

# **Satellite 6 - Reference Guide**

## Document control

Title	Satellite 6 - Reference Guide
Prepared By	Ranjith Plakkil
Document Version	1.0
Contact	Pepsunix.in@capgemini.com

## Version History

Revision Number	Revision Date	Comment
1.0		Original document

## Table of Content

Table of Content .....	3
1. Configuring Organizations, Locations and Life Cycle Environments.....	6
1.1. Organizations .....	6
1.1.1. Creating an Organization.....	6
1.1.2. Editing an Organization .....	7
1.1.3. Removing an Organization .....	8
1.2. Locations.....	9
1.2.1. Creating a Location .....	9
1.2.2. Editing a Location.....	9
1.2.3. Removing a Location.....	10
1.3. Life Cycle Environments.....	10
1.3.1. Creating Life Cycle Environments.....	11
1.3.2. Removing Life Cycle Environments from Satellite Server .....	11
1.4. Using Content Views .....	12
1.4.1. Creating a Content View.....	12
1.4.2. Adding Repositories to the Content View.....	13
1.4.3. Filtering Content.....	15
1.4.4. Creating a Filter.....	15
1.4.5. Adding Content to a Filter.....	15
1.4.6. Removing a Filter .....	16
1.4.7. Publishing a Content View.....	17
1.4.8. Promoting Content Views .....	18
1.5. Viewing and Applying Errata.....	20
1.5.1. Applying Errata to Content Hosts.....	20
1.5.2. Adding Errata to a Host Collection.....	23
1.6. Configuring Activation Keys.....	24
1.7. Creating an Activation Key .....	24

1.7.1.	Adding and Removing Subscriptions .....	25
1.7.2.	To Remove Subscriptions from an Activation Key .....	26
1.7.3.	Enabling Auto-Attach.....	26
1.7.4.	Adding and Removing Host Collections.....	27
1.7.5.	Editing Product Content.....	28
1.7.6.	Setting a Life Cycle Environment and a Content View .....	28
1.7.7.	Removing an Activation Key.....	29
1.7.8.	Creating Repository Sync Plan.....	30
1.8.	Configuring the Provisioning Environment .....	32
1.8.1.	Creating a Host Group.....	32
1.8.2.	Host Group Attributes .....	33
1.8.3.	Domains .....	34
1.8.4.	Subnets .....	36
1.8.5.	Creating a Subnet .....	36
1.8.6.	Installation Media .....	39
1.8.7.	Partition Tables .....	40
1.8.8.	Provisioning Templates .....	41
1.8.9.	Operating Systems.....	44
1.9.	Configuring Host Collections .....	47
1.9.1.	Creating a Host Collection.....	48
1.9.2.	Adding Hosts to a Host Collection .....	48
1.9.3.	Adding Content to Host Collections .....	49
1.9.4.	Adding Packages to a Host Collection.....	49
1.9.5.	Removing Content from a Host Collection .....	51
1.9.6.	Changing the Life Cycle Environment or Content View of a Host Collection .....	51
1.9.7.	Removing a Host from a Host Collection .....	52
1.9.8.	Removing a Host Collection .....	52
2.	Registering hosts in satellite6.....	53
2.1.	Registering RHV Hypervisors .....	54
2.2.	Registering RHV VM'S .....	54
2.3.	Registering hosts without katello agent.....	55
2.4.	Unregistering hosts.....	55

2.5.	Virt-who Configuration in RHV Hypervisors .....	57
3.	Provisioning .....	58
3.1.	Configuring RED HAT Satellite's Discovery Service .....	59
3.2.	Discovering Bare-metal Hosts on Satellite .....	59
3.3.	Provisioning Hosts.....	61
4.	Puppet .....	73
4.1.	Creating Product .....	79
4.2.	Building puppet module .....	80
4.3.	Configuring Clients .....	85
4.4.	Deploying Puppet Modules.....	86
5.	Remote Execution.....	91
5.1.	Remote Execution using non-root users .....	91
6.	Security Compliance Management with OpenScap.....	97
6.1.	Installing and Configuring OpenScap.....	98
7.	Compute Resources .....	109
8.	Updating Between Minor Versions of Satellite.....	113
9.	Upgrading Satellite Server Version to Satellite 6.3 .....	122
10.	References.....	130

# 1. Configuring Organizations, Locations and Life Cycle Environments

Red Hat Satellite 6 takes a consolidated approach to Organization and Location management. System administrators define multiple Organizations and multiple Locations in a single Satellite Server. For example, a company might have three Organizations (Finance, Marketing, and Sales) across three countries (United States, United Kingdom, and Japan).

## 1.1. Organizations

**Organizations** divide hosts into logical groups based on ownership, purpose, content, security level, or other divisions. Multiple organizations can be viewed, created, and managed within the web UI. Software and host entitlements can be allocated across many organizations and access to those organizations controlled.

### 1.1.1. Creating an Organization

- Navigate to **Administer → Organizations**.

The screenshot shows the Red Hat Satellite 6 web interface. At the top, there's a navigation bar with links for DCE, Monitor, Content, Containers, Hosts, Configure, Infrastructure, Red Hat Insights, Administer, and a user dropdown. A secondary dropdown menu under 'Administer' includes options like Locations, Organizations, LDAP authentication, Users, User groups, Roles, Bookmarks, Remote Execution Features, Settings, and About. The main content area has a header 'Overview' and a search/filter bar. On the left, there's a 'Host Configuration Status' summary table:

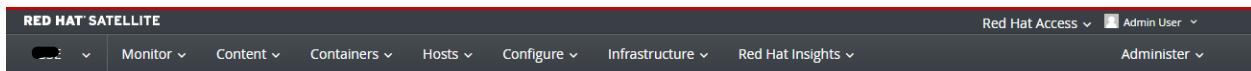
Category	Count
Hosts that had performed modifications without error	0
Hosts in error state	0
Good host reports in the last 35 minutes	0
Hosts that had pending changes	0
Out of sync hosts	1
Hosts with no reports	5
Hosts with alerts disabled	0

Total Hosts: 6

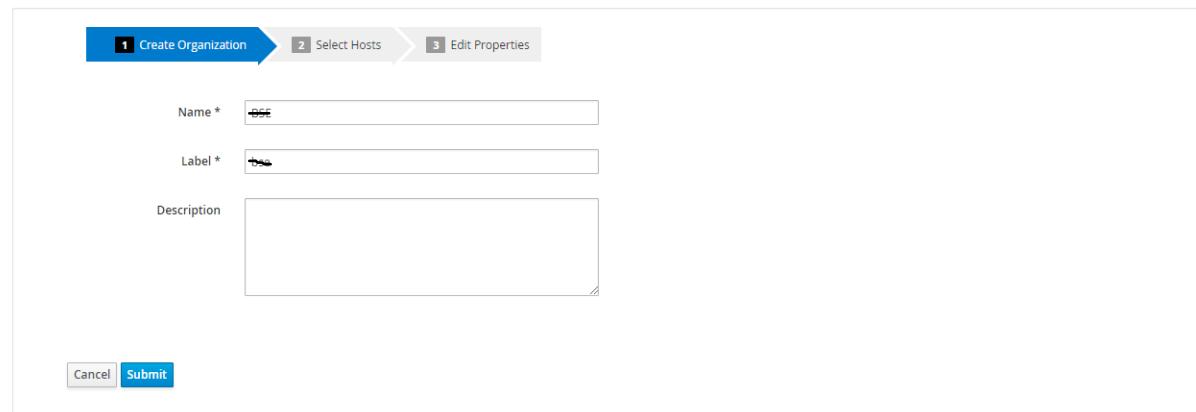
To the right, there's a 'Compliance reports' section featuring a donut chart. The chart shows 57% in green and 43% in red, with the red portion labeled 'Failed'. Below the chart is a link to 'Generated at 04 Dec 16:32'. Further down, there's another section titled 'Organisations' with a table showing one entry:

Name	Hosts	Actions
138	138	Edit

A message at the bottom of this section says 'Displaying 1 entry'. There are also buttons for 'New Organisation', 'MisMatches Report', and 'Help'.



## New Organisation



1 Create Organization    2 Select Hosts    3 Edit Properties

Name \*

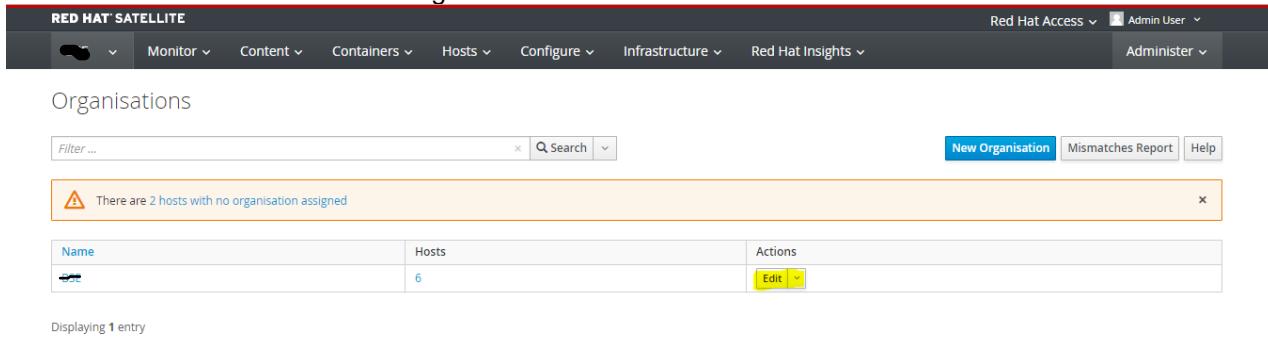
Label \*

Description

- Select the hosts to assign to the new organization.
- Click **Assign All** to assign all hosts with no organization to the new organization.
- Click **Manually Assign** to manually select and assign the hosts with no organization.
- Click **Proceed to edit** to skip assigning hosts.
- Click **Submit**.

### 1.1.2. Editing an Organization

- Navigate to **Administer** → **Organizations**.
- Click the name of the organization to be edited.



Red Hat Access Admin User Administer

Organisations

Filter ...  New Organisation Mismatches Report Help

⚠ There are 2 hosts with no organisation assigned

Name	Hosts	Actions
test	6	<input type="button" value="Edit"/>

Displaying 1 entry

- Select the resource to edit from the list on the left.
- Click the name of the desired items to add them to the **Selected Items** list.
- Click **Submit**.

RED HAT SATELLITE

Red Hat Access  Admin User  Administer

Edit BSE

**Primary**

- Users
- Capsules
- Subnets
- Compute Resources
- Media
- Provisioning Templates
- Partition Tables
- Domains
- Realms
- Environments
- Host Groups
- Locations
- Parameters

Name \* [REDACTED]  
Label \* [REDACTED]  
Default System SLA: No Service Level Preference  
Debug certificate: Generate and Download  
Description:  
Cancel Submit

### 1.1.3. Removing an Organization

- Navigate to **Administer** → **Organizations**.
- Select **Delete** from the drop-down menu to the right of the name of the organization
- You want to remove. An alert box appears: **Delete Organization?**
- Click **OK** to delete the organization.

