

# TUTORIAL:

# 3SCALE API GATEWAY DEPLOYMENT WITH CHEF

This tutorial describes how to use the official 3scale Chef Cookbook to automate the deployment of your API gateway.

## What is the 3scale API gateway?

The API gateway is one of the integration methods that 3scale customers use to integrate their APIs with the [3scale](#) API Management Platform. It's based on OpenResty, a bundle that includes Nginx and some very useful third-party modules that complement it with features such as support for Lua scripting.

## What is Chef?

[Chef](#) is a configuration management tool that automates and simplifies software installation by using reusable configuration scripts called Cookbooks.



## Can I use it right away? If not, what do I need first?

This tutorial assumes familiarity with how Chef works and a ready-to-use Chef environment. If that's not your case, here are some resources that will help you get to that point:

- Get started with Chef: <https://learn.chef.io/tutorials/>
- An introduction to Chef solo: <http://www.markjberger.com/an-introduction-to-chef-solo/>

You'll also need to have previously configured your API in your 3scale admin dashboard. If you haven't gone through that step yet, you should do it now. You can follow the instructions [here](#) (stop at the part about running your proxy on premise).

## What is this useful for?

The [3scale Chef Cookbook](#) allows any Chef user to automate the deployment of the 3scale API gateway. Running the Cookbook on one or multiple target servers will install OpenResty plus all the necessary system dependencies required to run it. After the execution completes, the servers will have an up-and-running gateway listening for incoming API requests. The Cookbook not only installs the API gateway, but it will also deploy your 3scale Nginx configuration files, specifically tailored for your API configuration, to the exact location they are needed.

## How do you use it?

To use this Cookbook, you just need to include the default recipe on your node or role **run list**.

```
{
  "run_list": [
    "recipe[chef-3scale::default]"
  ]
}
```

There are 4 attributes that you'll need to set to configure how you use the Cookbook. All of them are under the **3scale** namespace:

**[3scale][config-source]** – Where your Nginx configuration files will be taken from. Two options: "local" or "3scale". More on this the section "Applying your own 3scale configuration".

**[3scale][provider-key]** – The key that identifies you as a 3scale customer. It can be found in the "Account" menu of your 3scale admin portal.

**[3scale][admin-domain]** – If your 3scale admin portal domain is “mycompany-admin.3scale.net”, then the value of this attribute should be “mycompany”.

**[3scale][config-version]** – Version ID. If not included, the current configuration from your 3scale account will be used. If included, the value must be a timestamp of one deployment, formatted as in the following example: “2015-09-15-041532”. See the “Rollback process” section for more information on this.

The default value for each of these attributes is defined here: <https://github.com/3scale/chef-3scale/tree/master/attributes>

This Cookbook uses and depends on the [OpenResty Cookbook](#), so attributes of that Cookbook are also available to you. You can see a full list here: <https://github.com/priestjim/chef-openresty#attributes>

Since you’ll be using the Nginx configuration files that 3scale generates for you, you won’t be able to use the attributes of the OpenResty Cookbook related to configuration parameters that go in the nginx.conf file.

## Applying your own 3scale configuration

For the API gateway to be configured for your own API endpoints, you need to deploy it using your own set of Nginx configuration files. There are two ways to apply your own configuration files to the Cookbook:

### Option 1: Local configuration files

- Configure your API in 3scale using the “On-premise Gateway” option
- Click on “Download the Nginx Config files” at the bottom of the screen
- Drop those files on the `/files/default/config` [directory of the Cookbook](#)

To use this option you’ll need to set the **[3scale][config-source]** attribute to “local” in your node or role description.

## Option 2: Fetch configuration files from your 3scale account

With this option, the Cookbook will automatically fetch the Nginx configuration files from your 3scale account when running the deployment. You'll need to set the following attributes in your node or role description:

- `['3scale']['config-source'] = "3scale"`
- `['3scale']['provider-key']` = (see attributes section)
- `['3scale']['admin-domain']` = (see attributes section)

In both cases, the Nginx configuration files will be copied to a subdirectory in the `/var/chef/cache` and symlinked to the Nginx working directory (`/etc/nginx/`).

## Rollback process

The **chef-3scale** Cookbook allows rolling back to a **previously deployed version** of the configuration. This is useful if you have a node where the API gateway had already been deployed one or multiple times, and you want to deploy it again but using the configuration files from one of the previous deployments instead of the latest version.

The built-in way to roll back is by using the `['3scale']['config-version']` attribute. Here's an example of a full node description using the rollback attribute:

```
{
  "3scale": {
    "provider-key": "YOURPROVIDERKEY",
    "admin-domain": "mycompany",
    "config-version": "2015-09-15-050545"
  },
  "openresty": {
    "source": {
      "prefix": "/etc"
    }
  },
}
```

```
"run_list": [  
  "recipe[chef-3scale::default]"  
]  
}
```

The value of the attribute must be the timestamp generated by the Cookbook when running a deployment. This attribute is always logged and printed to the screen while running the Cookbook:

```
3SCALE - deploying gateway with LATEST configuration version: 2015-09-15-050545
```

When a gateway has been deployed using one of the previous versions of the configuration, the logged message will be slightly different:

```
3SCALE - rolling back to configuration version: 2015-09-15-050545
```

The rollback process will symlink the configuration files located at:

```
/var/chef/cache/<config-version-attribute>/*
```

to the Nginx configuration directory and then reload the gateway.

## What can I do if I have problems?

If you're having problems deploying your API gateway when running the Cookbook, the best first step is to look at Chef's own logs. Here you can find some useful debugging tips: <https://docs.chef.io/debug.html>

If the deployment completed successfully, but the API gateway is not running as expected, the problem is probably in the Nginx configuration files you deployed. The best place to start troubleshooting is the Nginx error log, located at `/var/log/nginx/error.log`

If there are no errors in the Nginx log, you might want to double check how you configured your API in 3scale. There are plenty of resources available on our [support portal](#), such as this [debugging guide](#).