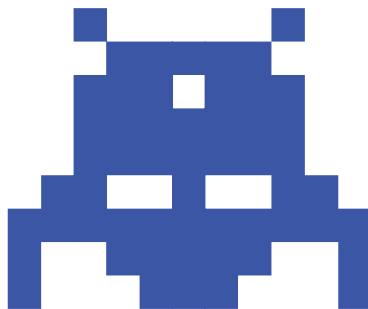
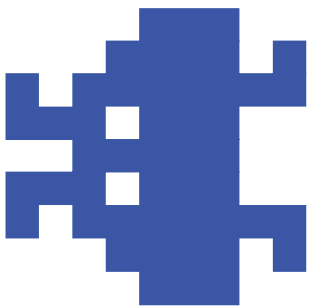
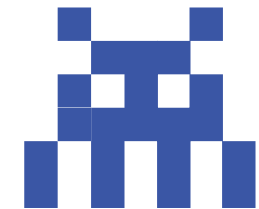


Carlos D. Camacho

# CHEF BY EXAMPLE

OHA!  
CHEFS!



Practical Exercises in a Successful Chef Deployment



# Chef by example

Practical Exercises in a Successful Chef Deployment.

Carlos Camacho



# Contents

<b>Preface</b>	<b>v</b>
0.1 What is DevOps? . . . . .	v
0.2 What this book covers . . . . .	vi
0.3 What you need for this book . . . . .	vi
0.4 Who this book is for . . . . .	vi
0.5 Conventions . . . . .	vi
 <b>1 Getting Started</b>	 <b>1</b>
1.1 Defining the scenario . . . . .	1
1.2 Development process . . . . .	1
1.3 Infrastructure automation . . . . .	1
1.4 Continuous deployments . . . . .	1
1.5 Continuous delivery . . . . .	1
1.6 Maintenance cycle . . . . .	1
 <b>2 Chef</b>	 <b>3</b>
2.1 Chef components . . . . .	4
2.2 Knife . . . . .	4
2.3 OHAI . . . . .	4
2.4 Attributes . . . . .	4
2.5 Databags . . . . .	4
2.6 Environments . . . . .	4
2.7 Lightweight resources and providers . . . . .	4
2.8 Cookbooks . . . . .	4

2.9	Recipes . . . . .	4
2.10	Install CHEF . . . . .	4
2.11	Install old and rusty web interface . . . . .	9
2.11.1	Get the webui source . . . . .	9
2.11.2	Install packages . . . . .	10
2.12	Install one Workstation . . . . .	10
<b>3</b>	<b>Development environment</b>	<b>11</b>
3.1	Source repository . . . . .	11
3.2	Package repository . . . . .	11
3.3	CI Server . . . . .	11
<b>4</b>	<b>Deployment environments</b>	<b>13</b>
4.1	Physical or CCloud environments . . . . .	13
4.2	Continuous Integration . . . . .	13
4.3	Integration . . . . .	13
4.4	Test . . . . .	13
4.5	Go-Live! . . . . .	13
<b>5</b>	<b>Automating delivery pipelines</b>	<b>15</b>
<b>6</b>	<b>Maintenance cycle</b>	<b>17</b>

# Preface

A Chef Style DevOps Kung-fu implementation, inspired in the Adam Jacob keynote from Chefconf 2015. A practical to work with infrastructure automaion, continuous delivery, continuous deployments and the platform maintenance life cycle.

The source code of this book is hosted in [Github](#), everyone can fork and make pull requests; you are all invited.

## 0.1 What is DevOps?

There isnt an agreed definition for DevOps yet. DevOps is a cultural and professional movement, focused on how we build and operate high velocity organizations, born from the experience of its practitioners. Is a unique approach, based in previous experience and focused on customers.

- Principles (Universal)
  - Based on prioritize people over products over companies.
  - Design for the safety, contentment, knowledge and freedom of both your peers and your customers.
  - Eliminate non-value-added actions and processes.
  - Continuously improve your processes.
  - Adapt to needs.
  - Small improvements over the time.

