Chef supports all Ruby loop structures for creating loops inside recipes

```
chefdk # knife cookbook create loops
chefdk# vi chef-repo/cookbooks/loops/recipes/default.rb
packages = ['vim', 'git', 'curl']
packages.each do |package|
  apt_package package do
    action :install
  end
End
```

chefdk # knife cookbook create mycond

chefdk# vi chef-repo/cookbooks/mycond/recipes/default.rb

```
if node['platform'] == 'debian' || node['platform']
   == 'ubuntu'
   execute "apt-get update" do
    command "apt-get update"
   end
   apt_package "apache2" do
    action :install
  end
end
```

Setting Attributes in Attribute files

Attributes can be set in the cookbook's attributes file

./cookbooks/<cookbook>/attributes/default.rb

Format is

(attribute name) (attribute value)

default["apache"]["dir"] = "/etc/apache2"

They can also be set directly in Recipes

(precedence) (attribute name) (attribute value)

node.default["apache"]["dir"] = "/etc/apache2“

An attribute value can be an array

default["apache"]["listen_ports"] = ["80","443"]

it can be a hash

- default["apache"]["site1"] = { "port" => 80 }
- default["apache"]["site2"] = { "port" => 81 }

#vi cookbooks/apache/attributes/default.rb

```
default["apache"]["indexfile"] = "index1.html"
```

#vi cookbooks/apache/files/default/index1.html

```
<html>
   <h1>This is index1.html</h1>
</html>
```

#vi cookbooks/apache/files/default/index2.html

```
<html>
   <h1>This is index2.html</h1>
</html>
```

```
#vi cookbooks/apache/recipes/default.rb
node.default["apache"]["indexfile"] = "index2.html“
cookbook_file "/var/www/html/index.html" do
 source node["apache"]["indexfile"]
 mode "0644“
End
#knife cookbook upload apache
#knife node run_list add node2 “recipe[apache]”
node# chef-client
```

(you can check index1.html is will override by index2.html)

Attribute Priority

Create a data bag

```
# mkdir -p data_bags/users
```

Create a data bag named users

```
# knife data_bag create users
```

Create a user item in the users data bag

```
# data_bags/users/ram.json
{
  "id": “ram”,
  "comment": “ram raj”,
  "uid": 2000,
  "gid": 0,
  "home": "/home/ram",
  "shell": "/bin/bash"
}
```

data_bags/users/krishna.json

```
{
 "id": “krishna",
 "comment": “krishna teja",
 "uid": 2001,
 "gid": 0,
 "home": "/home/krishna”,
 "shell":"/bin/bash"
}
```

Create the data bag item

knife data_bag from file users ram.json

knife data_bag from file users krishna.json

Show all the items in users data bag

```
# knife search users "*:*"
```

Find Ram's shell in Chef

```
# knife search users "id:ram" -a shell
```

Create a data bag named groups

```
# mkdir data_bags/groups
# knife data_bag create groups
```

Create a group item in the group data bag

```
# data_bags/groups/sales.json
{
   "id": “sales",
   "gid": 3000,
   "members": [“ram", “krishna"]
}
```

Create the data bag item

```
# knife data_bag from file groups sales.json
```

Show all the groups in Chef

```
# knife search groups "*:*"
```

Create a cookbook named ‘users’

```
# knife cookbook create users
# vi cookbooks/users/recipes/default.rb
search("users", "*:*").each do |user_data|
  user user_data["id"] do
    comment user_data["comment"]
    uid user_data["uid"]
    gid user_data["gid"]
    home user_data["home"]
    shell user_data["shell"]
  end
End
include_recipe "users::groups"
```

```
# vi cookbooks/users/recipes/groups.rb
search("groups", "*:*").each do |group_data|
 group group_data["id"] do
  gid group_data["gid"]
  members group_data["members"]
 end
end
# knife cookbook upload users
# knife node run_list add node1 'recipe[users
node# chef-client
node# cat /etc/passwd
node# cat /etc/group
```

Create a Role “Webserver”

- A Role has a:
  - –name
  - –description
  - –run_list

  You can set default node attributes within a role.

#vi roles/webserver.rb

```
name "webserver"
description "Web Server"
run_list "recipe[apache]"
default_attributes({
  "apache" => {
    "sites" => {
      "admin" => {
        "port" => 8000
      }
    }
  }
})
```

