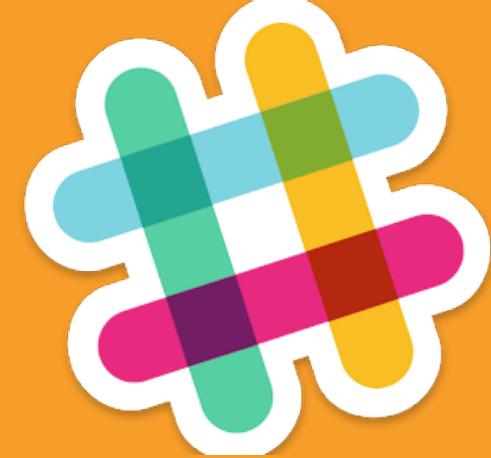


Learning Lab

Join Slack Team & Channel

- <http://community-slack.chef.io>
- `#SLACK_CHANNEL_NAME`



`#CHANNEL_NAME`

Find your IP Address

Login to remote workstation



```
$ ssh chef@IP_ADDRESS
```

```
The authenticity of host '52.54.113.210 (52.54.113.210)' can't be  
established.
```

```
ECDSA key fingerprint is
```

```
SHA256:zAtoe029XbhRNvg542cuh4qsKCEaX8hNlEOCbgd3I.
```

```
Are you sure you want to continue connecting (yes/no)?
```

Login to remote workstation



```
$ ssh chef@IP_ADDRESS
```

```
The authenticity of host '52.54.113.210 (52.54.113.210)' can't be established.
```

```
ECDSA key fingerprint is
```

```
SHA256:zAtoe029XbhRNvg542cuh4qsKCEaX8hNlEOCbgd3I.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

Login to remote workstation



```
$ ssh chef@IP_ADDRESS
```

```
The authenticity of host '52.54.113.210 (52.54.113.210)' can't be established.
```

```
ECDSA key fingerprint is
```

```
SHA256:zAtoe029XbhRNvg542cuh4qsKCEaX8hNlEOCbgd3I.
```

```
Are you sure you want to continue connecting (yes/no)? Yes
```

```
Warning: Permanently added '52.54.113.210' (ECDSA) to the list of known hosts.
```

```
chef@52.54.113.210's password:
```

Login to remote workstation



```
$ ssh chef@IP_ADDRESS
```

```
The authenticity of host '52.54.113.210 (52.54.113.210)' can't be established.
```

```
ECDSA key fingerprint is
```

```
SHA256:zAtoe029XbhRNvg542cuh4qsKCEaX8hNlEOCbgd3I.
```

```
Are you sure you want to continue connecting (yes/no)? Yes
```

```
Warning: Permanently added '52.54.113.210' (ECDSA) to the list of known hosts.
```

```
chef@52.54.113.210's password: chef
```

Touch a file with your name



```
$ touch firstname.lastname
```

List your home directory



```
$ sleep 60 && ls -t
```

```
firstname.lastname  cookbooks      Berksfile    profiles  
nodes           Berksfile.lock  config.json
```

Verify the installation



```
$ which inspec
```

```
/opt/chefdk/bin/inspec
```

Verify the installation



```
$ inspec version
```

```
1.11.0
```

Your version of InSpec is out of date! The latest version is 1.15.0.

Verify the installation



