Objectives:

- Using properties to make a custom resource more flexible within a recipe

Removing hard-coded values specific to the admin site makes for a dynamically updated site. This can be done through properties defined in the custom resource.

The vhost name, 'admins', is hardcoded throughout 'resources/vhost.rb' and 'recipe/default.rb'. This makes the custom resource inflexible and difficult to change.

Properties:

- Properties are defined in the same file as defined with the resource actions.

- Generally these are defined at the top of the file to make them clearly visible.

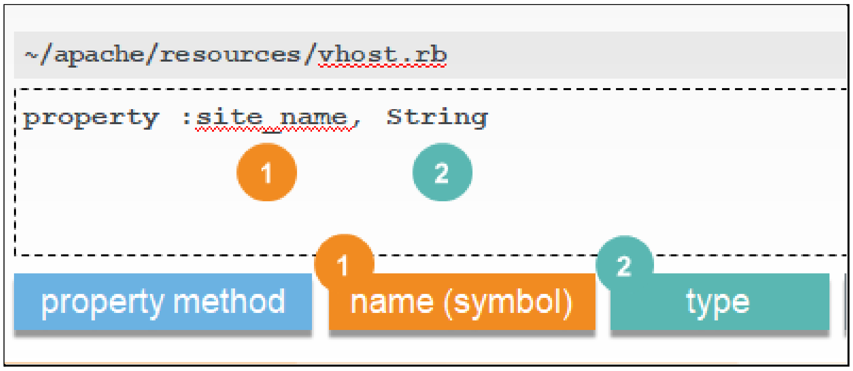
- A property is defined by specifying a method named property with two required parameters and a third set of optional parameters.

- The name of the property is defined as a Ruby Symbol.

- The type is a Ruby class name. This type enforces what kind of values are supported by this property; typically it is a String for text and an Integer for numbers.

- The optional parameters are defined as a Hash.

Properties are defined with the following syntax:



~/apache/resources/vhost.rb

```
property :site_name, String
```

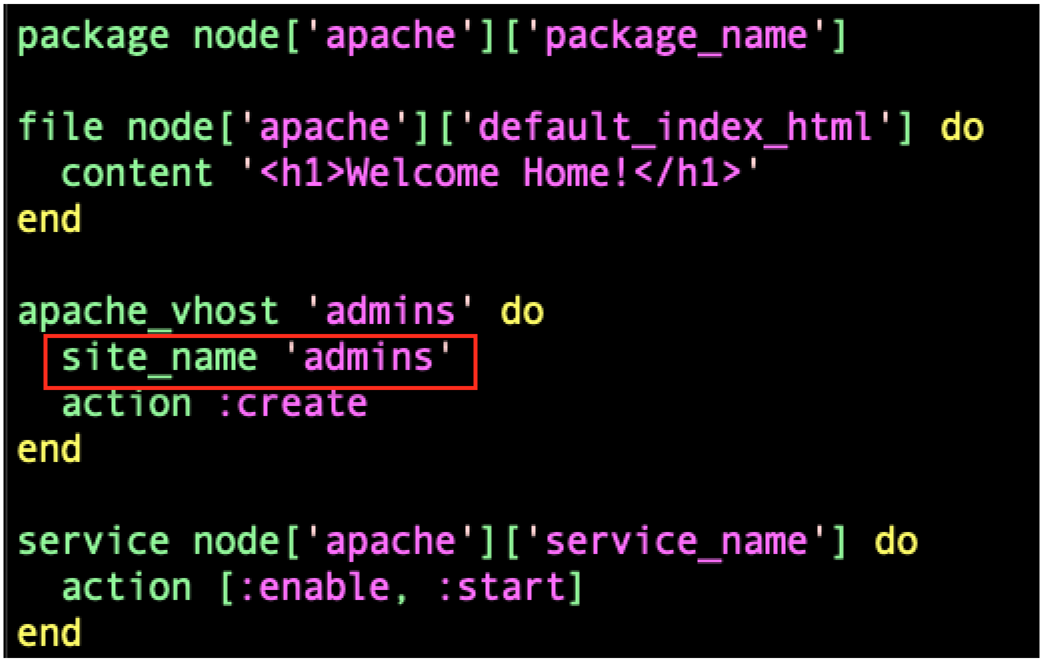
Update the action within custom resource(vhost) to use the property:

- Define a property named 'site_name' that will contain the name of the admin website.

- The name of the admin website is used to create the directory for the index page, the configuration file details and the message a visitor to the website will see.

