1. Install and configure Chef server

Follow the steps outlined in the Chef documentation to install and configure Chef server.

**Install the Chef Server**

There are three configuration scenarios for the Chef server:

[**Standalone**](https://docs.chef.io/install_server.html#standalone) (everything on a single machine)

[**High availability**](https://docs.chef.io/install_server.html#high-availability) (machines configured for front-end and back-end, allowing for failover on the back-end and load-balancing on the front-end, as required)

[**Tiered**](https://docs.chef.io/install_server.html#tiered-single-backend) (machines configured for front-end and back-end, with a single back-end and load-balancing on the front-end, as required)

Prerequisites

The Chef server has the following prerequisites:

* An x86\_64 compatible system architecture; Red Hat Enterprise Linux and CentOS may require updates prior to installation
* A resolvable hostname that is specified using a FQDN or an IP address
* A connection to Network Time Protocol (NTP) to prevent clock drift
* A local mail transfer agent that allows the Chef server to send email notifications
* Using cron and the /etc/cron.d directory for periodic maintenance tasks
* Disabling the Apache Qpid daemon on CentOS and Red Hat systems
* Optional. A local user account under which services will run, a local user account for PostgreSQL, and a group account under which services will run.

Standalone

The standalone installation of Chef server creates a working installation on a single server. This installation is also useful when you are installing Chef server in a virtual machine, for proof-of-concept deployments, or as a part of a development or testing loop. To install Chef server 12:

* Download the package from <https://downloads.chef.io/chef-server/>.
* Upload the package to the machine that will run the Chef server, and then record its location on the file system. The rest of these steps assume this location is in the /tmp directory.
* As a root user, install the Chef server package on the server, using the name of the package provided by Chef. For Red Hat and CentOS 6:

$ rpm -Uvh /tmp/chef-server-core-<version>.rpm

After a few minutes, the Chef server will be installed. Run the following to start all of the services:

$ chef-server-ctl reconfigure

Because the Chef server is composed of many different services that work together to create a functioning system, this step may take a few minutes to complete.

Run the following command to create an administrator:

$ chef-server-ctl user-create USER\_NAME FIRST\_NAME LAST\_NAME EMAIL 'PASSWORD' --filename FILE\_NAME

An RSA private key is generated automatically. This is the user’s private key and should be saved to a safe location. The --filename option will save the RSA private key to the specified absolute path.

For example:

$ chef-server-ctl user-create stevedanno Steve Danno steved@chef.io 'abc123' --filename /path/to/stevedanno.pem

Run the following command to create an organization:

$ chef-server-ctl org-create short\_name 'full\_organization\_name' --association\_user user\_name --filename ORGANIZATION-validator.pem

The --association\_user option will associate the user\_name with the admins security group on the Chef server.

| Feature | Command |
| --- | --- |
| Chef Manage | Use Chef management console to manage data bags, attributes, run-lists, roles, environments, and cookbooks from a web user interface.  On the Chef server, run:  $ chef-server-ctl install chef-manage  then:  $ chef-server-ctl reconfigure  and then:  $ chef-manage-ctl reconfigureote |
| Chef Push Jobs | Use Chef push jobs to run jobs—an action or a command to be executed—against nodes independently of a chef-client run.  On the Chef server, run:  $ chef-server-ctl install opscode-push-jobs-server  then:  $ chef-server-ctl reconfigure  and then:  $ opscode-push-jobs-server-ctl reconfigure |
| Reporting | Use Reporting to keep track of what happens during every chef-client runs across all of the infrastructure being managed by Chef. Run Reporting with Chef management console to view reports from a web user interface.  On the Chef server, run:  $ chef-server-ctl install opscode-reporting  then:  $ chef-server-ctl reconfigure  and then:  $ opscode-reporting-ctl reconfigure |

$ chef-server-ctl org-create 4thcoffee 'Fourth Coffee, Inc.' --association\_user stevedanno --filename /path/to/4thcoffee-validator.pem

**Use Local Packages**

The  subcommand downloads packages from <https://packages.chef.io/> by default. For systems that are behind a firewall (and may not have connectivity to packages.chef.io), these packages can be downloaded from <https://downloads.chef.io/chef-manage/>, and then installed manually.

