Continuous Compliance

Chef Automate and InSpec Profiles

INSPEC

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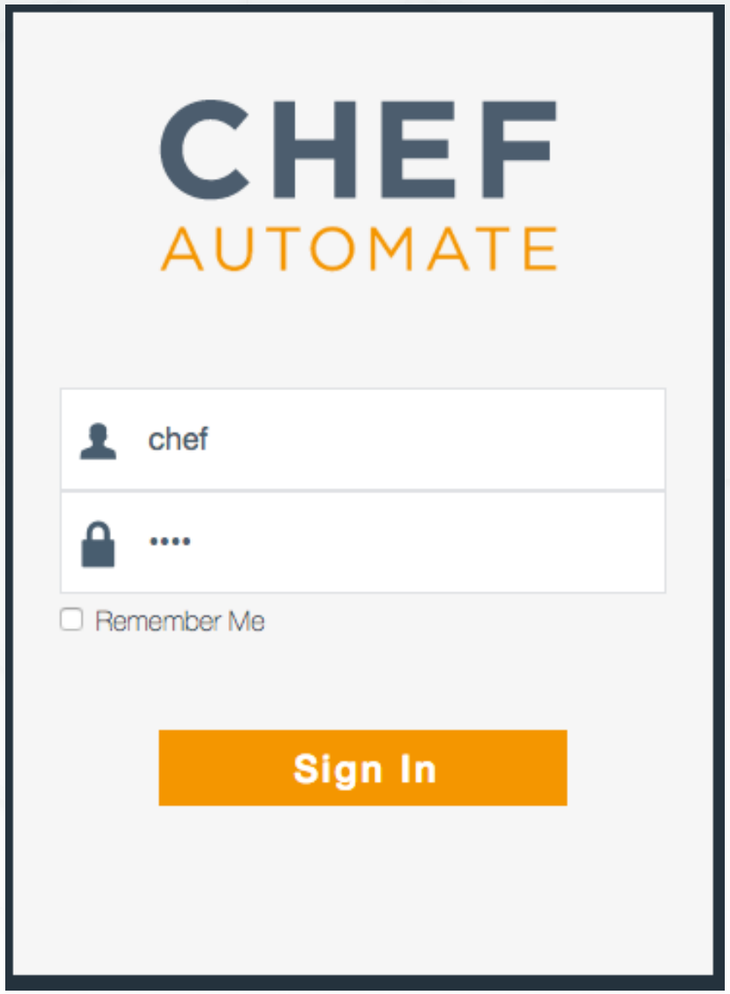
Login to Chef Automate

- https://informatica-compliance-workshop.chefdemo.net
- Uses a self-signed certificate in this lab

- Username: `chef`
- Password: `chef`



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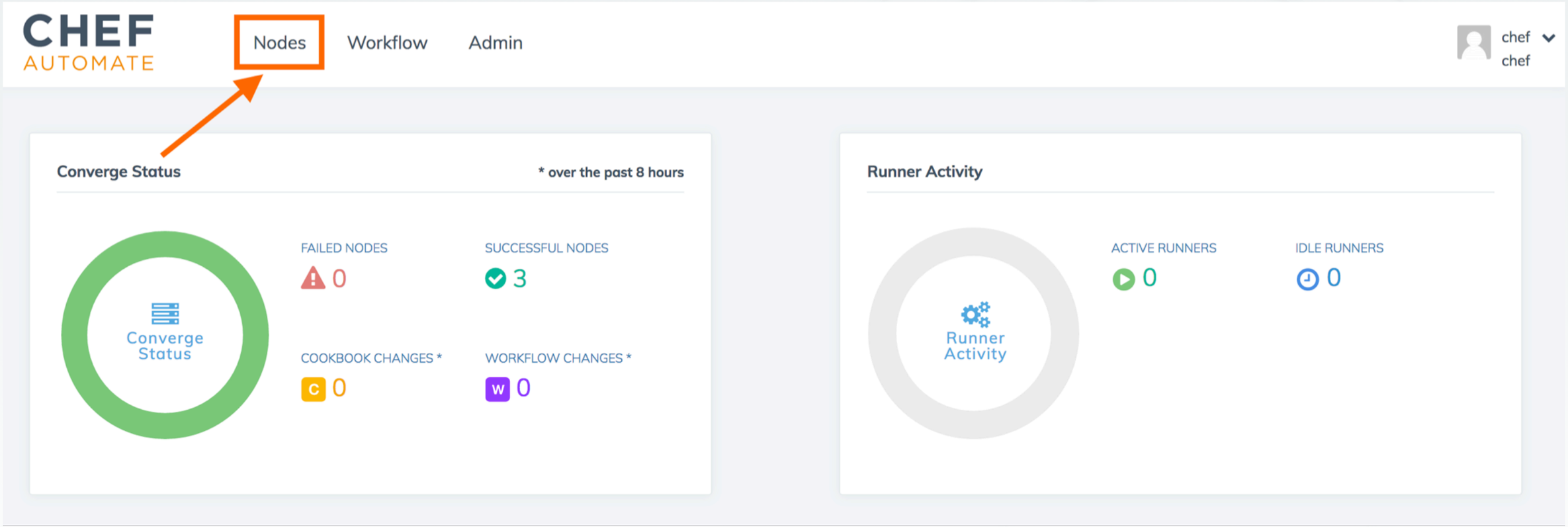
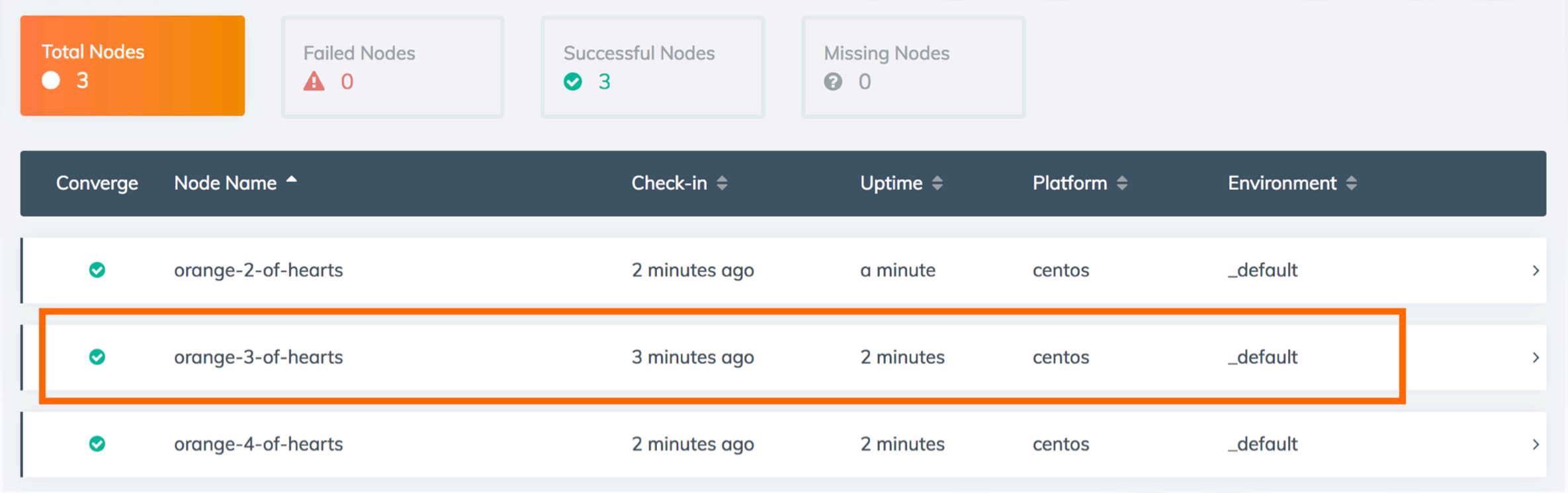
Browse to your node