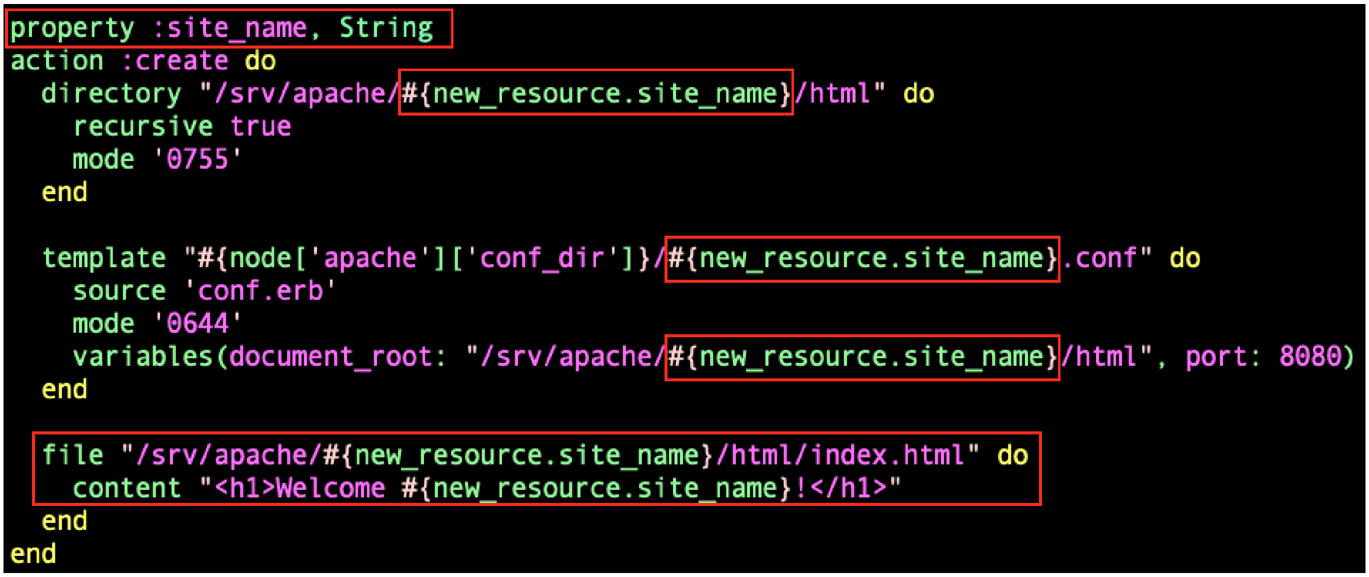
- new_resource.site_name (snake_case) is used to avoid warnings in Chef 13.

- Because 'site_name' is only text the type is specified as a String.



```
package node['apache']['package_name']

file node['apache']['default_index_html'] do
  content '<h1>Welcome Home!</h1>'
end

apache_vhost 'admins' do
  site_name 'admins'
  action :create
end

service node['apache']['service_name'] do
  action [:enable, :start]
end
```

1. Update **apache/resources/vhost.rb** as follows:

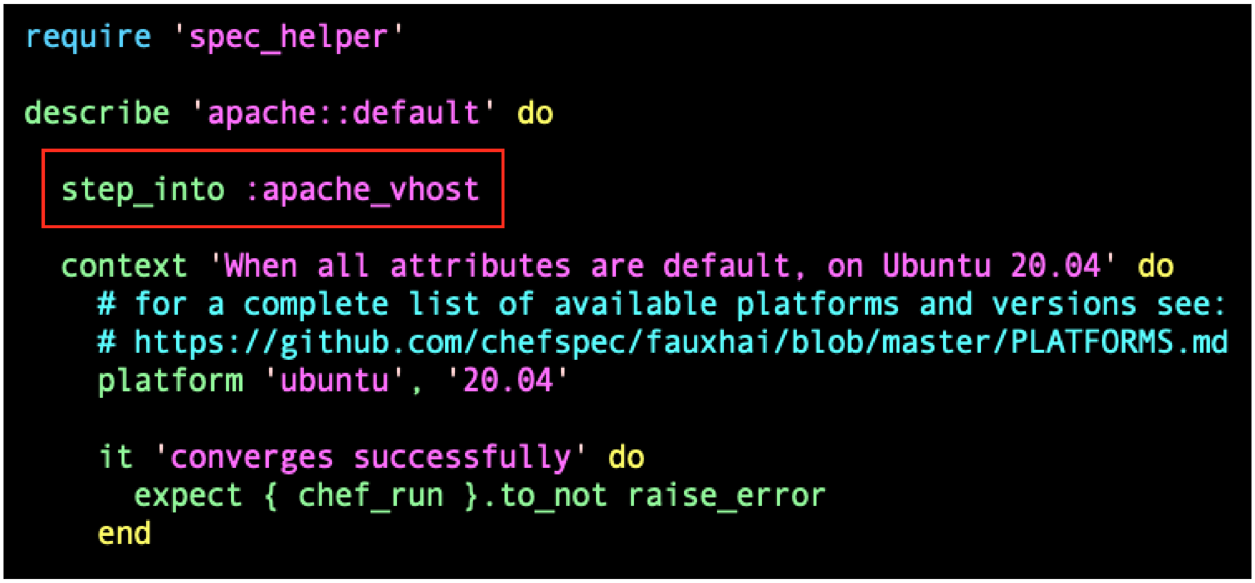


```
property :site_name, String
action :create do
  directory "/srv/apache/#{new_resource.site_name}/html" do
    recursive true
    mode '0755'
  end

  template "#{node['apache']['conf_dir']}/#{new_resource.site_name}.conf" do
    source 'conf.erb'
    mode '0644'
    variables(document_root: "/srv/apache/#{new_resource.site_name}/html", port: 8080)
  end

  file "/srv/apache/#{new_resource.site_name}/html/index.html" do
    content "<h1>Welcome #{new_resource.site_name}!</h1>"
  end
end
```

2. Update the resource in the **default recipe** to use the newly established property:

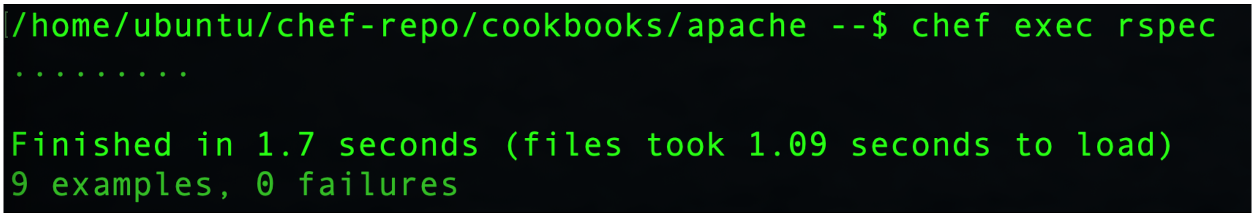
NOTE : Property is not automatically defined and does not contain a default value.

