

# The Chef Server

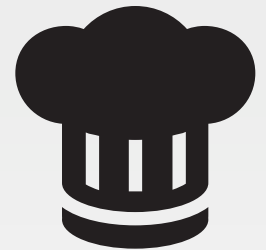
A Hub for Configuration Data

# Objectives



After completing this module, you should be able to

- Connect your local workstation (laptop) to a Chef Server
- Upload cookbooks to a Chef Server
- Bootstrap a node
- Manage a node via a Chef Server



# More Web Servers?

*More easily manage multiple nodes*

## Objective:

- ☐ Create a Hosted Chef Account
- ☐ Upload your cookbooks to the Hosted Chef Server
- ☐ Add your old workstation as a managed node

# Managing an Additional System



To manage another system, you would need to:

1. Provision a new node within your company or appropriate cloud provider with the appropriate access to login to administrate the system.
2. Install the Chef tools.
3. Transfer the apache cookbook.
4. Run chef-client on the new node to apply the apache cookbook's default recipe.

# Managing Additional Systems



Installing the Chef tools, transferring the apache cookbook, and applying the run list is not terribly expensive.

- Chef provides a one-line curl install.
- You could use **git** to clone the repository from a common **git** repository.
- Applying the run list.

# Managing Additional Systems

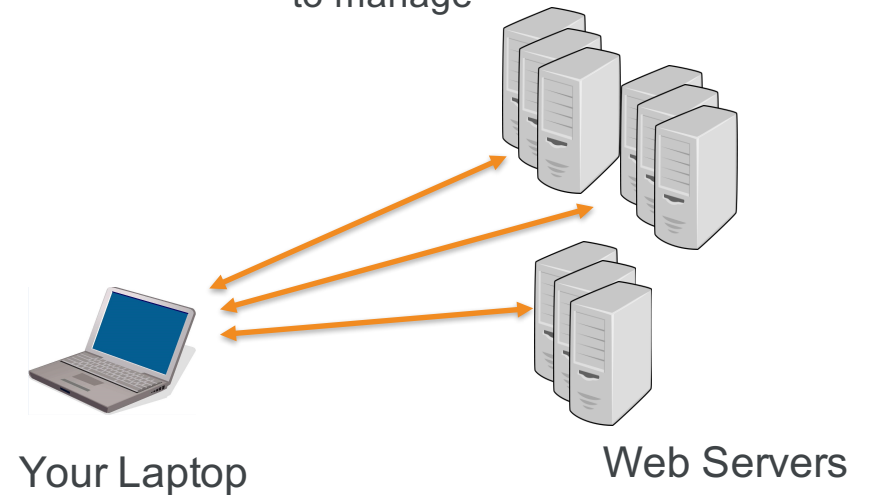


Now



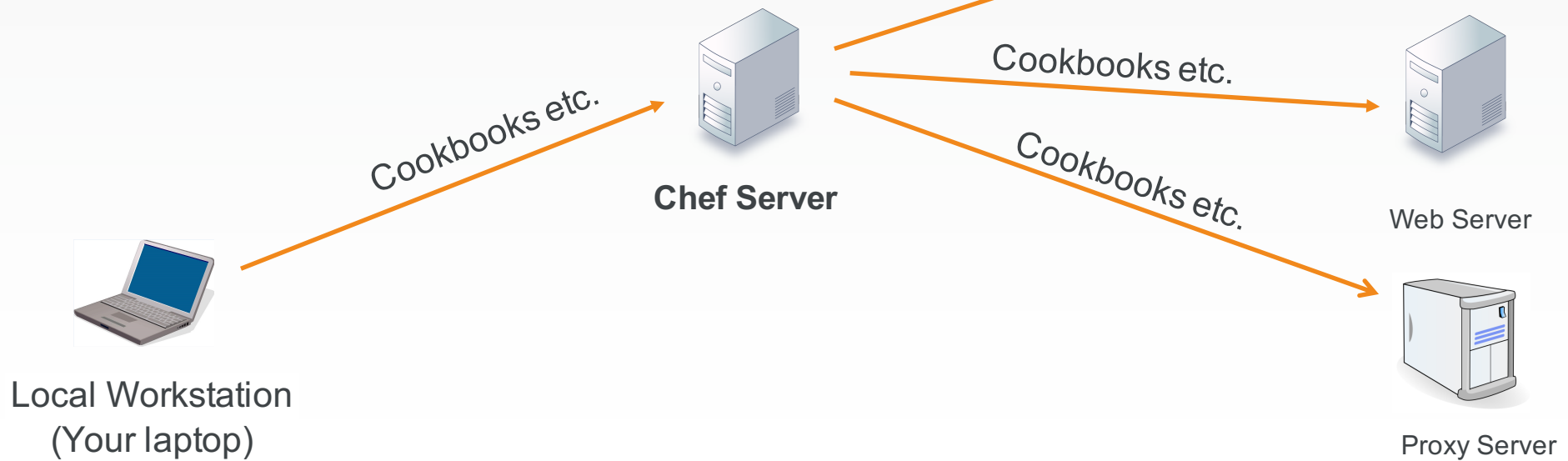
Future

More complex  
to manage



# The Chef Server

An easier way to  
set up and maintain  
multiple nodes.