Browse to your node



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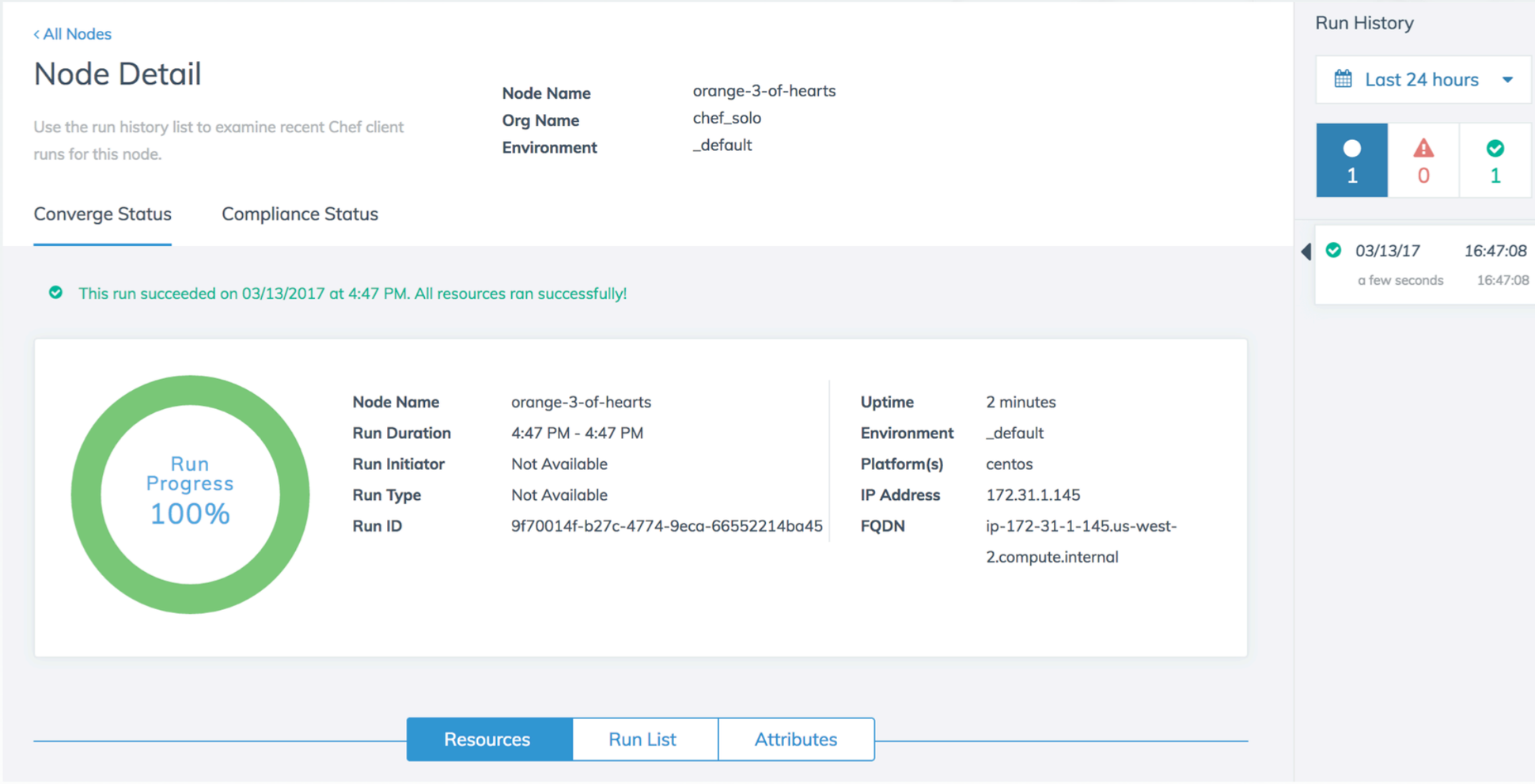
View details of your node



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View details of your node

Node Name	orange-3-of-hearts
Run Duration	4:47 PM - 4:47 PM
Run Initiator	Not Available
Run Type	Not Available
Run ID	9f70014f-b27c-4774-9eca-66552214ba45

Uptime	2 minutes
Environment	_default
Platform(s)	centos
IP Address	172.31.1.145
FQDN	ip-172-31-1-145.us-west-2.compute.internal