RED HAT SATELLITE

Red Hat Access  Admin User  Administer

Organisations

Filter...  Search

New Organisation Mismatches Report Help

⚠ There are 2 hosts with no organisation assigned

Name	Hosts	Actions
[REDACTED]	6	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Displaying 1 entry

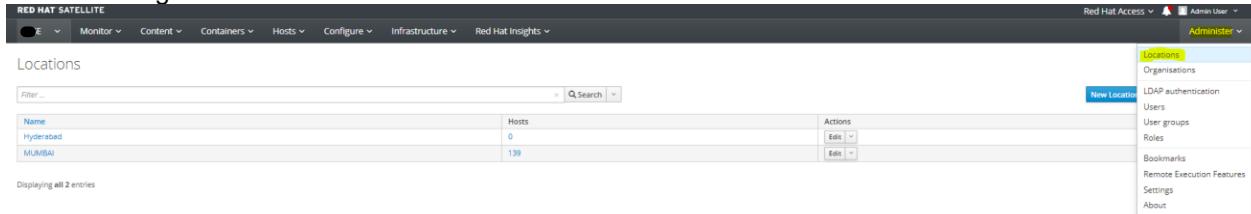
## 1.2. Locations

**Locations** divide organizations into logical groups based on geographical location. The Red Hat Satellite installation process creates a location called **Default Location** unless another name is specified. If a new user is not assigned a default location their access will be limited. To grant system rights to users, assign a default location and have them log out and log in again.

### 1.2.1. Creating a Location

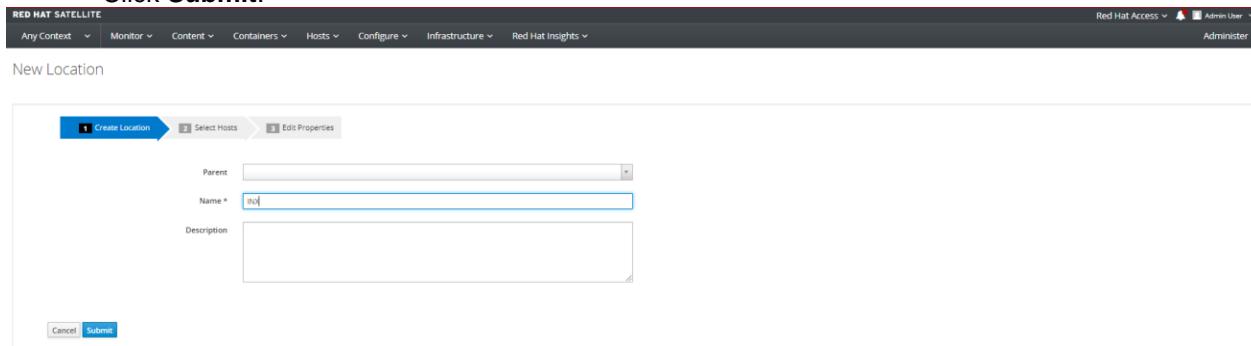
These steps show how to create a location.

- Navigate to **Administer → Locations**.



The screenshot shows the Red Hat Satellite web interface. The top navigation bar includes links for Monitor, Content, Containers, Hosts, Configure, Infrastructure, and Red Hat Insights. On the far right, there are links for Red Hat Access, Admin User, and Administer. The Administer dropdown menu is open, showing options like Locations (highlighted in yellow), Organisations, LDAP authentication, Users, User groups, Roles, Bookmarks, Remote Execution Features, Settings, and About. The main content area is titled 'Locations' and displays a table with two entries: 'Hyderabad' and 'MUMBAI'. The table has columns for 'Name', 'Hosts' (with counts 0 and 139 respectively), and 'Actions' (with 'Edit' buttons). A note at the bottom says 'Displaying all 2 entries'.

- Click **New Location**.
- Insert the name of the new location in the **Name** field. If you want to create a nested location, select a **Parent** location from the drop-down menu. Optionally, specify a **Description** of the location. Click **Submit**.
- Select the hosts to assign to the new location.
- Click **Assign All** to assign all hosts with no location to the new location.
- Click **Manually Assign** to manually select and assign the hosts with no location.
- Click **Proceed to Edit** to skip assigning hosts.
- Click **Submit**.



The screenshot shows the 'New Location' creation form. At the top, there are three navigation steps: 'Create Location' (which is active and highlighted in blue), 'Select Hosts', and 'Edit Properties'. Below these, there are fields for 'Parent' (a dropdown menu), 'Name' (an input field containing 'inf'), and 'Description' (a text area). At the bottom of the form are 'Cancel' and 'Submit' buttons.

### 1.2.2. Editing a Location

- Navigate to **Administer → Locations**.
- Click the name of the location to be edited.
- Select the resource to edit from the list on the left.

RED HAT SATELLITE

Locations

Name	Hosts	Actions
Hyderabad	0	<a href="#">Edit</a>
MUMBAI	139	<a href="#">Edit</a>

Displaying all 2 entries

- Click the name of the desired items to add them to the **Selected Items** list.
- Click **Submit**.

RED HAT SATELLITE

Edit MUMBAI

Primary

Parent: MUMBAI

Description:

Cancel **Submit**

### 1.2.3. Removing a Location

These steps show how to remove an existing location. Deleting the default location created during installation is currently not supported.

- Navigate to **Administer** → **Locations**.
- Select **Delete** from the drop-down menu to the right of the name of the location you want to remove. An alert box appears: *Delete Location?*
- Click **OK**.

RED HAT SATELLITE

Locations

Name	Hosts	Actions
Hyderabad	0	<a href="#">Edit</a>
MUMBAI	139	<a href="#">Edit</a> <b>Delete</b>

Displaying all 2 entries

## 1.3. Life Cycle Environments

Application life cycles are divided into *life cycle environments*, which represent each stage of the application life cycle. Life cycle environments are linked to form an *environment path*. You can promote content along the environment path to the next life cycle environment when required. For example, if development ends on a particular version of an application, you can promote this version to the testing environment and start development on the next version.

### 1.3.1. Creating Life Cycle Environments

This procedure describes how to create a life cycle environment in Red Hat Satellite.

- Select an organization from the menu in the top left hand corner.
- Click **Content** → **Life Cycle Environments** and then click **New Environment Path**.
- Insert a name and a label (automatically fills in the **Name** field input) for the life cycle environment. The **Description** field is optional.
- Click **Save** to create the environment.

The screenshot shows the Red Hat Satellite interface. At the top, there's a navigation bar with links like 'Monitor', 'Content', 'Containers', 'Hosts', 'Configure', 'Infrastructure', and 'Red Hat Insights'. On the right side of the header, there are 'Red Hat Access' and 'Admin User' dropdowns, and an 'Administer' link. Below the header, the main content area is titled 'Lifecycle Environment Paths'. It features a table with various metrics: Library (Content Views: 0, Products: 12, Yum Repositories: 64, OS Tree Repositories: 0, Docker Repositories: 0, Packages: 126517, Errata: 35046, Puppet Modules: 4739). To the right of the table, there's a yellow button labeled '+New Environment Path'.

The screenshot shows the 'New Environment' dialog box. At the top, it says 'Adding Lifecycle Environment to the end of "Library"'. There are three input fields: 'Name\*' containing 'RHEL6', 'Label\*' containing 'RHEL6', and 'Description' which is empty. Below the fields are two buttons: 'Cancel' and 'Save'.

### 1.3.2. Removing Life Cycle Environments from Satellite Server

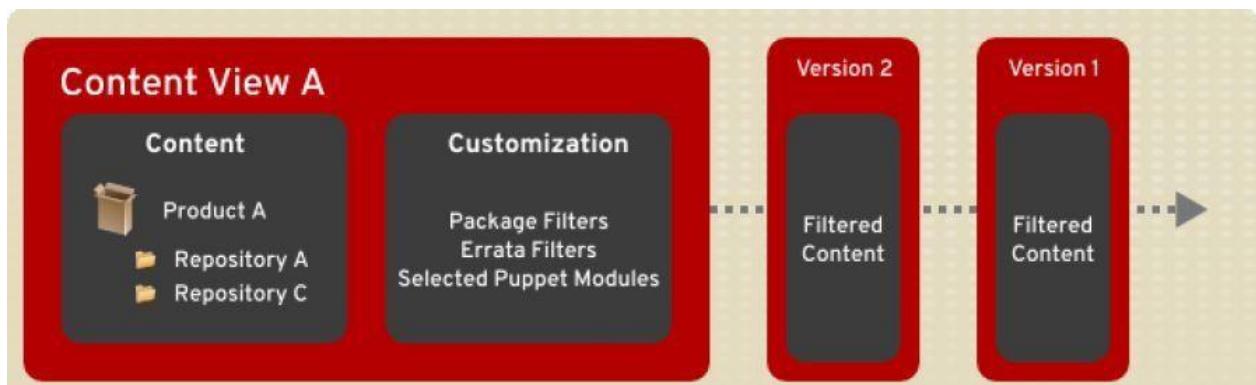
This procedure describes how to remove a life cycle environment from Red Hat Satellite.

**To Remove a Life Cycle Environment:**

- On the main menu, click **Content** → **Life Cycle Environments**.
- Click the name of the life cycle environment that you want to remove, and then click **Remove Environment**.
- In the confirmation dialog box, click **Remove** to remove the environment.

## 1.4. Using Content Views

Content views are managed selections of content, which contain one or more repositories (yum, puppet, or containers) with optional filtering. These filters can be either inclusive or Exclusive, and tailor a system view of content for life cycle management. They are used to customize content to be made available to client systems. Keeping repositories for yum, Puppet, and containers in separate Content Views has the advantage that any updates to one repository only requires republishing the relevant Content View. You can use Composite Content Views to combine published Content Views for ease of management.



Published content views are used with life cycle environments.

### 1.4.1. Creating a Content View

A user with administrator privileges can create content views for use within the life cycle environments.

**To Create a Content View:**

- Log in as a Satellite administrator.
- Click **Content** → **Content Views**.

The screenshot shows the 'Content Views' section of the Red Hat Satellite interface. The top navigation bar includes 'Monitor', 'Content', 'Containers', 'Hosts', 'Configure', 'Infrastructure', and 'Red Hat Insights'. On the right, there are 'Red Hat Access', 'Admin User', and 'Administer' dropdowns. Below the navigation is a search bar with 'Filter...', 'Search', and 'Showing 0 of 0 (0 Total)' results. A message at the bottom states: 'You currently don't have any Content Views. A Content View can be added by using the button on the right.'

- Click **Create New View**.
- Specify the **Name** of the content view. The **Label** field is automatically populated when the **Name** field is filled out. Optionally, provide a description of the content view.
- Select the **Composite Content View** check box to combine a series of published content views into one and choose which content view.
- 6. Click **Save**.

Note: If you select **Composite Content View** it will override any filtering and allow you to choose a group of published content views and bundle those views into a composite one.

The screenshot shows the 'New Content View' dialog box. It has a 'View Details' section with fields for 'Name' (RHEL6-View), 'Label' (RHEL6-View), and 'Description'. Below this is a 'Composite View' section with a checkbox labeled 'A composite view contains other content views.' At the bottom are 'Cancel' and 'Save' buttons.