3. Add step-into to the Spec file



```
require 'spec_helper'

describe 'apache::default' do

  step_into :apache_vhost

  context 'When all attributes are default, on Ubuntu 20.04' do
    # for a complete list of available platforms and versions see:
    # https://github.com/chefspec/fauxhai/blob/master/PLATFORMS.md
    platform 'ubuntu', '20.04'

    it 'converges successfully' do
      expect { chef_run }.to_not raise_error
    end
```

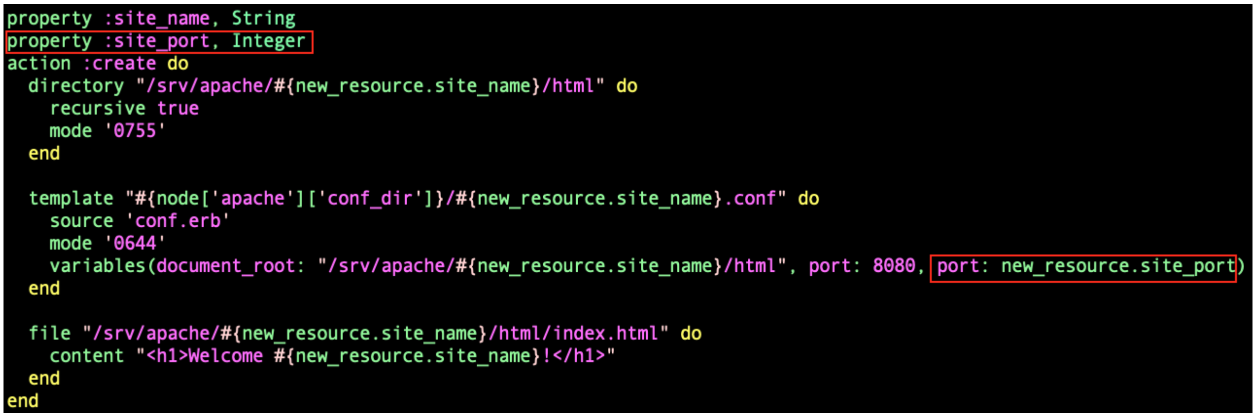
4. Use the ChefSpec command to verify if the changes are made correctly:



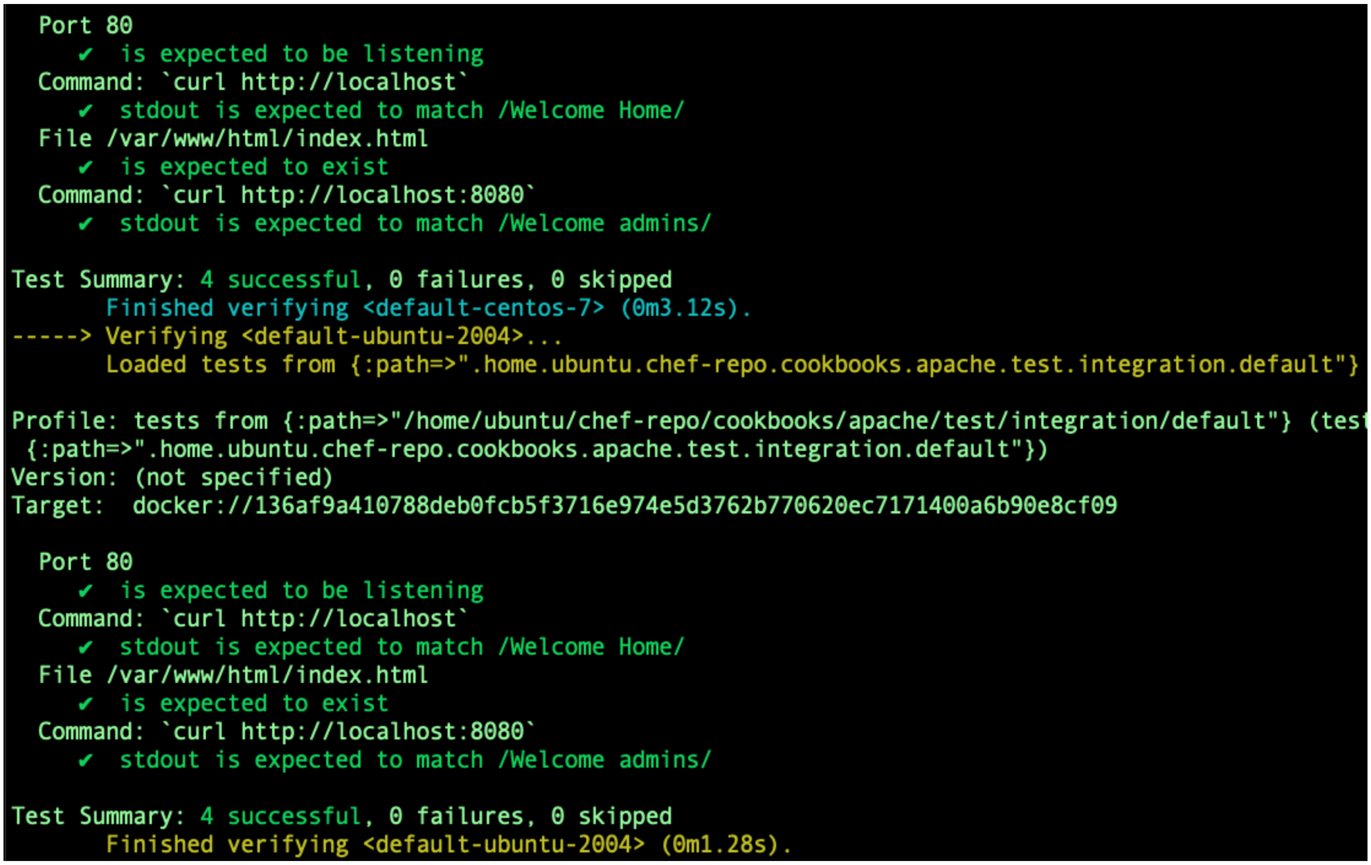
```
[/home/ubuntu/chef-repo/cookbooks/apache --$ chef exec rspec
.........

Finished in 1.7 seconds (files took 1.09 seconds to load)
9 examples, 0 failures
```