Resources | Run List | Attributes

Roles	Cookbooks	Recipes	Failed	Succeeded
0	0	0	0	0

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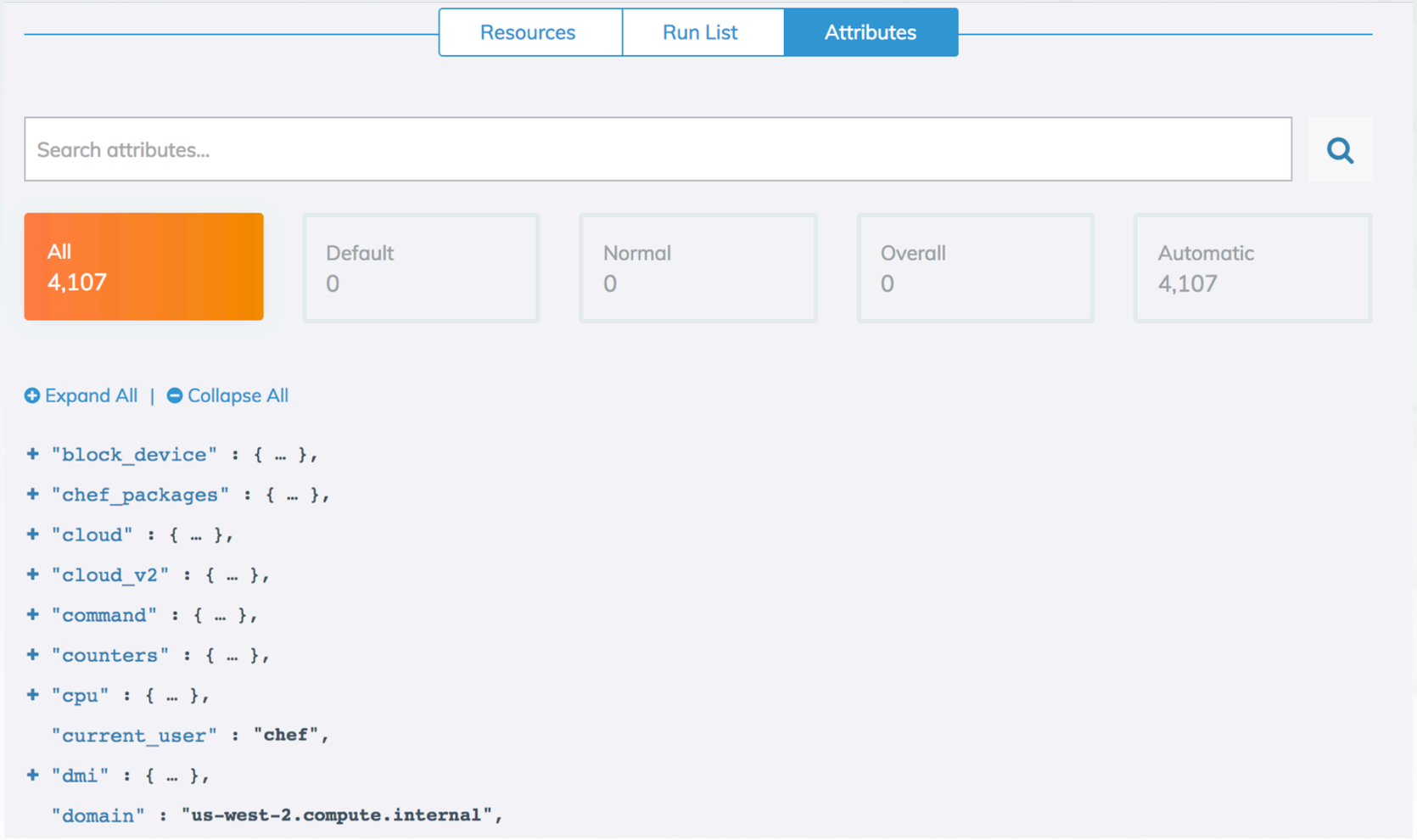
View details of your node



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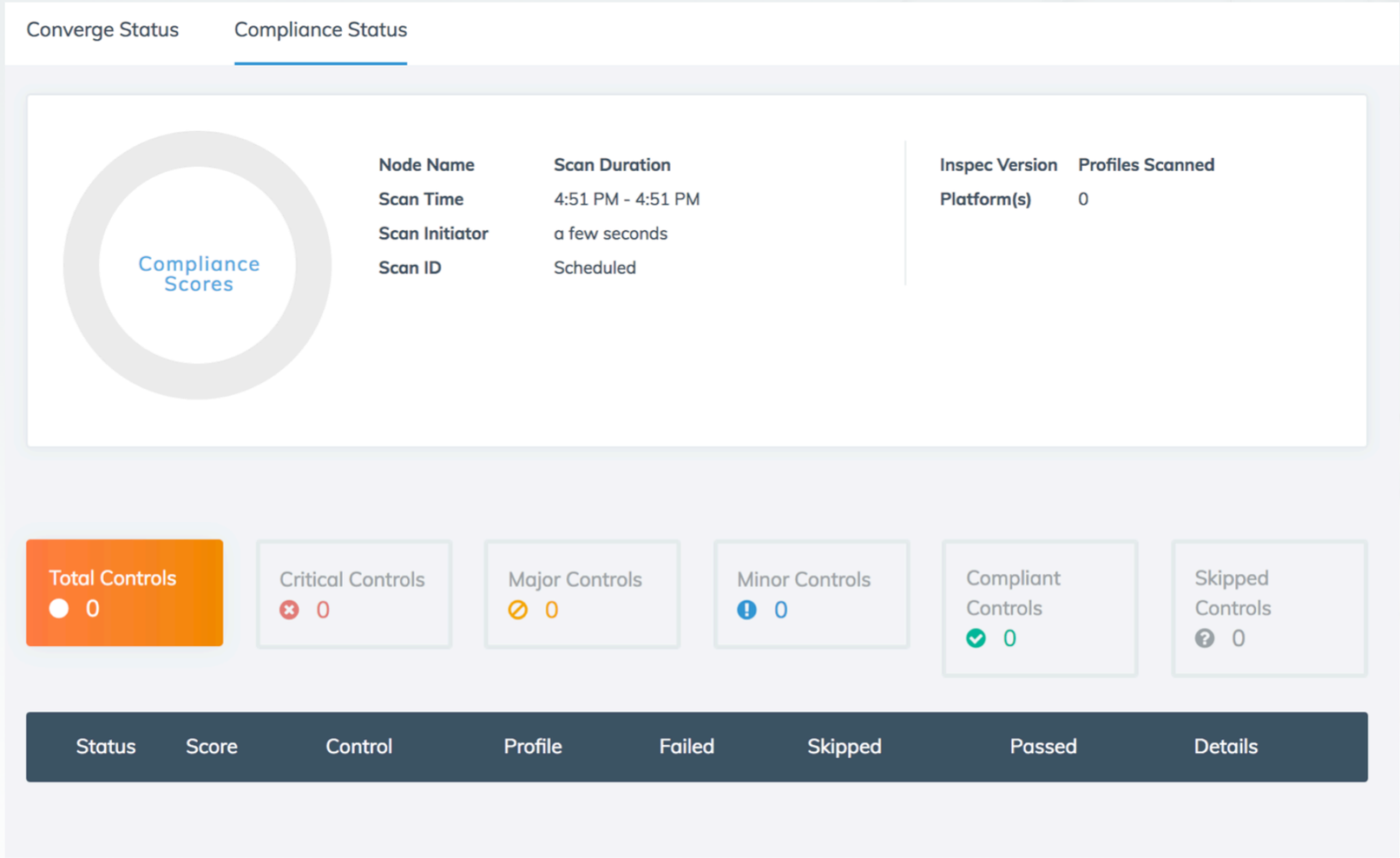
View details of your node