- Fail faster to learn faster. Be calm, fix things and improve your processes.
  - Workflows automation.
  - Diversity, gets feedback, have different opinions, argue, make demonstrations on your points of view.
  - Demo all the things you have or you are working in.
  - Be the owner of your work, love your work, and find reasons to do your work.
  - Improve and do things right even if is hard (At first).
  - Make decisions based on your experience and proof your point of view.
- Forms (Shared)
  - Applications (Unique)

## **0.2 What this book covers**

## **0.3 What you need for this book**

## **0.4 Who this book is for**

## **0.5 Conventions**



# **Chapter 1**

## **Getting Started**

**1.1 Defining the scenario**

**1.2 Development process**

**1.3 Infrastructure automation**

**1.4 Continuous deployments**

**1.5 Continuous delivery**

**1.6 Maintenance cycle**





## Chapter 2

# Chef

### 2.1 Chef components

### 2.2 Knife

### 2.3 OHAI

### 2.4 Attributes

### 2.5 Databags

### 2.6 Environments

### 2.7 Lightweight resources and providers

### 2.8 Cookbooks

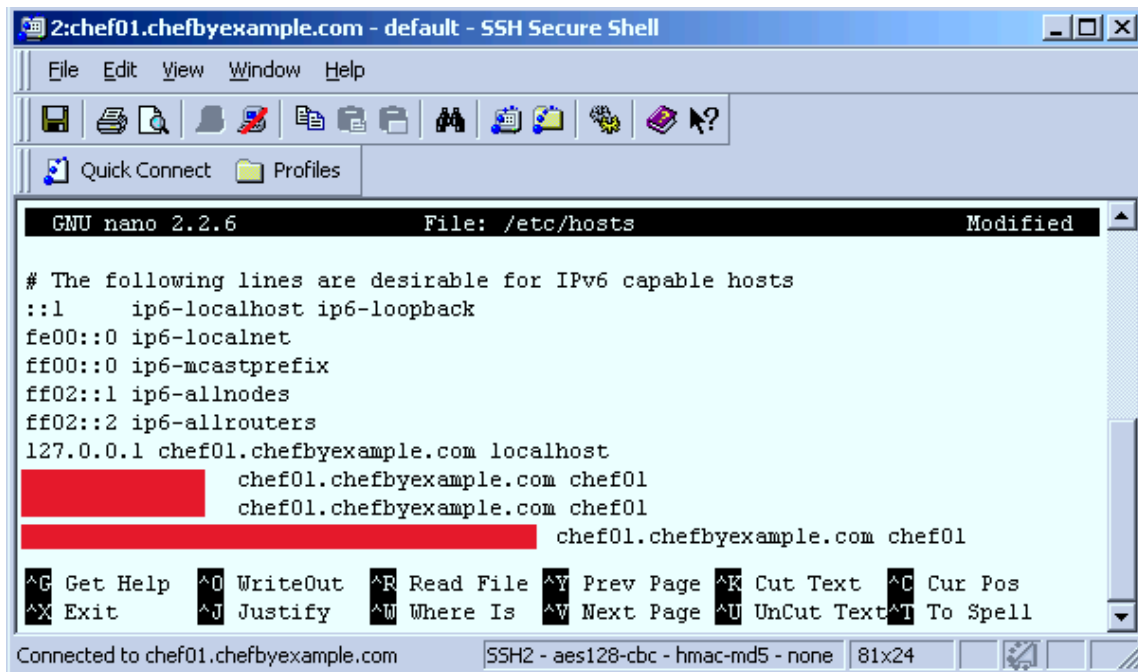
### 2.9 Recipes

### 2.10 Install CHEF



**Listing 2.1**

```
root@chef01:~# hostname -f
```



The screenshot shows an SSH terminal window titled "2:chef01.chefbyexample.com - default - SSH Secure Shell". The terminal is running the GNU nano 2.2.6 editor, editing the file /etc/hosts. The file contains the following content:

```
# The following lines are desirable for IPv6 capable hosts
::1    ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
127.0.0.1 chef01.chefbyexample.com localhost
        chef01.chefbyexample.com chef01
        chef01.chefbyexample.com chef01
        chef01.chefbyexample.com chef01
```

The terminal also shows a status bar at the bottom indicating the connection details: "Connected to chef01.chefbyexample.com", "SSH2 - aes128-cbc - hmac-md5 - none", and "81x24".