5. Use Test Kitchen to verify that your code still works

Expected output:



```
property :site_name, String
property :site_port, Integer
action :create do
  directory "/srv/apache/#{new_resource.site_name}/html" do
    recursive true
    mode '0755'
  end

  template "#{node['apache']['conf_dir']}/#{new_resource.site_name}.conf" do
    source 'conf.erb'
    mode '0644'
    variables(document_root: "/srv/apache/#{new_resource.site_name}/html", port: 8080, port: new_resource.site_port)
  end

  file "/srv/apache/#{new_resource.site_name}/html/index.html" do
    content "<h1>Welcome #{new_resource.site_name}!</h1>"
  end
end
```

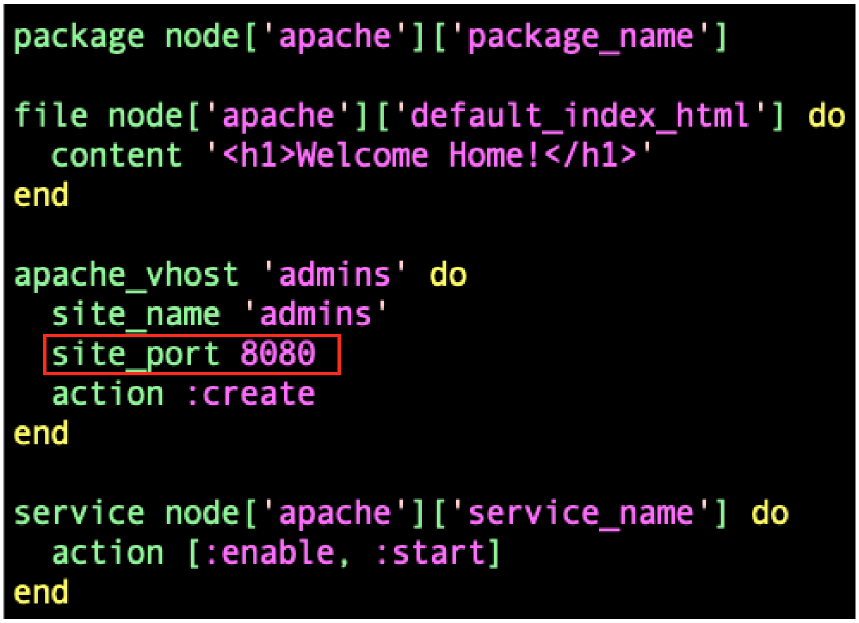


```
  Port 80
     ✔  is expected to be listening
  Command: `curl http://localhost`
     ✔  stdout is expected to match /Welcome Home/
  File /var/www/html/index.html
     ✔  is expected to exist
  Command: `curl http://localhost:8080`
     ✔  stdout is expected to match /Welcome admins/

Test Summary: 4 successful, 0 failures, 0 skipped
       Finished verifying <default-centos-7> (0m3.12s).
-----> Verifying <default-ubuntu-2004>...
       Loaded tests from {:path=>".home.ubuntu.chef-repo.cookbooks.apache.test.integration.default"}

Profile: tests from {:path=>"/home/ubuntu/chef-repo/cookbooks/apache/test/integration/default"} (test
 {:path=>".home.ubuntu.chef-repo.cookbooks.apache.test.integration.default"})
Version: (not specified)
Target:  docker://136af9a410788deb0fcb5f3716e974e5d3762b770620ec7171400a6b90e8cf09

  Port 80
     ✔  is expected to be listening
  Command: `curl http://localhost`
     ✔  stdout is expected to match /Welcome Home/
  File /var/www/html/index.html
     ✔  is expected to exist
  Command: `curl http://localhost:8080`
     ✔  stdout is expected to match /Welcome admins/

Test Summary: 4 successful, 0 failures, 0 skipped
       Finished verifying <default-ubuntu-2004> (0m1.28s).
```

The property is successfully added to the custom resource if both test summaries return successful tests.