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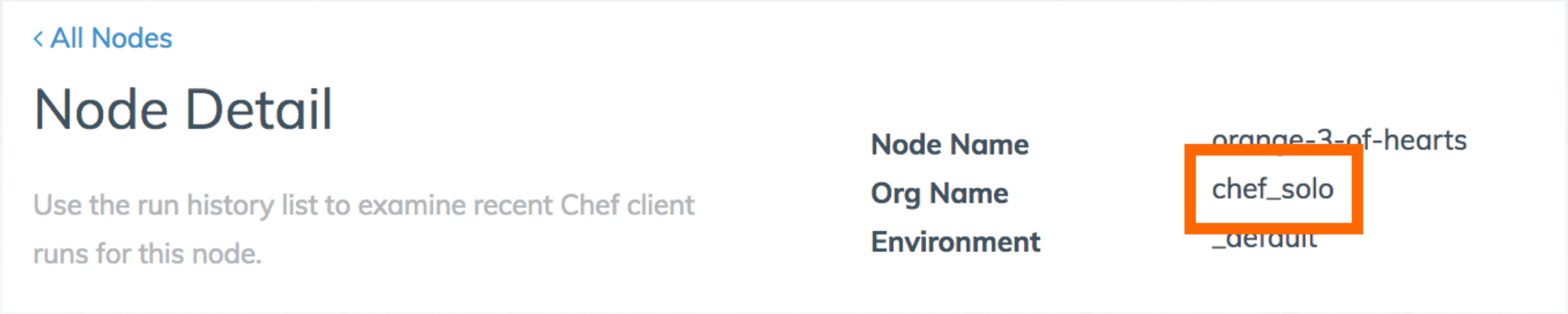
The node uses chef solo



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 ~
```

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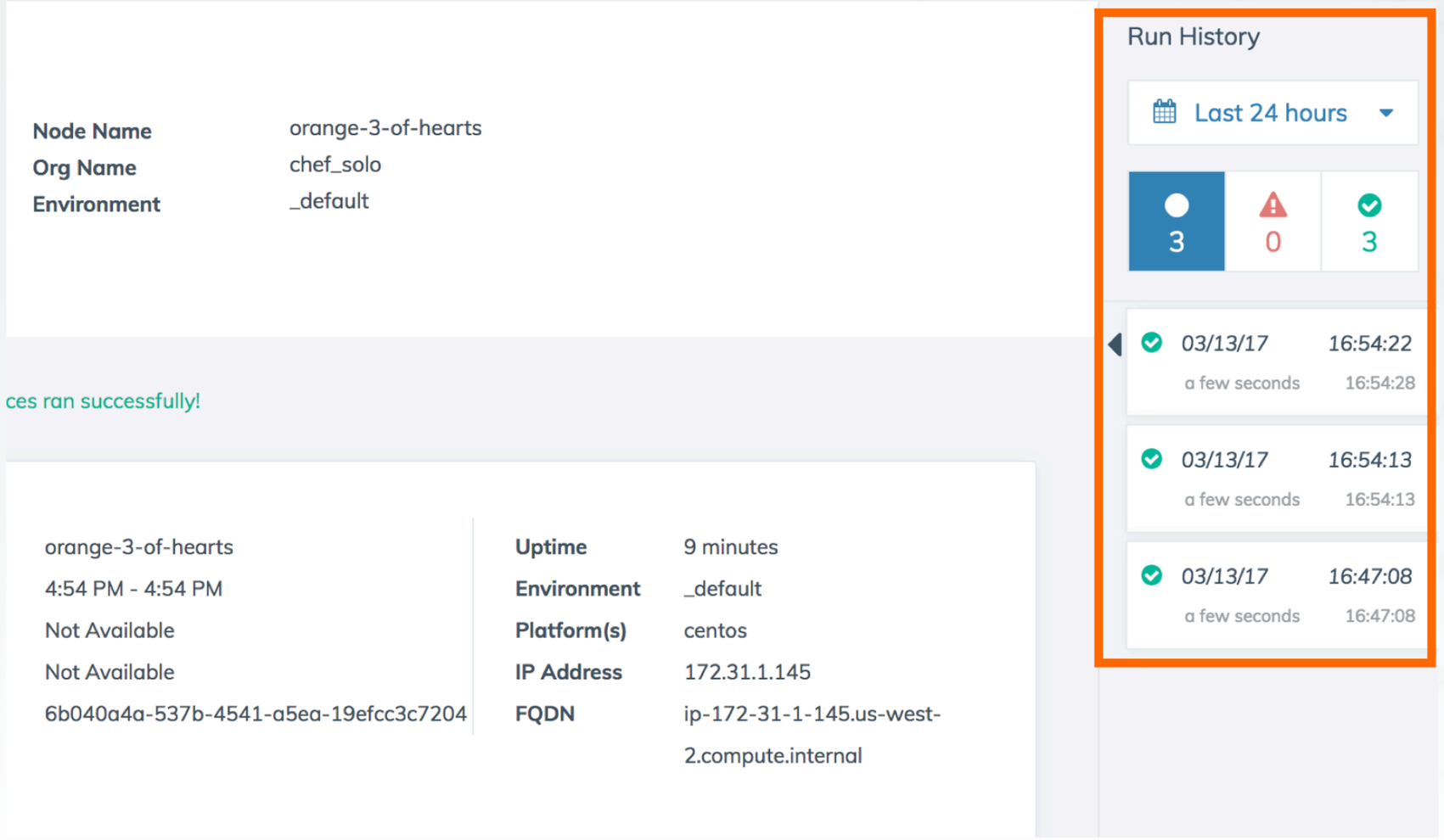
Run chef-client in local mode