**Listing 2.2**

```
root@chef01:~# sudo nano /etc/hosts
```



The screenshot shows an SSH terminal window titled "2:chef01.chefbyexample.com - default - SSH Secure Shell". The terminal is running the command:

```
root@chef01:~# wget https://web-dl.packagecloud.io/chef/stable/packages/ubuntu/trusty/chef-server-core_12.2.0-1_amd64.deb
```

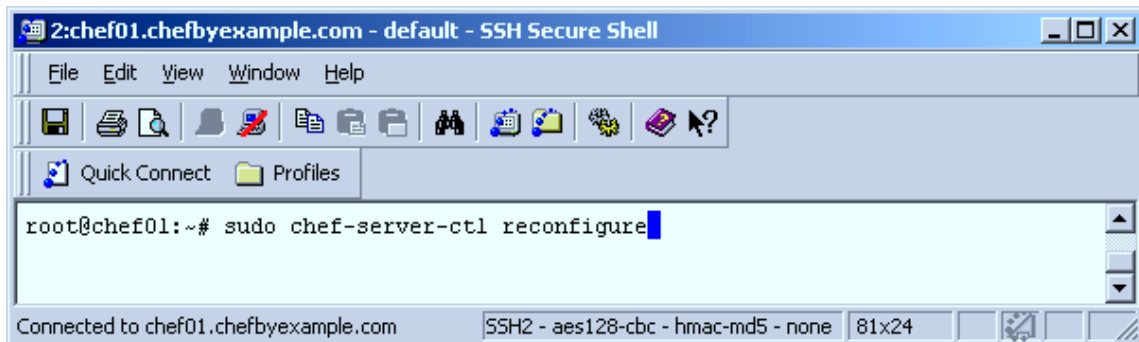
The terminal also shows a status bar at the bottom indicating the connection details: "Connected to chef01.chefbyexample.com", "SSH2 - aes128-cbc - hmac-md5 - none", and "81x24".

**Listing 2.3**

```
root@chef01:~# wget https://web-dl.packagecloud.io/chef/stable/packages/ubuntu/trusty/chef-serv
```

**Listing 2.4**

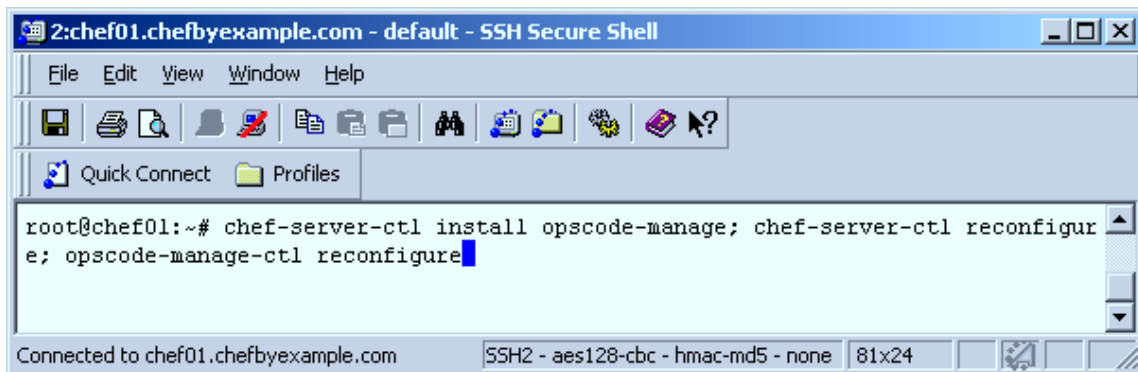
```
root@chef01:~# sudo dpkg -i chef-server-core_*.deb
```