6. Update **apache/resources/vhost.rb** to make the port number dynamic as follows:

7. Update the resource in the default recipe to use the **site_port** property:



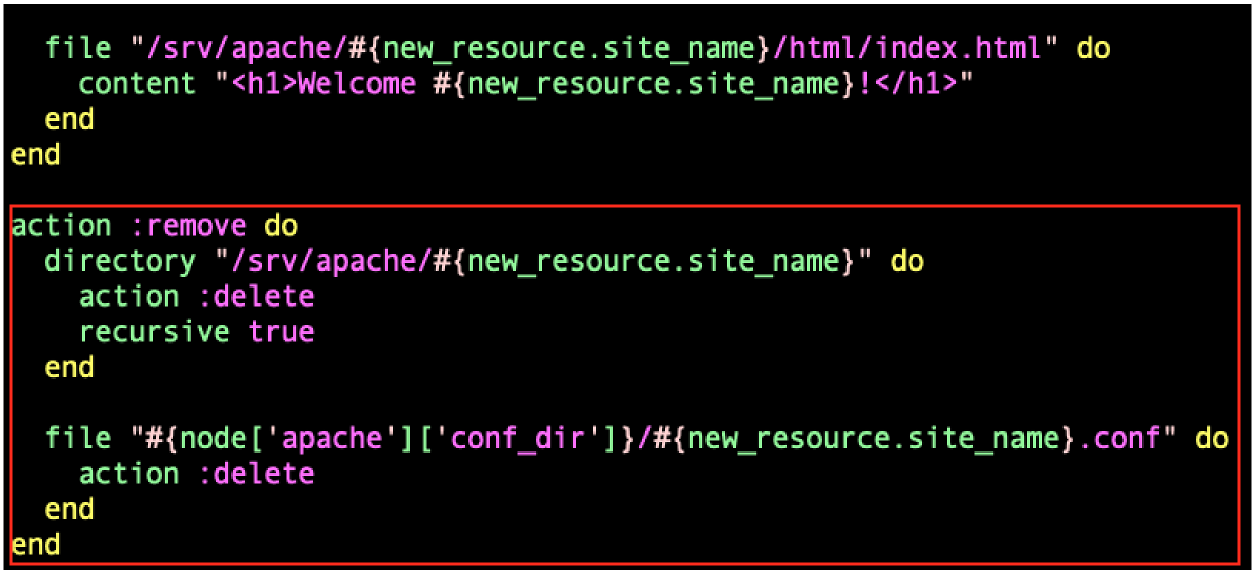
```
package node['apache']['package_name']

file node['apache']['default_index_html'] do
  content '<h1>Welcome Home!</h1>'
end

apache_vhost 'admins' do
  site_name 'admins'
  site_port 8080
  action :create
end

service node['apache']['service_name'] do
  action [:enable, :start]
end
```

8. Use ChefSpec and Test Kitchen to verify the changes

Create a remove action to remove html files

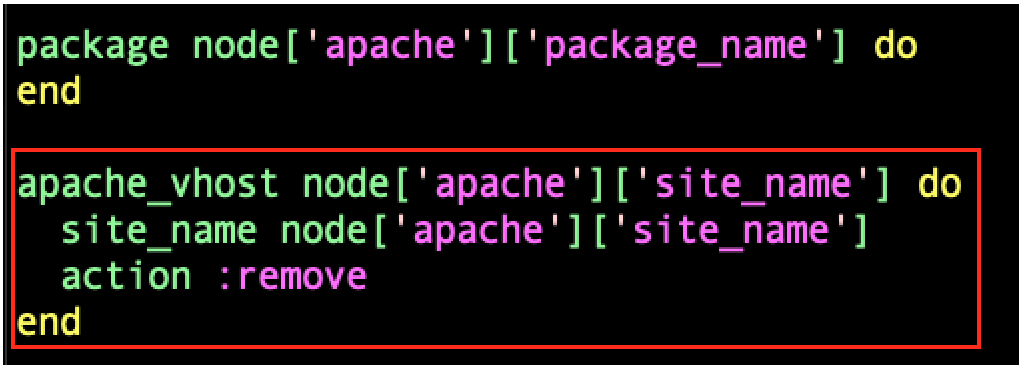
9. **Define the 'remove' action for apache_vhost**. Add resources to accomplish the following:
   - Delete the directory named "/srv/apache/#{site_name}"
   - Delete the file named "/etc/httpd/conf.d/#{site_name}.conf" (For CentOS)
   - The file named "/etc/apache2/site-enabled/#{site_name}.conf" is deleted (For Ubuntu)

In vhost.rb:



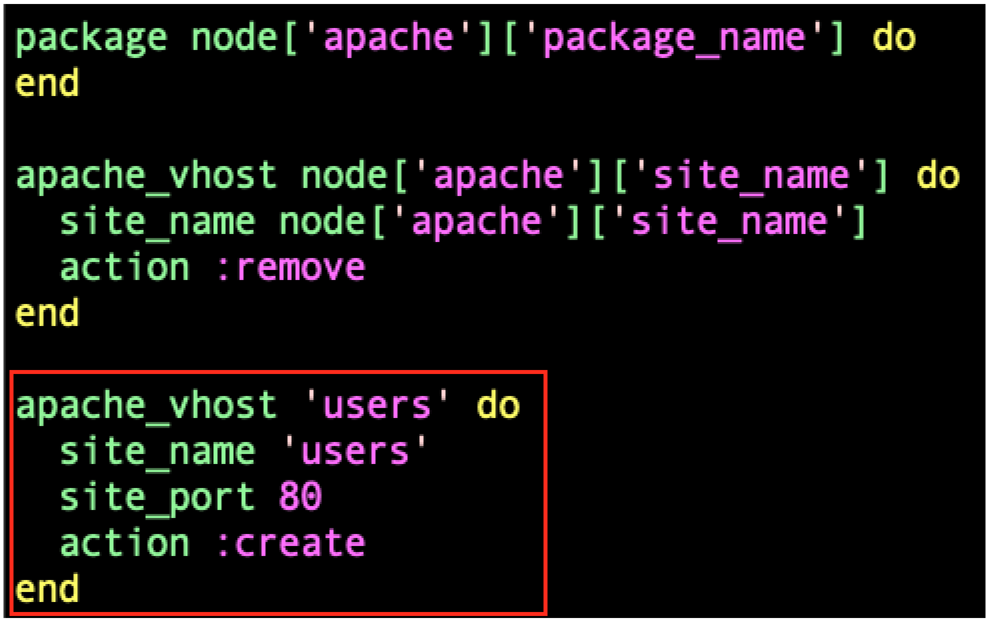
```
  file "/srv/apache/#{new_resource.site_name}/html/index.html" do
    content "<h1>Welcome #{new_resource.site_name}!</h1>"
  end
end

action :remove do
  directory "/srv/apache/#{new_resource.site_name}" do
    action :delete
    recursive true
  end

  file "#{node['apache']['conf_dir']}/#{new_resource.site_name}.conf" do
    action :delete
  end
end
```