```
$ sudo run_chef
```

```
[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



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Run with additional parameters

```
$ sudo run_chef "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

Node Name	orange-3-of-hearts	**Uptime**	9 minutes
Run Duration	4:54 PM - 4:54 PM	**Environment**	_default
Run Initiator	Not Available	**Platform(s)**	centos
Run Type	Not Available	**IP Address**	172.31.1.145
Run ID	6b040a4a-537b-4541-a5ea-19efcc3c7204	**FQDN**	ip-172-31-1-145.us-west-2.compute.internal

Resources | Run List | Attributes

Total Resources	Failed	Successful	Unchanged	Unprocessed
2	0	1	1	0

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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	- -

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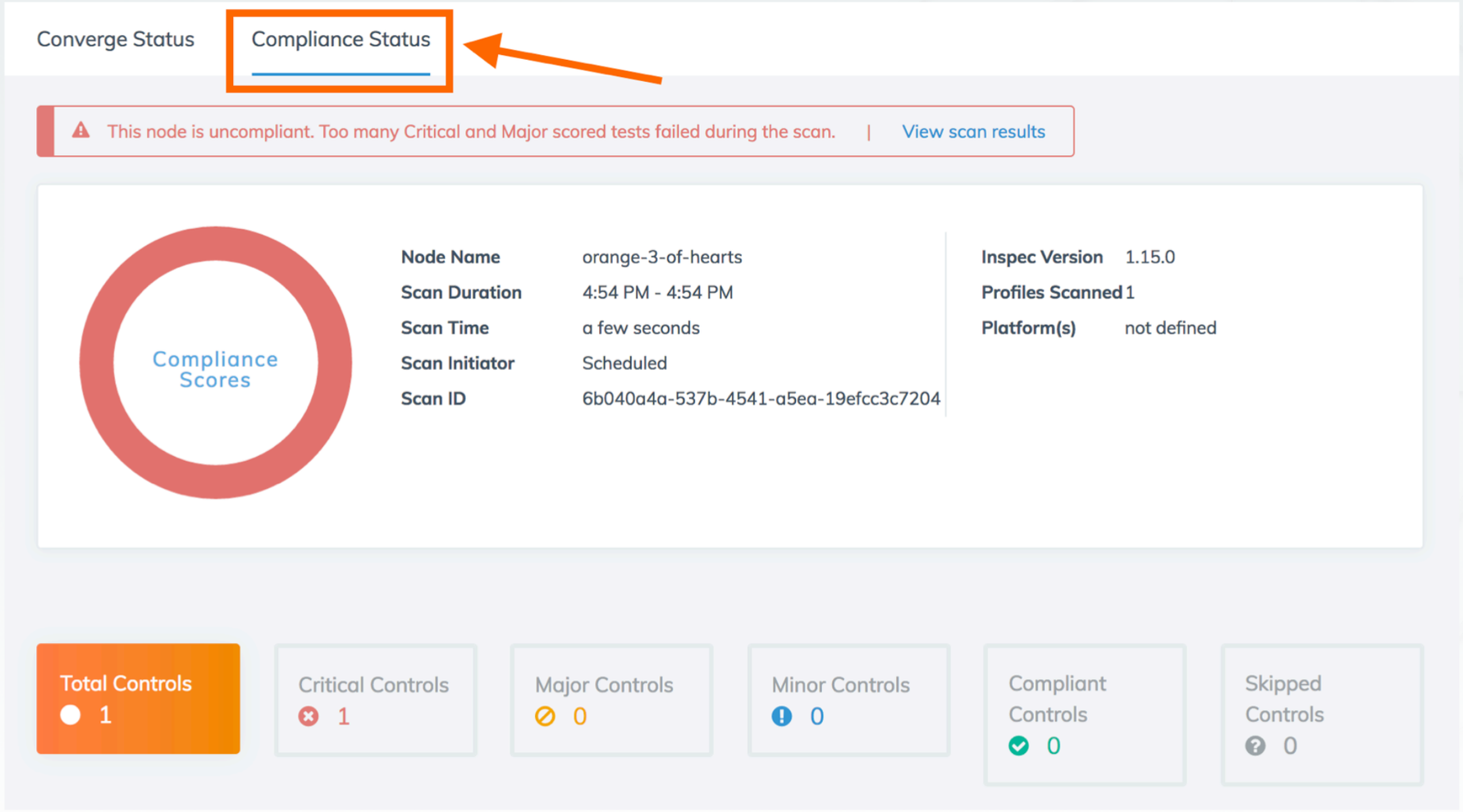
Check the compliance status in Automate



