

chef-client

Applying Recipes from Cookbooks

Objectives

After completing this module, you should be able to use **chef-client** to:

- Locally apply a cookbook's recipe with **chef-client**.
- Locally apply multiple cookbooks' recipes with **chef-client**.
- Include a recipe from within another recipe.

chef-apply

- **chef-apply** is a great tool for applying resources (-e) and for individual recipes but it doesn't know how to apply a cookbook.

https://docs.chef.io/ctl_chef_apply.html

chef-client

- **chef-client** is an agent that runs locally on every node that is under management by Chef.
- When a **chef-client** is run, it will perform all of the steps that are required to bring the node into the expected state.

https://docs.chef.io/chef_client.html

--local-mode

- **chef-client**'s default mode attempts to contact a Chef Server and ask it for the recipes to run for the given node.
- We are overriding that behavior to have it work in a local mode.

-r "recipe[*cookbook-name::recipe-name*]"

- In local mode, we need to provide a list of recipes to apply to the system. This is called a run list. A run list is an ordered collection of recipes to execute.
- Each recipe in the run list must be addressed with the format **recipe[*cookbook-name::recipe-name*]**.

-r "recipe[*cookbook-name*(::default)]"

- When you are referencing the default recipe within a cookbook you may optionally specify only the name of the cookbook.
- **chef-client** understands that you mean to apply the default recipe from within that cookbook.

Example Usage

Using **chef-client** to locally apply the **setup** recipe from the **workstation** cookbook.

```
$ sudo chef-client --local-mode -r "recipe[workstation::setup]"
```

```
Applying the following recipes locally:  
The 'setup' recipe from the 'workstation' cookbook
```


Example Usage

Using **chef-client** to locally apply the **server** recipe from the **apache** cookbook.

```
$ sudo chef-client --local-mode -r "recipe[apache::server]"
```

```
Applying the following recipes locally:  
The 'server' recipe from the 'apache' cookbook
```

Example Usage

Using **chef-client** to locally apply multiple recipes from multiple cookbooks.

```
$ sudo chef-client --local-mode \  
-r "recipe[workstation::setup],recipe[apache::server]"
```

Applying the following recipes locally:

- * The 'setup' recipe from the 'workstation' cookbook
- * The 'server' recipe from the 'apache' cookbook

Group Exercise: Return Home First

```
$ cd ~
```

Group Exercise: Apply the **apache::server** Recipe Locally

```
$ sudo chef-client --local-mode -r "recipe[apache::server]"
```

```
[2015-09-15T14:52:45+00:00] WARN: No config file found or specified on command line
[2015-09-15T14:52:45+00:00] WARN: No cookbooks directory found at or above current directory
Starting Chef Client, version 12.3.0
resolving cookbooks for run list: ["apache::server"]
```

```
=====
Error Resolving Cookbooks for Run List:
=====
```

Group Exercise: Apply the **apache::server** Recipe Locally

```
$ sudo chef-client --local-mode -r "recipe[apache::server]"
```

```
[2015-09-15T14:52:45+00:00] WARN: No config file found or specified on command line  
[2015-09-15T14:52:45+00:00] WARN: No cookbooks directory found at or above current directory  
Starting Chef Client, version 12.3.0  
resolving cookbooks for run list: ["apache::server"]
```

```
=====
Error Resolving Cookbooks for Run List:
=====
```



Group Exercise: Create a **cookbooks** directory

- **chef-client** requires the cookbooks to be in a **cookbooks** directory located in the user's *home directory*.

```
$ cd ~  
$ mkdir cookbooks  
$ mv workstation cookbooks  
$ mv apache cookbooks
```

Group Exercise: Apply the **apache::server** Recipe Locally

```
$ sudo chef-client --local-mode -r "recipe[apache::server]"
```

```
[2015-09-15T14:54:45+00:00] WARN: No config file found or specified on command line
Starting Chef Client, version 12.3.0
resolving cookbooks for run list: ["apache::server"]
Synchronizing Cookbooks:
  - apache
Compiling Cookbooks...
Converging 4 resources
Recipe: apache::server
  * yum_package[httpd] action install (up to date)
  * file[/var/www/html/index.html] action create (up to date)
  * service[httpd] action enable (up to date)
```

