:Link
       UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
       RX packets:0 errors:0 dropped:0 overruns:0 frame:0
       TX packets:16 errors:0 dropped:0 overruns:0 carrier:0
       collisions:0 txqueuelen:1000
       RX bytes:0 (0.0 B) TX bytes:1456 (1.4 KB)

lo: Link encap:Local Loopback
     inet addr:127.0.0.1 Mask:255.0.0.0
     inet6 addr: ::1/128 Scope:Host
     UP LOOPBACK RUNNING MTU:65536 Metric:1
     RX packets:16 errors:0 dropped:0 overruns:0 frame:0
     TX packets:16 errors:0 dropped:0 overruns:0 carrier:0
     collisions:0 txqueuelen:0
     RX bytes:1184 (1.1 KB) TX bytes:1184 (1.1 KB)

vagrant@trusty64:~$
```

```
nicholas@nicholas-G752VSK: ~/Lab_Cloud
File Edit View Search Terminal Help
nicholas@nicholas-G752VSK:~$ cd Lab_Cloud
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile
^C
nicholas@nicholas-G752VSK:~/Lab_Cloud$ vagrant status
Current machine states:

default                running (virtualbox)

The VM is running. To stop this VM, you can run 'vagrant halt' to
shut it down forcefully, or you can run 'vagrant suspend' to simply
suspend the virtual machine. In either case, to restart it again,
simply run 'vagrant up'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ puppet status
Warning: 'puppet status' is deprecated and will be removed in a future release
(location: /usr/lib/ruby/vendor_ruby/puppet/application/face_base.rb:244:in
`main')
{
  "is_alive": true,
  "version": "5.4.0"
}
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile
```

Example 5

The screenshot displays a Linux desktop with a red background. On the left is the Unity Dash with various application icons. The main workspace contains three windows:

- Vagrantfile Editor:** A text editor window titled 'Vagrantfile' showing the configuration for two virtual machines, 'ex5web' and 'ex5db'. The configuration includes hostnames, IP addresses, box names ('ubuntu/trusty64'), and network settings.
- Terminal (vagrant@ex5web):** A terminal window showing the output of the 'ifconfig' command for the 'ex5web' VM. It displays details for the 'eth0' interface, including its IP address (10.0.2.15), MAC address, and network statistics.
- Terminal (nicholas@nicholas-G752VSK):** A terminal window showing the output of the 'vagrant status' command. It indicates that both 'ex5web' and 'ex5db' VMs are in a 'running' state.

```
# Example 5
# ubuntu/trusty64
# Separate Web and database servers serving up static/dynamic sites via Puppet.

nodes = [
  { :hostname => 'ex5web', :ip => '192.168.0.42', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex5db', :ip => '192.168.0.43', :box => 'ubuntu/trusty64', :ram => 512 }
]

Vagrant.configure("2") do |config|
  nodes.each do |node|
    config.vm.define node[:hostname] do |nodeconfig|
      nodeconfig.vm.box = "ubuntu/trusty64"
      nodeconfig.vm.hostname = node[:hostname] + "-box"
      nodeconfig.vm.network :private_network, ip: node[:ip]

      memory = node[:ram] ? node[:ram] : 256
      nodeconfig.vm.provider :virtualbox do |vb|
        vb.customize [
          "modifvmm", :id,
          "--cpumaxcutoncap", "50",
          "--memory", memory.to_s,
        ]
      end
    end
  end

  config.vm.provision :puppet do |puppet|
    puppet.manifests_path = "puppet/manifests"
    puppet.manifest_file = "site.pp"
    puppet.module_path = "puppet/modules"
  end
end
```

```
vagrant@ex5web:~$ ifconfig
eth0: Link encap:Ethernet  HWaddr 08:00:27:bb:97:37
      inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
      inet6 addr: fe80::a00:27ff:febb:9737/64  Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:888  errors:0  dropped:0  overruns:0  frame:0
      TX packets:736  errors:0  dropped:0  overruns:0  carrier:0
      collisions:0  txqueuelen:1000
      RX bytes:84679 (84.6 KB)  TX bytes:83556 (83.5 KB)

eth1: Link encap:Ethernet  HWaddr 08:00:27:53:43:00
      inet addr:192.168.0.42  Bcast:192.168.0.255  Mask:255.255.255.0
      inet6 addr: fe80::a00:27ff:fe53:4300/64  Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:0  errors:0  dropped:0  overruns:0  frame:0
      TX packets:16  errors:0  dropped:0  overruns:0  carrier:0
      collisions:0  txqueuelen:1000
      RX bytes:0 (0.0 B)  TX bytes:1456 (1.4 KB)