10. Update the default recipe to include the new delete resource:



```
package node['apache']['package_name'] do
end

apache_vhost node['apache']['site_name'] do
  site_name node['apache']['site_name']
  action :remove
end
```

11. **Add the custom vhost resource to create a users site:**

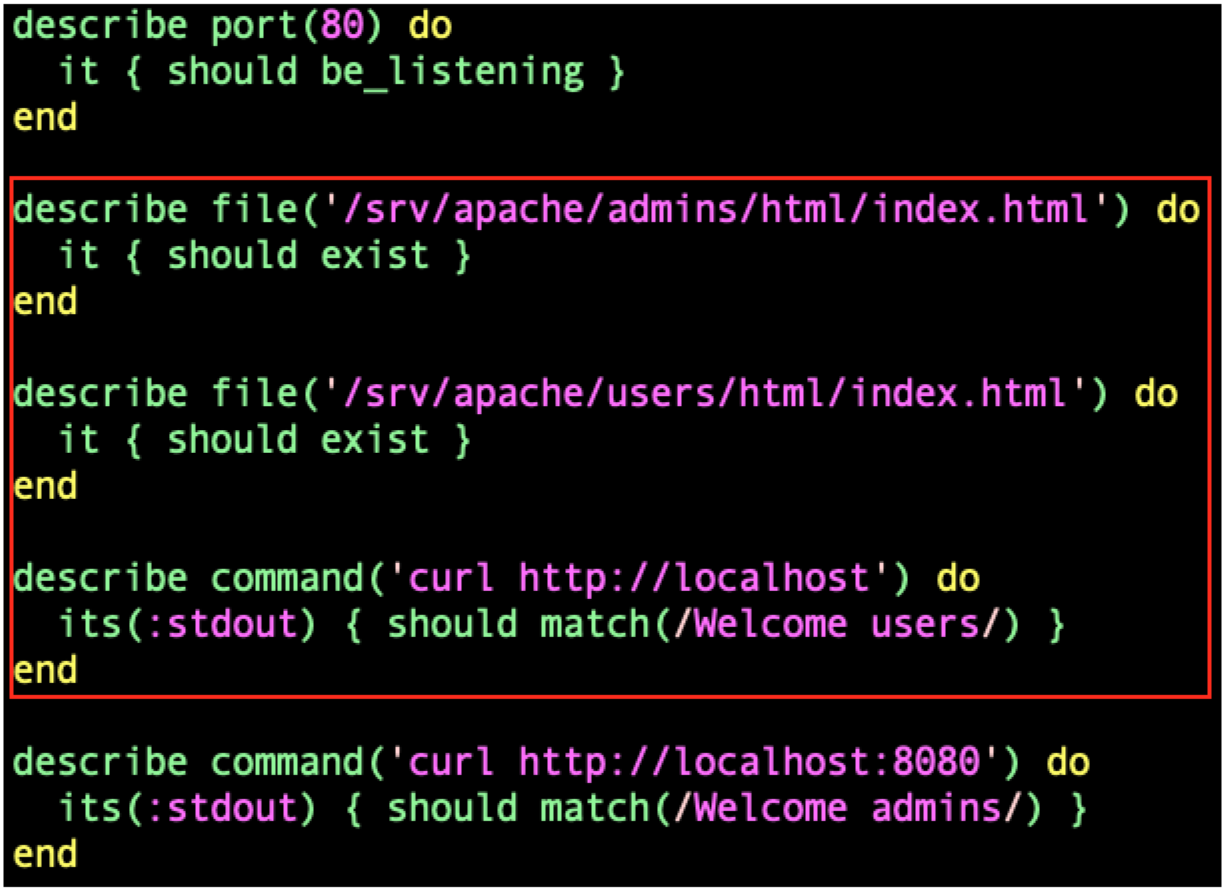


```
package node['apache']['package_name'] do
end

apache_vhost node['apache']['site_name'] do
  site_name node['apache']['site_name']
  action :remove
end

apache_vhost 'users' do
  site_name 'users'
  site_port 80
  action :create
end
```

12. **Update the spec file to render an html file that says "Welcome admins!" when rendering the file at '/srv/apache/admins/html/index.html'. Have the file say "Welcome users!" when rendering '/srv/apache/users/html/index.html'.**