# Flavors of Chef Server

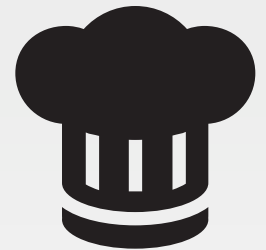


Open Source  
**Chef Server**

**Chef Server**  
(Support +  
Premium  
Features)

Multi-tenant  
**Hosted Chef Server**





# Lab: Hosted Chef

*More easily manage multiple nodes*

## Objective:

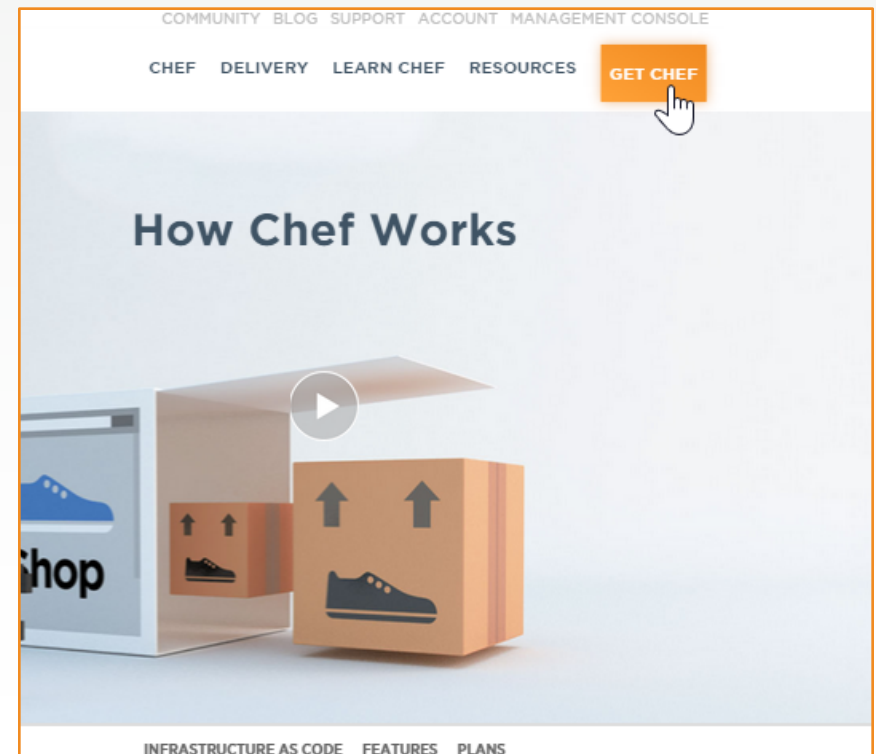
- ☐ Create a Hosted Chef Account
- ☐ Upload your cookbooks to the Hosted Chef Server
- ☐ Add your old workstation as a managed node

# Lab: Signing Up for a Hosted Chef Account



## Steps

1. Navigate to <https://www.chef.io>
2. From the resulting window, click **Get Chef**.




# Lab: Signing Up for a Hosted Chef Account



## Steps

3. From the resulting window, click the Hosted Chef **Sign Up** button.

 New to Chef? Learn Chef makes it fast and easy. [Get Started >](#)

### Hosted Chef

Just upload your cookbooks to a highly available, highly scalable Chef server.

[Sign Up >](#)


### Chef Development Kit

Download and install the latest and greatest version of Chef DK onto your workstation.

[Download >](#)


### Run Your Own Chef Server

Choose to install Chef server on premises or spin it up quickly on AWS or Microsoft Azure.




Chef Server

[Download >](#)



AWS Marketplace

[Learn More >](#)



Azure Marketplace

[Learn More >](#)

# Lab: Signing Up for a Hosted Chef Account



## Steps

4. Fill out the form as indicated in this image using your name and a valid email address and then click **Get Started**.

**Note:** You should write down your new user name and remember your password.

### Start your free trial of hosted Chef

You're one step away from access to all the power and flexibility of Chef. Get ready to automate your infrastructure, accelerate your time to market, manage scale and complexity, and safeguard your systems. Just complete the form to get started.

Full Name	<input type="text" value="Jane Doe"/>
Email	<input type="text" value="Jane@chef.io"/>
Username	<input type="text" value="janedoe"/>
Password	<input type="password" value="....."/>
Company	<input type="text" value="Chef"/>

☒ I agree to the [Terms of Service](#) and the [Master License and Services Agreement](#).

[Get Started](#)

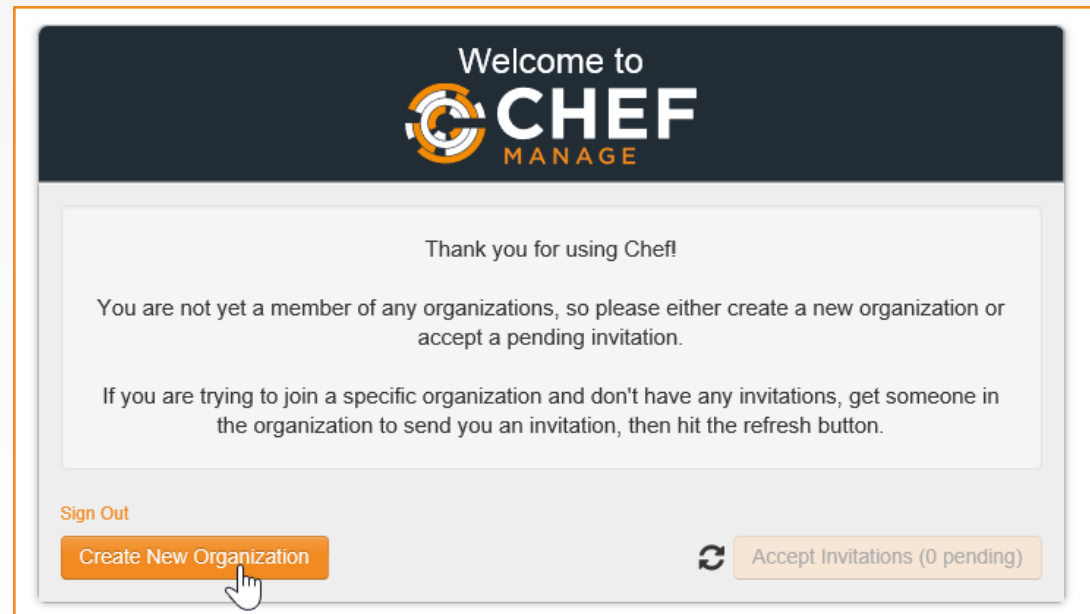
Already  
Click he  
Looking  
Start with  
and chec  
Join the  
Join our v

# Lab: Signing Up for a Hosted Chef Account



## Steps

5. From the resulting page, click the **Create New Organization** button.

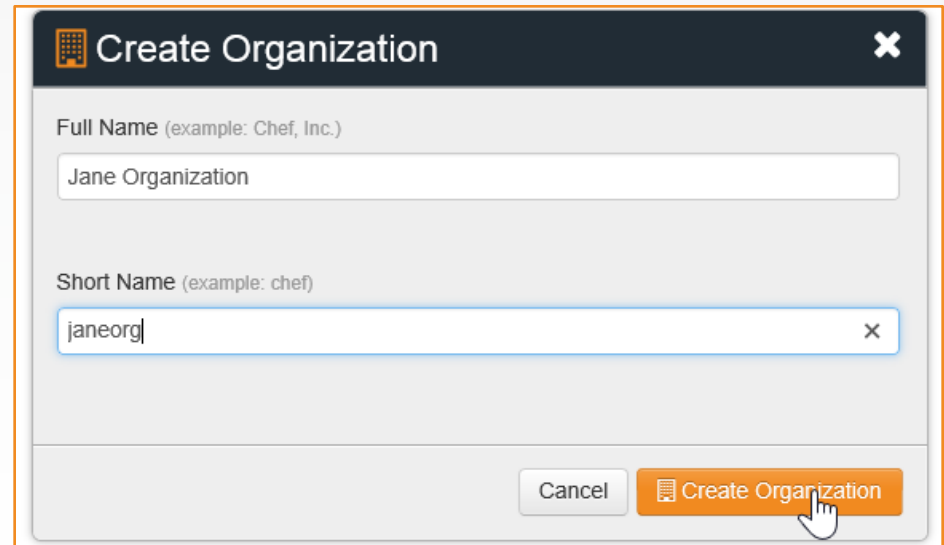


# Lab: Signing Up for a Hosted Chef Account



## Steps

6. Fill out the resulting Create Organization form and then click **Create Organization**.



**Create Organization** [X]

Full Name (example: Chef, Inc.)  
Jane Organization

Short Name (example: chef)  
janeorg [X]