#### 1.4.2. Adding Repositories to the Content View

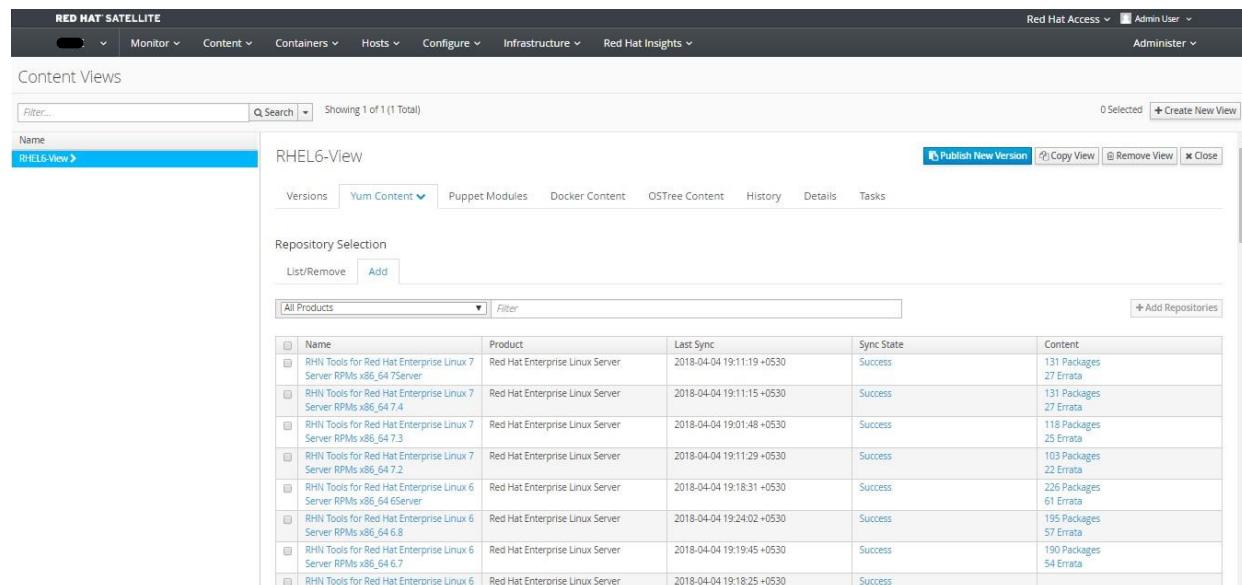
A repository provides storage for content. For example, a YUM repository, Puppet repository, or a Docker repository.

The **Content View** page contains a searchable list of content views. When searching for content views using the **Search** field, use an asterisk (\*) to perform a partial string search. For example, if searching for a content view

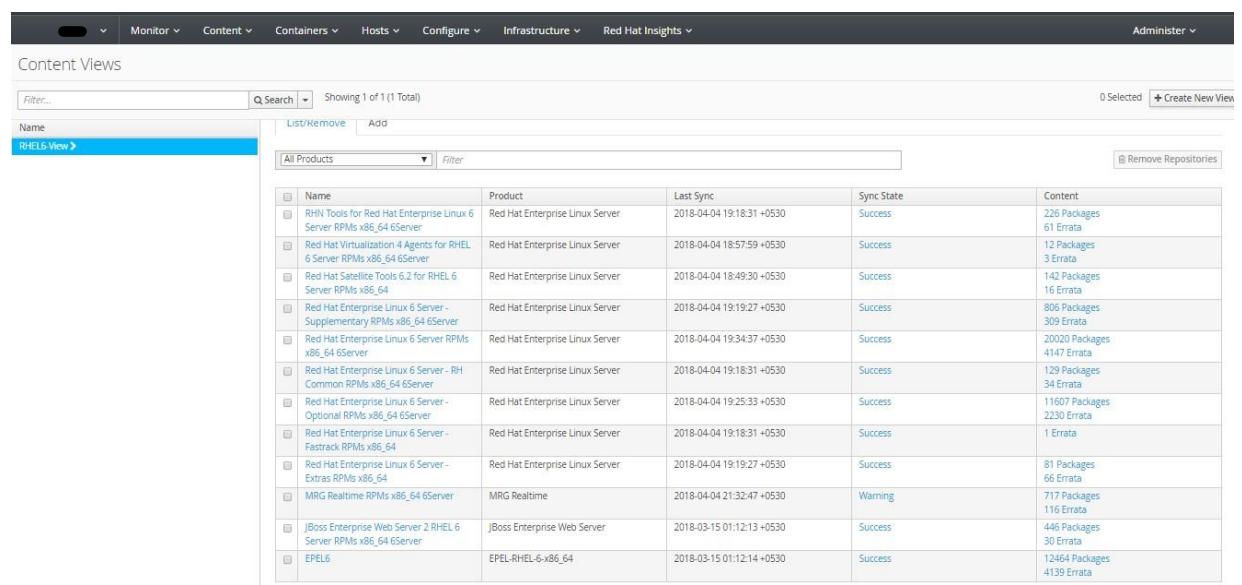
named **RHEL7\_Base**, entering **RHEL7** will not return any results, instead enter **RHEL7\***. Alternatively, **\*Base\*** also retrieves the content view **RHEL7\_Base**.

### To Associate a Repository with a Content View:

- Click **Content → Content Views** and choose the Content View to add repositories to.
- Depending on the type of content you want to store: To add a Yum repository, click **Yum Content** and select **Repositories** from the dropdown menu. From the submenu, click **Add**. For example, to be able to install Katello agent on your host, you need to enable the **Satellite Tools** repository.
- To add a Puppet repository, click **Puppet Modules** and click **Add New Module**.
- To add a Docker repository, click **Docker Content** and click **Add** in the submenu.
- Select the repositories to add and click **Add Repositories**.



Name	Product	Last Sync	Sync State	Content
RHN Tools for Red Hat Enterprise Linux 7 Server RPMs x86_64 Server	Red Hat Enterprise Linux Server	2018-04-04 19:11:19 +0530	Success	131 Packages 27 Errata
RHN Tools for Red Hat Enterprise Linux 7 Server RPMs x86_64 7.4	Red Hat Enterprise Linux Server	2018-04-04 19:11:15 +0530	Success	131 Packages 27 Errata
RHN Tools for Red Hat Enterprise Linux 7 Server RPMs x86_64 7.3	Red Hat Enterprise Linux Server	2018-04-04 19:01:48 +0530	Success	118 Packages 25 Errata
RHN Tools for Red Hat Enterprise Linux 7 Server RPMs x86_64 7.2	Red Hat Enterprise Linux Server	2018-04-04 19:11:29 +0530	Success	103 Packages 22 Errata
RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 Server	Red Hat Enterprise Linux Server	2018-04-04 19:18:31 +0530	Success	226 Packages 61 Errata
RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 6.8	Red Hat Enterprise Linux Server	2018-04-04 19:24:02 +0530	Success	195 Packages 57 Errata
RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 6.7	Red Hat Enterprise Linux Server	2018-04-04 19:19:45 +0530	Success	190 Packages 54 Errata
RHN Tools for Red Hat Enterprise Linux 6	Red Hat Enterprise Linux Server	2018-04-04 19:18:25 +0530	Success	

Name	Product	Last Sync	Sync State	Content
RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 Server	Red Hat Enterprise Linux Server	2018-04-04 19:18:31 +0530	Success	226 Packages 61 Errata
Red Hat Virtualization 4 Agents for RHEL 6 Server RPMs x86_64 6Server	Red Hat Enterprise Linux Server	2018-04-04 18:57:59 +0530	Success	12 Packages 3 Errata
Red Hat Satellite Tools 6.2 for RHEL 6 Server RPMs x86_64	Red Hat Enterprise Linux Server	2018-04-04 18:49:30 +0530	Success	142 Packages 16 Errata
Red Hat Enterprise Linux 6 Server - Supplementary RPMs x86_64 6Server	Red Hat Enterprise Linux Server	2018-04-04 19:19:27 +0530	Success	808 Packages 309 Errata
Red Hat Enterprise Linux 6 Server - Fasttrack RPMs x86_64	Red Hat Enterprise Linux Server	2018-04-04 19:34:37 +0530	Success	20020 Packages 4147 Errata
Red Hat Enterprise Linux 6 Server - RH Common RPMs x86_64 6Server	Red Hat Enterprise Linux Server	2018-04-04 19:18:31 +0530	Success	129 Packages 34 Errata
Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server	Red Hat Enterprise Linux Server	2018-04-04 19:25:33 +0530	Success	11607 Packages 2230 Errata
Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64	Red Hat Enterprise Linux Server	2018-04-04 19:18:31 +0530	Success	1 Errata
MRG Realtime RPMs x86_64 6Server	MRG Realtime	2018-04-04 21:32:47 +0530	Warning	717 Packages 116 Errata
JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server	JBoss Enterprise Web Server	2018-03-15 01:12:13 +0530	Success	446 Packages 30 Errata
EPEL6	EPEL-RHEL-6-x86_64	2018-03-15 01:12:14 +0530	Success	12464 Packages 4139 Errata

### 1.4.3. Filtering Content

Filters provide a mechanism to prevent packages from being promoted to subsequent environments. You can use package names or regular expressions in the filter to create the rules to blacklist packages. Then you can associate the filter to entire products or individual repositories within any product.

### 1.4.4. Creating a Filter

The following procedure shows how to create a filter for packages.

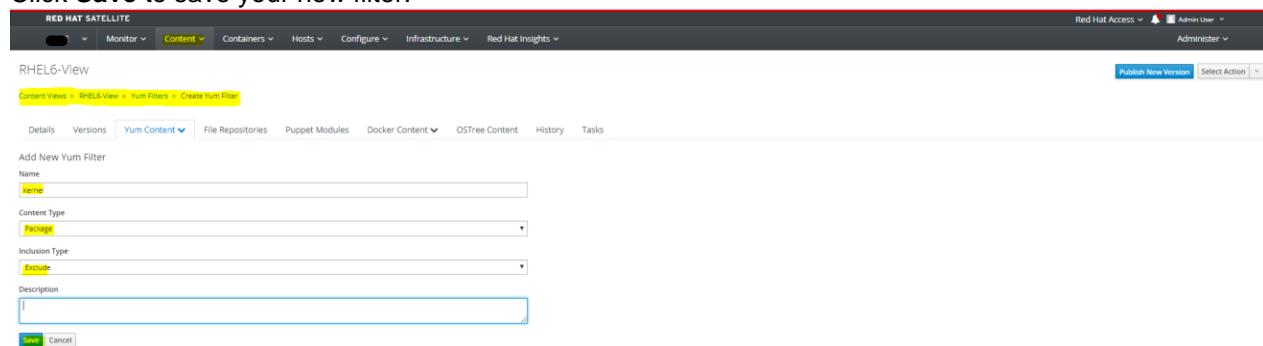
#### To Create a Filter:

- Navigate to **Content** → **Content Views** and select the Content View you want to filter.
- Click **Yum Content** → **Filters** and click **New Filter**



- In the **Name** field, specify the name of the new filter and choose a content type from the **Content Type** drop-down menu. Choose whether the filter includes or excludes the selected content type by selecting the **Type** drop-down menu. Optionally, insert a description in the **Description** field.

Click **Save** to save your new filter.



### 1.4.5. Adding Content to a Filter

The following procedure shows how to add content to a package filter.