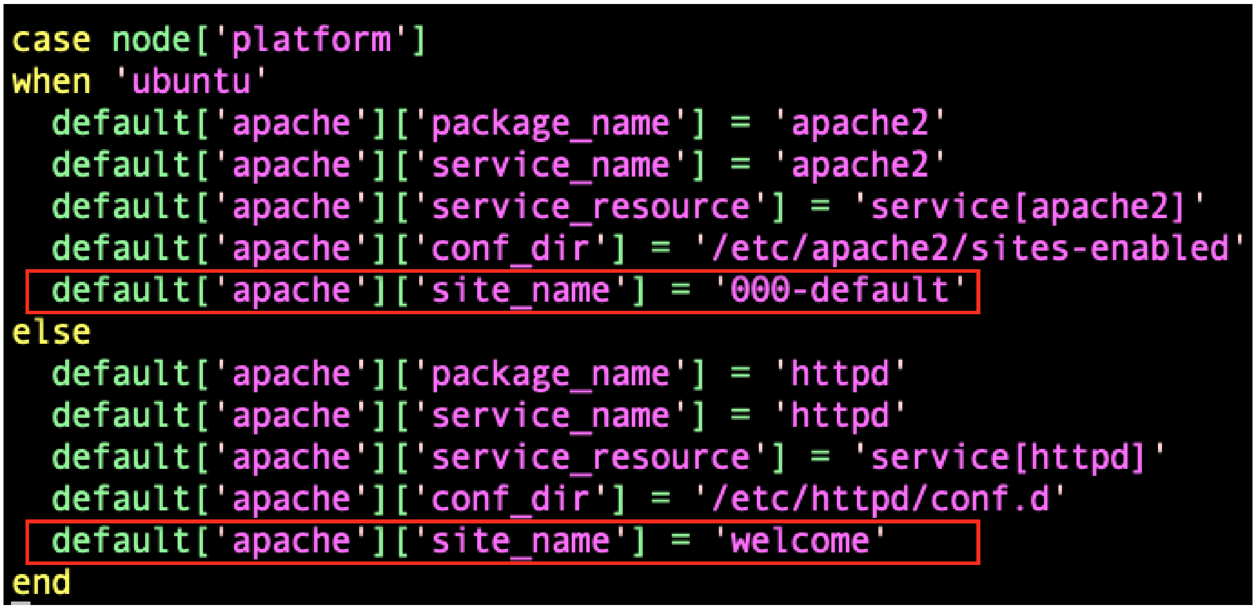
...Answer at the bottom of the lab...

13. **Update test/integration/default/default_test.rb to look for both users and admins index files and for the users site to return the correct content:**



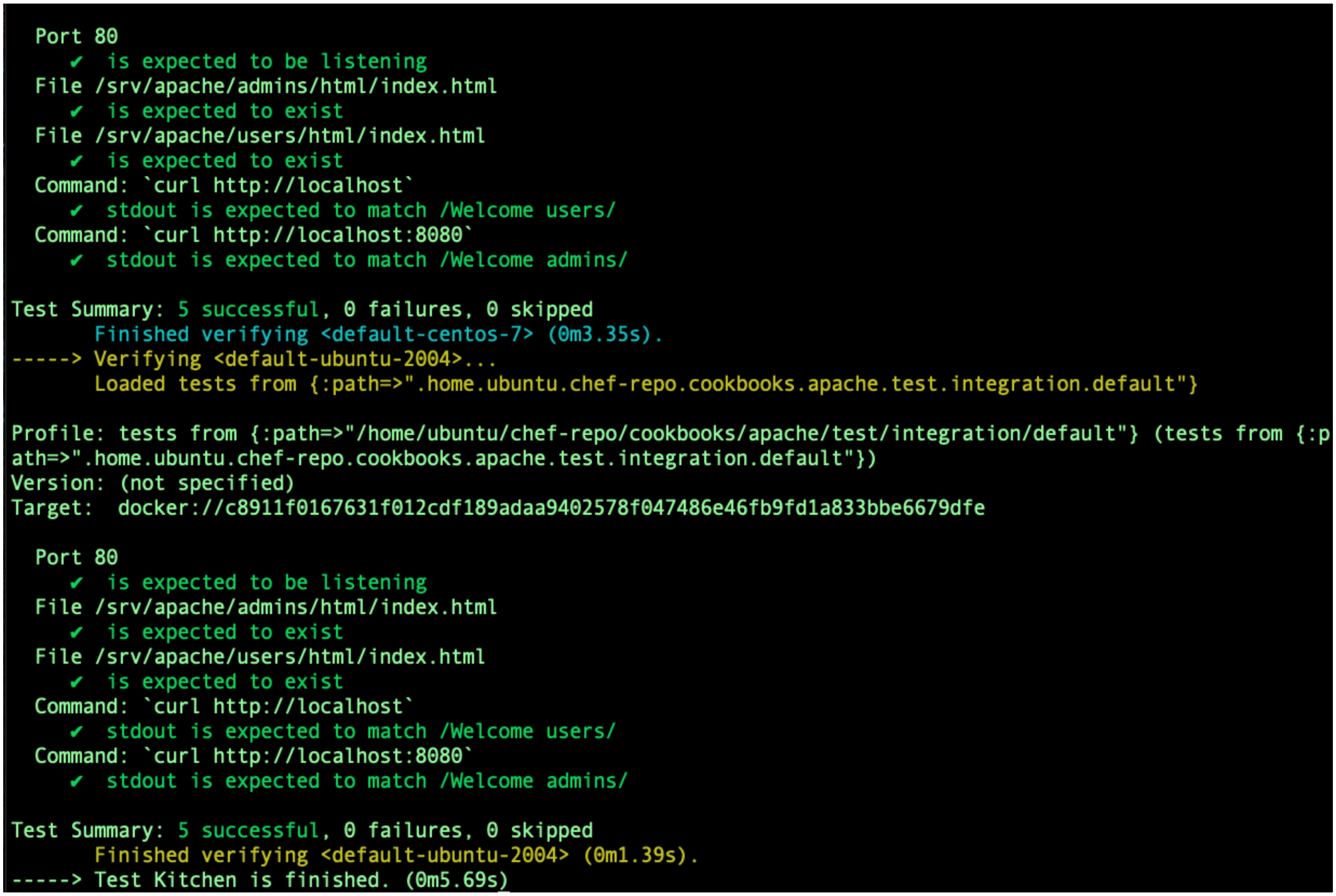
```
describe port(80) do
  it { should be_listening }
end

describe file('/srv/apache/admins/html/index.html') do
  it { should exist }
end

describe file('/srv/apache/users/html/index.html') do
  it { should exist }
end

describe command('curl http://localhost') do
  its(:stdout) { should match(/Welcome users/) }
end

describe command('curl http://localhost:8080') do
  its(:stdout) { should match(/Welcome admins/) }
end
```

