

Running chef-client as a Service

Introducing the chef-client cookbook

Lesson Objectives

After completing this module, you should be able to:

- Generate a chef-client wrapper cookbook
- Update the company_web policyfile to include the chef-client wrapper cookbook
- Update and push the company_web Policyfile to Chef Infra Server
- Apply the updated Policyfile to our web nodes
- Run chef-client as a service/task on our web nodes



Step Back: How is chef-client Configured?

- ❖ How can I run chef-client as a service or Windows task?
- ❖ Where can I configure logging?
- ❖ How does chef-client know what Chef Server to connect to?
- ❖ How does chef-client authenticate with the Chef Server?
- ❖ How do I configure where chef-client caches?

Demo: View chef-client config Directory (Linux)



```
$ knife ssh "os:linux" -x centos -i <aws.pem path> "ls  
-F /etc/chef"
```

```
ec2-18-220-243-173.us-east-2.compute.amazonaws.com accepted_licenses/ chef_guid  
client.pem client.rb first-boot.json
```

```
ec2-52-15-221-52.us-east-2.compute.amazonaws.com accepted_licenses/ chef_guid  
client.pem client.rb first-boot.json
```

```
ec2-3-16-131-207.us-east-2.compute.amazonaws.com accepted_licenses/ chef_guid  
client.pem client.rb first-boot.json
```

Demo: View chef-client config File (Linux)



```
$ knife ssh "os:linux" -x centos -i aws.pem "cat  
/etc/chef/client.rb"
```

```
ec2-52-15-221-52.us-east-2.compute.amazonaws.com  chef_server_url  
"https://api.chef.io/organizations/aspechef23"  
ec2-52-15-221-52.us-east-2.compute.amazonaws.com  validation_client_name  
"aspechef23-validator"  
ec2-52-15-221-52.us-east-2.compute.amazonaws.com  chef_license "accept"  
ec2-52-15-221-52.us-east-2.compute.amazonaws.com  log_location  STDOUT  
ec2-52-15-221-52.us-east-2.compute.amazonaws.com  node_name "node3"
```

Demo: View chef-client config Directory (Windows)



```
$ knife winrm "os:windows" -x USER -P PWD  
-a cloud.public_ipv4 "dir C:\chef"
```

```
34.195.38.226 Directory of C:\chef  
34.195.38.226  
34.195.38.226 07/25/2019 05:26 PM <DIR> .  
34.195.38.226 07/25/2019 05:26 PM <DIR> ..  
34.195.38.226 07/25/2019 05:26 PM <DIR> backup  
34.195.38.226 07/25/2019 05:05 PM <DIR> cache  
34.195.38.226 07/22/2019 08:49 PM 36 chef_guid  
34.195.38.226 07/22/2019 08:48 PM 1,702 client.pem  
34.195.38.226 07/22/2019 08:48 PM 357 client.rb  
34.195.38.226 07/22/2019 08:48 PM 17 first-boot.json  
34.195.38.226 02/01/2016 06:41 AM <DIR> ohai  
34.195.38.226 07/22/2019 08:48 PM 316 wget.ps1
```

Demo: View chef-client config File (Windows)



```
$ knife winrm "os:windows" -x USER -P PWD  
-a cloud.public_ipv4 "more C:\chef\client.rb"
```

```
34.195.38.226 chef_server_url "https://api.chef.io/organizations/janejones"  
34.195.38.226  
34.195.38.226 validation_client_name "janejones-validator"  
34.195.38.226 file_cache_path "c:/chef/cache"  
34.195.38.226 file_backup_path "c:/chef/backup"  
34.195.38.226 cache_options ({:path => "c:/chef/cache/checksums", :skip_expires => true})  
34.195.38.226 chef_license "accept"  
34.195.38.226 node_name "iis_web"  
34.195.38.226 log_level :auto  
34.195.38.226 log_location STDOUT
```



Introducing the chef-client Cookbook

The chef-client cookbook allows you to manage and configure chef-client as a service on Linux-based nodes, or as a task on Windows nodes, configure logging, caching, etc.

Bootstrapping installs the chef-client executable.

The chef-client cookbook is used to configure chef-client.



GL: The chef-client Cookbook

We will use the chef-client community cookbook to configure chef-client on each of our nodes to run periodically

Objective:

- ☐ Generate a chef-client wrapper cookbook
- ☐ Update the company_web policyfile to include the chef-client wrapper cookbook
- ☐ Push the company_web policyfile to Chef Infra Server
- ☐ Apply the update Policyfile to our web nodes



Wrapper Cookbooks

Don't use forked community cookbooks in production, or you will miss out on upstream changes, and will have to rebase

Instead use **wrapper cookbooks** to wrap upstream cookbooks and change their behavior without forking

GL: Create mychef_client Wrapper Cookbook



```
$ cd ~/chef-repo
```

```
$ chef generate cookbook cookbooks/mychef_client
```

```
Generating cookbook mychef_client
```