```
$ which chef
```

```
/opt/chefdk/bin/chef
```

Verify the installation



```
$ chef --version
```

```
Chef Development Kit Version: 1.2.22
chef-client version: 12.18.31
delivery version: master (0b746cafed65a9ea1a79de3cc546e7922de9187c)
berks version: 2017-03-02T09:46:48.762338 20503]
2017-03-02T09:46:48.762505 20503] 2017-03-02T09:46:48.762618 20503]
2017-03-02T09:46:48.762722 20503] 2017-03-02T09:46:48.791141 20503]
2017-03-02T09:46:48.791248 20503] 5.6.0
kitchen version: 1.15.0
```

Chef DK - The Chef Development Kit

Definitive tooling for local development of Chef code & Infrastructure as Code development

FAST INEXPENSIVE TESTING

Foodcritic

Test Your “Chef Style”

- Validate your Chef code against Chef best practices
- Extend with rules to enforce organizational Chef development best practices
- Enforce compliance & security practices

CookStyle

Validate your Ruby

- Validate your Chef code against Ruby best practices
- Identify potential Ruby errors
Unclosed strings, etc.
- Identify style/convention that helps write better code
Single quotes vs. double quotes

ChefSpec

Simulate Chef

- Validate your Chef code will run
- Testing for more Chef advanced use cases
- Useful for regression testing

DEEP INTEGRATION TESTING

Test Kitchen

Let's do this (almost) for real

- Executes your Chef code on an instance or container
- Integrates with Cloud and Virtualization providers
- Validate your Chef code locally before sharing
- Speed development of Chef Cookbooks

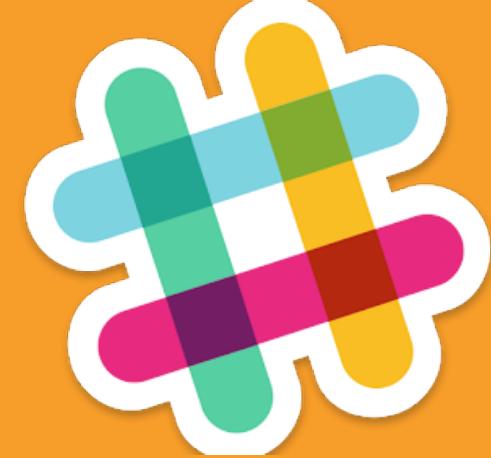
InSpec

Verify automation results & ensure compliance

- Assert the intention of your Chef code
- Verify on live systems that your Chef code produced the correct result
- Confirm your Chef code didn't not produce compliance drift

Join Slack Team & Channel

- <http://community-slack.chef.io>
- `#SLACK_CHANNEL_NAME`



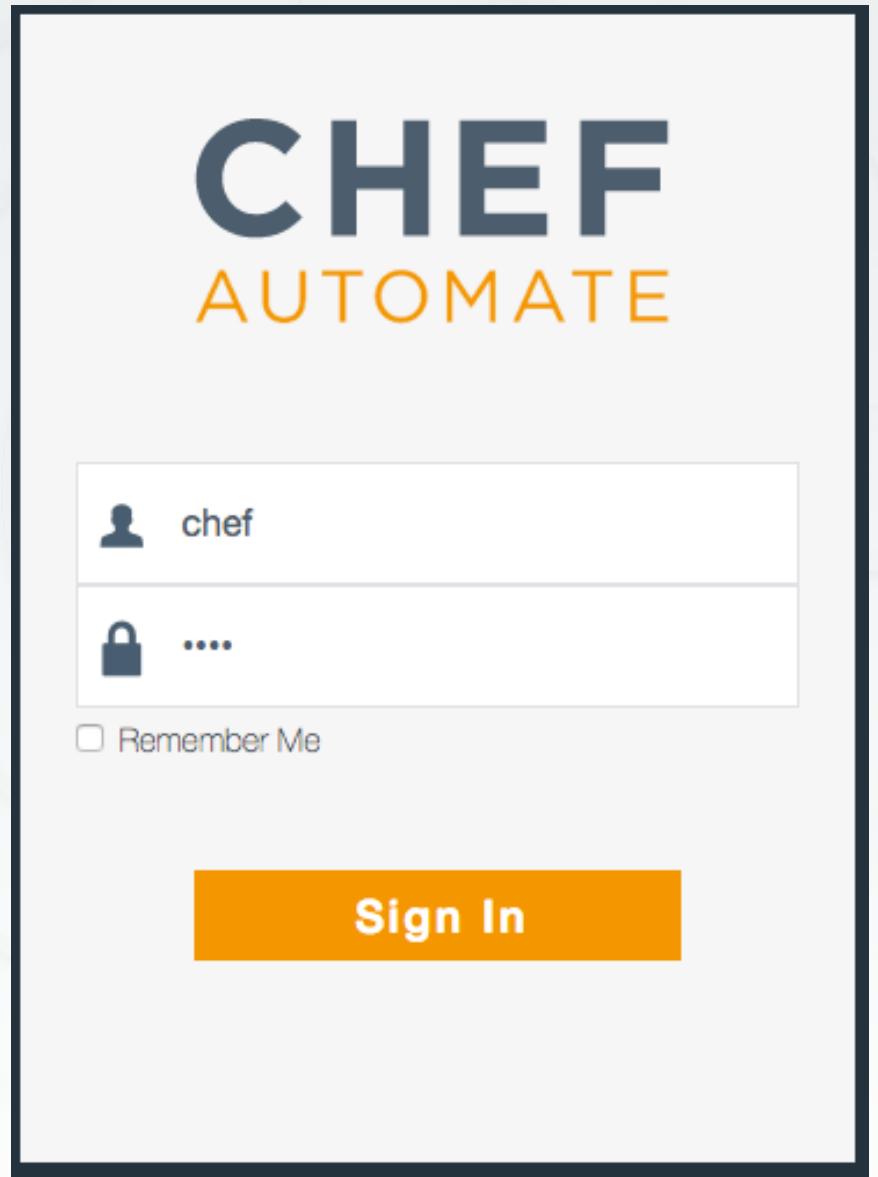
`#CHANNEL_NAME`

Continuous Compliance

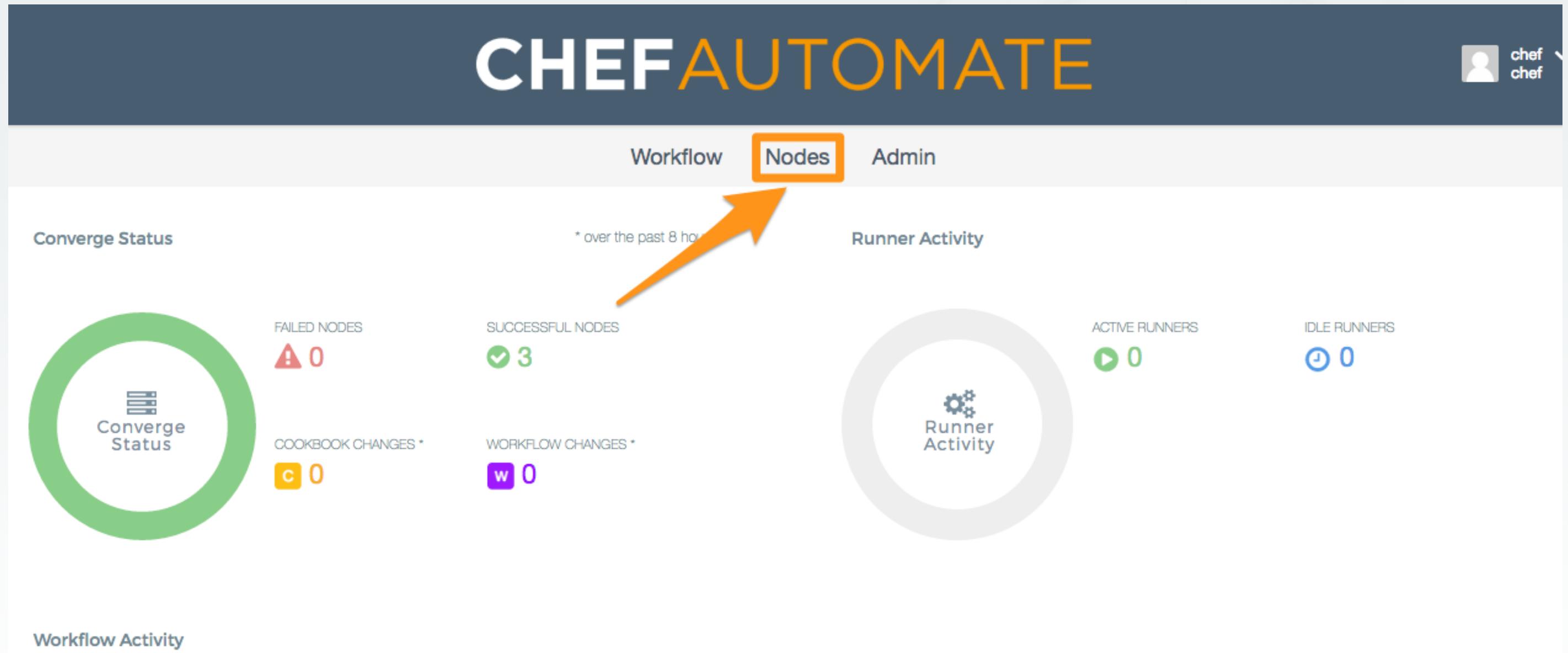
Chef Automate and InSpec Profiles

Login to Chef Automate

- URL_OF_AUTOMATE_SERVER
- Uses a self-signed certificate in this lab
- Username: **chef**
- Password: **chef**



Browse to your node



Browse to your node

TOTAL NODES	FAILED NODES	SUCCESSFUL NODES	MISSING NODES		
● 3	⚠ 0	✓ 3	? 0		
Converge	Node Name ▲	Check-in ▲	Uptime ▲	Platform ▲	Environment ▲
	✓ orange-2-of-hearts	8 hours ago	a minute	centos	_default
	✓ orange-3-of-hearts	8 hours ago	a minute	centos	_default
	✓ orange-4-of-hearts	8 hours ago	a minute	centos	_default

View details of your node

Node State > localhost | chef_solo | _default | **orange-3-of-hearts**

Converge Status Compliance Status

orange-3-of-hearts

Run ID: a2c1e098-3c97-4818-8424-4e1f7cdf98f0

The run succeeded on 03/10/2017 at 12:25 am. all resources ran successfully!

RUN DURATION 12:25 AM - 12:25 AM	Uptime: a minute
RUN INITIATOR Not Available	Environment: _default
RUN TYPE Not Available	Platform(s): centos
	FQDN: ip-172-31-44-200.us-west-2.compute.internal
	IP Address: 172.31.44.200

Resources Run List Attributes

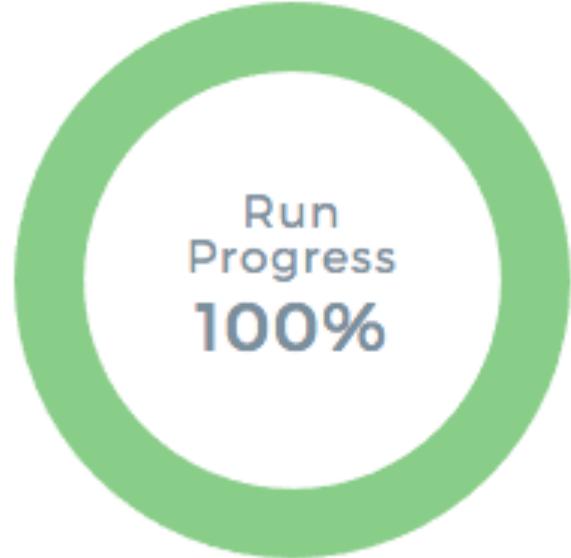
3/10/2017

1 0 1

a few seconds

03/10/17 | 00:25:56 - 00:25:56

View details of your node



Run Progress
100%

RUN DURATION
12:25 AM - 12:25 AM

RUN INITIATOR
Not Available

RUN TYPE
Not Available

Uptime: a minute

Environment: _default

Platform(s): centos

FQDN: ip-172-31-44-200.us-west-2.compute.internal

IP Address: 172.31.44.200

Resources	Run List	Attributes			
ROLES	COOKBOOKS	RECIPES	FAILED	SUCCEEDED	
 0	 0	 0	 0	 0	

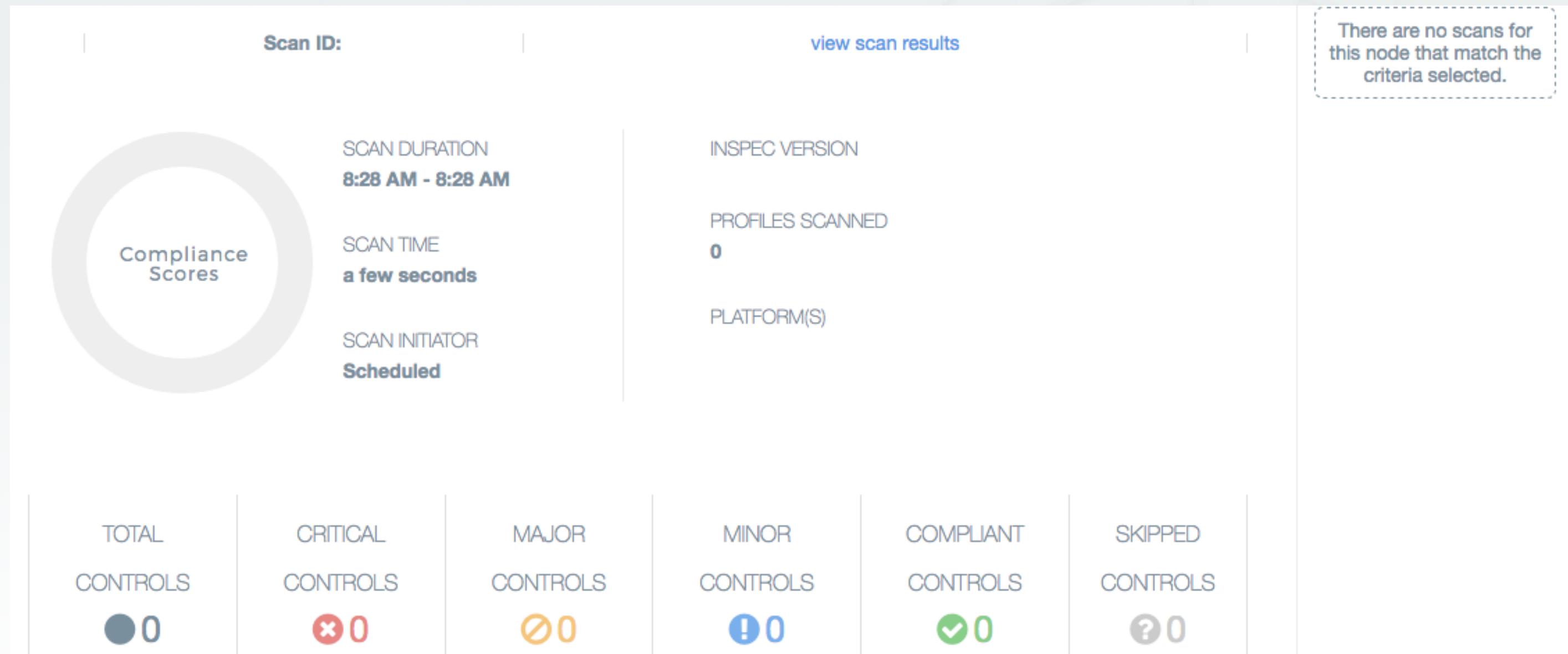
 INSPeC

 CHEF

View details of your node

The screenshot shows the Inspec interface for viewing node details. At the top, there is a search bar labeled "Search attributes..." and a magnifying glass icon. Below the search bar, there are five categories: ALL, DEFAULT, NORMAL, OVERRIDE, and AUTOMATIC, each with a count of 4,106. A dropdown arrow is located below the ALL category. Below these categories, there are two buttons: "Expand All" and "Collapse All". A list of attributes follows, each preceded by a plus sign and a collapsed ellipsis: "block_device" : { ... }, "chef_packages" : { ... }, "cloud" : { ... }, "cloud_v2" : { ... }, "command" : { ... }, "counters" : { ... }, "cpu" : { ... }, and "current_user" : "chef". To the right of the main content area, there is a sidebar showing audit history. The sidebar has a header with three status indicators: 1 (blue), 0 (red), and 1 (green). Below the header, there is a message "a few seconds" with a green checkmark icon, followed by the timestamp "03/10/17 | 00:25:56 - 00:25:56".

View details of your node



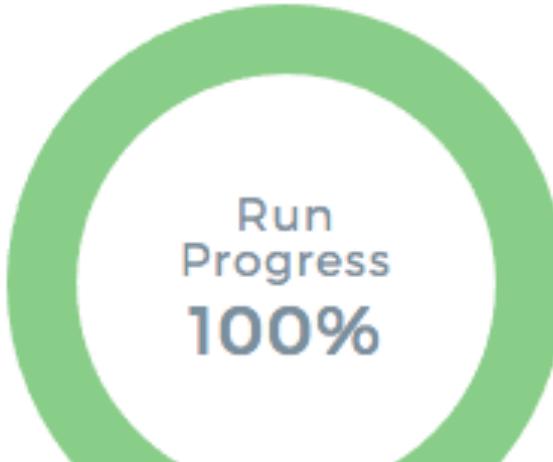
The node uses chef solo

Node State > localhost **chef_solo** _default | orange-3-of-hearts

Converge Status Compliance Status

orange-3-of-hearts | Run ID: a2c1e098-3c97-4818-8424-4e1f7cdf98f0

 The run succeeded on 03/10/2017 at 12:25 am. all resources ran successfully!



RUN DURATION
12:25 AM - 12:25 AM

RUN INITIATOR
Not Available

RUN TYPE

Uptime: a minute

Environment: _default

Platform(s): centos

FQDN: ip-172-31-44-200.us-west-2.compute.internal

Chef Automate – Node View

- View aggregate status of your infrastructure

- Overall & trend views of converge status

- Overall & trend views of compliance status

- Filter & search options

- View details of any node

- Status of converged resources

- Run List applied to the node

- Attributes of the node

Chef Solo

Executes chef-client without relying on a Chef server to provide configuration policies (cookbooks, environments, etc.)

https://docs.chef.io/chef_solo.html

Chef Solo

- Local directory for configuration policy
 - Or a URL from which a `.tar.gz` file can be downloaded
- Node objects stored as a local JSON file
- Attribute data stored in a JSON file
 - Local or remote
- Does not pull from a Chef Server
- Can be configured to send data to a Chef Server

Chef Client – Local Mode

Local mode is a way to run the chef-client against the chef-repo on a local machine as if it were running against the Chef server.

https://docs.chef.io/ctl_chef_client.html#run-in-local-mode

Go home