14. **Update the attributes/default.rb to include 2 resources**:
    - A site_name resource named ‘000-default’ (Three zeros not the letter ‘O’)
    - A site_name resource named ‘welcome’



```
case node['platform']
when 'ubuntu'
  default['apache']['package_name'] = 'apache2'
  default['apache']['service_name'] = 'apache2'
  default['apache']['service_resource'] = 'service[apache2]'
  default['apache']['conf_dir'] = '/etc/apache2/sites-enabled'
  default['apache']['site_name'] = '000-default'
else
  default['apache']['package_name'] = 'httpd'
  default['apache']['service_name'] = 'httpd'
  default['apache']['service_resource'] = 'service[httpd]'
  default['apache']['conf_dir'] = '/etc/httpd/conf.d'
  default['apache']['site_name'] = 'welcome'
end
```

15. Use ChefSpec and Test Kitchen verify to verify the changes

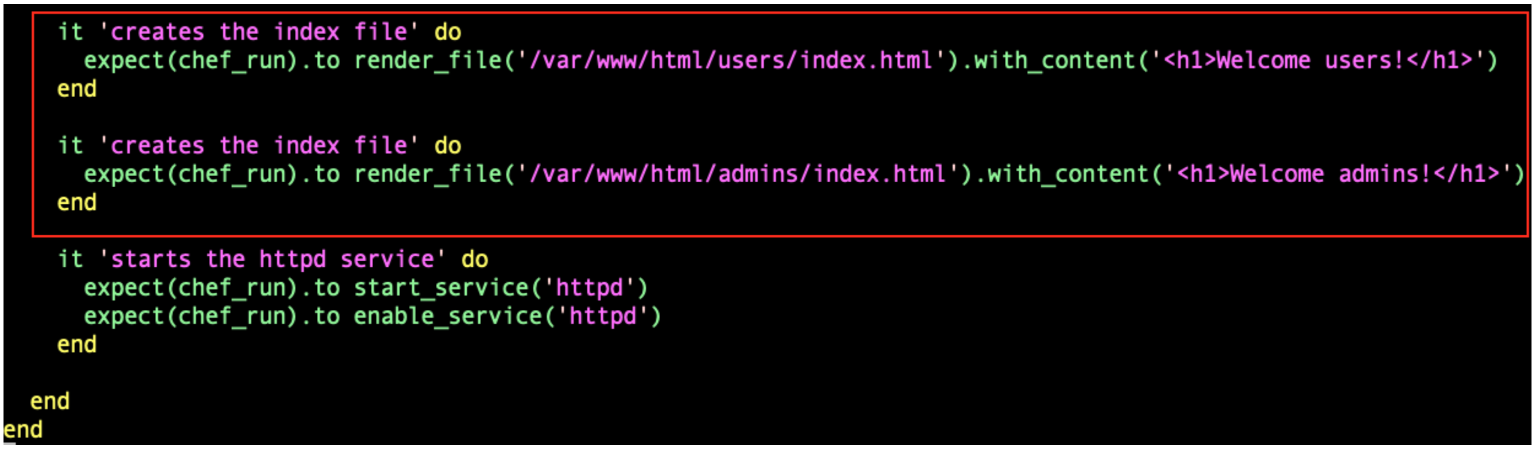


```
  Port 80
     ✔  is expected to be listening
  File /srv/apache/admins/html/index.html
     ✔  is expected to exist
  File /srv/apache/users/html/index.html
     ✔  is expected to exist
  Command: `curl http://localhost`
     ✔  stdout is expected to match /Welcome users/
  Command: `curl http://localhost:8080`
     ✔  stdout is expected to match /Welcome admins/

Test Summary: 5 successful, 0 failures, 0 skipped
       Finished verifying <default-centos-7> (0m3.35s).
-----> Verifying <default-ubuntu-2004>...
       Loaded tests from {:path=>".home.ubuntu.chef-repo.cookbooks.apache.test.integration.default"}

Profile: tests from {:path=>"/home/ubuntu/chef-repo/cookbooks/apache/test/integration/default"} (tests from {:p
ath=>".home.ubuntu.chef-repo.cookbooks.apache.test.integration.default"})
Version: (not specified)
Target:  docker://c8911f0167631f012cdf189adaa9402578f047486e46fb9fd1a833bbe6679dfe

  Port 80
     ✔  is expected to be listening
  File /srv/apache/admins/html/index.html
     ✔  is expected to exist
  File /srv/apache/users/html/index.html
     ✔  is expected to exist
  Command: `curl http://localhost`
     ✔  stdout is expected to match /Welcome users/
  Command: `curl http://localhost:8080`
     ✔  stdout is expected to match /Welcome admins/

Test Summary: 5 successful, 0 failures, 0 skipped
       Finished verifying <default-ubuntu-2004> (0m1.39s).
-----> Test Kitchen is finished. (0m5.69s)
```

Notify your instructor that you are done with the lab

END OF LAB

Answer updating **apache/spec/unit/recipes/default_spec.rb**



```
    it 'creates the index file' do
      expect(chef_run).to render_file('/var/www/html/users/index.html').with_content('<h1>Welcome users!</h1>')
    end

    it 'creates the index file' do
      expect(chef_run).to render_file('/var/www/html/admins/index.html').with_content('<h1>Welcome admins!</h1>')
    end

    it 'starts the httpd service' do
      expect(chef_run).to start_service('httpd')
      expect(chef_run).to enable_service('httpd')
    end

  end
end
```