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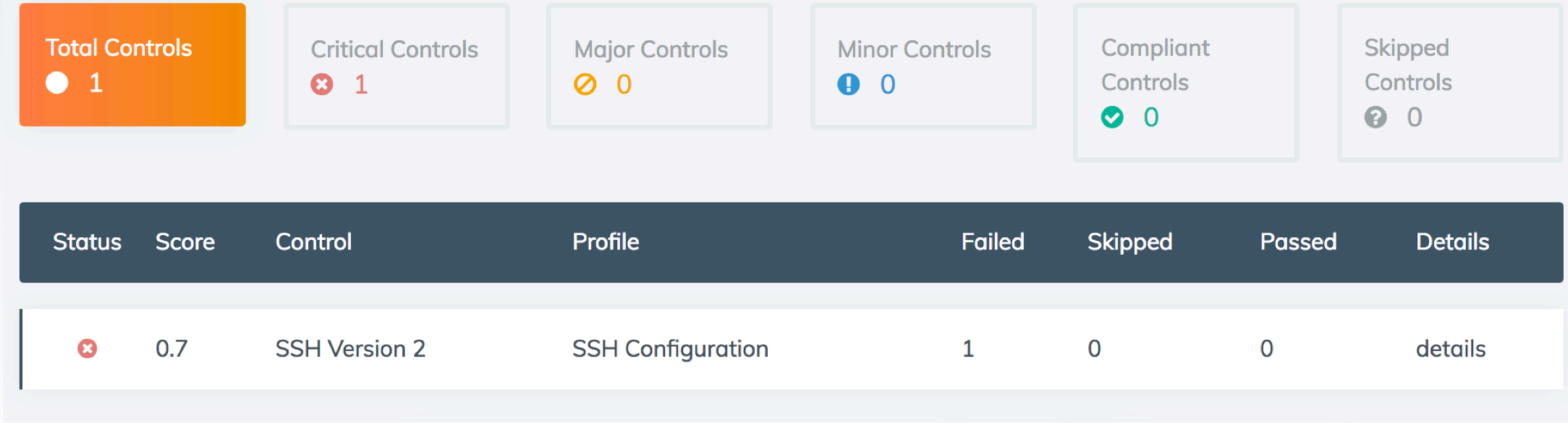
Check the compliance status in Automate



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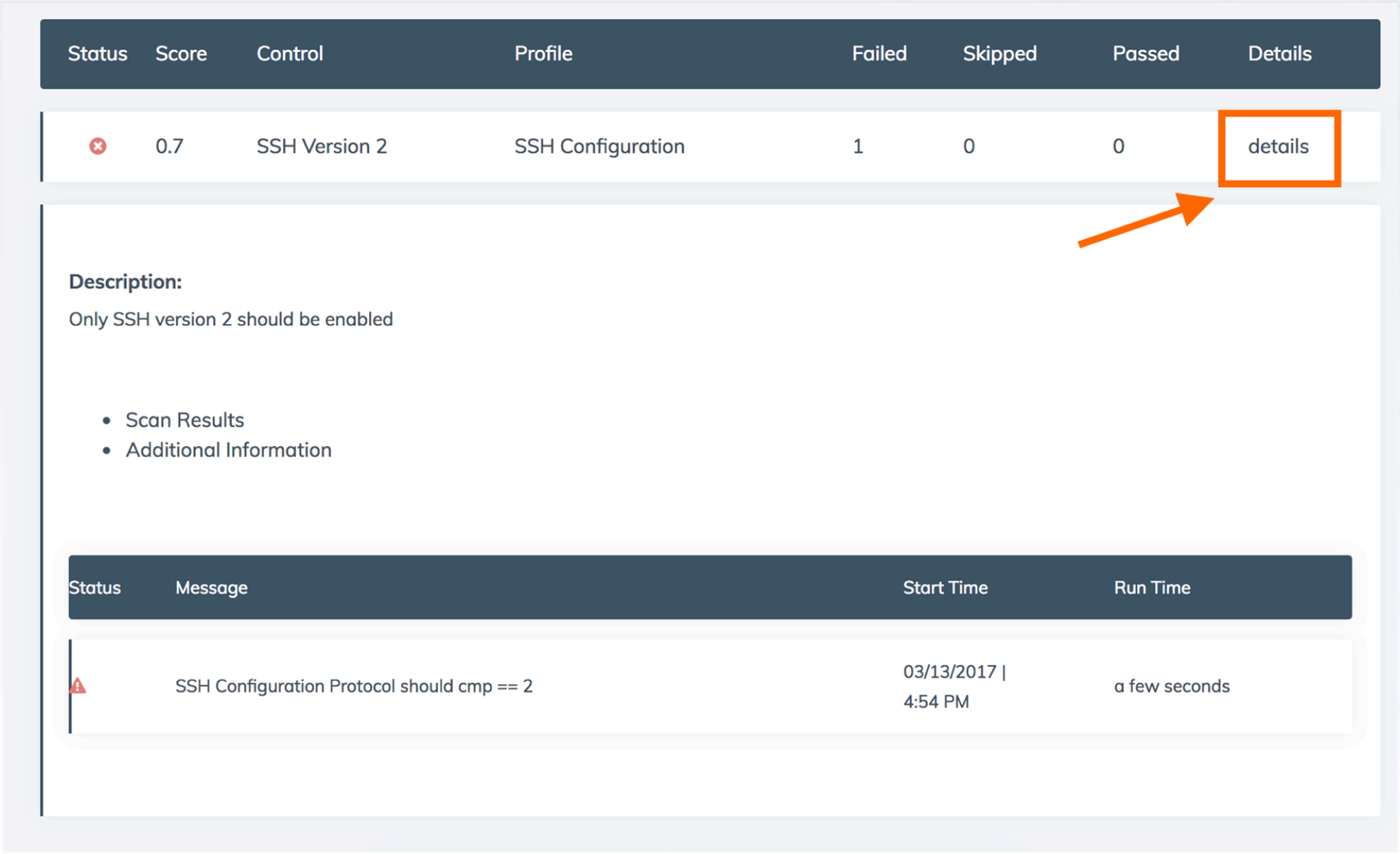
View details of the failing control



Status	Score	Control	Profile	Failed	Skipped	Passed	Details
⊗	0.7	SSH Version 2	SSH Configuration	1	0	0	details

Description:

Only SSH version 2 should be enabled

- Scan Results
- Additional Information

Status	Message	Start Time	Run Time
⚠	SSH Configuration Protocol should cmp == 2	03/13/2017 | 4:54 PM	a few seconds

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View details of the failing control

- 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:

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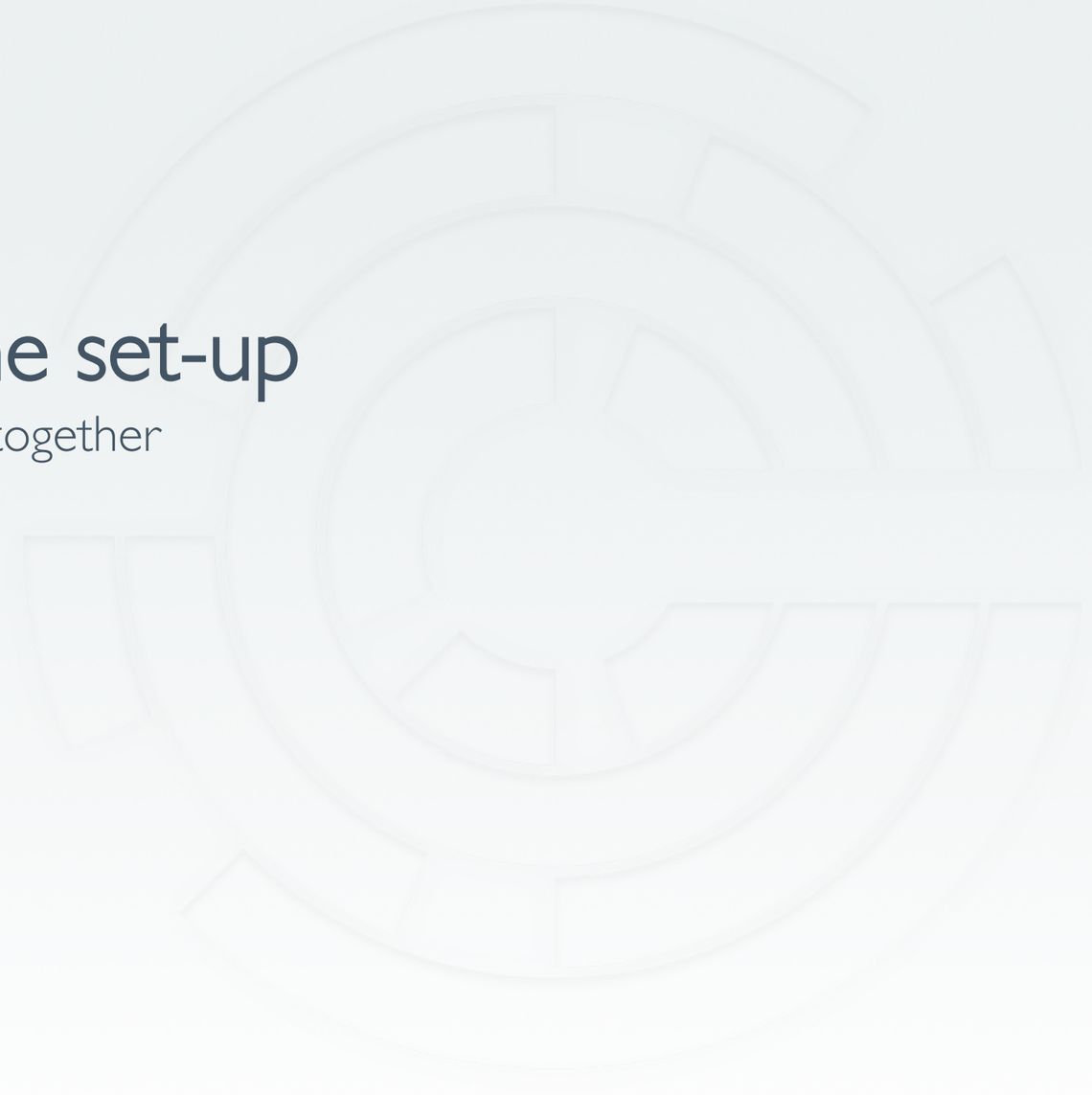
Review the set-up

tying it all together



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Go home

