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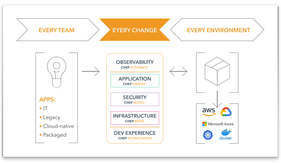
# Platform Overview

Chef is an automation company. Ever since it was founded in 2008, we have been bringing together developers and system administrators with our namesake product, Chef Infra. Over the years, what we mean by automation has expanded. Today, Chef has a complete automation solution for both infrastructure and applications that takes you all the way from development to production. Here's the complete Chef solution.




## Chef Infra

Chef Infra is a powerful automation platform that transforms infrastructure into code. Whether you're operating in the cloud, on-premises, or in a hybrid environment, Chef Infra automates how infrastructure is configured, deployed, and managed across your network, no matter its size.

This diagram shows how you develop, test, and deploy your Chef Infra code.


### Using Chef Workstation

Chef Workstation allows you to author cookbooks and administer your infrastructure. Chef Workstation runs on the computer you use everyday, whether it is Linux, macOS, or Windows.

Chef Workstation ships with Cookstyle, ChefSpec, Chef InSpec, and Test Kitchen testing tools. With them, you can make sure your Chef Infra code does what you intended before you deploy it to environments used by others, such as staging or production.

When you write your code, you use resources to describe your infrastructure. A resource corresponds to some piece of infrastructure, such as a file, a template, or a package. Each resource declares what state a part of the system should be in, but not how to get there. Chef Infra handles these complexities for you. Chef Infra provides many resources that are ready for you to use. You can also utilize resources shipped in community cookbooks, or write your own resources specific to your infrastructure.

A Chef Infra recipe is a file that groups related resources, such as everything needed to configure a web server, database server, or a load balancer. A Chef Infra cookbook provides structure to your recipes and, in general, helps you stay organized.

The Chef Workstation includes other command line tools for interacting with Chef Infra. These include knife for interacting with the Chef Infra Server, and chef for interacting with your local chef code repository (chef-repo).

### Uploading your code to Chef Infra Server

Once you're done developing and testing code on your local workstation, you can upload it to the Chef Infra Server. The Chef Infra Server acts as a hub for configuration data. It stores cookbooks, the policies that are applied to the systems in your infrastructure and metadata that describes each system. The knife command lets you communicate with the Chef Infra Server from your workstation. For example, you use it to upload your cookbooks.

### Configuring nodes with Chef Infra Client

Chef Infra is constructed so that most of the computational effort occurs on the nodes rather than on the Chef Infra Server. A node represents any system you manage and is typically a virtual machine, container instance, or physical server. Basically, it is any compute resource in your infrastructure that's managed by Chef Infra. All nodes have Chef Infra Client installed on them, and Chef Infra Client is available for multiple platforms including Linux, macOS, Windows, AIX, and Solaris.

Periodically, Chef Infra Client contacts the Chef Infra Server to retrieve the latest cookbooks. If (and only if) the current state of the node does not conform to what the cookbook says it should be, Chef Infra Client executes the cookbook instructions. This iterative process ensures that the network as a whole converges to the state envisioned by business policy.

## Chef Habitat

Chef Habitat offers a new approach to deploying applications called application automation. Application automation means that the automation is packaged with the application and travels with it, no matter where that application is deployed. The unit of deployment becomes the application and its associated automation. The runtime environment, whether it is a container, bare metal, or PaaS does not in any way define the application.

Chef Habitat is comprised of a packaging format and a supervisor. The format defines Chef Habitat packages, which are isolated, immutable, and auditable. The Chef Habitat supervisor knows how to take the packages and run them. It's aware of the package's peer relationships, its upgrade strategy, and security policies.

## Chef InSpec

Chef InSpec is an open-source testing framework with a human- and machine-readable language for specifying compliance, security and policy requirements. When compliance is expressed as code, you can integrate it into your deployment pipeline and automatically test for adherence to security policies.

Chef InSpec code can run in multiple platforms. You can execute the same set of tests locally, with remote commands that use SSH or WinRM, or with external mechanisms such as the Docker API.

With Chef InSpec, you can do more than ensure that your physical servers are in compliance. You can, for example, assess data in a database or inspect the configuration of virtual resources by using their API.

To get a sense of how the Chef InSpec language works, here are some examples. This Chef InSpec rule ensures that insecure services and protocols, such as telnet, are not used.

Copy

```
describe package('telnetd') do
  it { should_not be_installed }
end

describe inetd_conf do
  its('telnet') { should eq nil }
end
```

## Chef Automate

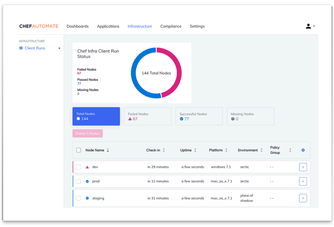
Chef Automate provides a full suite of enterprise capabilities for node visibility and compliance. Chef Automate integrates with the open-source products Chef Infra Client, Chef InSpec and Chef Habitat. Chef Automate comes with comprehensive 24x7 support services for the entire platform, including open source components.

Chef Automate gives you a full-stack continuous compliance and security, as well as visibility into your applications and infrastructure.

### Nodes

Chef Automate gives you a data warehouse that accepts input from Chef Infra Server, Chef Habitat, and Chef Automate workflow and compliance. It provides views into operational and workflow events. There is a query language available through the UI and customizable dashboards.

Here is an example of the Chef Automate dashboard.




### Compliance

Chef Automate creates customizable reports that identify compliance issues, security risks, and outdated software. You can write your own compliance rules in Chef InSpec, or you can get started by using built-in profiles, which are predefined rule sets for a variety of security frameworks, such as Center for Internet Security (CIS) benchmarks, included as part of Chef Automate.

For information on the integrated reporting capabilities in Chef Automate, see Compliance Overview.

### High availability

Chef Automate includes a high-availability Chef Infra Server with fault tolerance, immediately consistent search results, and accurate real-time data about your infrastructure. Chef Automate also provides a graphical management console for the Chef Infra Server.

## Learning More

If you're interested in getting hands-on experience, go to the Learn Chef site for tutorials, information about formal training classes and community resources.