Group Exercise: Apply the **workstation::setup** Recipe Locally

```
$ sudo chef-client --local-mode -r "recipe[workstation::setup]"
```

```
[2015-09-15T15:15:26+00:00] WARN: No config file found or specified on command line
Starting Chef Client, version 12.3.0
resolving cookbooks for run list: ["workstation::setup"]
Synchronizing Cookbooks:
  - workstation
Compiling Cookbooks...
Converging 6 resources
Recipe: workstation::setup
  * yum_package[nano] action install (up to date)
  * yum_package[vim] action install (up to date)
  * yum_package[emacs] action install (up to date)
```


Group Exercise: Apply Both Recipes Locally

```
$ sudo chef-client --local-mode \  
-r "recipe[apache::server],recipe[workstation::setup]"
```

```
[2015-09-15T15:17:27+00:00] WARN: No config file found or specified on command lin  
Starting Chef Client, version 12.3.0  
resolving cookbooks for run list: ["apache::server","workstation::setup"]  
Synchronizing Cookbooks:  
  - apache  
  - workstation  
Compiling Cookbooks...  
  
Running handlers:  
[2015-09-15T15:17:30+00:00] ERROR: Running exception handlers  
Running handlers complete
```

include_recipe

- A recipe can include one (or more) recipes located in cookbooks by using the `include_recipe` method.
- When a recipe is included, the resources found in that recipe will be inserted (in the same exact order) at the point where the `include_recipe` keyword is located.

<https://docs.chef.io/recipes.html#include-recipes>

Example Usage: Including a Recipe

Include the **setup** recipe from the **workstation** cookbook in this recipe.

```
include_recipe 'workstation::setup'
```

Example Usage: Including a recipe

Include the **server** recipe from the **apache** cookbook in this recipe.

```
include_recipe 'apache::server'
```

Group Exercise: The **default** recipe includes the **setup** recipe

~/cookbooks/workstation/recipes/default.rb

```
#  
# Cookbook Name:: workstation  
# Recipe:: default  
#  
# Copyright (c) 2015 The Authors, All Rights Reserved.  
  
include_recipe 'workstation::setup'
```

Group Exercise: Apply the cookbook's **default** recipe

```
$ sudo chef-client --local-mode -r "recipe[workstation]"
```

```
WARN: No config file found or specified on command line, using command line optio
Starting Chef Client, version 12.3.0
resolving cookbooks for run list: ["workstation"]
Synchronizing Cookbooks:
  - workstation
Compiling Cookbooks...
Converging 0 resources

Running handlers:
Running handlers complete
Chef Client finished, 0/0 resources updated in 3.300489827 seconds
```

Group Exercise: Commit Your Work

```
$ cd workstation  
$ git add .  
$ git commit -m "Default recipe includes the setup recipe"
```

Lab: Update the **apache** Cookbook

- Update the **apache** cookbook's **default** recipe to:
 - Include the **server** recipe from the **apache** cookbook
- Run **chef-client** and locally apply the run list: **recipe[apache]**
- Commit the changes with version control

Lab: The **default** recipe includes the **apache** recipe

~/cookbooks/apache/recipes/default.rb

```
#  
# Cookbook Name:: apache  
# Recipe:: default  
#  
# Copyright (c) 2015 The Authors, All Rights Reserved.  
  
include_recipe 'apache::server'
```

Lab: Applying the **apache default** recipe

```
$ sudo chef-client --local-mode -r "recipe[apache]"
```

```
[2015-09-15T15:23:18+00:00] WARN: No config file found or specified on command line
Starting Chef Client, version 12.3.0
resolving cookbooks for run list: ["apache"]
Synchronizing Cookbooks:
  - apache
Compiling Cookbooks...
Converging 0 resources

Running handlers:
Running handlers complete
Chef Client finished, 0/0 resources updated in 3.310768509 seconds
```

Lab: Commit Your Work

```
$ cd apache  
$ git add .  
$ git commit -m "Default recipe includes the server recipe"
```

Discussion

- Why would you want to apply more than one recipe at a time?

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- What are the benefits and drawbacks of using `include_recipe` within a recipe?

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- Why would you want to apply more than one recipe at a time?
- What are the benefits and drawbacks of using `include_recipe` within a recipe?
- Do default values make it easier or harder to learn?

Q&A

What questions can we help you answer?

- chef-client
- local mode
- run list
- include_recipe

On to **Module 5**



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