**Foreman Salt 13.0 Manual: Installation Guide**

**Overview**  
Foreman Salt integrates Foreman with SaltStack to manage Salt minions, covering provisioning, key management, state, pillar, grain management, and reporting. Two plugins are used for this integration:

* **smart\_proxy\_salt**
* **foreman\_salt**

Since foreman\_salt version 11.0, Salt jobs can be scheduled and run recurrently.

**Supported Plugin Versions**

| **Foreman Version** | **foreman\_salt** | **smart\_proxy\_salt** | **smart\_proxy\_salt\_core** |
| --- | --- | --- | --- |
| 1.13.x | 7.x | 2.x | - |
| 1.14.x | 8.x | 2.x | - |
| 1.15.x | 10.x | 2.x | - |
| >= 1.21.x | 11.0.x | 2.x | 0.0.1 |
| >= 1.24.x | 13.0.x | 3.x | 0.0.3 |

**Plugin Features**

1. **Salt as a Remote Execution Provider**: Use Salt to execute commands on remote systems.
2. **Job Scheduling**: Create and manage scheduled Salt jobs directly in Foreman.
3. **Key Management**: Handle Salt minion keys easily.
4. **State, Pillar, and Grain Management**: Simplified management via Foreman UI.
5. **Reporting and Statistics**: View detailed reports for Salt job executions.

**Installation Steps**

**1. Plugin Installation**

**1.1. Using the Foreman Installer**

Run the following command to install both foreman\_salt and smart\_proxy\_salt plugins:

bash

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foreman-installer --enable-foreman-plugin-salt --enable-foreman-proxy-plugin-salt

This command installs and configures the required plugins automatically.

**1.2. Manual Installation**

For manual installations:

1. **RPM-based systems**:

bash

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yum install rubygem-foreman\_salt rubygem-smart\_proxy\_salt

1. **DEB-based systems**:

bash

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apt-get install ruby-foreman-salt ruby-smart-proxy-salt

Both packages should be installed on your Foreman and Smart Proxy servers.

**2. Smart Proxy Configuration**

The Salt Smart Proxy needs to be installed on the same machine as the Salt master.

**2.1. Install the Salt Smart Proxy**

Install smart\_proxy\_salt and ensure the foreman-proxy user can run salt and salt-key commands via sudo. Update /etc/sudoers with the following:

bash

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Cmnd\_Alias SALT = /usr/bin/salt, /usr/bin/salt-key

foreman-proxy ALL = (ALL) NOPASSWD: SALT

Defaults:foreman-proxy !requiretty

**2.2. Salt Master Configuration**

Edit /etc/salt/master to include the Foreman external node classifier (ENC) and pillars:

yaml

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master\_tops:

ext\_nodes: /usr/bin/foreman-node

ext\_pillar:

- puppet: /usr/bin/foreman-node

autosign\_file: /etc/salt/autosign.conf

To configure autosigning, run:

bash

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touch /etc/salt/autosign.conf

chgrp foreman-proxy /etc/salt/autosign.conf

chmod 660 /etc/salt/autosign.conf

Create /etc/salt/foreman.yaml to configure Salt's integration with Foreman:

yaml

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:proto: https

:host: foreman.example.com

:port: 443

:ssl\_ca: "/etc/puppetlabs/puppet/ssl/ssl\_ca.pem"

:ssl\_cert: "/etc/puppetlabs/puppet/ssl/client\_cert.pem"

:ssl\_key: "/etc/puppetlabs/puppet/ssl/client\_key.pem"

:timeout: 10

:salt: /usr/bin/salt

:upload\_grains: true

**3. Salt API Configuration**

**3.1. Setup Salt API**

The Salt API must be configured to enable importing of states and environments.

1. Install the salt-api package and create a system user for the API:

bash

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adduser --no-create-home -s /bin/false saltuser

passwd saltuser

1. Update /etc/salt/master to enable authentication and expose the API:

yaml

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external\_auth:

pam:

saltuser:

- '@runner'

rest\_cherrypy:

port: 9191

host: 0.0.0.0

ssl\_key: /etc/puppetlabs/puppet/ssl/private\_keys/foreman.example.com.pem

ssl\_crt: /etc/puppetlabs/puppet/ssl/certs/foreman.example.com.pem

1. Configure Foreman Proxy to connect to the Salt API. Edit /etc/foreman-proxy/settings.d/salt.yml:

yaml

Copy code

:use\_api: true

:api\_auth: pam

:api\_url: https://saltmaster.example.com:9191

:api\_username: saltuser

:api\_password: saltpassword

1. Restart all services:

bash

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systemctl restart foreman foreman-proxy salt-master salt-api foreman-tasks

**4. Foreman Configuration**

**4.1. Adding a Smart Proxy**

In Foreman, go to **Infrastructure > Smart Proxies**, then add the newly configured Smart Proxy, which is integrated with Salt. Click **Refresh Features** to ensure Salt capabilities are recognized.

**5. Running Salt in Foreman**

**5.1. Key Management**

You can manage Salt minion keys in Foreman. Navigate to the **Salt Keys** or **Salt Autosign** page within the Foreman UI, where you can accept, reject, or delete minion keys. You can also add autosign entries.

**5.2. Managing States**

1. Import Salt states from the Salt master into Foreman by visiting the **States** page.
2. Assign states to hosts or host groups.

**5.3. Highstate Runs**

* Use the **Run Salt** button on the host page to trigger state.highstate.
* Schedule Salt jobs using the Foreman Remote Execution plugin.

**6. Pillars and Grains**

**6.1. Pillars**

Foreman parameters can be used as Salt pillars by defining them in /etc/salt/master:

yaml

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ext\_pillar:

- puppet: /usr/bin/foreman-node

**6.2. Grains**

Salt grains are uploaded to Foreman during an external node classification run. These grains can be browsed via Foreman’s **Fact Browser**.

**7. Reporting**

After running a state.highstate, Foreman collects and displays detailed reports, including job outcomes and timing. By default, these reports are uploaded every 10 minutes via a cron job.

**8. Scheduling Salt Jobs**

Jobs can be scheduled within Foreman or directly in Salt using the schedule directive in /etc/salt/minion:

yaml

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schedule:

highstate:

function: state.highstate

minutes: 5

You can also use Foreman’s Remote Execution plugin to schedule recurring Salt jobs.

**9. API and CLI**

Foreman Salt extends Foreman’s REST API. API documentation is available at:

http://foreman.example.com/apidoc/v2.html

**9.1. Example API Request**

To list Salt keys using the Foreman API:

bash

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curl -k -u admin:changeme -H "Accept:application/json" https://foreman.example.com/api/v2/salt\_keys

**Conclusion**

This detailed guide outlines the installation, configuration, and operation of the Foreman Salt plugin. Once configured, Foreman allows you to manage Salt minions, schedule jobs, and monitor results seamlessly through its UI and API.