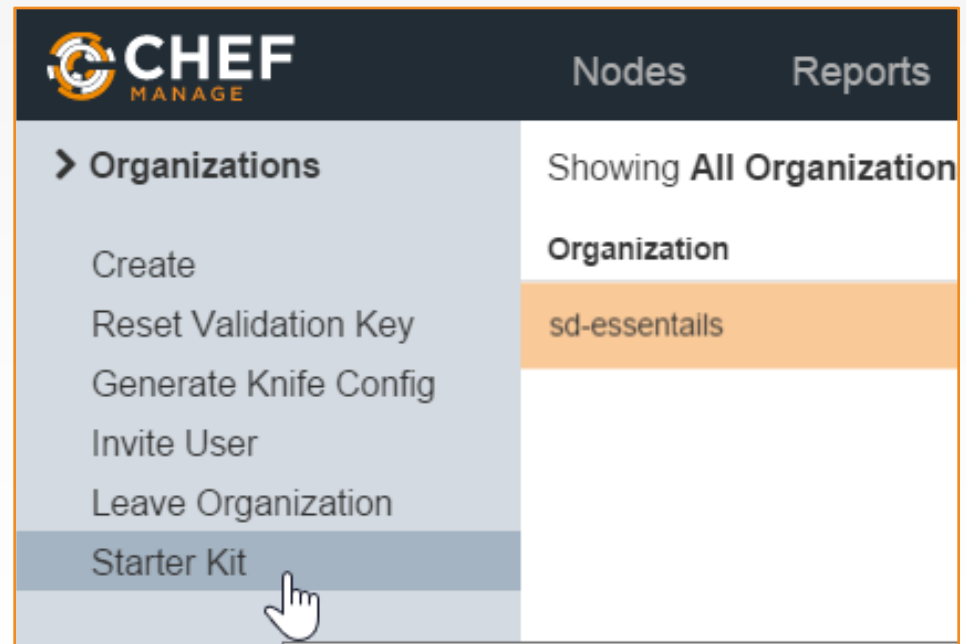
Cancel Create Organization

# Lab: Signing Up for a Hosted Chef Account



## Steps

7. From the resulting page, click your new organization to highlight it and then click **Starter Kit**.

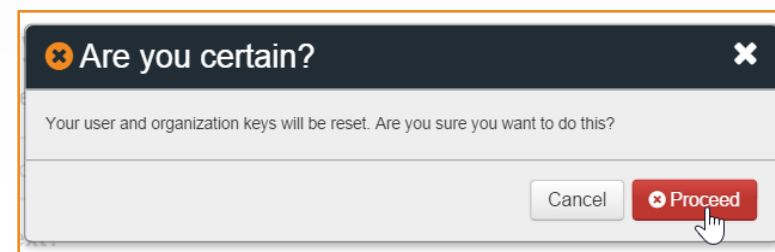
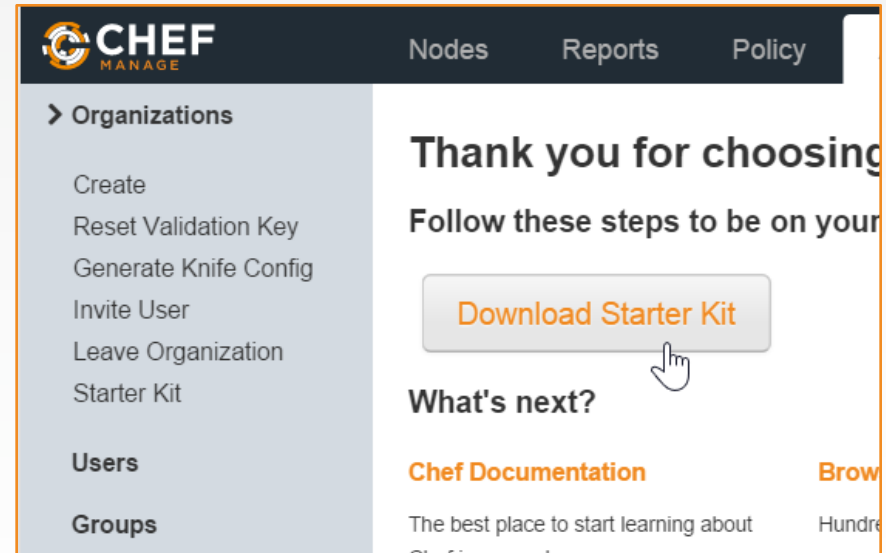


# Lab: Signing Up for a Hosted Chef Account



## Steps

8. From the resulting window, click the **Download Starter Kit** button.
9. Click the **Proceed** button when prompted.





# Lab: Signing Up for a Hosted Chef Account



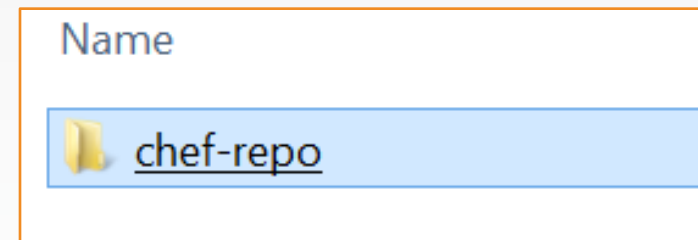
## Steps

10. Open the downloaded zip file and copy chef-repo folder that's contained in the zip file.
11. Paste the chef-repo folder to a location on your laptop, such as your home directory.

**Note:** Ensure that the path to the chef-repo does not have a space in it. Examples:

Mac: `/home/username/chef-repo`

Windows: `C:\Users\username\chef-repo`

A screenshot of a file explorer window. The title bar is not visible. The main area shows a single folder icon with the name 'chef-repo' next to it. The folder name is underlined. The entire window is enclosed in an orange border.




## Lab: Download a Repository


A repository containing a similar copy of the work you did previously in this course can be downloaded from here:

<https://github.com/chef-training/chefdk-fundamentals-repo>


# Lab: Download the Repository



 **burtlo** authored 2 days ago latest commit 5ac2d9df46

 [cookbooks](#)

Removed the 'yum update' it was causing problems 2 days ago

 [README.md](#)

Updated to support CentOS 6.5 2 days ago

 **README.md**

## ChefDK Fundamentals Repository

This repository contains all the completed examples from the Introduction to Chef. This is day one of the [ChefDK Fundamentals](#) course.

- The apache cookbook is able to deploy apache on an CentOS 6.5 instance.
- The workstation cookbook is able to deploy necessary tools on an CentOS 6.5 instance.

