

Modern Cookbook Development

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Creating Cookbooks

- knife
- berkshelf
- chef

knife cookbook create my_cookbook

```
|── CHANGELOG.md
|── README.md
|── attributes
|── definitions
|── files
|   └── default
|── libraries
|── metadata.rb
|
|── providers
|   ├── recipes
|   |   └── default.rb
|   └── resources
|       └── templates
|           └── default
```

10 directories, 4 files

berks cookbook my_cookbook

```
|── .gitignore
|── .kitchen.yml
|── Berksfile
|── CHANGELOG.md
|── Gemfile
|── LICENSE
|── README.md
|── Thorfile
|── Vagrantfile
|── attributes
|── chefignore
|── files
|   └── default
|
|── libraries
|── metadata.rb
|── providers
|── recipes
|   └── default.rb
|── resources
|── templates
|   └── default
|── test
|   └── integration
|       └── default
|
└── 12 directories, 12 files
```

chef generate cookbook my_cookbook (0.10.0)

```
├── .gitignore
├── .kitchen.yml
├── Berksfile
├── README.md
├── cheftignore
├── metadata.rb
└── recipes
    └── default.rb

        ├── spec
        │   ├── spec_helper.rb
        │   └── unit
        │       └── recipes
        │           └── default_spec.rb
        └── test
            └── integration
                ├── default
                │   └── serverspec
                │       └── default_spec.rb
                └── helpers
                    └── serverspec
                        └── spec_helper.rb
```

10 directories, 11 files

kitchen list

0.10.0

Instance	Driver	Provisioner	Verifier	Transport	Last Action
default-ubuntu-1404	Vagrant	ChefZero	Busser	Ssh	<Not Created>
default-centos-71	Vagrant	ChefZero	Busser	Ssh	<Not Created>

chef generate cookbook my_cookbook (0.19.6)

```
├── .delivery
│   ├── build_cookbook
│   └── config.json
└── project.toml
├── .gitignore
├── .kitchen.yml
├── Berksfile
├── README.md
├── cheffignore
└── metadata.rb
    └── recipes
        └── default.rb
    └── spec
        ├── spec_helper.rb
        └── unit
            └── recipes
                └── default_spec.rb
    └── test
        └── recipes
            └── default_test.rb
```

17 directories, 33 files

kitchen list

0.19.6

Instance	Driver	Provisioner	Verifier	Transport	Last Action
default-ubuntu-1604	Vagrant	ChefZero	Inspec	Ssh	<Not Created>
default-centos-72	Vagrant	ChefZero	Inspec	Ssh	<Not Created>

kitchen list

0.10.0

Instance	Driver	Provisioner	Verifier	Transport	Last Action
default-ubuntu-1404	Vagrant	ChefZero	Busser	Ssh	<Not Created>
default-centos-71	Vagrant	ChefZero	Busser	Ssh	<Not Created>

0.19.6

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kitchen list

0.10.0

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0.19.6

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kitchen list

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0.19.6

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default-ubuntu-1604	Vagrant	ChefZero	Inspec	Ssh	<Not Created>
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Testing Your New Cookbook

- cookstyle
 - <https://github.com/chef/cookstyle>
 - Version pinned rubocop and reasonable defaults for Chef Cookbooks

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- Foodcritic
- Chefspec
- Test Kitchen

CHEFAUTOMATE

Workflow

Visibility

Compliance



Infrastructure Automation



Application Automation



Compliance Automation

Delivery Prototype for Local Phases Execution

- delivery local syntax
- delivery local lint
- delivery local unit
- delivery local provision
- delivery local deploy
- delivery local smoke
- delivery local cleanup

New Chef Resources

- apt_update
- apt_repository
- yum_repository
- systemd_unit
- chocolatey_package
- cab_package
- launchd
- osx_profile
- ksh

New Ohai Plugins

- shard
- machineid
- hostnamectl
- shells
- hardware
- time
- fips
- scala
- sessions
- packages

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NATHEN HARVEY
Record Locator: EJRLNX

Great news! Your upgrade is confirmed.

Custom Resources

Custom resources are reusable Chef resources you define within your cookbooks that make it easy to automate repetitive tasks within your organization's cookbooks

Custom resources build on the foundations of Lightweight Resource Providers (LWRPs) with powerful new functionality and a simpler DSL

Custom Resources

- Introduced in Chef 12.5
- Compatible with Chef 12.1+ using the `compat_resource` cookbook
- Built on years of experience with LWRPs