Create a Role:

```
# knife role from file webserver.rb
```

Show the Role with Knife:

```
# knife role show webserver
```

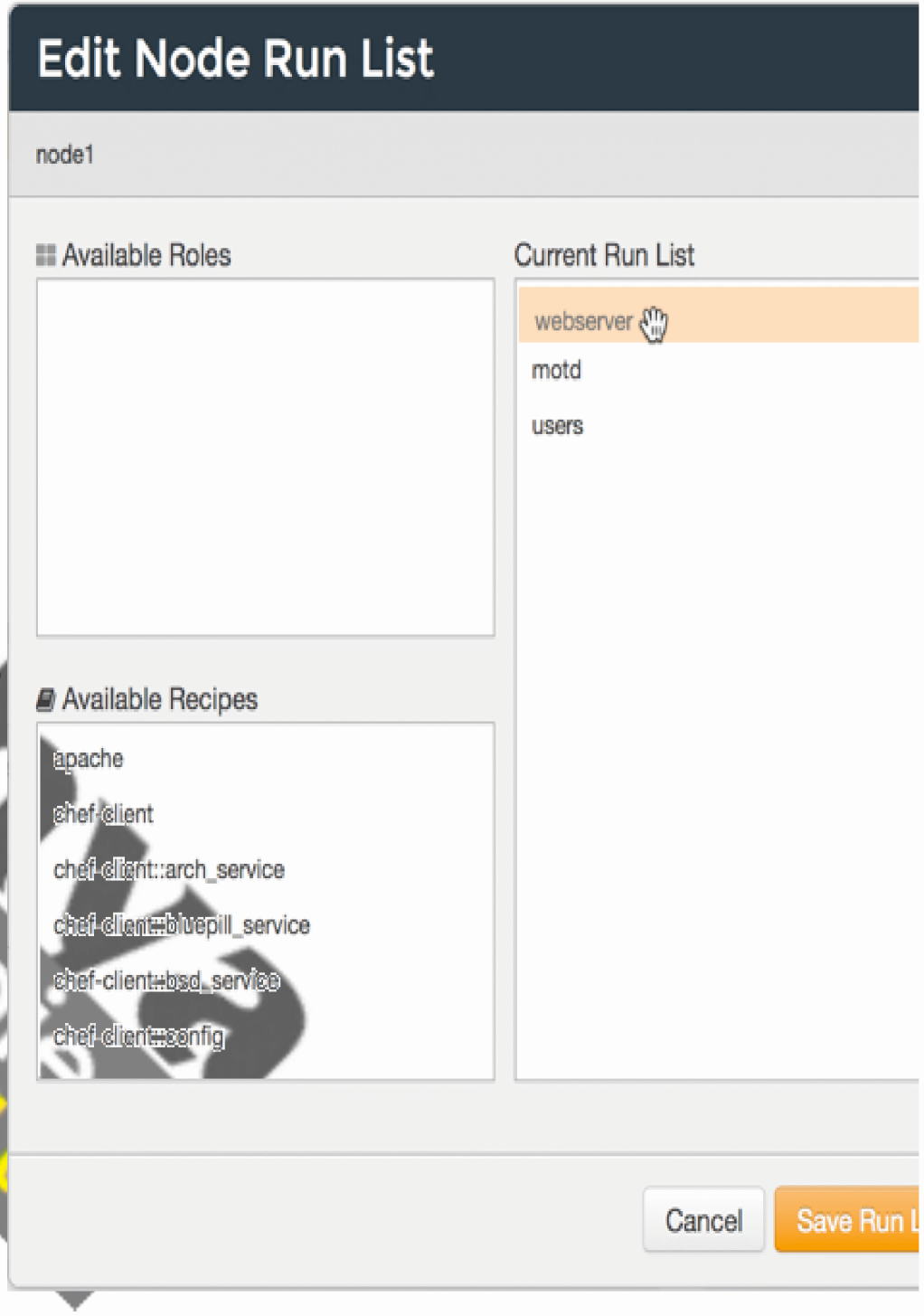
Search a Role with recipe[apache] in runlist:

```
# knife search role "run_list:recipe\[apache\]“
```

Replace recipe[apache] with role[webserver]:

```
# knife node run_list add node2 "role[webserver]" -a
    "recipe[apache]"
# knife node run_list remove node2 "recipe[apache]”
node#  chef-client
```

- Click the ‘Nodes’ tab then select node ‘node2’
- Click ‘Edit Run List’ from left navigation bar
- Drag ‘Apache’ over from ‘Current Run List’ to ‘Available Recipes’
- Drag ‘webserver’ over from ‘Available Roles’ to the top of ‘Current Run List’
- Click ‘Save Run List’



#knife cookbook show apache

To List current Environments:

knife environment list

Make an environments directory

mkdir environments

Create a dev environment

#vi environments/dev.rb

```
name "dev"
description "For developers!"
cookbook "apache", "= 0.1.0"
```

- Environments have names
- Environments have a description
- Environments *can* have one or more cookbook constraints
- = Equal to
- There are other options but equality is the recommended practice.