**Listing 2.5**

```
root@chef01:~# sudo chef-server-ctl reconfigure
```



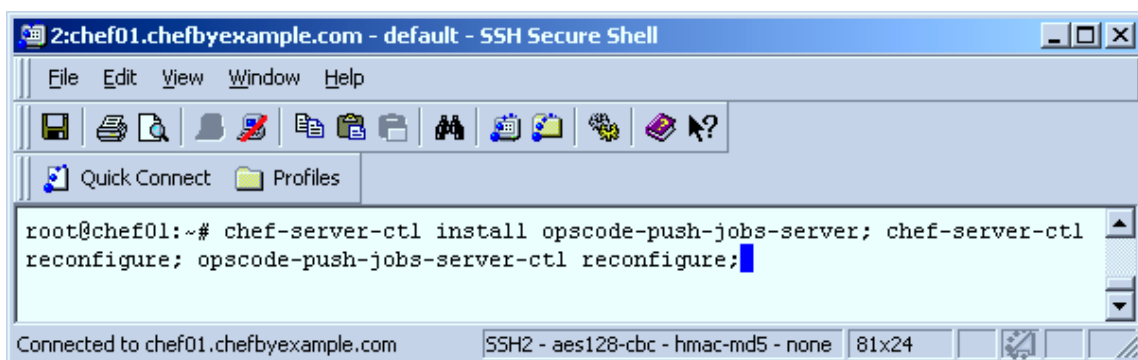
## Web interface



(Premium freature up to 25 nodes..)

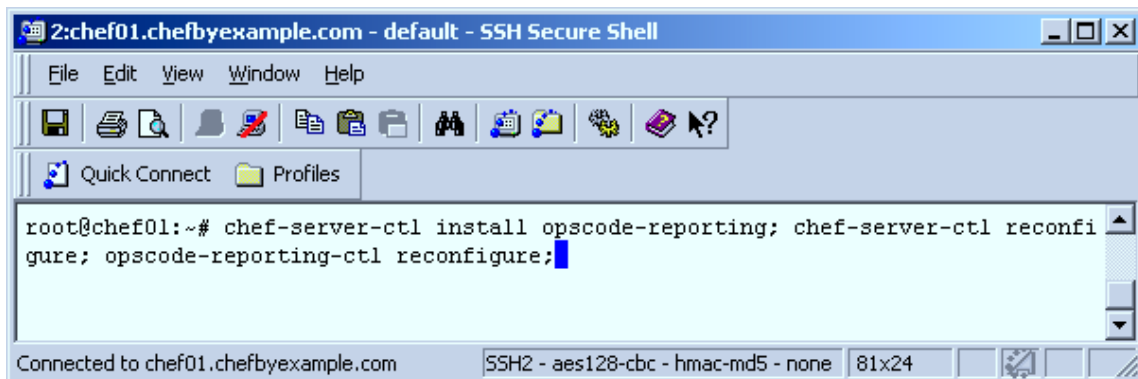
## Listing 2.6

```
root@chef01:~# chef-server-ctl install opscode-manage; chef-server-ctl reconfigure; opscode-man
```