Improvements over LWRPs

- Everything in a single file
- Greatly simplified DSL
- New DSL for supporting multiple platforms / platform versions
- “Just works” out-of-the-box

```
resources/myapp.rb file:
```

```
actions :create

default_action :create

attribute :name, kind_of: String, name_attribute: true

attribute :app_name, kind_of: String, default: 'default_app'
```

```
providers/myapp.rb file:
```

```
use_inline_resources

def whyrun_supported?
  true
end
```

```
action :create do
  template '/some/web/app/config' do
    owner 'root'
    group 'root'
    variables(app_name: new_resource.app_name)
    notifies :restart, 'service[apache2]'
  end
```

```
  service 'apache2' do
    action :nothing
  end
end
```

```
resources/myapp.rb file:
```

```
actions :create  
default_action :create  
attribute :name, kind_of: String, name_attribute: true  
attribute :app_name, kind_of: String, default: 'default_app'
```

```
providers/myapp.rb file:
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```
use_inline_resources  
def whyrun_supported?  
  true  
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action :create do  
  template '/some/web/app/config' do  
    owner 'root'  
    group 'root'  
    variables(app_name: new_resource.app_name)  
    notifies :restart, 'service[apache2]'  
  end
```



```
  service 'apache2' do  
    action :nothing  
  end  
end
```

```
resources/myapp.rb file:  
actions :create  
default_action :create  
attribute :name, kind_of: String, name_attribute: true  
attribute :app_name, kind_of: String, default: 'default_app'  
  
providers/myapp.rb file:  
use_inline_resources  
def whyrun_supported?  
  true  
end  
  
action :create do  
  template '/some/web/app/config' do  
    owner 'root'  
    group 'root'  
    variables(app_name: new_resource.app_name)  
    notifies :restart, 'service[apache2]'  
  end  
  
  service 'apache2' do  
    action :nothing  
  end  
end
```



```
resources/myapp.rb file:  
property :name, String, name_attribute: true  
property :app_name, String, default: 'default_app'  
  
action :create do  
  template '/some/web/app/config' do  
    owner 'root'  
    group 'root'  
    variables(app_name: new_resource.app_name)  
    notifies :restart, 'service[apache2]'  
  end  
end
```

Chef Solo

Chef Solo now uses the same
technology as **Chef Client Local
Mode**

Editing and Deleting Resources

Chef Rewind extension is no longer required - Chef 12.10 and later.

Delete

```
chef_gem 'chef-rewind'
```

```
require 'chef/rewind'
```

```
unwind 'user[postgres]'
```

Delete

```
chef_gem 'chef-rewind'          delete_resource(:user,  
require 'chef/rewind'           'postgres')  
  
unwind 'user[postgres]'
```

Edit

```
chef_gem 'chef-rewind'

require 'chef/rewind'

rewind 'user[postgres]' do
  home '/var/lib/postgres'
end
```

Edit

```
chef_gem 'chef-rewind'  
require 'chef/rewind'  
  
rewind 'user[postgres]' do  
  home '/var/lib/postgres'  
end  
  
edit_resource!(:user,'postgres') do  
  home '/var/lib/postgres'  
end
```



Built-in Apt & Yum Resources

metadata.rb

```
name          'my_cookbook'
maintainer   'Me'
maintainer_email 'me@gmail.com'
license       'Apache 2.0'
version       '1.0.0'

depends 'apt'
depends 'yum'
```

Update the Debian / Ubuntu Package Cache

```
include_recipe 'apt::default'
```

metadata.rb

```
name          'my_cookbook'  
maintainer   'Me'  
maintainer_email 'me@gmail.com'  
license       'Apache 2.0'  
version       '1.0.0'
```

```
depends 'apt'  
depends 'yum'
```

Update the Debian / Ubuntu Package Cache

```
include_recipe 'apt::default'
```

```
apt_update 'update please'
```

Package Repositories

```
apt_repository 'OurCo' do
  uri 'http://artifacts.ourco.org/ubuntu/something'
  action :true
  components ['main']
end

yum_repository 'OurCo' do
  description 'OurCo Yum repository'
  mirrorlist 'http://artifacts.ourco.org/mirrorlist?repo=oc-6&arch=$basearch'
  gpgkey 'http://artifacts.ourco.org/pub/yum/RPM-GPG-KEY-OURCO-6'
  action :create
end
```

Multi-package

Multiple Packages

Old Way

```
%w{ httpd jenkins tmux }.each do |pkg|  
  package pkg  
end
```

Multiple Packages

New Way

```
package %w{ httpd jenkins tmux }
```

Old Way

```
%w{ httpd jenkins tmux }.each do |pkg|
  package pkg
end
```

Cookbook Gem Dependencies

Old Way

- Recipe

```
chef_gem 'docker' do
  compile_time true
end
```

- Library

```
begin
  require 'docker'
rescue LoadError
  puts 'waiting to load Docker'
end
```

New Way (12.9.1)

- metadata.rb

```
gem 'docker'
```

- Library

```
require 'docker'
```

Windows Improvements

New Resources

- chocolatey_package (Chef 12.7.0)
- cab_package (Chef 12.15.19)

Newly Built-in Windows Resources

- reboot
- batch
- registry
- package

Cookbook Testing with Travis & AppVeyor

- Let's look at the code
- <https://github.com/chef-cookbooks/windows/blob/master/.travis.yml>
- <https://github.com/chef-cookbooks/windows/blob/master/appveyor.yml>
- <https://github.com/chef-cookbooks/windows/blob/master/Rakefile>

More Cookbook Testing with Travis

- <https://github.com/chef-cookbooks/activemq/blob/master/.travis.yml>
 - <https://travis-ci.org/chef-cookbooks/activemq>
- <https://github.com/chef-cookbooks/activemq/blob/master/.kitchen.docker.yml>
- <https://github.com/someara/kitchen-dokken>



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