#### To Add Content to a Filter:

- Navigate to **Content** → **Content Views** and select the Content View you want to filter.
- Click **Yum Content** → **Filters** and click the name of the filter you want to edit. Depending on the type of filter selected, perform the following actions:
  - a. If the filter is made for packages, specify a package name on the **Packages** subtab, and select a **Detail** value from the drop-down menu. Click **Add** to add the package to the filter.
  - b. If the filter is made for package groups, click the **Add** sub tab, and choose the desired package group. Click **Add Package Group**.
  - c. If the filter is made for errata, click the **Add** subtab. Select the errata type (**Security**, **Enhancement**, or **Bugfix**), and specify a start date and end date. Click **Add Errata**.
  - d. If the filter is made for errata - date and type, on the **Erratum Date Range** sub tab, select the errata type (**Security**, **Enhancement**, or **Bug fix**) and specify a start date and end date. Click **Save**.
  - e. Add specific Rules

- On the **Affected Repositories** subtab, choose whether the filter will affect all or a subset of repositories. If you choose a subset of repositories, select the desired repositories and click **Update Repositories**.

- Click **Publish New Version**. Insert a comment if desired, then click **Save**.

## 1.4.6. Removing a Filter

The following procedure shows how to remove a filter.

### To Remove a Filter:

- Navigate to **Content** → **Content Views** and select the Content View you want to filter.

- Click **Yum Content** → **Filters** and select the check box next to the name of the package filter you want to remove.

The screenshot shows the 'Yum Content' section of the Red Hat Satellite interface. The 'Filters' tab is active. A table lists a single item: 'kernel'. The 'Inclusion Type' column for 'kernel' is set to 'Exclude'. There are buttons for 'New Filter' and 'Remove Selected' at the top right.

- Click **Remove Filters**.

The screenshot shows the same 'Yum Content' screen after the 'kernel' filter has been removed. The 'kernel' row is now highlighted in blue, indicating it is selected. The 'Inclusion Type' column for 'kernel' is still set to 'Exclude'. There are buttons for 'New Filter' and 'Remove Selected' at the top right.

#### 1.4.7. Publishing a Content View

After a content view has been created, it needs to be published in order for it to be visible and usable by hosts. Before publishing the content view definition, make sure that the content view definition has the necessary products, repositories and filters.

##### To Publish a Content View Definition:

- Click **Content** → **Content Views**.
- Click on the content view to be published.

The screenshot shows the 'Content Views' screen for the 'RHEL6-View' content view. The 'Publish New Version' button is highlighted in yellow. Other buttons visible include 'Copy View', 'Remove View', and 'Close'. A message at the bottom states: 'This Content View does not have any versions; create your first Content View Version by using the "Publish New Version" button on the right.'

- Click **Publish New Version**.
- Fill in a comment.
- Click **Save**.

The top screenshot shows the 'Publish New Version' dialog for the 'RHEL6-View' content view. The dialog displays a note: 'A new version of RHEL6-View will be created and promoted to the Library environment. It can be promoted to other environments from the Versions tab of this Content View.' Below this, the 'Version Details' section shows 'Version 1' and a 'Description' field containing 'Force Yum Metadata Regeneration'. The 'Save' button is highlighted in blue.

The bottom screenshot shows the main 'Content Views' page. A message at the top states: 'Many Content View actions are disabled while a version task is in progress.' The table below lists the content view details:

Version	Status	Environments	Content	Description	Actions
Version 1.0	Publishing and promoting to 1 environment.	Library			<input type="button" value="Promote"/> <input type="button" value="Remove"/>

### 1.4.8. Promoting Content Views

After you have created a Content View and an environment path consisting of two or more life cycle environments, you can promote the Content View from one environment to the next as required. This means that the most recent version of the Content View that exists in a specified environment will be promoted, or copied, to the next environment in the life cycle environment path. You can promote a Content View to any environment where that version does not exist. The system automatically suggests the next environment in the life cycle environment path, but you can override this and promote to a different environment if required.

- On the main menu, click **Content** → **Content Views**.
- In the **Name** column, click the name of the Content View that you want to promote.
- On the **Versions** tab, identify the latest version, and click **Promote**.

The screenshot shows the 'Content Views' section of the Red Hat Satellite interface. A single Content View named 'RHEL6-View' is selected. The 'Versions' tab is active, displaying one version (Version 1.0) which was published on 2018-05-10 at 13:30:09. The table shows basic information like package count and errata. Action buttons for 'Promote' and 'Remove' are visible.

- Identify the promotion path where you want to promote the Content View, select the appropriate life cycle environment, and click **Promote Version**.

The screenshot shows the 'Promote Version' dialog. It lists three available promotion paths: 'Library' (selected), 'RHEL6' (starred), 'RHEL7' (starred), and 'RHEV'. A 'Description' text area is present, and a checkbox for 'Force Yum Metadata Regeneration' is checked. At the bottom are 'Promote Version' and 'Cancel' buttons.

- After the promotion has completed, the **Versions** tab updates to display the new status of your Content Views.

The screenshot shows the 'Content Views' section again. The 'RHEL6-View' details page is displayed, and the 'Versions' tab now shows that Version 1.0 has been promoted to RHEL6 on 2018-05-10 at 13:40:06. The table includes the promoted status and the target environment.

- Promoted version to Hosts Environment(ie;RHEL6)

## 1.5. Viewing and Applying Errata

Navigate to **Monitor → Content Dashboard** to see the overview of errata synchronization.

Errata contain advisories that describe the changes introduced by the update. There are three types of advisories (in order of importance):

**Security Advisory** describes fixed security issues found in the package. The security impact of the issue can be *Low*, *Moderate*, *Important*, or *Critical*.

**Bug Fix Advisory** describes bug fixes for the package.

**Product Enhancement Advisory** describes enhancements and new features added to the package.

In Red Hat Satellite, there are two keywords that describe an erratum's relationship to the available content hosts: **Applicable**: erratum applies to one or more content hosts, which means it updates packages present on the content host. Applicable errata are not yet accessible by the content host.

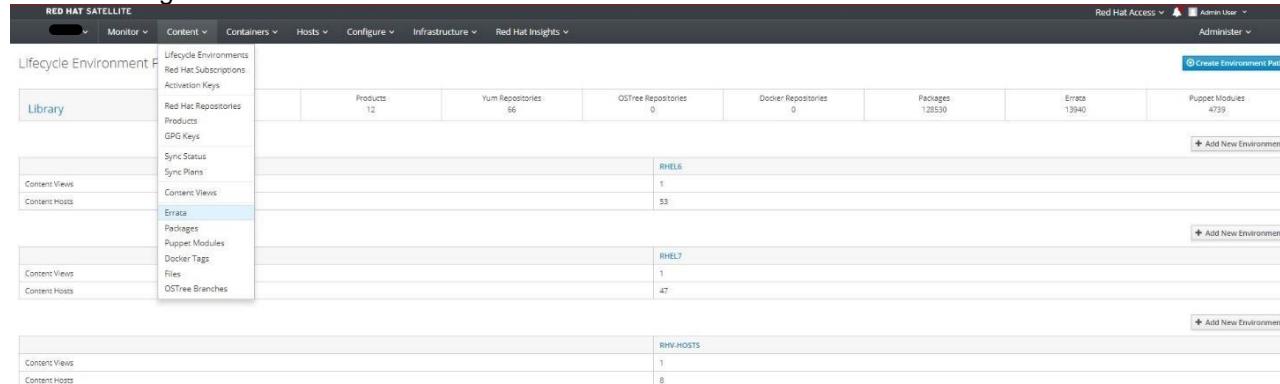
**Installable**: erratum applies to one or more content hosts and it has been made available to the content host. Installable errata are present in the content host's life cycle environment and content view, but are not yet installed. This way, errata can be installed by users who have permissions to manage content hosts, but are not entitled for errata management at higher levels.

### 1.5.1. Applying Errata to Content Hosts

The following procedures show how to apply one or more errata to content hosts.

#### To Apply a Single Erratum to Content Hosts:

- Navigate to **Content → Errata** to view the list of available errata.



The screenshot shows the Red Hat Satellite Content Dashboard. The left sidebar has sections for Lifecycle Environment, Library, Content Views, and Content Hosts. The Content Hosts section is expanded, showing sub-sections for Errata, Packages, Puppet Modules, Docker Tags, Files, and OSTree Branches. The main content area displays a table of errata for RHEL6 and RHEL7 environments. The RHEL6 environment table has columns for Products (12), Yum Repositories (66), OSTree Repositories (0), Docker Repositories (0), Packages (128530), Errata (13940), and Puppet Modules (4739). The RHEL7 environment table has columns for Products (1), Yum Repositories (53), OSTree Repositories (0), Docker Repositories (0), Packages (1), and Errata (47). Buttons for 'Add New Environment' are visible in both tables.

Environment	Products	Yum Repositories	OSTree Repositories	Docker Repositories	Packages	Errata	Puppet Modules
RHEL6	12	66	0	0	128530	13940	4739
RHEL7	1	53	0	0	1	47	
RHV HOSTS							

- Click the **Errata ID** of the erratum you want to apply.

All Repositories	Filter:	Search	Applicable	Installable	Apply Errata
RHBA-2018-1385	libguestfs bug fix update	Bug Fix Advisory - None	2 Applicable, 2 Installable	5/14/18	
RHBA-2018-1377	ca-certificates enhancement update	Product Enhancement Advisory - None	34 Applicable, 31 Installable	5/14/18	
RHBA-2018-1382	net-snmp bug fix update	Bug Fix Advisory - None	32 Applicable, 35 Installable	5/14/18	
RHBA-2018-1389	openldap bug fix update	Bug Fix Advisory - None	34 Applicable, 34 Installable	5/14/18	
RHBA-2018-1405	openscap bug fix update	Bug Fix Advisory - None	2 Applicable, 2 Installable	5/14/18	
RHBA-2018-1386	rasdeman enhancement update	Product Enhancement Advisory - None	1 Applicable, 1 Installable	5/14/18	
RHBA-2018-1398	Low: libvirt security and bug fix update	Security Advisory - Low	4 Applicable, 4 Installable	5/14/18	
RHBA-2018-1384	augean bug fix update	Bug Fix Advisory - None	16 Applicable, 16 Installable	5/14/18	
RHBA-2018-1415	Critical: firefox security update	Security Advisory - Critical	2 Applicable, 2 Installable	5/14/18	
RHBA-2018-1393	gnome3 and libproxy bug fix update	Bug Fix Advisory - None	7 Applicable, 7 Installable	5/14/18	
RHBA-2018-1410	scap-security-guide bug fix update	Bug Fix Advisory - None	2 Applicable, 2 Installable	5/14/18	
RHBA-2018-1388	iptables bug fix update	Bug Fix Advisory - None	34 Applicable, 34 Installable	5/14/18	
RHBA-2018-1399	rdma-core bug fix update	Bug Fix Advisory - None	5 Applicable, 5 Installable	5/14/18	
RHBA-2018-1378	splice bug fix and enhancement update	Bug Fix Advisory - None	3 Applicable, 3 Installable	5/14/18	
RHBA-2018-1383	git bug fix update	Bug Fix Advisory - None	34 Applicable, 34 Installable	5/14/18	
RHBA-2018-1376	nspr, nsutil, ns-softfloat, and nsx bug fix and enhancement update	Product Enhancement Advisory - None	34 Applicable, 34 Installable	5/14/18	
RHBA-2018-1391	rsdvd bug fix update	Bug Fix Advisory - None	4 Applicable, 4 Installable	5/14/18	
RHBA-2018-1401	sos bug fix and enhancement update	Bug Fix Advisory - None	21 Applicable, 21 Installable	5/14/18	
RHBA-2018-1379	gnome-chromes-standard bug fix update	Bug Fix Advisory - None	2 Applicable, 2 Installable	5/14/18	
RHSA-2018-1416	Moderate: qemu-kvm security update	Security Advisory - Moderate	4 Applicable, 4 Installable	5/14/18	

- On the **Content Hosts** tab, select one or more content hosts to be updated. You can filter the available content hosts by the environment, and search for them by name. If you select the check box at the top of the page, only the content hosts that already have the installable erratum in their life cycle environment are displayed.