```
$ cd ~
```

Run chef-client in local mode



```
$ sudo chef-client --local-mode
```

```
[2017-03-10T14:05:49+00:00] INFO: Forking chef instance to converge...
```

```
Starting Chef Client, version 12.18.31
```

```
...
```

```
Converging 0 resources
```

```
[2017-03-10T14:05:51+00:00] INFO: Chef Run complete in 0.19413018 seconds
```

```
Running handlers:
```

```
[2017-03-10T14:05:51+00:00] INFO: Running report handlers
```

```
Running handlers complete
```

```
[2017-03-10T14:05:51+00:00] INFO: Report handlers complete
```

```
Chef Client finished, 0/0 resources updated in 01 seconds
```

Check the converge status in Automate

_solo | _default | **orange-3-of-hearts**

Resource Status

Run ID: d6a741cd-f78e-4e4b-8f2b-ca11170ad6d7

2017 at 9:05 am. all resources ran successfully!

RUN DURATION	Uptime:	9 hours
9:05 AM - 9:05 AM	Environment:	_default
RUN INITIATOR	Platform(s):	centos

Run History

Date	Success	Failure	Warnings
3/10/2017	4	0	4
03/10/17 09:05:51 - 09:05:51			
03/10/17 09:01:37 - 09:01:37			
03/10/17 08:56:16 - 08:56:16			

Run with additional parameters



```
$ sudo chef-client --local-mode -j config.json -r "recipe[audit::default]"
```