Create the dev environment

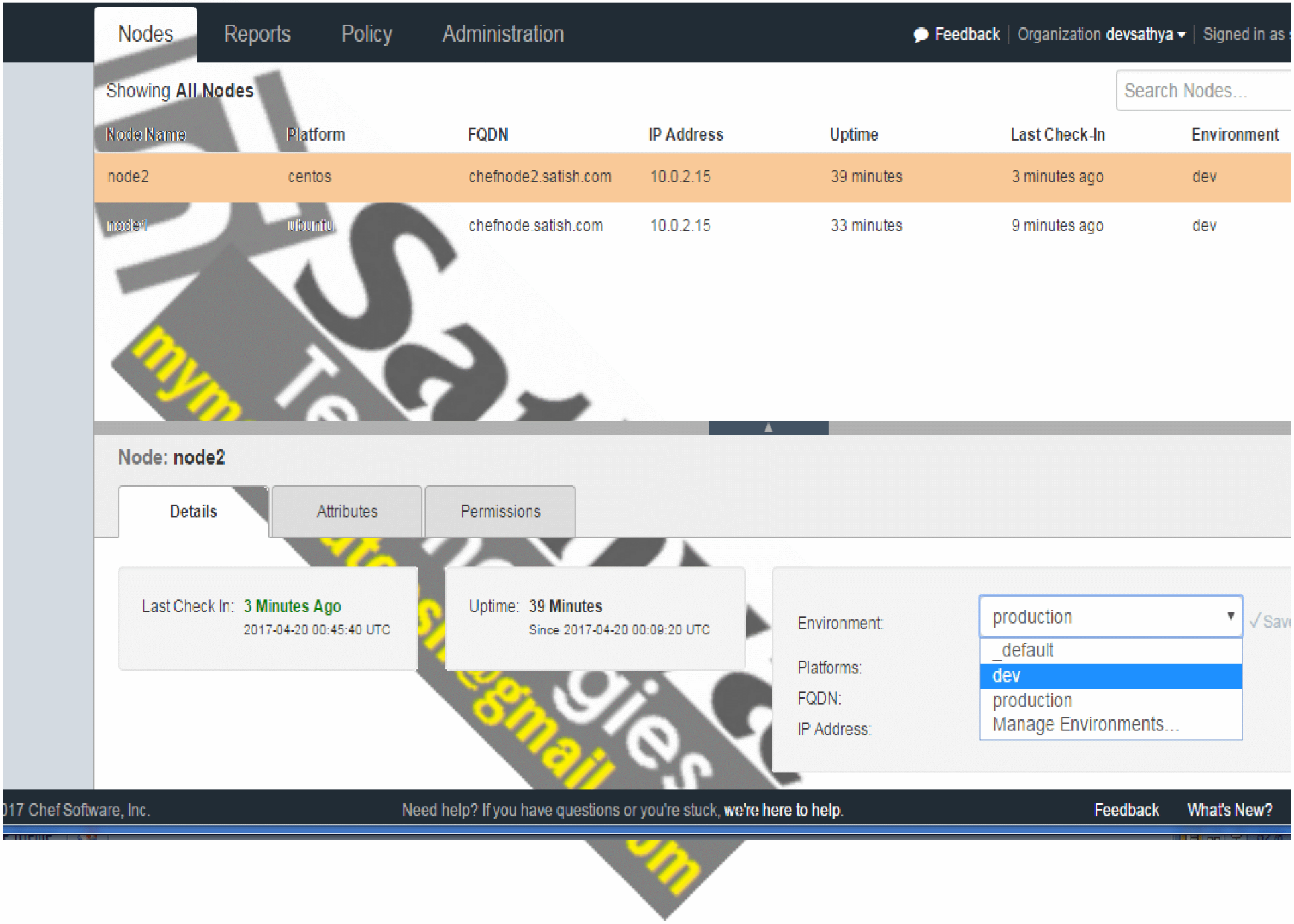
#knife environment from file dev.rb

Show your dev environment

#knife environment show dev

Change your node's environment to "dev"

- Click the 'Nodes' tab then select node 'node1'
- Select dev from the 'Environments' drop-down list
- Click 'Save'


Nodes
Reports
Policy
Administration
Feedback
Organization devsathya
Signed in as
Showing All Nodes
Search Nodes...
Node Name
Platform
FQDN
IP Address
Uptime
Last Check-In
Environment
node2
centos
chefnode2.satish.com
10.0.2.15
39 minutes
3 minutes ago
dev
node1
ubuntu
chefnode.satish.com
10.0.2.15
33 minutes
9 minutes ago
dev
Node: node2
Details
Attributes
Permissions
Last Check In: 3 Minutes Ago
2017-04-20 00:45:40 UTC
Uptime: 39 Minutes
Since 2017-04-20 00:09:20 UTC
Environment:
production
_default
dev
production
Manage Environments...
Platforms:
FQDN:
IP Address:
017 Chef Software, Inc.
Need help? If you have questions or you're stuck, we're here to help.
Feedback
What's New?

Change your node's environment to "dev"

knife node environment_set node1 dev

Re-run the Chef Client

sudo chef-client

Create a production environment

environments/production.rb

```
name "production"
 description "For Prods!"
 cookbook "apache", "= 0.1.0"
 override_attributes({
   "pci" => {
     "in_scope" => true
   }
 })
```

Create the production environment

knife environment from file production.rb

Change your node's environment to "production"

Click the 'Nodes' tab then select node 'node1'

Select production from the 'Environments' drop-down list

Click 'Save'

 # knife node environment_set node1 production

 # chef-client