### net-snmp bug fix update

Errata > net-snmp bug fix update

Details	Content Hosts	Repositories
net-snmp bug fix update		
Advisory:	RHBA-2018-1382	
CVES:	N/A	
Type:	Bug Fix Advisory	
Severity:	None	
Issued:	5/14/18	
Last Updated On:	5/14/18	
Reboot Suggested:	No	
Topic		
Updated net-snmp packages that fix two bugs are now available for Red Hat Enterprise Linux 7.		
Description		
The net-snmp packages provide various libraries and tools for the Simple Network Management Protocol (SNMP), including an SNMP library, an extensible agent, tools for requesting or setting information from SNMP agents, tools for generating and handling SNMP traps, a version of the netstat command which uses SNMP, and a Tk/Perl Management Information Base (MIB) browser.		
This update fixes the following bugs:		
* Previously, a memory leak occurred during the snmpd process. Consequently, the amount of consumed memory continued to grow over time. This bug has been fixed, and the net-snmp packages no longer leak memory. (BZ#1560965)		
* The net-snmp package version 5.7.2, which was previously distributed with Red Hat Enterprise Linux 7.4, did not provide support for Automatic Storage Management Cluster File System (ACFS). As a consequence, users were unable to monitor mounts of this type. With this update, users of net-snmp are advised to upgrade to these updated packages, which fix these bugs.		
Solution		
Before applying this update, make sure all previously released errata relevant to your system have been applied.		
For details on how to apply this update, refer to:		
<a href="https://access.redhat.com/articles/11258">https://access.redhat.com/articles/11258</a>		
Affected Packages		
net-snmp-5.7.2-33.el7_5.2.x86_64 net-snmp-5.7.2-33.el7_5.2.x86_64 net-snmp-agent-libs-5.7.2-33.el7_5.2.x86_64 net-snmp-agent-libs-5.7.2-33.el7_5.2.x86_64 net-snmp-devel-5.7.2-33.el7_5.2.x86_64 net-snmp-devel-5.7.2-33.el7_5.2.x86_64 net-snmp-gui-5.7.2-33.el7_5.2.x86_64 net-snmp-gui-5.7.2-33.el7_5.2.x86_64 net-snmp-libs-5.7.2-33.el7_5.2.x86_64 net-snmp-libs-5.7.2-33.el7_5.2.x86_64 net-snmp-perl-5.7.2-33.el7_5.2.x86_64 net-snmp-python-5.7.2-33.el7_5.2.x86_64 net-snmp-sysvinit-5.7.2-33.el7_5.2.x86_64 net-snmp-utils-5.7.2-33.el7_5.2.x86_64		

- 4. Click **Apply to Hosts**.

- 5. Click **Confirm**.

**Red Hat Satellite**

Red Hat Access  Admin User 

Administrator 

Monitor  Content  Containers  Hosts  Configure  Infrastructure  Red Hat Insights 

net-snmp bug fix update

Errata > net-snmp bug fix update > Apply 

Details Content Hosts Repositories

Apply RHBA-2018:1382  
Apply RHBA-2018:1382 to 1 Content Host(s)?

#### To Apply Installable Errata to a Content Host:

- Navigate to **Hosts** → **Content Hosts**.
  - Click the name of the content host you want to manage.

- On the **Errata** tab, select errata you want to install.

Type	ID	Title	Issued
Product Enhancement Advisory - None	RHEA-2018:1377	ca-certificates enhancement update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1382	net-snmp bug fix update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1389	openldap bug fix update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1405	openscap bug fix update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1399	tzdata enhancement update	5/8/18
Bug Fix Advisory - None	RHBA-2018:1410	scap-security-guide bug fix update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1388	iptables bug fix update	5/14/18
Bug Fix Advisory - None	RHBA-2018:1383	gcc bug fix update	5/14/18

- 4. Click **Apply Selected** to install the selected updates.

### 1.5.2. Adding Errata to a Host Collection

The following procedure shows how to add errata to host collections.

#### Prerequisites

The errata to be added should be available in one of the existing repositories or added prior to this procedure. Errata should be promoted to the environment where the hosts are assigned.

#### To Add Errata to a Host Collection:

- Click **Hosts** → **Host Collections**.
- Select the host collection where the errata should be added.
- Click **Errata Installation**.

- Select the errata you want to add to the host collection and click the **Install Selected** button to use the default method. Alternatively, select the drop-down icon to the right of the button to select a method to use. Selecting **via remote execution – customize first** menu entry will take you to the **Job invocation** page where you can customize the action.

Type	Id	Title	Issued	Count
bugfix	RHBA-2018:1385	libguestfs bug fix update	2018-05-14	2
enhancement	RHEA-2018:1377	ca-certificates enhancement update	2018-05-14	32
bugfix	RHBA-2018:1382	net-snmp bug fix update	2018-05-14	31
bugfix	RHBA-2018:1389	openidp bug fix update	2018-05-14	32
bugfix	RHBA-2018:1405	openscap bug fix update	2018-05-14	2
enhancement	RHEA-2018:1386	rsdaemon enhancement update	2018-05-14	1
security	RHSA-2018:1396	Low: libvirt security and bug fix update	2018-05-14	4
bugfix	RHBA-2018:1384	augeas bug fix update	2018-05-14	16
security	RHSA-2018:1415	Critical: firefox security update	2018-05-14	2
bugfix	RHBA-2018:1393	gtk3 and libepoxy bug fix update	2018-05-14	7
bugfix	RHBA-2018:1410	scap-security-guide bug fix update	2018-05-14	2
bugfix	RHBA-2018:1388	iptables bug fix update	2018-05-14	32
bugfix	RHBA-2018:1399	rdma-core bug fix update	2018-05-14	5
bugfix	RHBA-2018:1378	splice bug fix and enhancement update	2018-05-14	3
bugfix	RHBA-2018:1383	gcc bug fix update	2018-05-14	32
enhancement	RHEA-2018:1376	nspk, nss-util, nss-softokn, and nss bug fix and enhancement update	2018-05-14	32
bugfix	RHBA-2018:1391	radvd bug fix update	2018-05-14	4
bugfix	RHBA-2018:1401	sos bug fix and enhancement update	2018-05-14	21
bugfix	RHBA-2018:1379	gnome-themes-standard	2018-05-14	2

## 1.6. Configuring Activation Keys

Activation keys define selected properties of content hosts. You can use activation keys during content host registration to improve the speed, simplicity and consistency of the process.

- Activation can specify:
- Associated subscriptions and subscription attach behavior.
- Available products and repositories.
- A life cycle environment and a content view.
- Host collection membership.

The same activation key can be applied to multiple content hosts, as long as it contains enough subscriptions. However, activation keys only set the initial configuration for a content host. When it is registered to an organization, other content which that organization possesses can be attached to the content host manually.

## 1.7. Creating an Activation Key

This section describes how to create an activation key.

### To Create an Activation Key:

- Click **Content → Activation keys**.
- Click **New Activation Key**. Perform the following actions:

- Specify the activation key name. This setting is required.
- Optionally, clear the **Unlimited Hosts** check box if you want to limit the number of host that can be associated with the activation key. Specify the number in the **Limit** field. .

c. Optionally, enter a suitable description in the **Description** field. You can also select the **Environment** and **Content View** to which this key should apply. For host registration, select a content view that has the **Satellite Tools** repository enabled.

The screenshot shows the Red Hat Satellite web interface. At the top, there's a navigation bar with links for Monitor, Content, Containers, Hosts, Configure, Infrastructure, and Red Hat Insights. On the far right, it shows 'Red Hat Access' and 'Admin User'. Below the navigation is a search bar and a message stating 'Showing 0 of 0 (Total)'. A prominent button at the top right says '+ New Activation Key'. The main area is titled 'Activation Keys' and contains a message: 'You currently don't have any Activation Keys, you can add Activation Keys using the button on the right.' A modal window titled 'New Activation Key' is open. It has fields for 'Name \*' (set to 'RHEL6-KEY'), 'Host Limit' (set to 'Unlimited Hosts'), and a 'Description' field. Under 'Environment', there are three groups of checkboxes: 'Library' (with 'RHEL6' checked), 'RHEL7' (unchecked), and 'RHEV' (unchecked). A dropdown for 'Content View' is set to 'RHEL6-View'. At the bottom of the modal are 'Cancel' and 'Save' buttons.

- Click **Save** to create the activation key.

### 1.7.1. Adding and Removing Subscriptions

#### To Add a Subscription to an Activation Key:

Click **Content** → **Activation keys**.

Click the activation key name you want to edit. On the **Subscriptions** tab, select the **Add** subtab.

- From the list of available subscriptions, select the subscriptions you want to add.
- Click **Add Selected**.

Activation Keys

Activation Key: RHEL6-KEY

Activation Key Type: Auto-Attach Yes

When Auto Attach is enabled, registering systems will be attached to all associated custom products and only associated Red Hat subscriptions required to satisfy the system's installed products.

**Subscriptions**

Quantity	Attached	Type	Starts	Expires	Support Level	Contract	Account
EPEL-RHEL-6-x86_64	0 out of Unlimited	Physical	6/23/17	6/16/47			
Red Hat Enterprise Linux for Real Time, Premium (Physical Node)	0 out of 50	Physical	4/1/18	4/1/19	Premium	11624800	1324203

## 1.7.2. To Remove Subscriptions from an Activation Key:

- Click **Content → Activation keys**.
- A list of activation keys is displayed. Click the activation key you want to remove subscriptions from.
- Click the **Subscriptions** tab.
- Under the **List/Remove** subtab, a list of attached subscriptions is displayed. Select the subscriptions to be removed.
- Click **Remove Selected**.

Activation Keys > RHEL6-KEY > List Subscriptions

Activation Key Type: Auto-Attach Yes

When Auto Attach is enabled, registering systems will be attached to all associated custom products and only associated Red Hat subscriptions required to satisfy the system's installed products.