```
[2017-03-10T14:10:34+00:00] INFO: Forking chef instance to converge...
Starting Chef Client, version 12.18.31
[2017-03-10T14:10:34+00:00] INFO: *** Chef 12.18.31 ***
...
[2017-03-10T14:10:40+00:00] INFO: Chef Run complete in 4.10402964 seconds
```

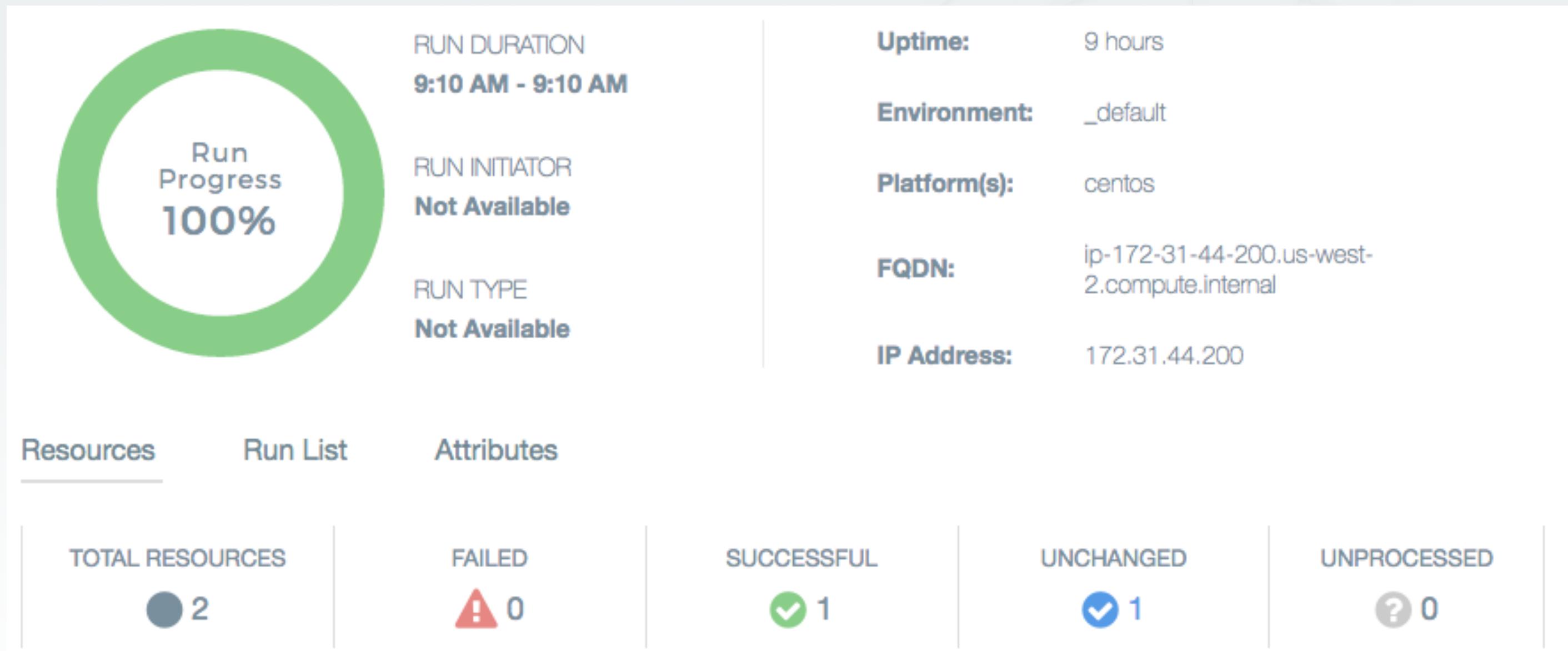
Running handlers:

```
[2017-03-10T14:10:40+00:00] INFO: Running report handlers
[2017-03-10T14:10:40+00:00] WARN: Format is json
[2017-03-10T14:10:40+00:00] INFO: Initialize InSpec
[2017-03-10T14:10:40+00:00] INFO: Running tests from: [{:name=>"ssh", :path=>"/home/chef/profiles/ssh"}]
[2017-03-10T14:10:40+00:00] INFO: Reporting to chef-visibility
...
```

Running handlers complete

```
[2017-03-10T14:10:40+00:00] INFO: Report handlers complete
Chef Client finished, 1/2 resources updated in 06 seconds
```

Check the converge status in Automate



Check the converge status in Automate

TOTAL RESOURCES	FAILED	SUCCESSFUL	UNCHANGED	UNPROCESSED		
2	0	1	1	0		
Status	Step	Type	Name	Action	Cookbook	View
✓	1/2	chef_gem	inspec	install	audit	--
✓	2/2	chef_gem	inspec	install	audit	--

Check the compliance status in Automate

Converge Status 

orange-3-of-hearts | Scan ID: aca493c7-51d2-43f6-a72b-20517998195c | view scan results

 This node is **uncompliant**. Too many Critical and Major scored tests failed in the scan for this node to be deemed compliant. You can view the scan results below or [view JSON scan results](#).



Compliance Scores

SCAN DURATION 9:10 AM - 9:10 AM	INSPEC VERSION 1.15.0
SCAN TIME a few seconds	PROFILES SCANNED 1
SCAN INITIATOR Scheduled	PLATFORM(S) not defined



1 A 0 ?

a few seconds
03/10/17 | 09:10:39 - 09:10:40

Check the compliance status in Automate

TOTAL CONTROLS	CRITICAL CONTROLS	MAJOR CONTROLS	MINOR CONTROLS	COMPLIANT CONTROLS	SKIPPED CONTROLS
● 1	✗ 1	🚫 0	! 0	✓ 0	? 0
▼					
Status	Score	Control	Profile	Failed	Skipped
✗	0.7	SSH Version 2	SSH Configuration	1	0
					details

View details of the failing control

The screenshot shows a control panel for a security audit. At the top, there is a navigation bar with a search bar containing 'Search' and a user icon. Below the navigation bar, a large orange arrow points from the text 'View details of the failing control' to the 'details' button in the control summary.

Control Summary:

- Status:** Failing (Red)
- Score:** 0.7
- Name:** SSH Version 2
- Type:** SSH Configuration
- Passed:** 1
- Failed:** 0
- Details:** 0

Description:
Only SSH version 2 should be enabled

Scan Results Additional Information

Status	Message	Start Time	Run Time
	SSH Configuration Protocol should cmp == 2	03/10/2017 9:10 AM	a few seconds

View details of the failing control

Only SSH version 2 should be enabled

Scan Results Additional Information

Control:

```
control 'sshd-1.0' do
  impact 0.7
  title 'SSH Version 2'
  desc 'Only SSH version 2 should be enabled'
  describe sshd_config do
    its('Protocol') { should cmp 2 }
  end
end
```

Tags:

No Tags Listed

References:

No References Listed



Review the set-up

tying it all together

Go home



```
$ cd ~
```

List contents



```
$ ls
```

```
Berksfile      config.json  firstname.lastname  profiles  
Berksfile.lock  cookbooks    nodes
```

List cookbooks



```
$ ls cookbooks
```

```
audit  compat_resource
```

Audit Cookbook

- Install InSpec
- Run InSpec profiles
- Report results to Chef Compliance or ChefVisibility

Compat Resource Cookbook

- Adds functionality introduced in the latest chef-client releases to any chef-client from 12.1 onwards.
- Includes
 - Custom Resource functionality
 - notification improvements
 - new resources added to core chef
- Allows for these new resources in cookbooks without requiring the very latest Chef client release.

config.json



```
$ cat config.json
```

```
{  
  "audit": {  
    "collector": "chef-visibility",  
    "inspec_version": "1.15.0",  
    "profiles": [  
      {  
        "name": "ssh",  
        "path": "/home/chef/profiles/ssh"  
      }  
    ]  
  }  
}
```

Local Profiles



```
$ tree profiles
```

```
profiles/
└── ssh
    ├── controls
    │   └── ssh.rb
    ├── inspec.lock
    └── inspec.yml
```

2 directories, 3 files

Run Locally with InSpec



```
$ inspec exec profiles/ssh
```

```
Profile: SSH Configuration (ssh)
Version: 0.1.0
Target: local://

  x sshd-1.0: SSH Version 2 (
    expected: 2
      got:

        (compared using `cmp` matcher)
    )
  x SSH Configuration Protocol should cmp == 2

    expected: 2
      got:

        (compared using `cmp` matcher)

Profile Summary: 0 successful, 1 failures, 0 skipped
Test Summary: 0 successful, 1 failures, 0 skipped
```

Next Steps

- Remediate the failing control
- Run the audit cookbook to verify the remediation
- View the compliant node in Automate

Remediate the Failing Control

Fix your ssh configuration on your own

- Write a cookbook to manage SSH
- Manually update the SSH configuration

Verify Compliance Status in Automate

orange-3-of-hearts | Scan ID: 3cd9e8e3-d75b-42e7-83cc-0f79c32183df | view scan results

 This node is compliant.



Compliance Scores

SCAN DURATION	11:48 AM - 11:48 AM	INSPEC VERSION	1.15.0
SCAN TIME	a few seconds	PROFILES SCANNED	1
SCAN INITIATOR	Scheduled	PLATFORM(S)	not defined

Verify Compliance Status in Automate

TOTAL CONTROLS	CRITICAL CONTROLS	MAJOR CONTROLS	MINOR CONTROLS	COMPLIANT CONTROLS	SKIPPED CONTROLS		
● 1	✗ 0	🚫 0	❗ 0	✓ 1	❓ 0		
							
Status	Score	Control	Profile	Failed	Skipped	Passed	Details
 0.7	SSH Version 2	SSH Configuration	0	0	1	details	

Remediate Failing SSH Control

Simple SSH Cookbook

- A server recipe to manage the sshd_config file
- Local test environment configured

Move to the cookbooks directory