 [Pull requests](#)

 [Wiki](#)

 [Pulse](#)

 [Graphs](#)

 [Settings](#)

HTTPS clone URL



You can clone with [HTTPS](#), [SSH](#), or [Subversion](#).



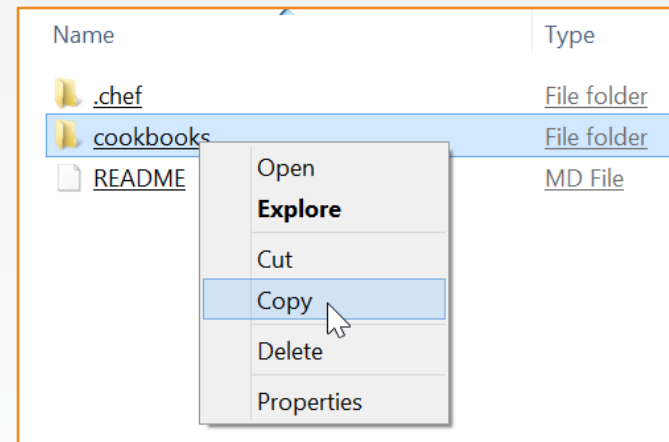
<https://github.com/chef-training/chefdk-fundamentals-reno/archive/master.zip>

# Lab: Paste the cookbooks Folder



## Steps

- Open the downloaded chefdk-fundamentals-repo-master zip file and then copy **only** the **cookbooks** folder that's contained in the zip file.
- Replace the **cookbooks** folder that's in your chef-repo folder with the copied cookbooks folder.



# Lab: Navigate to the chef-repo



```
$ cd chef-repo
```

# CONCEPT

## knife



knife is a command-line tool that provides an interface between a local chef-repo and the Chef Server.

# Lab: knife --help



```
$ knife --help
```

```
Available subcommands: (for details, knife SUB-COMMAND --help)
```

```
** BOOTSTRAP COMMANDS **
```

```
knife bootstrap FQDN (options)
```

```
knife bootstrap windows ssh FQDN (options)
```

```
knife bootstrap windows winrm FQDN (options)
```

```
** CLIENT COMMANDS **
```

```
knife client bulk delete REGEX (options)
```

```
knife client create CLIENT (options)
```

```
knife client delete CLIENT (options)
```

```
knife client edit CLIENT (options)
```

# Lab: knife client --help



```
$ knife client --help
```

```
Available client subcommands: (for details, knife SUB-COMMAND --help)
```

```
** CLIENT COMMANDS **
```

```
knife client bulk delete REGEX (options)
```

```
knife client create CLIENT (options)
```

```
knife client delete CLIENT (options)
```

```
knife client edit CLIENT (options)
```

```
knife client list (options)
```

```
knife client reregister CLIENT (options)
```

```
knife client show CLIENT (options)
```

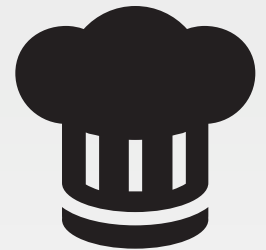


# Lab: knife client list



```
$ knife client list
```

```
ORGNAME-validator
```



# Hosted Chef

*More easily manage multiple nodes*

## Objective:

- ✓ Create a Hosted Chef Account
- ❑ Upload your cookbooks to the Hosted Chef Server
- ❑ Add your old workstation as a managed node

# Lab: knife cookbook --help



```
$ knife cookbook --help
```

```
** COOKBOOK COMMANDS **  
knife cookbook bulk delete REGEX (options)  
knife cookbook create COOKBOOK (options)  
knife cookbook delete COOKBOOK VERSION (options)  
knife cookbook download COOKBOOK [VERSION] (options)  
knife cookbook list (options)  
knife cookbook metadata COOKBOOK (options)  
knife cookbook metadata from FILE (options)  
knife cookbook show COOKBOOK [VERSION] [PART] [FILENAME] (options)  
knife cookbook test [COOKBOOKS...] (options)  
knife cookbook upload [COOKBOOKS...] (options)
```

# Lab: knife cookbook list



```
$ knife cookbook list
```



# Lab: Change to the cookbooks/apache Directory



```
$ cd cookbooks/apache
```

# CONCEPT

## Berkshelf



Berkshelf is a cookbook management tool that allows us to upload your cookbooks and all of its dependencies to the Chef Server.

[berkshelf.com](http://berkshelf.com)

# Lab: Run berks --help



```
$ berks --help
```

## Commands:

```
berks apply ENVIRONMENT      # Apply version locks from Berksfile.lock to a Chef
environment
berks contingent COOKBOOK    # List all cookbooks that depend on the given cookbook in
your
berks cookbook NAME [PATH]   # Create a skeleton for a new cookbook
berks help [COMMAND]         # Describe available commands or one specific command
berks info [COOKBOOK]       # Display name, author, copyright, and dependency information
berks init [PATH]            # Initialize Berkshelf in the given directory
berks install                 # Install the cookbooks specified in the Berksfile
berks list                   # List cookbooks and their dependencies specified by your
berks outdated [COOKBOOKS]  # List dependencies that have new versions available that
berks package [PATH]         # Vendor and archive the dependencies of a Berksfile
berks search NAME            # Search the remote source for cookbooks matching the partial
```

# Lab: Run berks install



```
$ berks install
```

```
Resolving cookbook dependencies...  
Fetching 'apache' from source at .  
Fetching cookbook index from https://supermarket.chef.io...  
Using apache (0.2.1) from source at .
```



# Lab: See the Berksfile.lock

 \$ ls -al (or ls -Force if using Powershell)

```
drwxr-xr-x 7 chef chef 4096 Aug 27 18:44 .
drwxr-xr-x 4 chef chef 4096 Aug 27 16:17 ..
drwxr-xr-x 8 chef chef 4096 Aug 27 16:07 .git
-rw-r--r-- 1 chef chef 126 Aug 27 15:46 .gitignore
drwxr-xr-x 3 chef chef 4096 Aug 27 18:45 .kitchen
-rw-r--r-- 1 chef chef 183 Aug 27 18:44 .kitchen.yml
-rw-r--r-- 1 chef chef 47 Aug 27 15:46 Berksfile
-rw----- 1 chef chef 77 Aug 27 18:45 Berksfile.lock
-rw-r--r-- 1 chef chef 54 Aug 27 15:46 README.md
-rw-r--r-- 1 chef chef 974 Aug 27 15:46 chefignore
-rw-r--r-- 1 chef chef 198 Aug 27 15:46 metadata.rb
drwxr-xr-x 2 chef chef 4096 Aug 27 16:34 recipes
```

# Lab: See the Contents of the Berksfile.lock



```
$ cat Berksfile.lock
```

```
DEPENDENCIES
```

```
  apache
```

```
    path: .
```

```
    metadata: true
```

```
GRAPH
```

```
  apache (0.2.1)
```