**Subscriptions**

**Remove Selected**

Quantity	Attached	Type	Starts	Expires	Support Level	Contract	Account
EPEL-RHEL-6-x86_64	57 out of Unlimited	Physical	2017-06-23 18:00:32 +0530	2047-06-16 18:00:32 +0530			
Red Hat Enterprise Linux Server, Premium (Physical or Virtual Nodes)	1 out of 10	Physical	2018-04-01 09:30:00 +0530	2023-04-01 09:29:59 +0530	Premium	11624726	1324203
Automatic	2 out of 10	Physical	2018-04-01 09:30:00 +0530	2023-04-01 09:29:59 +0530	Premium	11624726	1324203
Automatic	0 out of 10	Physical	2018-04-01 09:30:00 +0530	2019-04-01 09:29:59 +0530	Premium	11624800	1324203
Red Hat Enterprise Linux for Real Time, Premium (Physical Node)	50 out of 50	Physical	2018-04-01 09:30:00 +0530	2019-04-01 09:29:59 +0530	Premium	11624800	1324203

## 1.7.3. Enabling Auto-Attach

The auto-attach setting of an activation key determines what subscriptions are automatically attached during registration.

### To Enable Auto-Attach on an Activation Key:

- Click **Content** → **Activation keys**.
- Click the activation key name that you want to edit.
- Click the **Subscriptions** tab.
- Click the edit icon next to **Auto-Attach**.
- Select the check box to enable auto-attach.
- Click **Save**.

The screenshot shows the 'Activation Keys' interface for the 'RHEL6-KEY' activation key. The 'Subscriptions' tab is selected. A modal dialog is open over the main content, titled 'Activation Key Type'. Inside the dialog, there is a checkbox labeled 'When Auto Attach is enabled, registering systems will be attached to all associated custom products and only associated Red Hat subscriptions required to satisfy the system's installed products.' Below the checkbox are 'Save' and 'Cancel' buttons. The main table below the dialog lists various Red Hat Enterprise Linux products with their quantities, types, and expiration dates. The table includes columns for Quantity, Attached, Type, Starts, Expires, Support Level, Contract, and Account. At the bottom of the table, there are buttons for 'List/Remove', 'Add', 'Filter...', 'Search', and 'Remove Selected'.

### 1.7.4. Adding and Removing Host Collections

These steps show how to add host collections to an activation key. Host collections can be associated with activation keys so that hosts utilizing the activation keys will automatically be added to the associated host collections upon registering with the Satellite Server.

#### To Add Host Collections to an Activation Key:

- Click **Content** → **Activation keys**.
- Click the activation key that you want to add a host collection to.
- On the **Host Collections** tab click the **Add** subtab to display the list of available host collections.
- Select the host collections you want to add, and then click **Add Selected**.

The screenshot shows the 'Activation Keys' interface for the 'RHEL6-KEY' activation key. The 'Host Collections' tab is selected. A modal dialog is open over the main content, titled 'Activation Keys > RHEL6-KEY > Add Host Collections'. Inside the dialog, there is a 'Filter...' input field and an 'Add Selected' button. The main table lists host collections with their names and descriptions. The table includes columns for Name, Description, and Capacity. At the bottom of the table, there are buttons for 'List/Remove', 'Add...', 'Filter...', 'Search', and 'Remove Selected'. The table shows two entries: 'RHEL7-Collection' and 'RHEL6-Collection'. The 'RHEL6-Collection' row is highlighted with a yellow background.

#### To Remove Host Collections from the Activation Key:

- Click **Content** → **Activation keys**.
- A list of activation keys is displayed. Click the activation key you want to remove host collections from.
- Click the **Host Collections** tab.

- 4. Under **List/Remove** subtab, a list of host collections attached to the activation key is displayed. Select the check box of the host collections you want to remove.
- 5. Click **Remove Selected** to remove host collections from the activation key.

The screenshot shows the Red Hat Satellite web interface. At the top, there's a navigation bar with links like 'Monitor', 'Content', 'Containers', 'Hosts', 'Configure', 'Infrastructure', and 'Red Hat Insights'. Below the navigation bar, the title 'Activation Keys' is followed by the specific key name 'RHEL6-KEY'. Underneath, there's a breadcrumb trail: 'Activation Keys > RHEL6-KEY > List Host Collections'. The main content area has tabs: 'Details', 'Subscriptions', 'Repository Sets', 'Host Collections' (which is highlighted in blue), and 'Associations'. Below these tabs, there are buttons for 'List/Remove' and 'Add', and a 'Filter' input field. The 'List/Remove' subtab is active, showing a table with one row. The table columns are 'Name' (containing 'Red Hat Enterprise Linux 6 Host Collection'), 'Description' (empty), and 'Capacity' (54 / Unlimited). To the right of the table, there's a button labeled 'Remove Selected' with a yellow background. At the bottom right of the table, it says '1 of 1 Selected'.

### 1.7.5. Editing Product Content

The number of products available for the activation key is determined by associated subscriptions. You can change which repositories in products are enabled on the **Product Content** tab.

#### To Edit Product Content on an Activation Key:

- Click **Content** → **Activation keys**.
- Click the activation key name that you want to edit.
- Click the **Product Content** tab to view the products and repositories associated with the activation key through subscriptions.
- Click the edit icon next to the repository you want to edit.
- From the drop-down menu, select if the repository will be enabled or disabled. Click **Save** to apply the change.

The screenshot shows the Red Hat Satellite interface with the 'Activation Keys' page open for 'RHEL6-KEY'. The 'Product Content' tab is selected under the 'Subscriptions' subtab. On the left, there's a sidebar with a tree view showing 'Red Hat Software Collections for RHEL Server' expanded, with 'Red Hat Software Collections RPMs For Red Hat Enterprise Linux 7 Server' selected. This selection is highlighted with a blue bar at the top of the main content area. The main content area shows a table of repositories. Each row has a 'Name' column (e.g., 'Red Hat Enterprise Linux 6 Server - Fastrack (RPMs)'), an 'Enabled?' column with a dropdown menu (set to 'No (Default)'), and a 'checkbox' column. A yellow box highlights the 'Enabled?' dropdown for the first row. At the top right of the main content area, there are buttons for 'Remove', 'Copy Activation Key', and 'Close'. At the bottom right, there's a note: 'Below are the repository content sets currently available for this activation key through its subscriptions. For Red Hat subscriptions, additional content can be made available through the Red Hat Repositories page. Changing default settings for content hosts that register with this activation key requires subscription-manager version 1.10 or newer to be installed on that host.' There are also 'New Activation Key' and 'Search' buttons at the top of the main content area.

### 1.7.6. Setting a Life Cycle Environment and a Content View

You can set a life cycle environment and a content view for an activation key when creating it.

It is also possible to modify these settings afterwards using the following procedure.

- Click **Content → Activation keys**.
- Click the activation key name that you want to edit.
- Click the check box next to the **Environment** you want to associate with the activation key. Select a **Content view** from the drop-down menu.

The screenshot shows the 'Activation Key Content' section of the RHEL7-KEY activation key details page. On the left, under 'Basic Information', there are fields for Name (RHEL7-KEY), Description, Host Limit (Unlimited), and Service Level. On the right, under 'Activation Key Content', there is a 'Release Version' dropdown set to '6Server'. Under 'Environment', the 'RHEL6' checkbox is checked, and the 'RHEL7' checkbox is checked and highlighted in yellow. Below these are three boxes: 'Library' (unchecked), 'RHV-HOSTS' (unchecked), and 'Content View' (unchecked). A dropdown menu for 'Content View' shows 'RHEL7-View' selected. At the bottom are 'Save' and 'Cancel' buttons.

- 4. Click **Save**.

### 1.7.7. Removing an Activation Key

This section describes how to remove an activation key.

#### To Remove an Activation Key:

- Click **Content → Activation keys**.
- Click the activation key name that you want to remove.
- In the upper right of the **Activation Key** details panel, click **Select Action**.
- In the alert box, click **Remove** to confirm that you want to remove the key.

The screenshot shows the 'Activation Key Content' section of the RHEL6-KEY activation key details page. The interface is identical to the previous screenshot, but the 'Select Action' button in the top right corner is highlighted in yellow, indicating it is selected. The 'Remove' button is visible in the alert box.

## 1.7.8. Creating Repository Sync Plan

This Section describes how to create a sync plan

- Go to **Content → Sync Plans**

The screenshot shows the 'Sync Plans' list page. The left sidebar has 'Sync Plans' selected. The main area displays a table of sync plans with columns: Name, Original Sync Date, Sync Enabled, Interval, and Next Sync. A 'Create Sync Plan' button is located at the top right.

Name	Original Sync Date	Sync Enabled	Interval	Next Sync
puppet sync	2017/05/10 18:00:00 +0530	true	Weekly	2018/05/14 18:00:00 +0530
Satellite-6 Weekly Sync	2018/05/24 23:00:00 +0530	true	Weekly	2018/06/14 23:00:00 +0530

- Select **Create Sync Plan & fill the relevant details.**

The screenshot shows the 'Create Sync Plan' dialog. It includes fields for Name (New-sync), Description, Interval (Weekly), Start Date (2018-06-12), Start Time (22:00), and a note about the sync happening in the current time zone. Buttons for Save and Cancel are at the bottom.

- Go to **Products → Add the products you want to sync**

The screenshot shows the 'New-Sync' product configuration dialog under the 'Products' tab. It displays basic information like Name, Description, Start Date, and Sync Enabled. The 'Products:' field is currently empty. A 'Select Action' button is visible at the top right.

- Click Add Selected

Screenshot of the Red Hat Satellite interface under 'Sync Plans > New Sync > Add Products'. A table lists various repositories with their sync status and count. An 'Add Selected' button is highlighted in yellow at the top right of the table area.

Name	Description	Sync Status	Repositories
Centos6	Centos 6 x86	Last synced 21 days ago.	1
EPEL6-Local-Repo	EPEL6 Created locally repo	Last synced 21 days ago.	1
EPEL7-Local-Repo	EPEL7 local	Last synced 21 days ago.	1
EPEL-RHEL-6-x86_64		Last synced 4 days ago.	1
JBoss Enterprise Web Server		Last synced 11 days ago.	1
MRG Realtime		Last synced 4 days ago.	2
PuppetForge	Puppet Module repos	Last synced 5 days ago.	1
Red Hat Enterprise Linux for Real Time		Last synced 4 days ago.	1
Red Hat Enterprise Linux High Availability for RHEL Server		Last synced 11 days ago.	2
Red Hat Enterprise Linux Server		Last synced 4 days ago.	50
Red Hat Software Collections for RHEL Server		Last synced 4 days ago.	2
Red Hat Virtualization		Last synced 4 days ago.	10
Red Hat Virtualization Host		Last synced 4 days ago.	1

- List option show the added Products.

Screenshot of the Red Hat Satellite interface under 'Sync Plans > New Sync > List Products'. A table shows three selected products: Centos6, MRG Realtime, and Red Hat Enterprise Linux Server, each with its sync status and repository count. An 'Add Selected' button is visible at the top left, and a 'Remove Selected' button is at the top right.

Name	Description	Sync Status	Repositories
Centos6	Centos 6 x86	Last synced 21 days ago.	1
MRG Realtime		Last synced 4 days ago.	2
Red Hat Enterprise Linux Server		Last synced 4 days ago.	50

- After Sync you can check the status on sync status.
- Go to Content→Sync status

Screenshot of the Red Hat Satellite interface under 'Content > Sync Status'. The left sidebar shows a tree view of syncable items, with 'Sync Status' highlighted in yellow. The main pane displays a table of sync jobs, showing details like start time, duration, and result. One job for 'MRG Realtime' is shown as 'Syncing Complete'.