```
$ cd ~/cookbooks
```

Generate an ssh cookbook



```
$ chef generate cookbook ssh
```

```
Generating cookbook ssh
```

- Ensuring correct cookbook file content
- Committing cookbook files to git
- Ensuring delivery configuration
- Ensuring correct delivery build cookbook content
- Adding delivery configuration to feature branch
- Adding build cookbook to feature branch
- Merging delivery content feature branch to master

Your cookbook is ready. Type `cd ssh` to enter it.

There are several commands you can run to get started locally developing and testing your cookbook.

Type `delivery local --help` to see a full list.

Why not start by writing a test? Tests for the default recipe are stored at:

test/smoke/default/default_test.rb

If you'd prefer to dive right in, the default recipe can be found at:

recipes/default.rb

Add a server recipe to the ssh cookbook



```
$ chef generate recipe ssh server
```

```
Recipe: code_generator::recipe
  * directory[./ssh/spec/unit/recipes] action create (up to date)
  * cookbook_file[./ssh/spec/spec_helper.rb] action create_if_missing (up to date)
  * template[./ssh/spec/unit/recipes/server_spec.rb] action create_if_missing
    - create new file ./ssh/spec/unit/recipes/server_spec.rb
    - update content in file ./ssh/spec/unit/recipes/server_spec.rb from none to d14960
      (diff output suppressed by config)
  * directory[./ssh/test/smoke/default] action create (up to date)
  * template[./ssh/test/smoke/default/server.rb] action create_if_missing
    - create new file ./ssh/test/smoke/default/server.rb
    - update content in file ./ssh/test/smoke/default/server.rb from none to aa8bba
      (diff output suppressed by config)
  * template[./ssh/recipes/server.rb] action create
    - create new file ./ssh/recipes/server.rb
    - update content in file ./ssh/recipes/server.rb from none to 18f24e
      (diff output suppressed by config)
```

Add a template to the cookbook



```
$ chef generate template ssh sshd_config -s /etc/ssh/sshd_config
```

```
Recipe: code_generator::template
```

```
* directory[./ssh/templates/default] action create
  - create new directory ./ssh/templates/default
* file[./ssh/templates/sshd_config.erb] action create
  - create new file ./ssh/templates/sshd_config.erb
  - update content in file ./ssh/templates/sshd_config.erb from none to
```

```
a16b11
```

```
(diff output suppressed by config)
```

Server Recipe

~/.cookbooks/ssh/recipes/server.rb

```
template '/etc/ssh/sshd_config' do
  source 'sshd_config.erb'
  owner 'root'
  group 'root'
  mode '0600'
end
```

Remember...

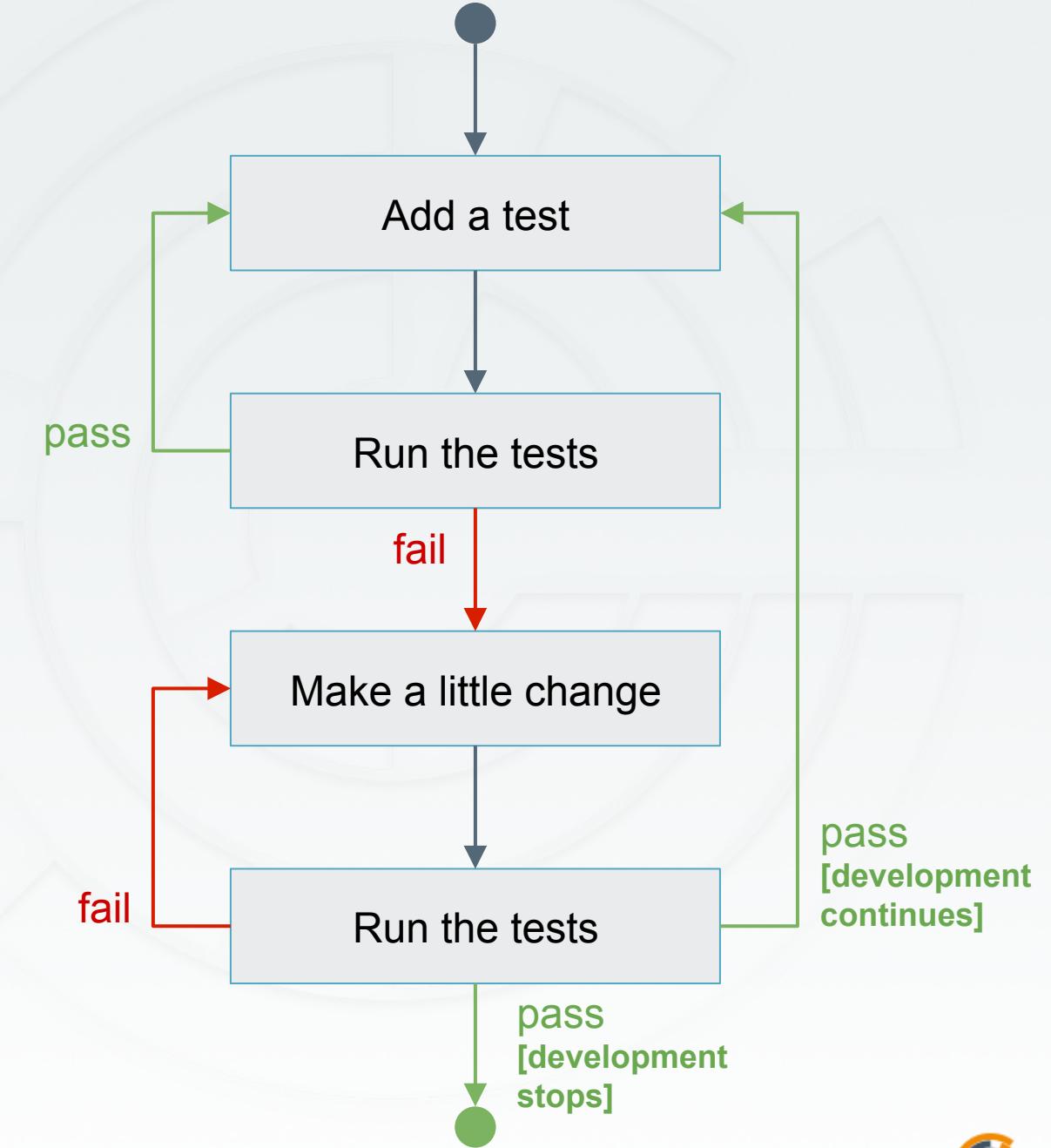
- Infrastructure policies need testing
 - ↳ Linting
 - ↳ Static Analysis
 - ↳ Unit Testing
 - ↳ Integration Testing
 - ↳ Compliance Testing



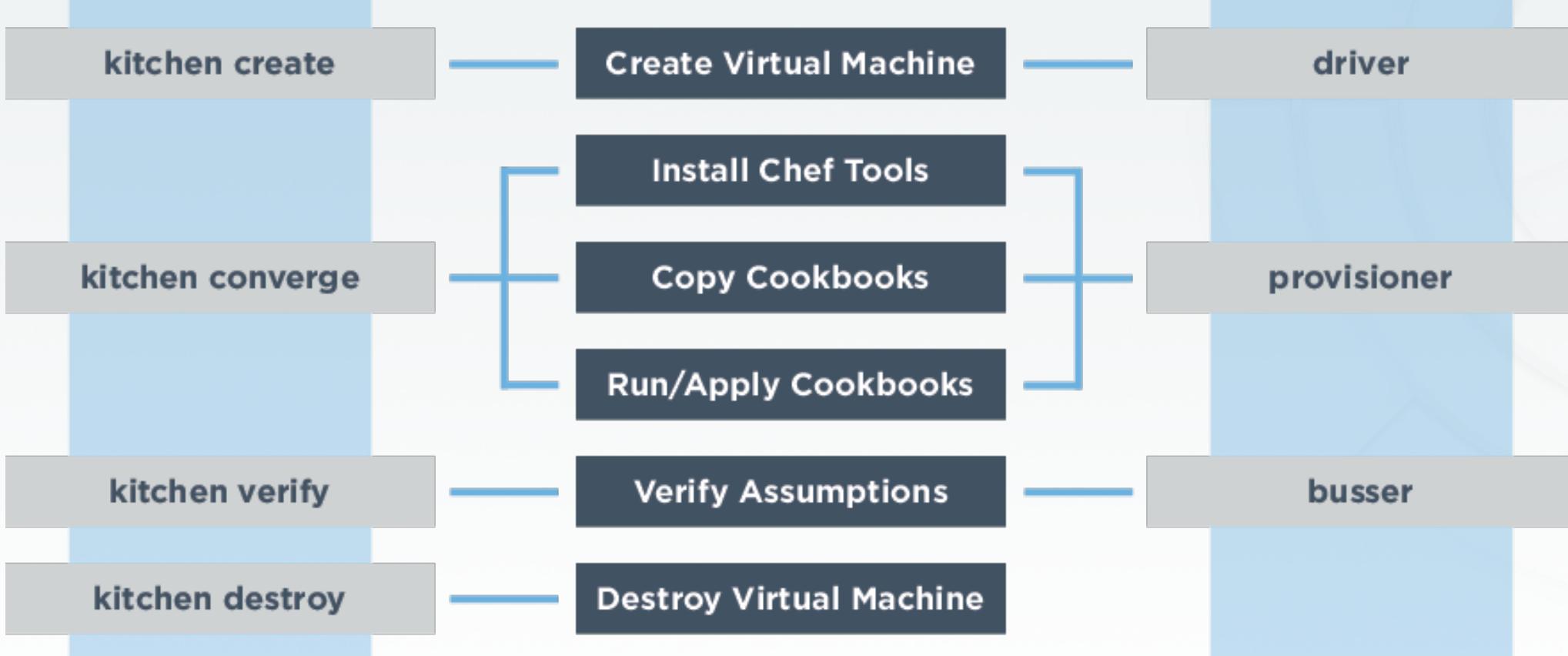
"Infrastructure as Code" should be tested like ANY other codebase.

Test-driven Development

- Write a test, watch it fail
- Write some code
- Write and run more tests
- Code review
- Delivery pipeline to production
- Lowered chance of production failure

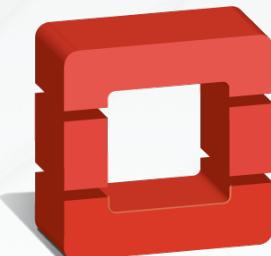


Testing the change



Microsoft Azure

vmware®



openstack™



Test Kitchen Configuration (1 of 3)

└── `~/cookbooks/ssh/.kitchen.yml`