# Lab: Upload the Cookbook to the Chef Server



```
$ berks upload
```

```
Uploaded apache (0.2.1) to:  
'https://api.opscode.com:443/organizations/steveessentials2'
```

# Lab: Display Cookbooks within Your Org



```
$ knife cookbook list
```

```
apache          0.2.1
```

# Lab



## Lab: Upload Cookbooks

- ☐ Upload your remaining cookbooks
- ☐ Verify that all cookbooks are uploaded

## Lab: cd and Run knife cookbook list



```
$ cd chef-repo/cookbooks/workstation  
$ knife cookbook list
```

```
apache          0.2.1
```

# Lab: Install the Cookbook Dependencies



```
$ berks install
```

```
Resolving cookbook dependencies...  
Fetching 'workstation' from source at .  
Fetching cookbook index from https://supermarket.chef.io...  
Using workstation (0.2.1) from source at .
```

# Lab: Upload the Cookbook to the Chef Server



```
$ berks upload
```

```
Uploaded workstation (0.2.1) to:  
'https://api.opscode.com:443/organizations/steveessentials2'
```

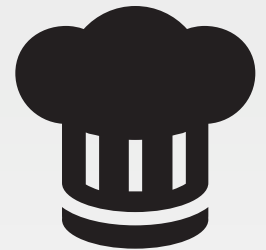


# Lab: Is the workstation Cookbook Uploaded?



```
$ knife cookbook list
```

```
apache      0.2.1  
workstation 0.2.1
```



# Hosted Chef

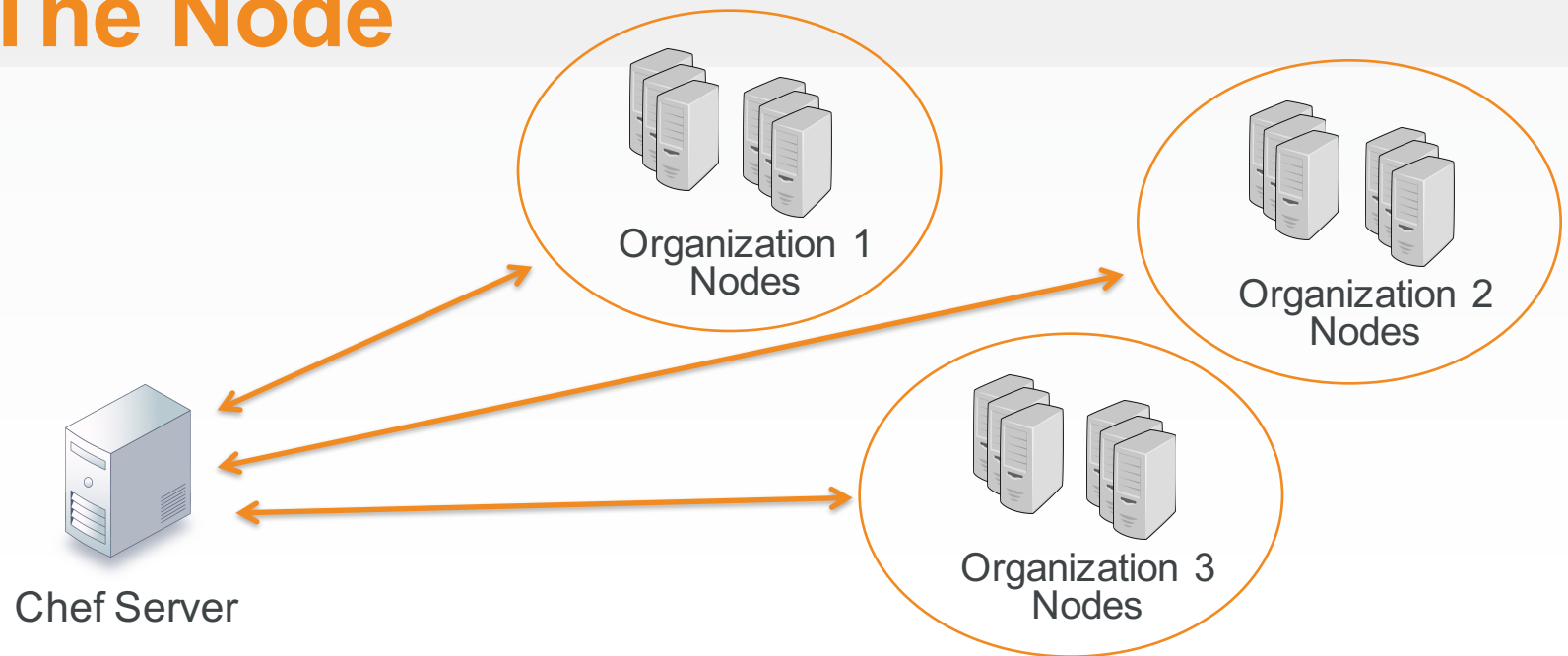
*More easily manage multiple nodes*

## Objective:

- ✓ Create a Hosted Chef Account
- ✓ Upload your cookbooks to the Hosted Chef Server
- ☐ Add a managed node

# CONCEPT

## The Node



# Lab: Change to the chef-repo



```
$ cd chef-repo
```



# Lab: Run 'knife node --help'



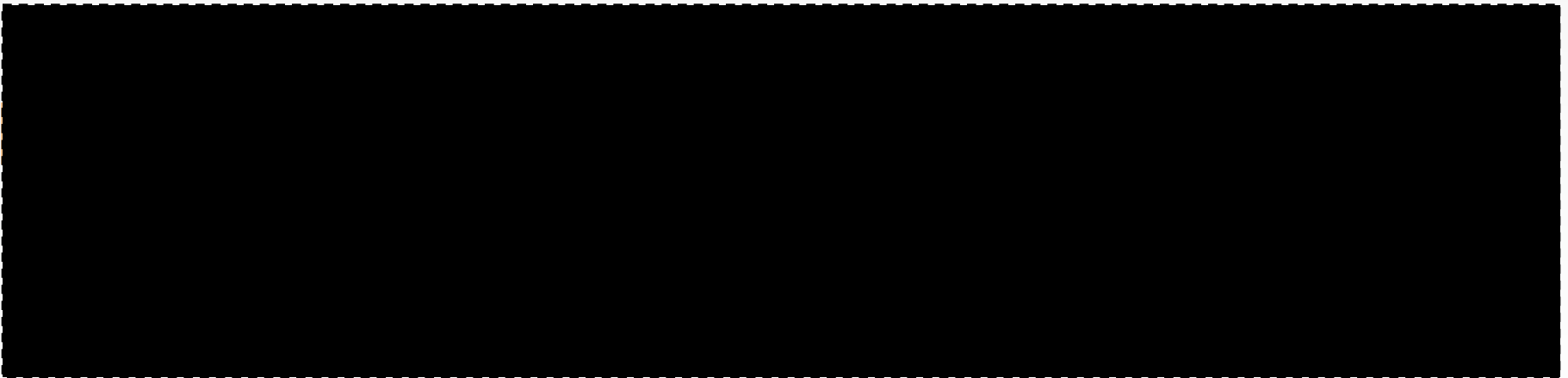
```
$ knife node --help
```

```
** NODE COMMANDS **  
knife node bulk delete REGEX (options)  
knife node create NODE (options)  
knife node delete NODE (options)  
knife node edit NODE (options)  
knife node environment set NODE ENVIRONMENT  
knife node from file FILE (options)  
knife node list (options)  
knife node run_list add [NODE] [ENTRY[,ENTRY]] (options)  
knife node run_list remove [NODE] [ENTRY[,ENTRY]] (options)  
knife node run_list set NODE ENTRIES (options)  
knife node show NODE (options)
```