- Ensuring correct cookbook content
- Committing cookbook files to git

```
Your cookbook is ready. To setup the pipeline, type `cd cookbooks/mychef_client`, then run  
`delivery init`
```

GL: Update mychef_client metadata.rb

 ~/chef-repo/cookbooks/mychef_client/metadata.rb

```
name 'mychef_client'
maintainer 'The Authors'
maintainer_email 'you@example.com'
license 'All Rights Reserved'
description 'Installs/Configures mychef_client'
long_description 'Installs/Configures mychef_client'
version '0.1.0'
chef_version '>= 12.1' if respond_to?(:chef_version)

depends 'chef-client'
```

GL: Edit mychef_client Default Recipe

 cookbooks/mychef_client/recipes/default.rb

```
#  
# Cookbook:: mychef_client  
# Recipe:: default  
#  
# Copyright:: 2019, The Authors, All Rights Reserved.  
  
include_recipe 'chef-client::default'
```

This recipe just calls the recipe `chef-client::default`

GL: Edit company_web.rb Policyfile

 ~/chef-repo/company_web.rb

```
...# run_list: chef-client will run these recipes in the order specified.
```

```
run_list 'mychef_client::default', 'company_web::default'
```

```
# Specify a custom source for a single cookbook:
```

```
cookbook 'company_web', path: 'cookbooks/company_web'
```

```
cookbook 'myiis', path: 'cookbooks/myiis'
```

```
cookbook 'apache', path: 'cookbooks/apache'
```

```
cookbook 'mychef_client', path: 'cookbooks/mychef_client'
```

Add the **mychef_client** cookbook to the run list and cookbook paths.

GL: Update the Policyfile



```
$ chef update company_web.rb
```

```
Attributes already up to date
```

```
Building policy company_web
```

```
Expanded run list: recipe[mychef_client::default], recipe[company_web::default]
```

```
Caching Cookbooks...
```

```
Installing company_web    >= 0.0.0 from path
```

```
Installing apache         >= 0.0.0 from path
```

```
Installing myiis          >= 0.0.0 from path
```

```
Installing mychef_client  >= 0.0.0 from path
```

```
Installing chef-client    11.5.0
```

```
Installing cron           6.3.0
```

```
Installing logrotate      2.2.2
```

```
Lockfile written to /home/centos/chef-repo/company_web.lock.json
```

```
Policy revision id: 2daf2bd72e485c148340b712bcd139783f17f3dc5d34877383dc367812417a04
```

GL: Push the Policyfile



```
$ chef push prod company_web.lock.json
```

```
Uploading policy company_web (2daf2bd72e) to policy group prod
```

```
Using      apache      0.2.0    (6ef4b917)
```

```
Using      company_web  0.1.0    (4353e774)
```

```
Using      myiis        0.2.1    (cd0db3ed)
```

```
Uploaded chef-client    11.5.0    (7cb128f1)
```

```
Uploaded cron           6.3.0    (b2c49b29)
```

```
Uploaded logrotate      2.2.2    (bd20a5c5)
```

```
Uploaded mychef_client  0.1.0    (c9d53cd1)
```


GL: Converge the Linux Web Node



```
$ knife ssh 'name:node1' -x centos -i ~/aws.pem 'sudo chef-client'
```

```
...
ec2-34-196-104-17.compute-1.amazonaws.com Using policy 'company_web' at
revision '7f50faaf9eceb35f72358c38a71b86c7fb7df8f49fee245827eb4613d919827'
...
ec2-34-196-104-17.compute-1.amazonaws.com Synchronizing Cookbooks:
ec2-34-196-104-17.compute-1.amazonaws.com - apache (0.1.0)
ec2-34-196-104-17.compute-1.amazonaws.com - company_web (0.1.0)
ec2-34-196-104-17.compute-1.amazonaws.com - cron (6.2.1)
ec2-34-196-104-17.compute-1.amazonaws.com - myiis (0.2.1)
ec2-34-196-104-17.compute-1.amazonaws.com - logrotate (2.2.0)
ec2-34-196-104-17.compute-1.amazonaws.com - mychef_client (0.1.0)
ec2-34-196-104-17.compute-1.amazonaws.com - chef-client (11.2.0)
...
```

GL: Verify chef-client is Running (Linux)



```
$ knife ssh 'name:node1' -x centos -i ~/aws.pem "ps  
awux | grep chef-client"
```

```
ec2-34-196-104-17.compute-1.amazonaws.com root      4710  0.4  5.9 298480 60604 ?  
Ss   16:12   0:01 /opt/chef/embedded/bin/ruby --disable-gems /usr/bin/chef-client -c  
/etc/chef/client.rb -i 1800 -s 300
```

```
ec2-34-196-104-17.compute-1.amazonaws.com chef      4721  0.0  0.1 113180  1608  
pts/0  Ss+  16:18   0:00 bash -c ps awux | grep chef-client  
ec2-34-196-104-17.compute-1.amazonaws.com chef      4737  0.0  0.0 112708   972  
pts/0  S+   16:18   0:00 grep chef-client
```

Notice that the interval is set to 1800 seconds.
- number of seconds between chef-client daemon runs.

https://docs.chef.io/ctl_chef_client/



Introducing chef-client cookbook

We will use the chef-client community cookbook to configure chef-client on each of our nodes to run periodically

Objective:

- ✓ Generate a chef-client wrapper cookbook
- ✓ Update the company_web policyfile to include the chef-client wrapper cookbook
- ✓ Push the company_web policyfile to Chef Infra Server
- ✓ Apply the update Policyfile to our web nodes



GL: Change Default Settings

Wait!