```
---
```

```
driver:
```

```
- name: vagrant
```

```
+ name: docker
```

```
...
```

Test Kitchen Configuration (2 of 3)

└── `~/cookbooks/ssh/.kitchen.yml`

```
...
```

```
platforms:
```

```
- - name: ubuntu-16.04
```

```
- - name: centos-7.2
```

```
+ - name: centos-7.3
```

```
...
```

Test Kitchen Configuration (3 of 3)

~/cookbooks/ssh/.kitchen.yml

```
suites:
  - name: default
  + - name: server
    run_list:
      - recipe[ssh::default]
      + - recipe[ssh::server]
    verifier:
      inspec_tests:
        - test/smoke/default
        + - test/smoke/default/server.rb
    attributes:
```

Move to the cookbook's directory



```
$ cd ~/cookbooks/ssh
```

List the kitchens



```
$ kitchen list
```

Instance	Driver	Provisioner	Verifier	Transport	Last Action	Last Error
server-centos-73	Docker	ChefZero	Inspec	Ssh	<Not Created>	<None>

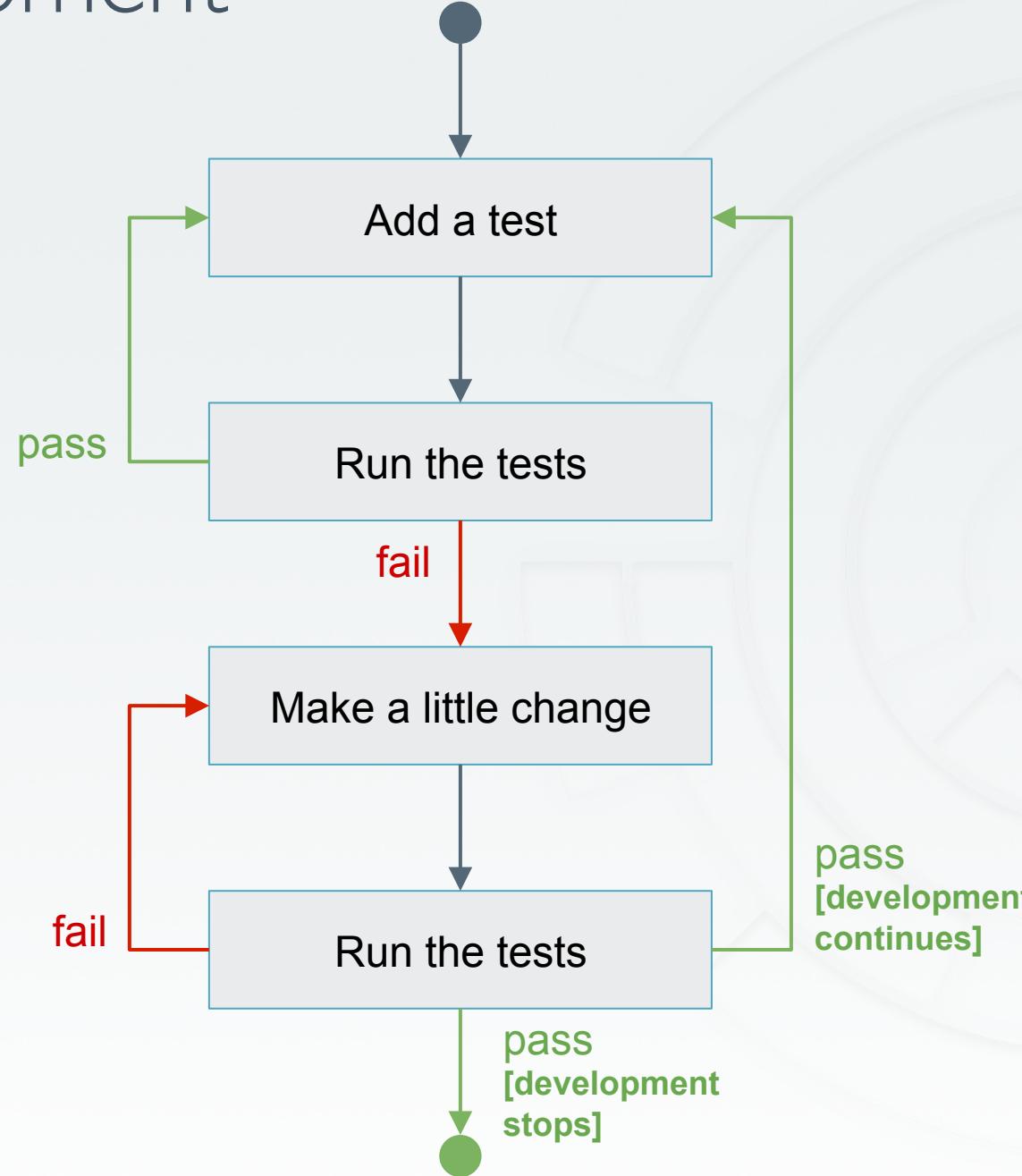
Converge



```
$ kitchen converge
```

```
----> Starting Kitchen (v1.15.0)
...
----> Creating <server-centos-73>...
      Sending build context to Docker daemon 227.8 kB
      Sending build context to Docker daemon
      Step 0 : FROM centos:centos7
      ...
Running handlers:
[2017-03-12T02:26:16+00:00] INFO: Running report handlers
Running handlers complete
[2017-03-12T02:26:16+00:00] INFO: Report handlers complete
Chef Client finished, 1/1 resources updated in 01 seconds
Finished converging <server-centos-73> (0m23.54s).
----> Kitchen is finished. (1m0.39s)
```

Test-driven Development



pass
[development
continues]

pass
[development
stops]

Add Smoke Tests



```
$ cp ~/profiles/ssh/controls/ssh.rb ~/cookbooks/ssh/test/smoke/default/server.rb
```

Verify the Kitchen



```
$ kitchen verify
```

```
----> Verifying <server-centos-73>...
Loaded

Target: ssh://kitchen@localhost:32771

× sshd-1.0: SSH Version 2 (
  expected: 2
  got:

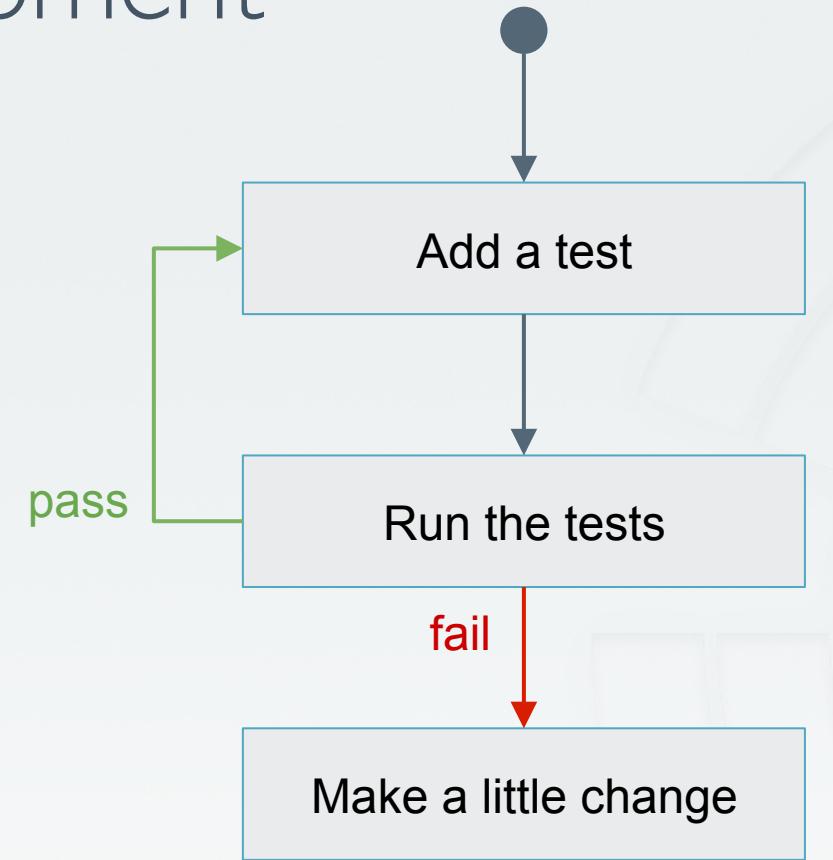
    (compared using `cmp` matcher)
  )
× SSH Configuration Protocol should cmp == 2

  expected: 2
  got:

    (compared using `cmp` matcher)

Profile Summary: 0 successful, 1 failures, 0 skipped
Test Summary: 0 successful, 1 failures, 0 skipped
```

Test-driven Development



Edit the SSH Configuration Template

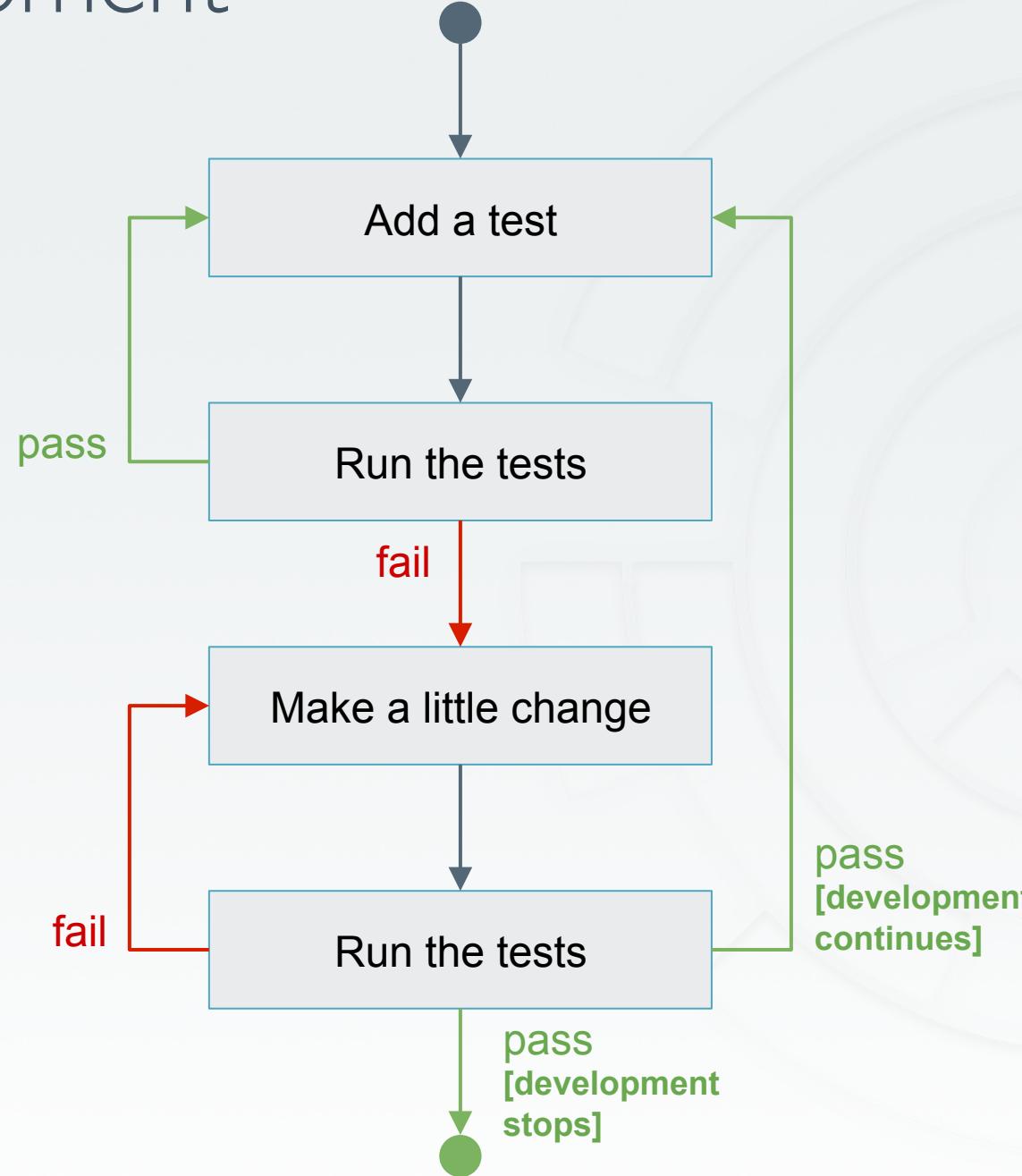
~/cookbooks/ssh/templates/sshd_config.erb

```
#ListenAddress 0.0.0.0
#ListenAddress ::

# The default requires explicit activation of protocol 1
- #Protocol 2
+ Protocol 2

# HostKey for protocol version 1
```

Test-driven Development



pass
[development
continues]

pass
[development
stops]

Converge



```
$ kitchen converge
```

```
----> Starting Kitchen (v1.15.0)
...
----> Converging <server-centos-73>...
...
# The default requires explicit activation of protocol 1
-#Protocol 2
+Protocol 2

# HostKey for protocol version 1
...
Running handlers:
[2017-03-12T02:32:32+00:00] INFO: Running report handlers
Running handlers complete
[2017-03-12T02:32:32+00:00] INFO: Report handlers complete
Chef Client finished, 1/1 resources updated in 01 seconds
Finished converging <server-centos-73> (0m16.32s).
----> Kitchen is finished. (0m17.34s)
```

Verify the Kitchen