# Lab: Run 'knife node list'



```
$ knife node list
```



# Lab: Run 'knife bootstrap --help'



```
$ knife bootstrap --help
```

```
knife bootstrap FQDN (options)
  --bootstrap-curl-options OPTIONS
                                Add options to curl when install chef-client
  --bootstrap-install-command COMMANDS
                                Custom command to install chef-client
  --bootstrap-no-proxy [NO_PROXY_URL|NO_PROXY_IP]
                                Do not proxy locations for the node being bootstrapped;
this option is used internally by Opscode
  --bootstrap-proxy PROXY_URL  The proxy server for the node being bootstrapped
  -t TEMPLATE,
to the full path of an erb template or use one of the built-in templates.
```

# Lab: Bootstrap Your Node



```
$ knife bootstrap FQDN -x USER -P PWD --sudo -N node1
```

```
Creating new client for node1
Creating new node for node1
Connecting to ec2-54-175-46-24.compute-1.amazonaws.com
ec2-54-175-46-24.compute-1.amazonaws.com Starting first Chef Client run...
ec2-54-175-46-24.compute-1.amazonaws.com Starting Chef Client, version 12.3.0
ec2-54-175-46-24.compute-1.amazonaws.com resolving cookbooks for run list: []
ec2-54-175-46-24.compute-1.amazonaws.com Synchronizing Cookbooks:
ec2-54-175-46-24.compute-1.amazonaws.com Compiling Cookbooks...
ec2-54-175-46-24.compute-1.amazonaws.com [2015-010-16T16:51:21+00:00] WARN: Node
node1 has an empty run list.
ec2-54-175-46-24.compute-1.amazonaws.com Converging 0 resources
ec2-54-175-46-24.compute-1.amazonaws.com
ec2-54-175-46-24.compute-1.amazonaws.com Running handlers:
```



## Lab: Run 'knife node list' Again



```
$ knife node list
```

```
node1
```

# Lab: View More Information About Your Node



```
$ knife node show node1
```

```
Node Name:    node1
Environment:  _default
FQDN:         ip-172-31-8-68.ec2.internal
IP:           54.175.46.24
Run List:
Roles:
Recipes:
Platform:    centos 6.7
Tags:
```

# DISCUSSION



## What happened during bootstrap?

Chef and all of its dependencies installed  
Installation includes

- The Ruby language - used by Chef
- chef-client - Client application
- ohai - System profiler
- ...and more

# knife bootstrap sequence



Chef Server



Workstation



Node

# knife bootstrap sequence

```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```



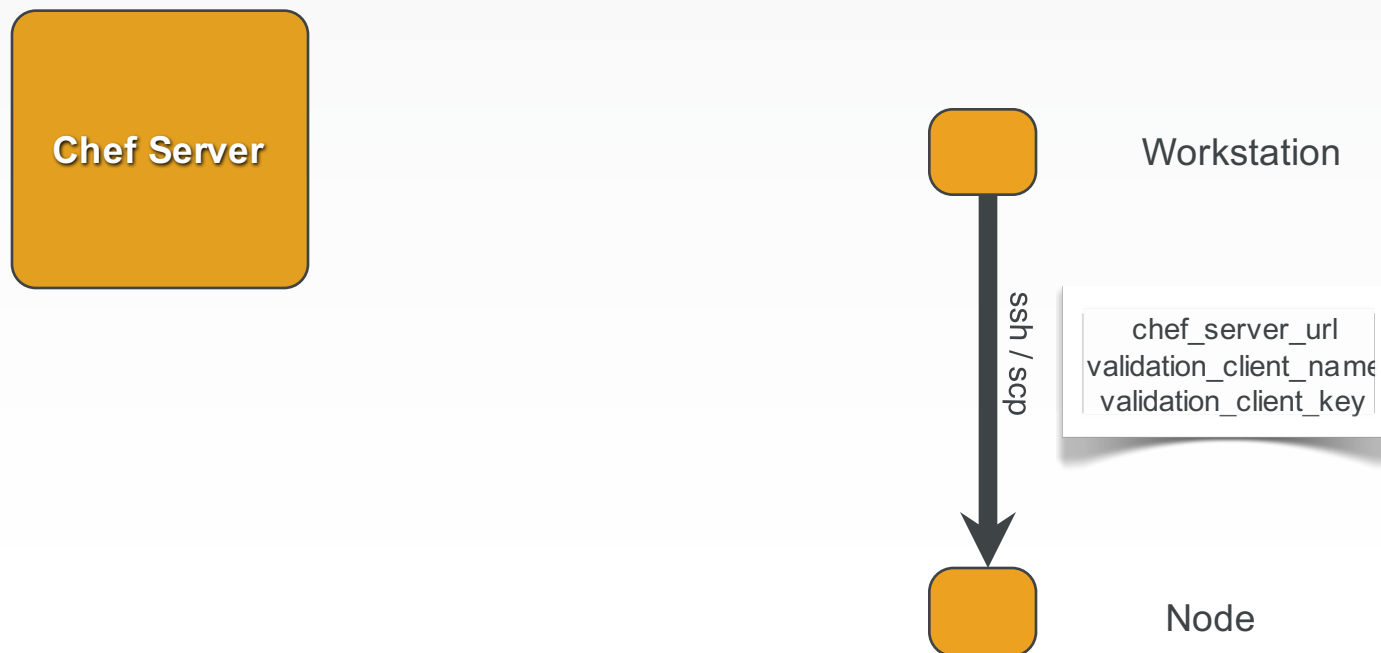
Chef Server

Workstation

Node

# knife bootstrap sequence