**Listing 2.7**

```
root@chef01:~# chef-server-ctl install opscode-push-jobs-server; chef-server-ctl reconfigure; o
```

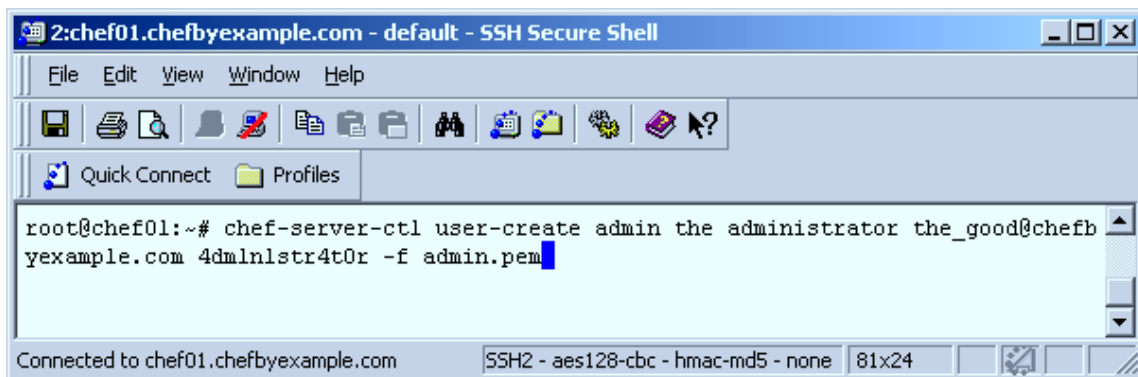


The screenshot shows an SSH terminal window titled "2:chef01.chefbyexample.com - default - SSH Secure Shell". The terminal displays the command `chef-server-ctl install opscode-reporting; chef-server-ctl reconfigure; opscode-reporting-ctl reconfigure;` being entered. The window includes a menu bar (File, Edit, View, Window, Help), a toolbar with various icons, and a status bar at the bottom indicating the connection details: "Connected to chef01.chefbyexample.com", "SSH2 - aes128-cbc - hmac-md5 - none", and "81x24".

(Premium freature up to 25 nodes..)

**Listing 2.8**

```
root@chef01:~# chef-server-ctl install opscode-reporting; chef-server-ctl reconfigure; opscode-
```



The screenshot shows an SSH terminal window titled "2:chef01.chefbyexample.com - default - SSH Secure Shell". The terminal displays the command `chef-server-ctl user-create admin the administrator the_good@chefbyexample.com 4dmlnlstr4t0r -f admin.pem` being entered. The window includes a menu bar (File, Edit, View, Window, Help), a toolbar with various icons, and a status bar at the bottom indicating the connection details: "Connected to chef01.chefbyexample.com", "SSH2 - aes128-cbc - hmac-md5 - none", and "81x24".

**Listing 2.9**

```
root@chef01:~# chef-server-ctl user-create admin the administrator the_good@chefbyexample.com 4
```



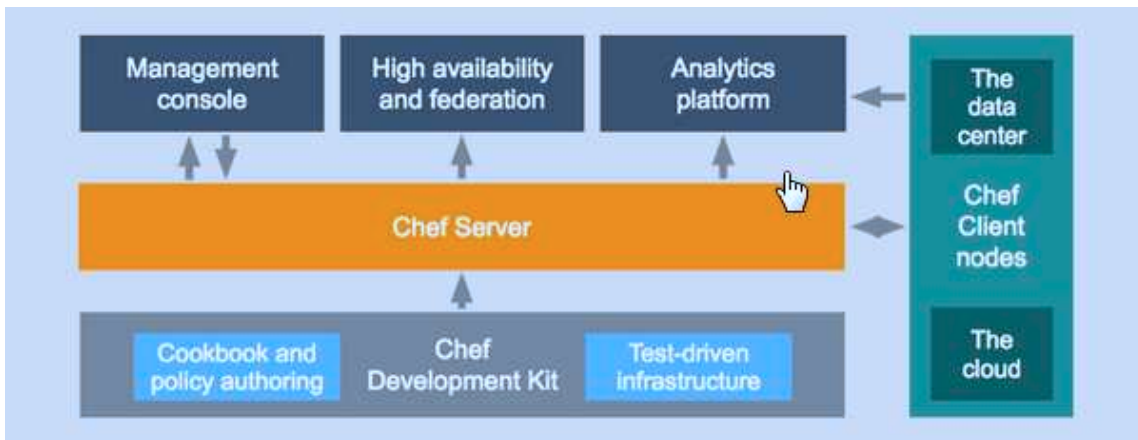
```

2:chef01.chefbyexample.com - default - SSH Secure Shell
File Edit View Window Help
[Icons]
Quick Connect Profiles
root@chef01:~# sudo chef-server-ctl org-create chefbyexample "ChefByExample.com"
--association user admin -f chefbyexample-validator.pem
Connected to chef01.chefbyexample.com  SSH2 - aes128-cbc - hmac-md5 - none 81x24