```
$ cd ~
```

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List contents

```
$ ls
```

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

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List cookbooks

```
$ ls cookbooks
```

```
audit  compat_resource
```

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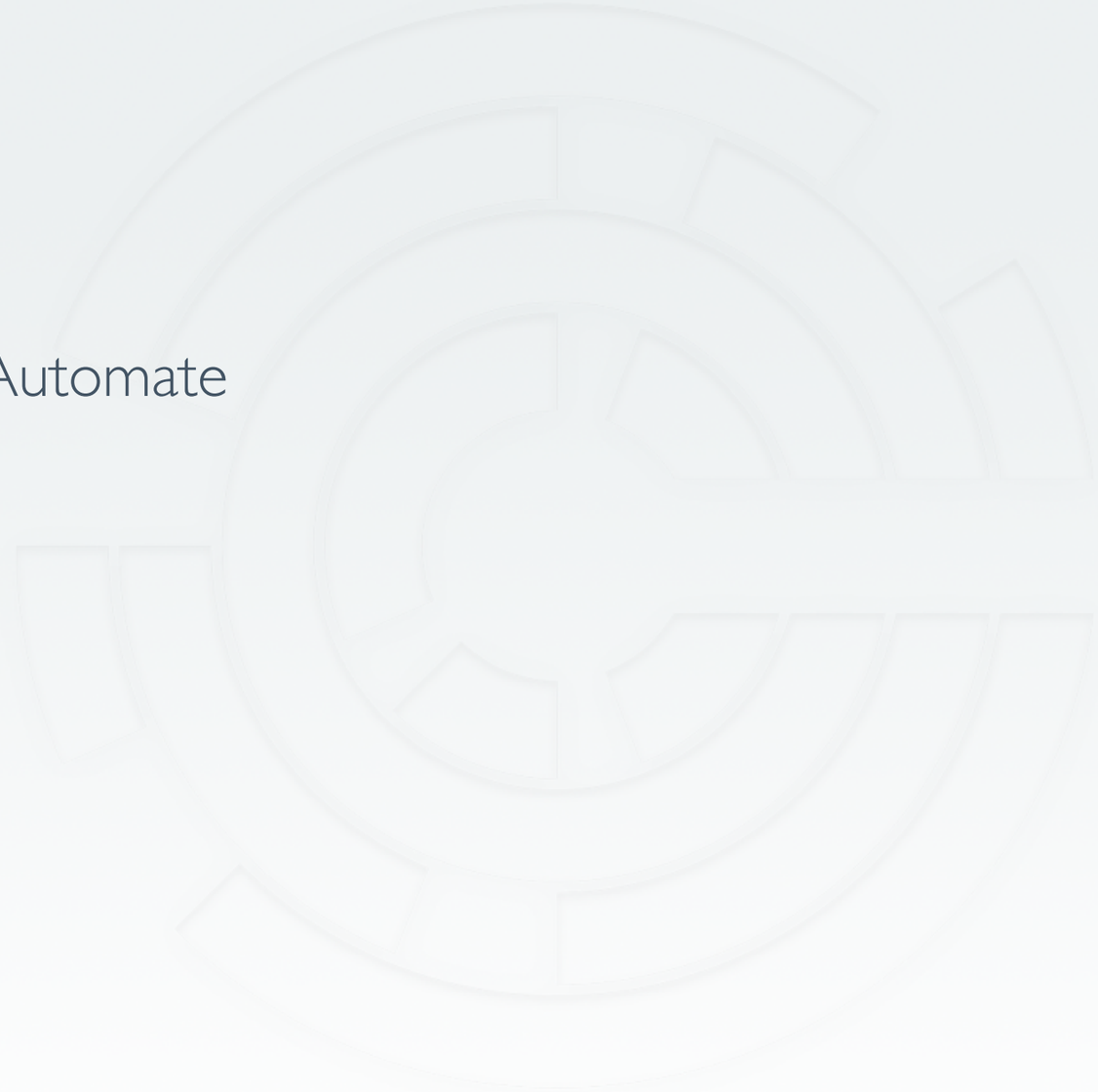
Audit Cookbook

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



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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://

  ×  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
```