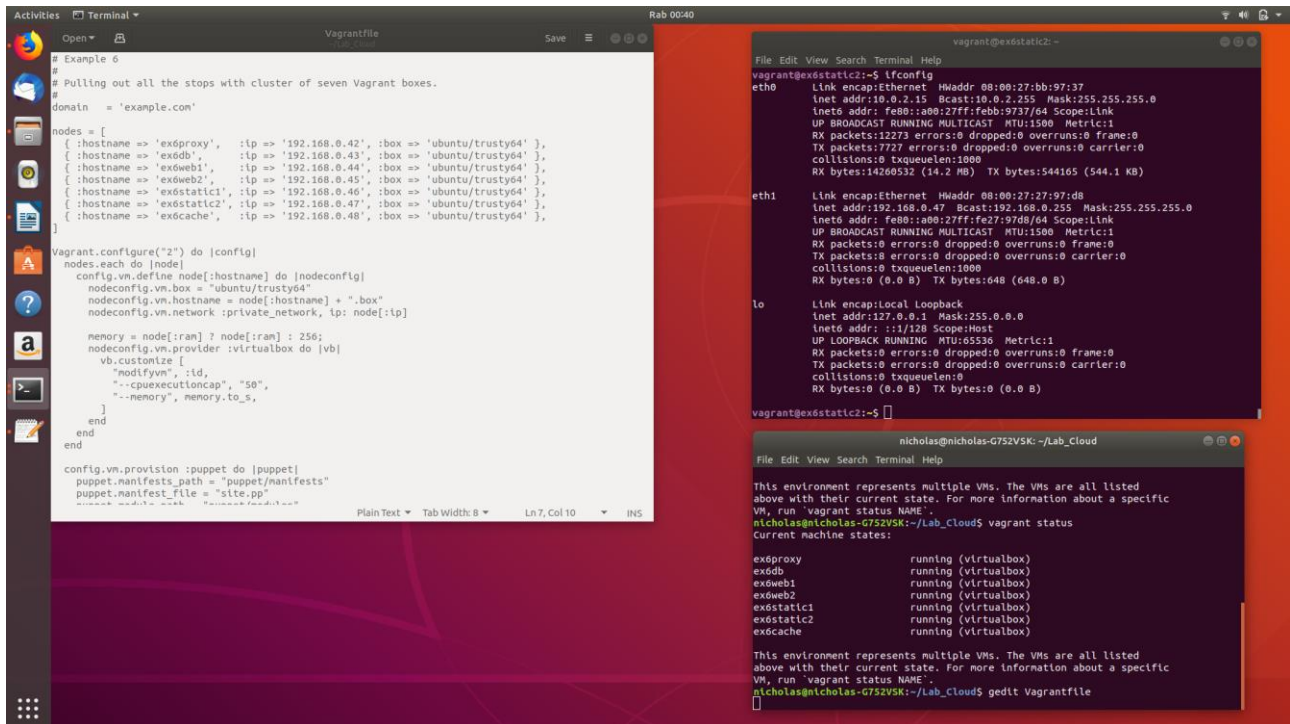
lo: Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128  Scope:Host
      UP LOOPBACK RUNNING  MTU:65536  Metric:1
      RX packets:32  errors:0  dropped:0  overruns:0  frame:0
      TX packets:32  errors:0  dropped:0  overruns:0  carrier:0
      collisions:0  txqueuelen:0
      RX bytes:2568 (2.5 KB)  TX bytes:2568 (2.5 KB)

vagrant@ex5web:~$
```

```
nicholas@nicholas-G752VSK: ~/Lab_Cloud
nicholas@nicholas-G752VSK:~$ cd Lab_Cloud
nicholas@nicholas-G752VSK:~/Lab_Cloud$ vagrant status
Current machine states:
ex5web               running (virtualbox)
ex5db                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'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile
```

Example 6



```
# Example 6
# Pulling out all the stops with cluster of seven Vagrant boxes.
#
domain = 'example.com'

nodes = [
  { :hostname => 'ex6proxy', :ip => '192.168.0.42', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6db', :ip => '192.168.0.43', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6web1', :ip => '192.168.0.44', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6web2', :ip => '192.168.0.45', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6static1', :ip => '192.168.0.46', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6static2', :ip => '192.168.0.47', :box => 'ubuntu/trusty64' },
  { :hostname => 'ex6cache', :ip => '192.168.0.48', :box => 'ubuntu/trusty64' },
]

Vagrant.configure("2") do |config|
  nodes.each do |node|
    config.vm.define node[:hostname] do |nodeconfig|
      nodeconfig.vm.box = 'ubuntu/trusty64'
      nodeconfig.vm.hostname = node[:hostname] + "-box"
      nodeconfig.vm.network :private_network, ip: node[:ip]

      memory = node[:ram] ? node[:ram] : 256
      nodeconfig.vm.provider :virtualbox do |vb|
        vb.customize [
          "modifyvm", :id,
          "--cpumax", "50",
          "--memory", memory.to_s,
        ]
      end
    end
  end

  config.vm.provision :puppet do |puppet|
    puppet.manifests_path = "puppet/manifests"
    puppet.manifest_file = "site.pp"
  end
end
```

```
vagrant@ex6static2:~$ ifconfig
eth0: Link encap:Ethernet HWaddr 08:00:27:bb:97:37
      inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255.0
      inet6 addr: fe80::a08:27ff:febb:9737/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:12273 errors:0 dropped:0 overruns:0 frame:0
      TX packets:7727 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:14260532 (14.2 MB)  TX bytes:544105 (544.1 KB)

eth1: Link encap:Ethernet HWaddr 08:00:27:27:97:d8
      inet addr:192.168.0.47 Bcast:192.168.0.255 Mask:255.255.255.0
      inet6 addr: fe80::a08:27ff:fe27:97d8/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:0 (0.0 B)  TX bytes:648 (648.0 B)

lo: Link encap:Local Loopback
      inet addr:127.0.0.1 Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:65536  Metric:1
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

vagrant@ex6static2:~$
```

```
nicholas@nicholas-G752VSK: ~/Lab_Cloud
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'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ vagrant status
Current machine states:
ex6proxy                running (virtualbox)
ex6db                   running (virtualbox)
ex6web1                 running (virtualbox)
ex6web2                 running (virtualbox)
ex6static1              running (virtualbox)
ex6static2              running (virtualbox)
ex6cache                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'.
nicholas@nicholas-G752VSK:~/Lab_Cloud$ gedit Vagrantfile
```