	START TIME	DURATION	DETAILS	RESULT
4 days ago	20 minutes	No new packages.	Syncing Complete	
4 days ago	31 minutes	No new packages.	Syncing Complete	

- Each Base & Child Channels sync status will show here.

The screenshot shows the 'Sync Status' section of the Red Hat Satellite interface. It displays two completed sync jobs:

- Red Hat Virtualization Host (RHEL 7 RPMvibx64)**: Started 4 days ago, duration 20 minutes, no new packages, result Syncing Complete.
- MRG Realtime vB6\_64 Server**: Started 4 days ago, duration 31 minutes, no new packages, result Syncing Complete.

On the left, a tree view lists various product categories like 'Red Hat Virtualization', 'Red Hat Enterprise Linux for Real Time', and 'MRG Realtime'.

## 1.8. Configuring the Provisioning Environment

Provisioning refers to a process that starts with a bare physical or virtual compute resource and ends with a fully configured, ready-to-use operating system. Red Hat Satellite provides an ability to define and automate fine-grained provisioning for a large number of hosts.

### 1.8.1. Creating a Host Group

A host group defines a set of default values that hosts inherit when placed in that group. Hosts can belong to only one host group, but host groups can be nested in hierarchies. You can create a "base" or "parent" host group that represents all hosts in your organization, and then create nested or "child" host groups under that parent to provide specific settings. This section describes how to create a host group.

#### To Add a Host Group to Satellite:

The screenshot shows the 'Host group configuration' page. At the top right is a blue button labeled 'New Host Group'. Below it is a detailed description of what a host group is and how it works. A note at the bottom states there are two strategies for using host groups: creating puppet classes or using the 'host-type-ldap-server' class.

**New Host Group**

A host group is in some ways similar to an inherited node declaration, in that it is a high level grouping of classes that can be named and treated as a unit. This is then treated as a template and is selectable during the creation of a new host and ensures that the host is configured in one of your pre-defined states. In addition to defining which puppet classes get included when building this host type you are also able to assign variables and provisioning information to a host group to further refine the behavior of the puppet runtime. The host group's classes and the host group's variables are included in the external node information when the puppetmaster compiles the host's configuration.

There are two strategies when using host groups. You may create puppet classes that represent high-level host configurations, for example, a `host-type-ldap-server` class, which includes all the required functionality from other modules or you may decide to create a host group called `host-type-ldap-server` and add the required classes into the host group configuration. These two options are personal decisions and are up to you (where the main difference would be the parameter/variables settings).

- Click **Configure → Host Groups** and then click **New Host Group**.
- Enter the required details for the Host Group, and then click **Submit**.

The screenshot shows the 'Edit RHEL6-Group' dialog in the Red Hat Satellite interface. The 'Host Group' tab is selected. The form fields are as follows:

- Name: RHEL6-Group
- Lifecycle Environment: RHEL6
- Content View: RHEL6-View
- Puppet Environment: (empty)
- Content Source: [redacted] (with a note: Use this as a source for installation and updates.)
- Puppet CA: [redacted].india.com (with a note: Use this puppet server as a CA server)
- Puppet Master: [redacted].india.com (with a note: Use this puppet server as an initial Puppet Server or to execute puppet runs)
- Openscap Capsule: [redacted].com

At the bottom are 'Cancel' and 'Submit' buttons.

### 1.8.2. Host Group Attributes

The following table describes the attributes that apply to Satellite Host Groups.

Submenu	Options	Description
Host Group	Parent	The parent Host Group for the new Host Group.
	Name	The name of the Host Group.
	Life Cycle Environment	The environment containing this Host Group.
	Puppet CA	The Red Hat Satellite Capsule Server to use for the Puppet CA server.
	Puppet Master	The Red Hat Satellite Capsule Server to use as the Puppet Master.
Puppet Classes	Included Classes	The Puppet Classes included with the Host Group.
	Available Classes	The Puppet Classes available to use with the Host Group.
Network	Domain	The domain for hosts in the Host Group.
	Subnet	The subnet for hosts in the Host Group.
Operating System	Architecture	The default architecture for systems in the Host Group.
	Operating Systems	The default operating system for systems in the Host Group.
	Media	The location of the installation media for the operating system.
	Partition Table	A file system partition layout for the operating system installation.
	Root Password	The root password for the operating system.

Parameters	Add Parameter	Provides a Name and Value pair to set parameters for the Host Group.
Organizations	Organizations	The organizations that own this host group.
Activation Keys	Content Environment	Defines the activation keys made available in templates as <code>@host.params['kt_activation_keys']</code> .

### 1.8.3. Domains

Satellite has the ability to assign domain names with Red Hat Satellite Capsule Server DNS. This provides users with a means to group and name hosts within a particular domain.

#### To Create a Domain:

- Click **Infrastructure → Domains**.
- Click **Create Domain**. On the **Domain** tab, specify the following settings:

a. Specify a **Name** for the Domain. This is the required DNS domain name.

b. Type a **Description** for the Domain.

DNS domain *	<input type="text" value="bseindia.com"/>	The full DNS domain name
Description	<input type="text"/>	Full name describing the domain

c. Select a DNS-enabled Capsule Server.

- On the **Parameters** tab, specify domain parameters.

Domain   Parameters   Locations   Organisations   X

Name	Value	Actions
<a href="#">+ Add Parameter</a>		

Cancel Submit

- 4. On the **Locations** tab, select locations for the domain.

Domain   Parameters   Locations   Organisations   X

Locations	All items	Selected items
	<input type="text" value="All items"/> Filter <span style="color: blue; font-size: small;">+</span>	<span style="color: yellow;">Hyderabad</span> <span style="color: yellow;">MUMBAI</span>

Cancel Submit

- 5. On the **Organizations** tab, select organizations for the domain.

Domain   Parameters   Locations   Organisations   X

Organisations	All items	Selected items
	<input type="text" value="All items"/> Filter <span style="color: blue; font-size: small;">+</span>	<span style="color: yellow;">BIE</span>

Cancel Submit

- Click **Submit**.

## 1.8.4. Subnets

Satellite has the ability to create networks for groups of systems. Subnets use standard IP address settings to define the network and use the Red Hat Satellite Capsule Server's DHCP features to assign IP addresses to systems within the subnet.

## 1.8.5. Creating a Subnet

The following procedure shows how to create a subnet.

### To Create a Subnet:

- Click Infrastructure → Subnets.

Name	Network address	Domains	VLAN ID	DHCP Capsule	Actions
SWIFT-LAT	192.168.24.0/24	bseindia.com			<a href="#">Delete</a>
smocl	192.168.252.0/24	bseindia.com			<a href="#">Delete</a>
MTA-LAB	192.168.127.0/25	bseindia.com			<a href="#">Delete</a>

- Click New Subnet. On the Subnet tab, specify the following settings:
  - Specify a **Name**, **Network address** (IP address), and **Network mask** for the subnet. These settings are required.
  - Optional, specify the **Gateway address**, **Primary DNS server**, **Secondary DNS server**, and **VLAN ID**. Note that the gateway address and DNS server settings are optional only with IPAM and Boot modes set to DHCP (default). If you decide to change these default modes, you also have to specify gateway and DNS. You can also select the **IPAM** mode (DHCP, Internal DB, or None) and define the IP assignment range with the **Start of IP range** and **End of IP range** fields.
  - Select the default **Boot mode** for the subnet (DHCP or Static).

Name *	192.8
Protocol *	<input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6
Network address *	192.168.127.0
Network prefix *	25
Network mask *	255.255.255.128
Gateway address	192.168.127.1
Primary DNS server	192.168.246.246
Secondary DNS server	
IPAM	None
VLAN ID	
Boot mode	Static

Subnet    **Remote Execution**    Domains    Capsules    Parameters    Locations    Organisations

Capsules    All items Filter +    Selected items -

Select as many remote execution Capsules as applicable for this subnet. When multiple Capsules with the same provider are added, actions will be load balanced among them.

Cancel    Submit

This screenshot shows the 'Remote Execution' tab of a subnet configuration interface. It features two main sections: 'Capsules' and 'Selected items'. The 'Capsules' section contains a search bar labeled 'All items Filter' and a '+' button. The 'Selected items' section contains a list with one item, which is highlighted with a yellow box. A double-headed arrow icon is positioned between the two sections. Below the tabs, a descriptive note states: 'Select as many remote execution Capsules as applicable for this subnet. When multiple Capsules with the same provider are added, actions will be load balanced among them.' At the bottom are 'Cancel' and 'Submit' buttons.

- On the Domains tab, select the applicable domains for the subnet.

Subnet    Remote Execution    **Domains**    Capsules    Parameters    Locations    Organisations

Domains    All items Filter +    Selected items -

bsesatellite6.bseindia.com

Domains in which this subnet is part

Cancel    Submit

This screenshot shows the 'Domains' tab of a subnet configuration interface. It has a similar layout to the 'Remote Execution' tab, with 'Domains' selected as the active tab. It includes a 'Domains' section with a search bar and a 'Selected items' section with a list containing one item. A note at the bottom left says 'Domains in which this subnet is part'. At the bottom are 'Cancel' and 'Submit' buttons.

4. On the **Capsules** tab, select the Capsule Servers to be used for hosting the **DHCP Proxy**, **TFTP Proxy**, **DNS Proxy**, and **Discovery Proxy** services.

Subnet    Remote Execution    Domains    **Capsules**    Parameters    Locations    Organisations

TFTP Capsule: [REDACTED] TFTP Capsule to use within this subnet

Discovery Capsule: [REDACTED] Discovery Capsule to use within this subnet for managing connection to discovered hosts

**Cancel** **Submit**

- 5. On the **Locations** tab, select locations for the subnet.

Subnet    Remote Execution    Domains    Capsules    Parameters    **Locations**    Organisations

Locations    All items Filter +

Selected items -

Hyderabad  
MUMBAI

**Cancel** **Submit**

- 6. On the **Organizations** tab, select organizations for the subnet.

The screenshot shows the 'Organisations' tab selected in the top navigation bar. On the left, there's a list titled 'Organisations' with a search bar and a '+' button. On the right, there's a list titled 'Selected items' with a '-' button. A double-headed arrow icon is positioned between the two lists. At the bottom, there are 'Cancel' and 'Submit' buttons.

- 7. Click Submit.

### 1.8.6. Installation Media

Red Hat Satellite uses installation media (ISO images) as content for kickstart trees and new host installations.

#### To Add an Installation Medium:

- Click **Hosts** → **Installation Media**.
- Click **Create Medium**. On the **Medium** tab, specify the following settings:

Operating system family	Operating Systems	Actions
Red Hat	Red Hat 6.3	<a href="#">Delete</a>
Red Hat	Red Hat 6.8	<a href="#">Delete</a>
Red Hat	Red Hat 7.2	<a href="#">Delete</a>
Red Hat	Red Hat 7.4	<a href="#">Delete</a>

- Type a **Name** for the Installation Media. This setting is required.
- Type a **Path** to the Installation Medium. Options include either a URL or a valid NFS server. This setting is required.
- Select an **Operating System Family** to define the type of the Installation Medium.

- On the **Locations** tab, select the desired locations to add them to the **Selected Items** list.
- On the **Organizations** tab, select the desired organizations to add them to the **Selected Items** list.
- Click **Submit**.