```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```



# knife bootstrap sequence

```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```

Chef Server

Workstation

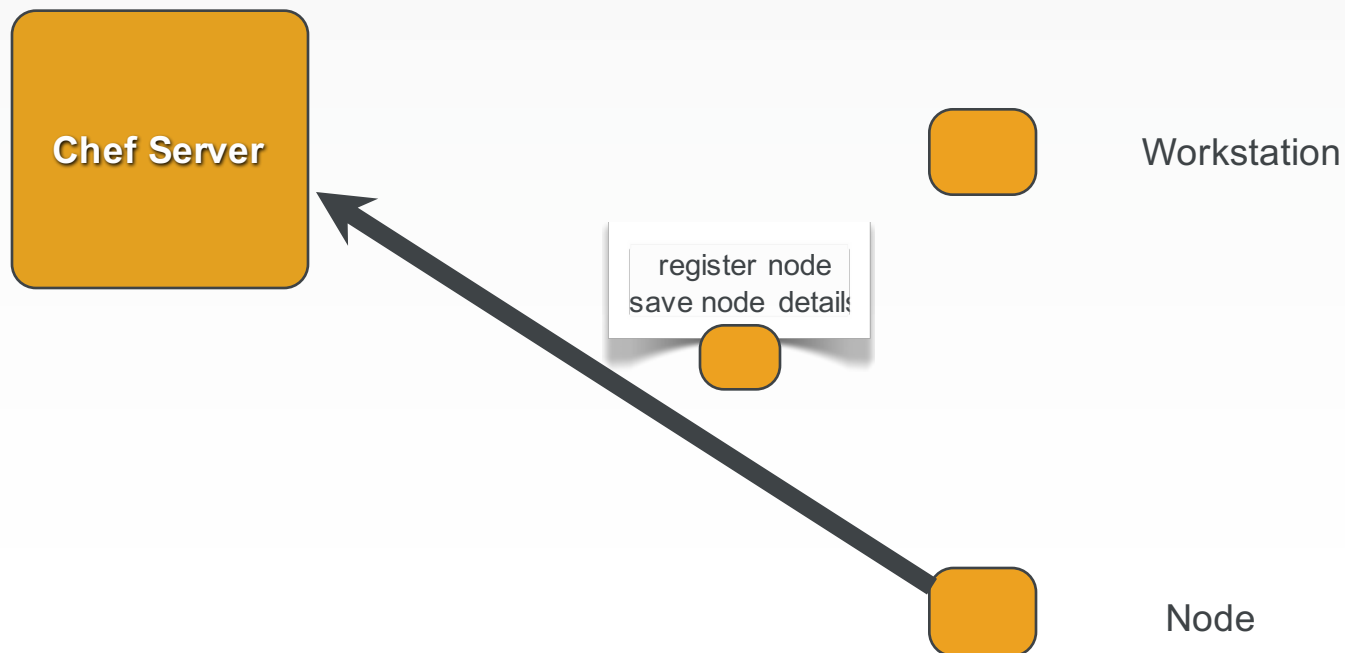
ssh / scp

Node

install chef-client  
configure chef-client  
run chef-client

# knife bootstrap sequence

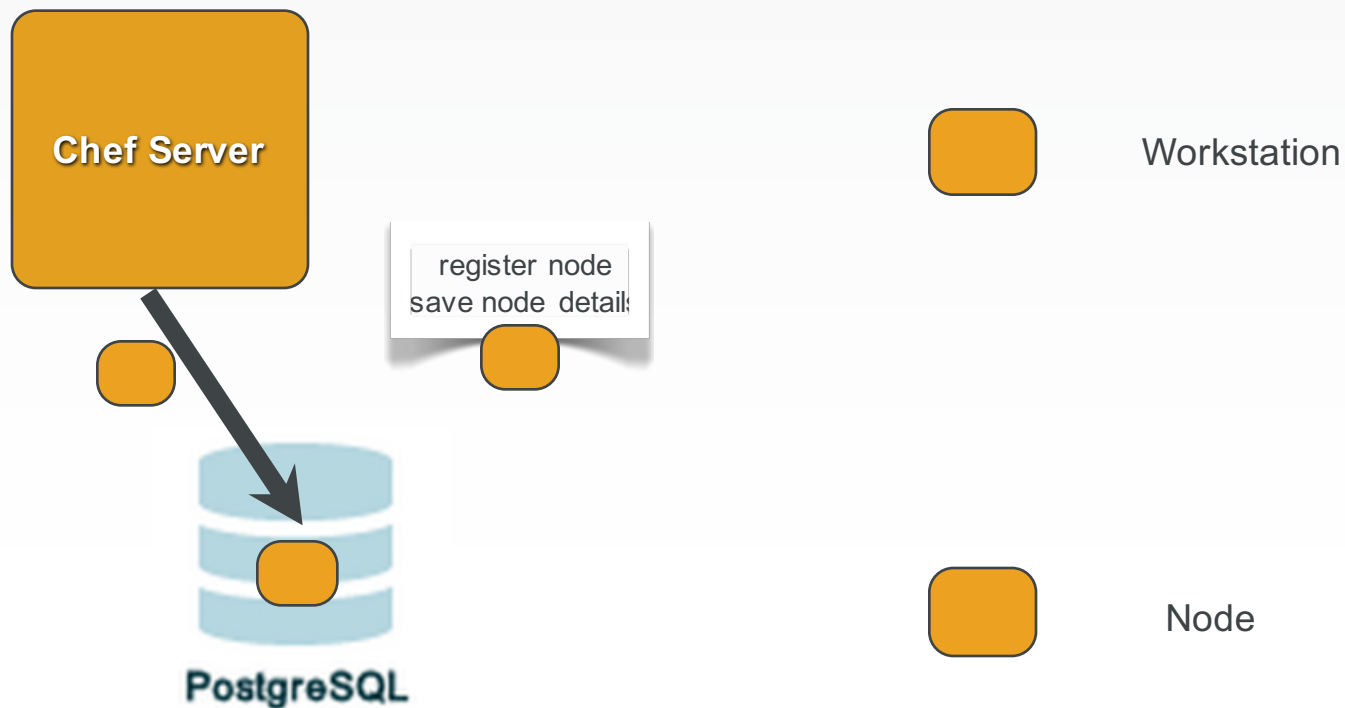
```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```