First download the package that is appropriate for the platform, save it to a local path, and then run the installcommand using the --path option to specify the directory in which the package is located:

$ chef-server-ctl install PACKAGE\_NAME --path /path/to/package/directory

For example:

$ chef-server-ctl install chef-manage --path /root/packages

The chef-server-ctl command will install the first chef-manage package found in the /root/packagesdirectory.

Update config for purchased nodes

When using more than 25 nodes, a configuration change to your Chef server needs to be made in order for your Chef server to be properly configured and recognize your purchased licenses. You will need to edit to your chef-server.rb file by following the process below:

On your Chef server, if the chef-server.rb file does not exist, create it.

sudo mkdir /etc/opscode && sudo touch /etc/opscode/chef-server.rb

Open up the newly created chef-server.rb file in your favorite text editor.

sudo vi /etc/opscode/chef-server.rb

Paste or add the following text. Please note the placement of the single quotation (‘) marks.

license['nodes'] = N where N is the number of licensed nodes you have purchased

Save the file. Because we are using the vi editor, you can save your changes in vi with the following command:

:wq

Run chef-server-ctl reconfigure for the changes to be picked up by your Chef server.

sudo chef-server-ctl reconfigure

Set up your .chef directory

[Knife](https://docs.chef.io/knife.html) is the command-line tool that provides an interface between your workstation and the Chef server. Knife enables you to upload your cookbooks to the Chef server and work with *nodes*, the servers that you manage.

knife requires two files to authenticate with the Chef server.

An **RSA private key** : Every request to the Chef server is authenticated through an RSA public key pair. The Chef server holds the public part; you hold the private part.

**Knife configuration file** : The configuration file is typically named knife.rb. It contains information such as the Chef server's URL, the location of your RSA private key, and the default location of your cookbooks.

Both of these files are typically located in a directory named .chef. By default, every time knife runs, it looks in the current working directory for the .chef directory. If the .chef directory does not exist, knife searches up the directory tree for a .chef directory. This process is similar to how tools such as Git work.

[Follow one of these procedures](https://docs.chef.io/install_dk.html#set-up-the-chef-repo) in the Chef documentation to set up these files on your workstation. The following can help you choose the appropriate way to set up the files.

* If you installed Chef Manage and are setting up a new Chef server for your team or for learning purposes, the [Starter Kit](https://docs.chef.io/install_dk.html#starter-kit) option is the fastest way to get started.
* If you installed Chef Manage and are joining an existing Chef server organization, choose the [Manually (w/ Webui)](https://docs.chef.io/install_dk.html#manually-w-webui) option. Do not download the starter kit because downloading the starter kit resets the keys for all users.
* If you did not install Chef Manage, choose the [Manually (w/o Webui)](https://docs.chef.io/install_dk.html#manually-w-o-webui) option. You'll set up your workstation from the command line.

When setting up your workstation, we recommend you use the ~/learn-chef directory instead of ~/chef-repo. Doing so helps keep learning materials isolated from any other Chef-related work on your workstation.

If you get stuck or need help troubleshooting, [Discourse](https://discourse.chef.io/) is a great place to ask the community for help.

3. Verify your setup

Your ~/learn-chef/.chef directory should contain two files:

* your knife configuration file, knife.rb
* your RSA private key

Your knife configuration file should resemble this one. (node\_name, client\_key, and  chef\_server\_url contain your information.)

current\_dir = File.dirname(\_\_FILE\_\_)

log\_level :info

log\_location STDOUT

node\_name "admin"

client\_key "#{current\_dir}/admin.pem"

chef\_server\_url "https://ec2-54-205-94-168.compute-1.amazonaws.com/organizations/4thcoffee"

cookbook\_path ["#{current\_dir}/../cookbooks"]

|  |  |
| --- | --- |
|  |  |

After you set up your workstation, ensure that you fetch and validate the SSL certificate from your Chef server. Here's an example.

$ knife ssl fetch: Adding certificate for ec2-54-205-94-168\_compute-1\_amazonaws\_com in /home/ubuntu/learn-chef/.chef/trusted\_certs/ec2-54-205-94-168\_compute-1\_amazonaws\_com.crt

knife ssl check

Connecting to host ec2-54-205-94-168.compute-1.amazonaws.com:443

Successfully verified certificates from `ec2-54-205-94-168.compute-1.amazonaws.com'

Document on Chef-PART-2