```

**Listing 2.10**

```
root@chef01:~# sudo chef-server-ctl org-create chefbyexample "ChefByExample.com" --association_
```



Chef Server installed..

## 2.11 Install old and rusty web interface

### 2.11.1 Get the webui source

```

aptitude install git
mkdir -p /var/www/
cd /var/www/

```

```
git clone https://github.com/carlosdgc/chef-server-webui
cd chef-server-webui
```

## 2.11.2 Install packages

```
aptitude install rubygems1.9.1 ruby1.9.1-dev build-essential
gem install bundler
bundle install
update in /var/www/chef-server-webui/config/application.rb
```

```
config.chef_server_url = "http://127.0.0.1:8000"
config.rest_client_name = "chef-webui"
config.rest_client_key = "/etc/chef-server/webui_priv.pem"
config.admin_user_name = "admin"
config.admin_default_password = "p@ssw0rd1"
config.rest_client_custom_http_headers = {}
```

to

```
config.chef_server_url = "https://127.0.0.1:443"
config.rest_client_name = "chef-webui"
config.rest_client_key = "/etc/opscode/webui_priv.pem"
config.admin_user_name = "admin"
config.admin_default_password = "4dm1n1str4t0r"
config.rest_client_custom_http_headers = {}
```

Change the default attr in /opt/opscode/embedded/cookbooks/private-chef/attributes/default.rb to:

```
default['private_chef']['opscode-webui']['enable'] = false to default['private_chef']['opscode-webui']['enable'] = true
default['private_chef']['default_orgname'] = nil to default['private_chef']['default_orgname'] = 'chefbyexample'
```

Then run chef-server-ctl reconfigure

## 2.12 Install one Workstation

## **Chapter 3**

# **Development environment**

**3.1 Source repository**

**3.2 Package repository**

**3.3 CI Server**



## **Chapter 4**

# **Deployment environments**

**4.1 Physical or CLOUD environments**

**4.2 Continuous Integration**

**4.3 Integration**

**4.4 Test**

**4.5 Go-Live!**



## **Chapter 5**

# **Automating delivery pipelines**





# Chapter 6

## Maintenance cycle

- General configuration structure for the chef-repo:
  - chef-repo/environments/banana.rb
  - chef-repo/environments/potato.rb
  - chef-repo/environments/kiwi.rb
  - chef-repo/data\_bags/banana.rb
  - chef-repo/data\_bags/potato.rb
  - chef-repo/data\_bags/kiwi.rb:
  - chef-repo/roles/base.rb
  - chef-repo/roles/web.rb
  - chef-repo/roles/db.rb
- Banana cookbook structure:
  - chef-repo/cookbooks/banana/templates/default/\*.erb
  - chef-repo/cookbooks/banana/attributes/default.rb
- Potato cookbook structure:
  - chef-repo/cookbooks/potato/templates/default/\*.erb

- chef-repo/cookbooks/potato/attributes/default.rb

- Kiwi cookbook structure: \* chef-repo/cookbooks/kiwi/templates/default/\*.erb
  - \* chef-repo/cookbooks/kiwi/attributes/default.rb

- A node belongs to an environment in which case, will override the default configuration per the corresponding one.

- Override app attributes for kiwi (Non sensitive info) Override app attributes for kiwi (Sensitive info) Define the recipes for the xxx role

- Default configuration templates for kiwi Default configuration values according the templates for kiwi