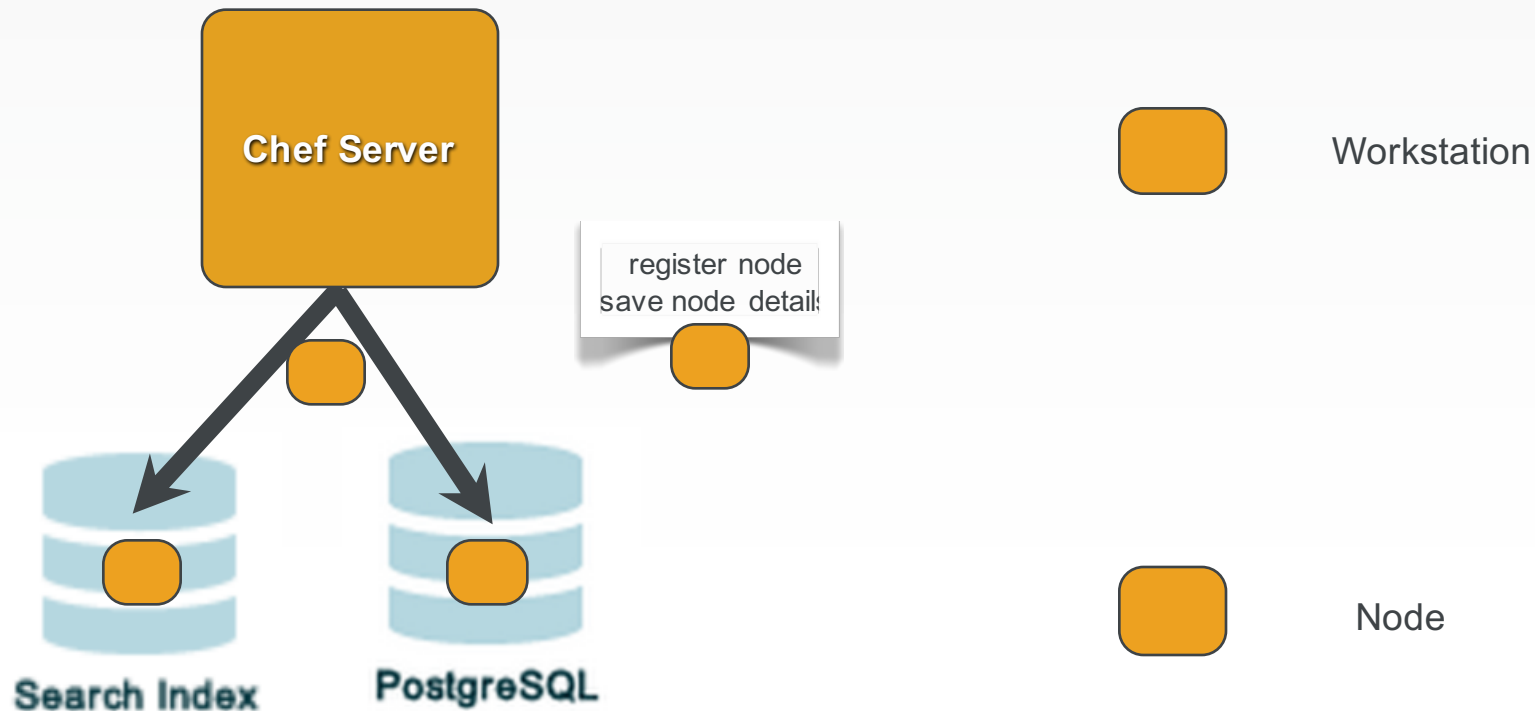
# knife bootstrap sequence

```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```



# knife bootstrap sequence

```
knife bootstrap <IP> --sudo -x chef -P chef -N  
"mynode"
```



# Lab: Add a Recipe to a Run List



```
$ knife node run_list add node1 "recipe[apache]"
```

```
node1:  
  run_list: recipe[apache]
```

# Lab: Rerun chef-client on the node



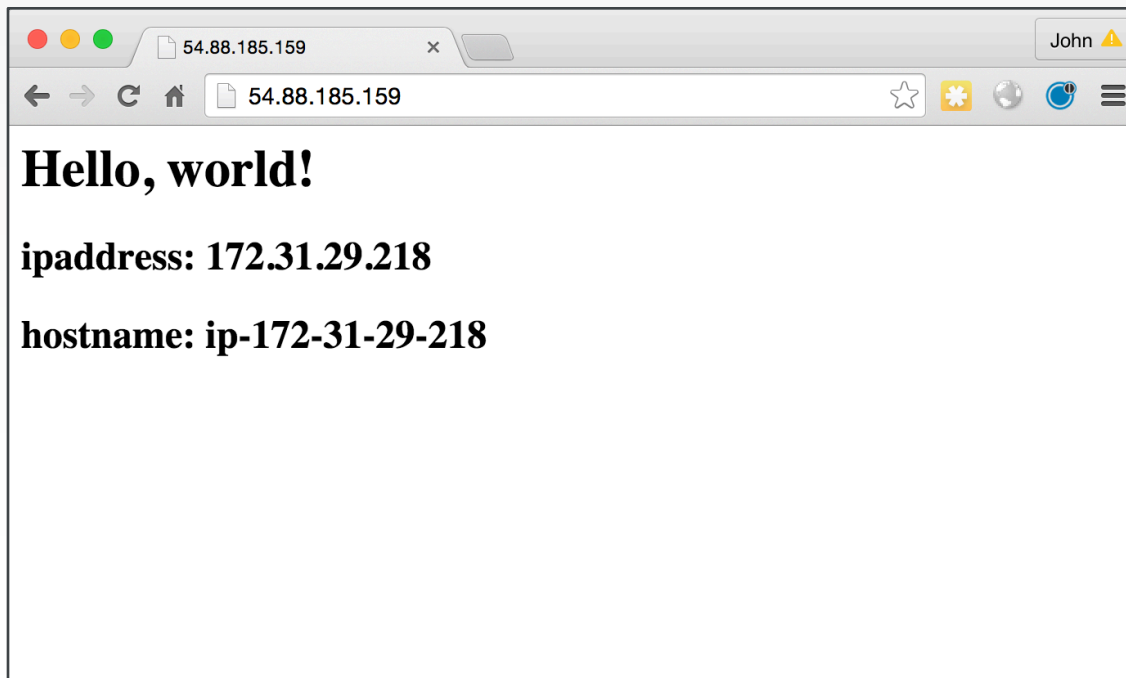
```
node1$ sudo chef-client
```

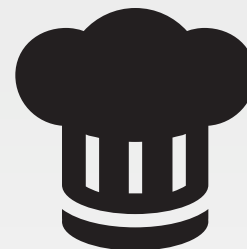
```
...
@@ -1 +1,8 @@
+<html>
+  <body>
+    <h1>Hello, world!</h1>
+    <h2>ipaddress: 172.31.29.218</h2>
+    <h2>hostname: ip-172-31-210-218</h2>
+</body>
+</html>

* service[httpd] action enable
  - enable service service[httpd]
* service[httpd] action start
  - start service service[httpd]

Running handlers:
Running handlers complete
Chef Client finished, 4/4 resources updated in 25.003999599 seconds
```

# Lab: Testing our webserver





# Hosted Chef

*More easily manage multiple nodes*

## Objective:

- ✓ Create a Hosted Chef Account
- ✓ Upload your cookbooks to the Hosted Chef Server
- ✓ Add a managed node

# DISCUSSION



## Discussion

What is the benefit of storing cookbooks in a central repository?

What is the primary tool for communicating with the Chef Server?

How did you add a node to your organization?

# DISCUSSION



## Q&A

What questions can you help you answer?

- Chef Server
- Managed Chef
- Berkshelf
- Bootstrapping Nodes





**CHEF**™