**Exercise 3** - **Chef**

For executing chef we need to Start with Chef DK it can be downloaded here <https://downloads.chef.io/chef-dk>

In order to save time we will use pre installed machine with chef-dk tutorial <https://learn.chef.io/tutorials/learn-the-basics/>

## 1. Launch a free trial Ubuntu 14.04 virtual machine

Let us provide an Ubuntu virtual machine with the Chef DK installed for you. Just click the button below.

Launch an Ubuntu virtual machine

## 2. Open a terminal window

In this tutorial, you'll run Chef commands from a command prompt to configure the system. The Ubuntu virtual machine comes with a terminal window already open. If you close it, you can access it again from the desktop.



## 3. Set up your working directory

From your terminal window, create the chef-repo directory under your home directory, ~/.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ mkdir ~/chef-repo |

Now cd there.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ cd ~/chef-repo |

## 4. Create the MOTD file

In this step, you'll first create the file and set the initial MOTD. To keep things basic, you'll configure the file in the/tmp directory.

Next, you'll write what's called a *recipe* to describe the desired state of the MOTD file. Then you'll run [chef-client](https://docs.chef.io/ctl_chef_client.html), the program that applies your Chef code to place your system in the desired state. Typically, chef-client downloads and runs the latest Chef code from the Chef server, but in this lesson, you'll run chef-client in what's called *local mode* to apply Chef code that exists locally on your server.

From your ~/chef-repo directory, create a file named hello.rb, add these contents,

|  |  |
| --- | --- |
| 1 2 3 | file '/tmp/motd' do  content 'hello world' end |

From your terminal window, run the following chef-client command to apply what you've written.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ chef-client --local-mode hello.rb  [2016-08-26T18:40:29+00:00] WARN: No config file found or specified on command line, using command line options.[2016-08-26T18:40:29+00:00] WARN: No cookbooks directory found at or above current directory. handlers completeChef Client finished, 1/1 resources updated in 02 seconds |

The output tells us that a new file, /tmp/motd, was created. (The warnings you see relate to concepts we haven't introduced yet, and can be safely ignored for now.)

Now verify that the file was written. Run the more command, which prints a file to the console.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ more /tmp/motd  /tmp/motdhello world |

### Run the command a second time

Now, let's see now what happens when you run the same chef-client command again.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ chef-client --local-mode hello.rb  [2016-08-26T18:40:36+00:00] WARN: No config file found or specified on command line, using command line options.[2016-08-26T1 |

This time you get a different response – the file is already up to date. This is because Chef applies the configuration only when it needs to.

Chef looks at the current configuration state and applies the action only if the current state doesn't match the desired state. Here, Chef doesn't create or modify /tmp/motd because it already exists and its contents didn't change. We call this approach *test and repair*.

## 5. Update the MOTD file's contents

Now you're going to change the MOTD.

Modify hello.rb like this ('hello world' becomes 'hello chef'.)

|  |  |
| --- | --- |
| 1 2 3 | file '/tmp/motd' do  content 'hello chef' end |

Run chef-client.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ chef-client --local-mode hello.rb  [2016-08-26T18:40:40+00:00] WARN: No config file found or specified on command line, using command line options.[2016-08-26T18:40:40+00:00] WARN: No cookbooks directory found at or above current directory. |

This time Chef applies the action because you've changed the desired state of the file.

## 6. Ensure the MOTD file's contents are not changed by anyone else

You need to make sure that no other process can change the MOTD.

Imagine that a co-worker manually changes /tmp/motd by replacing 'hello chef' with 'hello robots'. Go ahead and change your copy of /tmp/motd through your text editor. Or you can change the file from the command line like this.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ echo 'hello robots' > /tmp/motd |

Now run chef-client.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ chef-client --local-mode hello.rb  [2016-08-26T18:40:45+00:00] WARN: No config file found or specified on command line, using command line options.[2016-08-26T18:40:45+00:00] WARN: No cookbooks directory found at or above current directory. Assuming /root/chef-repo.Starting Chef Client, version 12.12.15resolving cookbooks for run list: []Synchronizin |

Chef restored the original configuration. This is actually a really good thing because Chef ensures that the actual state of your resource matches what you specify, even if it is altered by some outside process. Chef enables you to both apply a new configuration state as well as ensure that the current state stays how 7. Delete the MOTD file

OK, you're done experimenting with the MOTD, so let's clean up. From your ~/chef-repo directory, create a new file named goodbye.rb and save the following content to it.

|  |  |
| --- | --- |
| 1 2 3 | file '/tmp/motd' do  action :delete end |

Now apply goodbye.rb to delete the file.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ chef-client --local-mode goodbye.rb  [2016-08-26T18:40:50+00:00] WARN: No config file found or specified on command line, using command line options.[2016-08-26T18:40:50+00:00] WARN: ds |

The output shows that /tmp/motd is now gone, but let's prove it.

|  |  |
| --- | --- |
|  | skytap@host-1:~$ more /tmp/motd  /tmp/motd: No such file or directory |

## 

## Questions

#### Question 1

1. What is a *resource*?

#### Question 2

2. What is a *recipe*?

#### Question 3

3. What happens when you don't specify a resource's action?

#### Question 4

4. Modify the hello.rb recipe you wrote in this lesson to manage the MOTD file under the /tmp/messagesdirectory, and not in the /tmp directory.

**Hint:** You'll need to create the /tmp/messages directory first.