There has just been a mandate that every web node in the infrastructure must run chef-client every 5 minutes (300 seconds).

We'll accomplish this change by creating an attribute file which will override the default setting of 1800 seconds

GL: Generate the default Attribute File



```
$ chef generate attribute cookbooks/mychef_client default
```

```
Recipe: code_generator::attribute
```

```
  * directory[cookbooks/mychef_client/attributes] action create
```

```
    - create new directory cookbooks/mychef_client/attributes
```

```
  * template[cookbooks/mychef_client/attributes/default.rb] action  
create
```

```
    - create new file
```

```
cookbooks/mychef_client/attributes/default.rb
```

```
    - update content in file
```

```
cookbooks/mychef_client/attributes/default.rb from none to e3b0c4  
(diff output suppressed by config)
```

GL: Set the chef_client Interval

 cookbooks/mychef_client/attributes/default.rb

```
default['chef_client']['interval'] = '300'
```

GL: Update the Policyfile



```
$ chef update company_web.rb
```

```
...  
Expanded run list: recipe[mychef_client::default],  
recipe[company_web::default]  
Caching Cookbooks...  
Installing company_web    >= 0.0.0 from path  
Installing myiis          >= 0.0.0 from path  
Installing apache         >= 0.0.0 from path  
Installing mychef_client  >= 0.0.0 from path  
Using      chef-client    11.2.0  
Using      cron           6.2.1  
Using      logrotate      2.2.0  
Lockfile written to /Users/sdelfante/chef-repo/company_web.lock.json  
Policy revision id
```

GL: Push the Policyfile to Prod



```
$ chef push prod company_web.lock.json
```

```
Uploading policy company_web (891f323cb2) to policy group prod
```

```
Using      apache      0.1.0    (1388ab3a)
```

```
Using      chef-client  11.2.0   (0b49a3a8)
```

```
Using      company_web  0.1.0    (c1b26cb5)
```

```
Using      cron         6.2.1    (08676b5c)
```

```
Using      logrotate    2.2.0    (53e09234)
```

```
Using      myiis        0.2.1    (cd0db3ed)
```

```
Uploaded mychef_client 0.1.0    (10d082a4)
```


GL: Converge the Linux Web Node



```
$ knife ssh 'name:node1' -x centos -i ~/aws.pem 'sudo chef-client'
```

...

ec2-34-196-104-17.compute-1.amazonaws.com Synchronizing Cookbooks:

ec2-34-196-104-17.compute-1.amazonaws.com - apache (0.1.0)

ec2-34-196-104-17.compute-1.amazonaws.com - chef-client (11.2.0)

ec2-34-196-104-17.compute-1.amazonaws.com - cron (6.2.1)

ec2-34-196-104-17.compute-1.amazonaws.com - myiis (0.2.1)

ec2-34-196-104-17.compute-1.amazonaws.com - logrotate (2.2.0)

ec2-34-196-104-17.compute-1.amazonaws.com - company_web (0.1.0)

ec2-34-196-104-17.compute-1.amazonaws.com - mychef_client (0.1.0)

...

* template[/etc/sysconfig/chef-client] action create

ec2-34-196-104-17.compute-1.amazonaws.com - update content in file /etc/sysconfig/chef-client from ec7de1 to 4251d6

ec2-34-196-104-17.compute-1.amazonaws.com --- /etc/sysconfig/chef-client 2019-07-31

16:12:34.501755564 +0000

GL: Verify chef-client is Running (Linux)



```
$ knife ssh 'name:node1' -x centos -i ~/aws.pem "ps  
awux | grep chef-client"
```

```
ec2-34-196-104-17.compute-1.amazonaws.com root          5043   1.3   5.9 298484 60596 ?  
Ss   17:00   0:01 /opt/chef/embedded/bin/ruby --disable-gems /usr/bin/chef-client -c  
/etc/chef/client.rb -i 300 -s 300
```

```
ec2-34-196-104-17.compute-1.amazonaws.com chef          5091   0.0   0.1 113180  1604  
pts/0  Ss+  17:02   0:00 bash -c ps awux | grep chef-client  
ec2-34-196-104-17.compute-1.amazonaws.com chef          5107   0.0   0.0 112708   972  
pts/0  S+   17:02   0:00 grep chef-client
```

Notice that the interval is now 300 seconds instead of 1800 like before.



Q&A

What questions can we help you answer?

- Chef Supermarket
- Wrapper Cookbooks
- chef-client Cookbook



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