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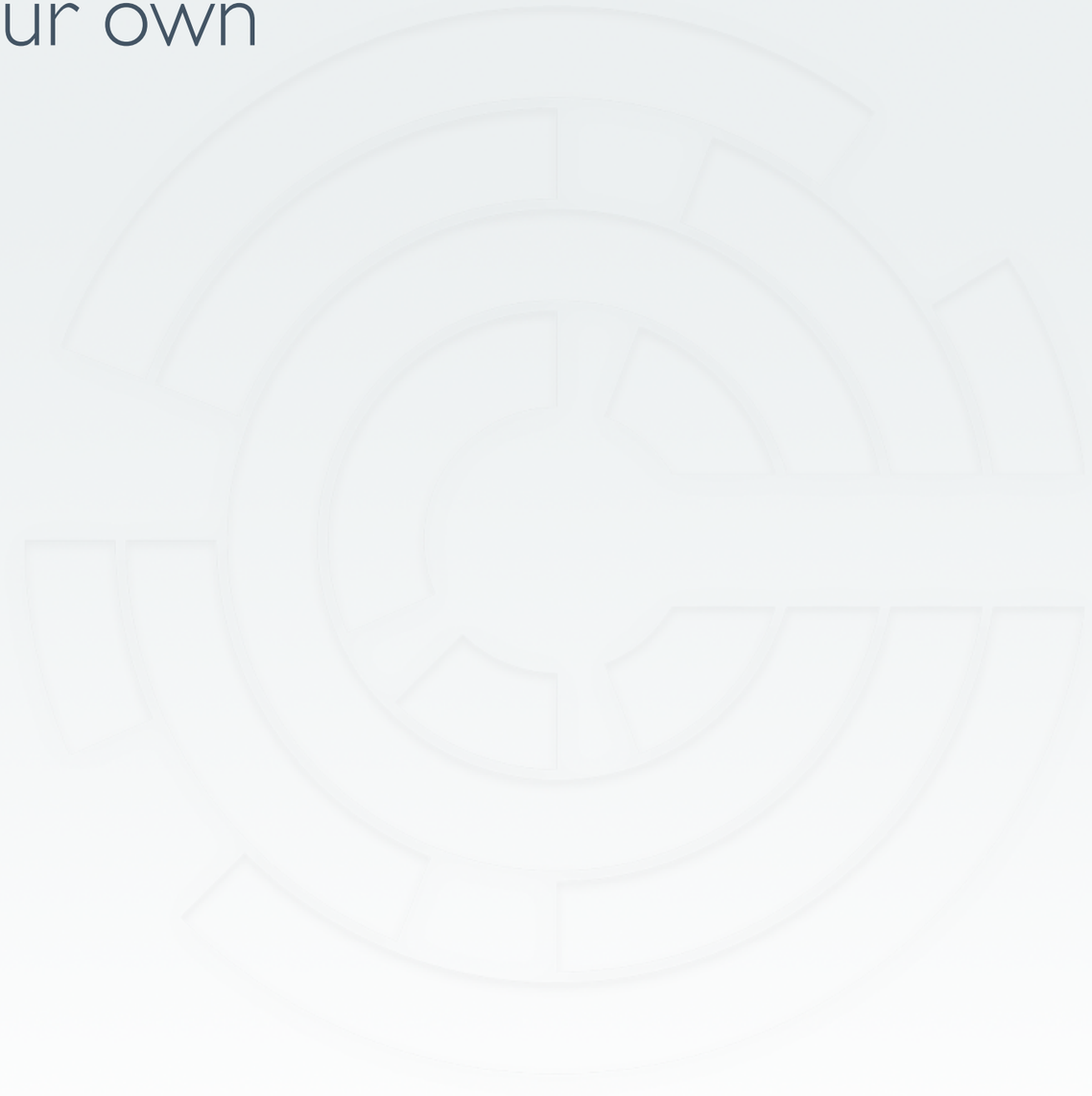
Next Steps

- 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

Converge Status | Compliance Status

This node is compliant. View scan results

Node Name	orange-3-of-hearts
Scan Duration	5:03 PM - 5:03 PM
Scan Time	a few seconds
Scan Initiator	Scheduled
Scan ID	6076b098-e02c-4b6e-8731-8c63217e8733

Inspec Version	1.15.0
Profiles Scanned	1
Platform(s)	not defined

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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

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