```
$ kitchen verify
```

```
----> Starting Kitchen (v1.15.0)
...
----> Verifying <server-centos-73>...
     Loaded
```

Target: ssh://kitchen@localhost:32771

- ✓ sshd-1.0: SSH Version 2
- ✓ SSH Configuration Protocol should cmp == 2

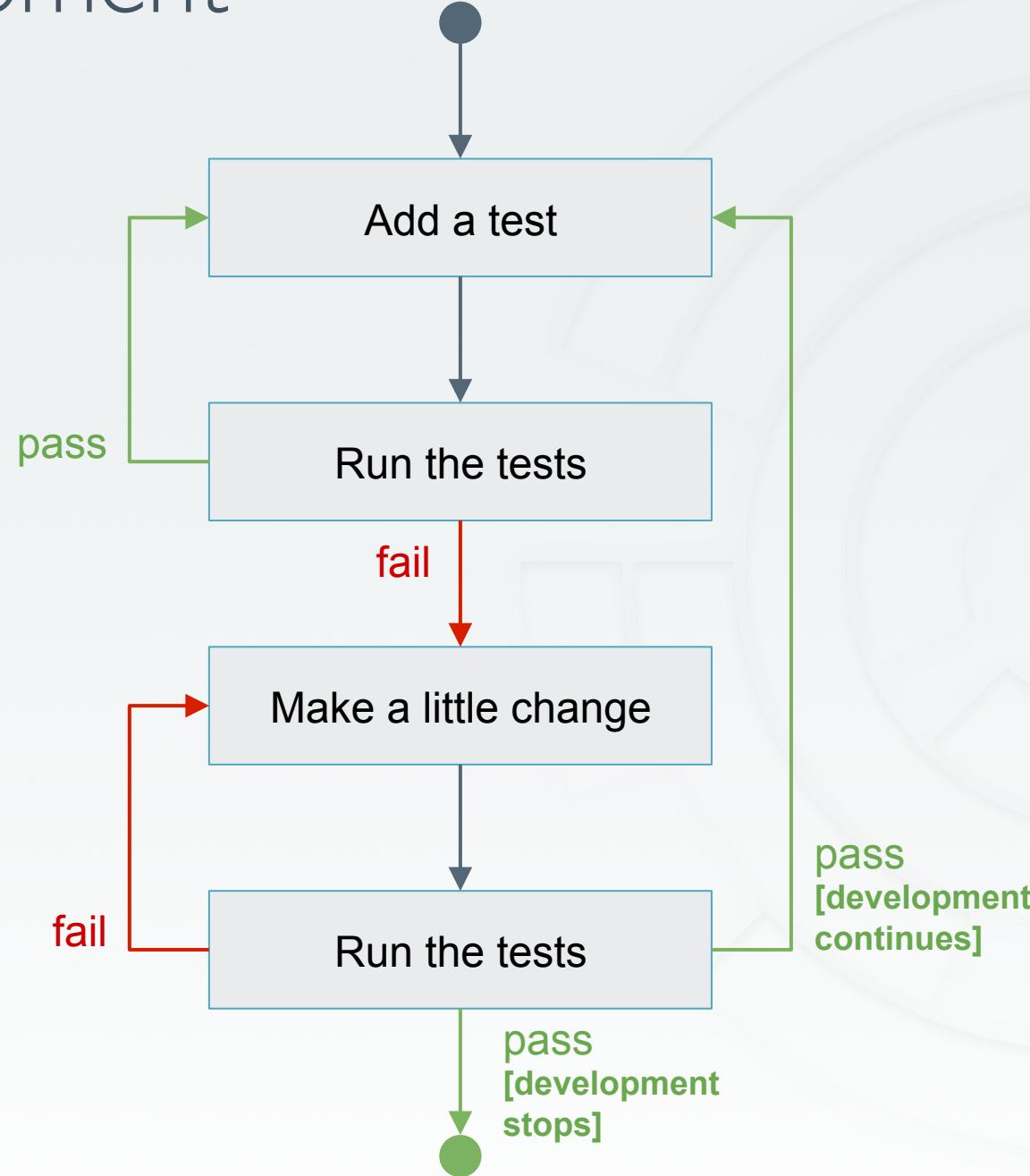
Profile Summary: 1 successful, 0 failures, 0 skipped

Test Summary: 1 successful, 0 failures, 0 skipped

Finished verifying <server-centos-73> (0m0.22s).

```
----> Kitchen is finished. (0m1.27s)
```

Test-driven Development



pass
[development
continues]

pass
[development
stops]

Test the Kitchen (1 of 2)



```
$ kitchen test
```

```
-----> Starting Kitchen (v1.15.0)
...
-----> Cleaning up any prior instances of <server-centos-73>
-----> Destroying <server-centos-73>...
...
-----> Testing <server-centos-73>
-----> Creating <server-centos-73>...
...
-----> Creating <server-centos-73>...
...
-----> Converging <server-centos-73>...
...
          Finished creating <server-centos-73> (0m0.60s).
```

Test the Kitchen (2 of 2)



```
$ kitchen test
```

```
----> Installing Chef Omnibus (install only if missing)
...
----> Setting up <server-centos-73>...
      Finished setting up <server-centos-73> (0m0.00s).
----> Verifying <server-centos-73>...
...
Profile Summary: 1 successful, 0 failures, 0 skipped
Test Summary: 1 successful, 0 failures, 0 skipped
      Finished verifying <server-centos-73> (0m0.51s).
----> Destroying <server-centos-73>...
...
----> Kitchen is finished. (0m25.18s)
```

What's next?

- Test-driven development cycle is complete
- Deploy the change

Remediate with Chef



```
$ sudo chef-client --local-mode -j config.json -r "recipe[ssh::server],recipe[audit::default]"
```

```
[2017-03-10T16:48:02+00:00] INFO: Forking chef instance to converge...
```

```
Starting Chef Client, version 12.18.31
```

```
...
```

```
Synchronizing Cookbooks:
```

- ssh (0.1.0)
- audit (2.4.0)
- compat_resource (12.16.3)

```
...
```

```
  -#Protocol 2  
  +Protocol 2
```

```
...
```

```
[2017-03-10T16:48:05+00:00] INFO: Chef Run complete in 1.248588588 seconds
```

```
Running handlers:
```

```
...
```

```
[2017-03-10T16:48:05+00:00] INFO: Report handlers complete
```

```
Chef Client finished, 1/3 resources updated in 03 seconds
```

Verify Converge Status in Automate

TOTAL RESOURCES	FAILED	SUCCESSFUL	UNCHANGED	UNPROCESSED		
3	0	1	2	0		
Status	Step	Type	Name	Action	Cookbook	View
✓	1/3	chef_gem	inspec	install	audit	--
✓	2/3	template	/etc/ssh/sshd_config	create	ssh	diff ▾

Verify Compliance Status in Automate

orange-3-of-hearts | Scan ID: 3cd9e8e3-d75b-42e7-83cc-0f79c32183df | view scan results

 This node is compliant.



Compliance Scores

SCAN DURATION	11:48 AM - 11:48 AM	INSPEC VERSION	1.15.0
SCAN TIME	a few seconds	PROFILES SCANNED	1
SCAN INITIATOR	Scheduled	PLATFORM(S)	not defined

Verify Compliance Status in Automate

TOTAL CONTROLS	CRITICAL CONTROLS	MAJOR CONTROLS	MINOR CONTROLS	COMPLIANT CONTROLS	SKIPPED CONTROLS		
● 1	✗ 0	🚫 0	❗ 0	✓ 1	❓ 0		
							
Status	Score	Control	Profile	Failed	Skipped	Passed	Details
 0.7	SSH Version 2	SSH Configuration	0	0	1	details	

More hands-on Exercises

Still have time to play around?

Supermarket Profiles

- List profiles available on the Supermarket
- View information about the dev-sec/ssh-baseline profile
- Execute the dev-sec/ssh-baseline profile from the Supermarket
- Write a cookbook to remediate failing controls from dev-sec/ssh-baseline

Build additional CIS controls

- <https://github.com/chef-training/workshops/tree/master/InSpec>

Static Analysis

- Ensure cookbooks pass chefstyle
- Ensure cookbooks pass foodcritic

Unit Testing

- Add unit testing to the cookbooks

Further Resources

Where to go for additional help

Community Resources

- InSpec Website, includes tutorials and docs - <http://inspec.io/>
- #inspec channel of the Chef Community Slack - <http://community-slack.chef.io/>
- InSpec category of the Chef Mailing List - <https://discourse.chef.io/c/inspec>
- Compliance Profiles on the Supermarket - https://supermarket.chef.io/tools?type=compliance_profile
- Open Source Project - <https://github.com/chef/inspec>



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DAY 1 // MAY 22

- ★ Workshops & Chef Training
- ★ DevOps Leadership Summit
- ★ Community Summit
- ★ Partner Summit
- ★ Welcome Reception
- ★ Customer Dinner
- ★ Analyst Day

DAY 2 // MAY 23

- ★ Keynotes
- ★ Technical Sessions
- ★ Happy Hour
- ★ Game Night
- ★ Executive Dinner

DAY 3 // MAY 24

- ★ Keynotes
- ★ Technical Sessions
- ★ Awesome Chef Awards
- ★ Community Celebration

DAY 4 // MAY 25

- ★ Hackday

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A photograph of a conference stage. A man with a beard and glasses, wearing a light-colored shirt and dark pants, stands on the left side of the stage, gesturing with his right hand while holding a microphone in his left. He is positioned in front of a large, curved, purple-lit backdrop. To his right, a long line of people, mostly men, stands on a brick-paved floor, facing the stage. The lighting is dramatic, with strong stage lights and a colorful, blurred background.

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Objectives

- ✓ Execute an InSpec test on a local machine
- ✓ Execute an InSpec test on a remote machine
- ✓ Generate an InSpec profile
- ✓ Add InSpec-based integration test to a Chef cookbook
- ✓ Run InSpec-based integrations tests during Chef cookbook development
- ✓ List additional resources and places to look for support with InSpec