The screenshot shows a configuration dialog for a medium. The 'Locations' tab is active. The 'Name' field contains 'RHEL 7.4'. The 'Path' field contains 'http://192.168.252.51/pulp/repos/55E/Library/content/dist/me/server/7/7.4/x86\_64/kickstart/'. A note below the path field states: 'The path to the medium, can be a URL or a valid NFS server (exclusive of the architecture), for example http://mirror.centos.org/centos/\$version/os/\$arch where \$arch will be substituted for the host's actual OS architecture and \$version, \$major and \$minor will be substituted for the version of the operating system. Solaris and Debian media may also use \$release.' The 'Operating system family' dropdown is set to 'Red Hat'. At the bottom are 'Cancel' and 'Submit' buttons.

### 1.8.7. Partition Tables

Partition tables define the partitions and file system layout for new installations when provisioning systems. Satellite users specify the host's disk layout as an explicit sequence of Partitions or use a dynamic disk layout script.

#### To Create a Partition Table:

- Click Hosts → Partition Tables.
- Click **Create Partition Table**.

The screenshot shows the 'Partition Tables' list in the Red Hat Satellite interface. The 'Create Partition Table' button is highlighted in yellow. The table lists various partition templates, including AutoYaST, Juniper, and Kostant, along with their operating system families and snippets. The table has columns for 'Operating system family', 'Operating systems', 'Snippet', 'Locked', and 'Actions'.

Operating system family	Operating systems	Snippet	Locked	Actions
SUSE	SUSE			<a href="#">Clone</a>
SUSE	SUSE			<a href="#">Clone</a>
SUSE	CoreOS			<a href="#">Clone</a>
FreeBSD	FreeBSD			<a href="#">Clone</a>
Solaris	Solaris			<a href="#">Clone</a>
Solaris	Solaris			<a href="#">Clone</a>
Junos	Junos			<a href="#">Clone</a>
Red Hat	Red Hat 6.3, Red Hat 6.4, Red Hat 6.5, Red Hat 6.7, Red Hat 6.8, Red Hat 6.9, Red Hat 7.2, Red Hat 7.3, Red Hat 7.4, and R...			<a href="#">Clone</a>
Red Hat	Red Hat 7.2 and Red Hat 7.4			<a href="#">Clone</a>
NX-OS	NX-OS			<a href="#">Clone</a>
Debian	Debian			<a href="#">Clone</a>
XenServer	XenServer			<a href="#">Clone</a>

- Type a **Name** for the partition table.
- Specify the **Layout** of the partition table. The **Layout** field also accepts dynamic disk partitioning scripts.
- Select the operating system from the **OS Family** drop-down list.
- Click **Submit**.

Template History Locations Organisations Help

Name \*

Default  Default templates are automatically added to new organisations and locations

Snippet

Operating system family

Template editor

[Input](#) [Diff](#) [Preview](#) [Ruby](#) [Default](#)

```
%>
kind: ptble
name: Kickstart default
oses:
- CentOS 5
- CentOS 6
- CentOS 7
- Fedora 16
- Fedora 17
- Fedora 18
- Fedora 19
- Fedora 20
- Redhat 5
- Redhat 6
- Redhat 7
%
zerombr
clearpart --all
bootloader --location mbr
part /boot --fstype=ext4 --size=1024
part pv.01 --size=1000 --grow
volgroup vg_os pv.01
logvol / --fstype=ext4 --vgname=vg_os --name=lvroot --size=4096
logvol /opt --fstype=ext4 --vgname=vg_os --name=lvopt --size=10988
logvol /tmp --fstype=ext4 --vgname=vg_os --name=lvtmp --size=10240
```

Template \*  Choose file No file chosen  
Selecting a file will override the editor and load the file instead

Audit Comment

The Audit Comment field is saved with the template auditing to document the template changes

[Cancel](#) [Submit](#)

## 1.8.8. Provisioning Templates

Provisioning templates provide the systematic means to run unattended installations.

Provisioning templates can be executed via several methods including bash scripts, kickstart scripts, and PXE-based installations.

## To Create a Provisioning Template:

- Click **Hosts** → **Provisioning Templates**.
  - Click **Create Template**. On the **Provisioning Template** tab, specify the following settings:

a. Specify a **Name** for the template.

b. Insert your template in the **Template editor** field. Alternatively, click **Browse** to upload the template. This replaces the content in the **Template editor** field with the content of your chosen file.

The screenshot shows the 'Provisioning Templates' page in the Red Hat Satellite web interface. At the top, there's a navigation bar with links like 'Dashboard', 'Monitor', 'Content', 'Containers', 'Hosts', 'Configure', 'Infrastructure', and 'Red Hat Insights'. On the right, it shows 'Red Hat Access' and 'Admin User'. Below the navigation is a search bar and a 'Filter' dropdown.

The main area is titled 'Provisioning Templates'. On the left, there's a sidebar with a 'Name' dropdown containing options like 'satstack\_minion', 'satstack\_setup', 'Satellite Kickstart Default', etc. The 'Satellite Kickstart Default-RHEL7' option is selected.

The central part of the screen is the 'Template editor'. It has tabs for 'Template', 'Type', 'Association', 'History', 'Locations', 'Organisations', and 'Help'. The 'Template' tab is active, showing a text area with the following code:

```
kickstart
name: Satellite Kickstart Default-RHEL7
oses:
- rhel
- centos
- fedora
- sles
- redhat
- rhel7
- rhel8
- rhel9
- fedora20
install
```

Below the code, there's a 'Template' input field with a 'Choose file' button and a note: 'Selecting a file will override the editor and load the file instead'. There's also an 'Audit Comment' text area with the placeholder 'The Audit Comment field is saved with the template auditing to document the template changes'.

At the bottom of the template editor, there are 'Cancel' and 'Submit' buttons.

Below the template editor, there's another section with tabs for 'Template', 'Type', 'Association', 'History', 'Locations', 'Organisations', and 'Help'. The 'Type' tab is active, showing a dropdown menu with 'Provisioning template' selected.

c. Optionally, type a comment in the **Audit Comment** field. Satellite adds the comment to the template history to track changes. View the template history under the **History** tab.

- On the **Type** tab, select **Snippet** to store the template code without defining it as particular script or template type, or select the type from the **Type** drop-down menu.
- On the **Association** tab, select host groups, environments and operating systems to be associated with the template. Select the operating systems from the **Applicable Operating Systems** list. Click **Add Combination** and select a **Hostgroup** and **Environment** to limit the template's use. Note that associations are not available for templates of type snippet.

Template Type Association History Locations Organisations Help

**How templates are determined**

When editing a template, you must assign a list of operating systems which this template can be used with. Optionally, you can restrict a template to a list of host groups and/or environments.

When a Host requests a template (e.g. during provisioning), Satellite will select the best match from the available templates of that type, in the following order:

- Host group and Environment
- Host group only
- Environment only
- Operating system default

The final entry, Operating System default, can be set by editing the Operating System page.

Applicable Operating Systems	Selected Items
All items Filter +	RedHat 7.2 RedHat 7.3 RedHat 7.4
RedHat 6.3 RedHat 6.4 RedHat 6.5 RedHat 6.7 RedHat 6.8 RedHat 6.9 RedHat 7.5	

Valid host group and environment combinations

+ Add combination

Cancel Submit

- On the **Association** tab, you can view the history of existing templates. No history is available when creating a new template.

Template Type Association History Locations Organisations Help

**No history found** Save something and try again

Cancel Submit

- On the **Locations** tab, select locations for the template.

Template Type Association History Locations Organisations Help

Locations

All items Filter +

Selected items -

Hyderabad  
MUMBAI

Cancel Submit

---

- On the **Organizations** tab, select organizations for the template.

Template Type Association History Locations Organisations Help

Organisations

All items Filter +

Selected items -

BSE

Cancel Submit

---

- Click **Submit**.

### 1.8.9. Operating Systems

Operating Systems define combinations of installation methods and media and are grouped within families. As a default, Red Hat Satellite uses a **RedHat** family. Families allow Satellite to change certain behaviors when provisioning hosts.

#### To Add an Operating System:

- Click **Hosts** → **Operating Systems**.
- Click **Create Operating system**. On the **Operating System** tab, specify the following settings:

- Type the **Name** of the Operating System and its **Major Version**. These settings are required.
- Optional, define the **Minor Version**, select the **OS Family**, and add a **Description** of the operating system.
- Select a **Root password hash** (MD5, SHA256, or SHA512).
- Select the **Architectures** from the list of available Architectures.

- On the **Partition tables** tab, select the applicable file system layouts from the list

The screenshot shows the 'Partition table' tab selected in a software interface for managing operating systems. The 'Partition tables' section contains a list of available partition table types, including 'Jumpstart mirrored', 'Junos default fake', 'Kickstart default-RHEL7', 'NX-OS default fake', 'Preseed custom LVM', 'Preseed default', and 'XenServer default'. A 'Selected items' panel on the right shows 'Kickstart default' listed. At the bottom are 'Cancel' and 'Submit' buttons.

- 4. On the **Installation Media** tab, select the applicable installation media from the list.

The screenshot shows the 'Installation media' tab selected. The 'Installation media' section lists several media items, such as 'se\_Linux\_6\_Server\_Kickstart\_x86\_64\_6\_8', 'se\_Linux\_7\_Server\_Kickstart\_x86\_64\_7\_2', and 'se\_Linux\_7\_Server\_Kickstart\_x86\_64\_7\_4'. A 'Selected items' panel on the right shows 'se\_Linux\_6\_Server\_Kickstart\_x86\_64\_6\_8' listed. At the bottom are 'Cancel' and 'Submit' buttons.

- On the **Templates** tab, you can assign provisioning templates when editing an existing operating system.

Operating System Partition table Installation media **Templates** Parameters

It is not possible to assign provisioning templates at this stage. Please save the Operating System first and try again.

**Cancel** **Submit**

- 6. On the **Parameters** tab, you can add parameters for the operating system.
- 7. Click **Submit**.

Operating System Partition table Installation media **Templates** **Parameters**

PXELinux template \*  x y

iPXE template \*  x y

Provisioning template \*  x y

Finish template \*  x y

User data template \*  x y

Discovery Kexec template \*  x y

Boot disk embedded template \*  y

**Cancel** **Submit**

## 1.9. Configuring Host Collections

The Host Collections application tab is a system management tool that allows the administrator to: Add hosts to a collection. Apply a mass installation of packages, errata, or package groups to all host members of a host collection. Update specific packages, errata, or specific package groups to all host members.

### 1.9.1. Creating a Host Collection

The following procedure shows how to create host collections.

#### To Create a Host Collection:

- Click Hosts → Host Collections.

Name	Content Hosts	Limit
RHELCollection	54	Unlimited
RHEL7-Collection	35	Unlimited
RHV-Collection	11	Unlimited

- Click **Create Host Collection**.
- Add the Name and Description of the host collection.
- Deselect **Unlimited Content Hosts** to specify the maximum number of hosts that will be allowed to the group. Otherwise, leave it checked to allow unlimited hosts to join the host collection.

Name:   
Unlimited Hosts  
Description:  
Save Cancel

- Click **Save**.

### 1.9.2. Adding Hosts to a Host Collection

The following procedure shows how to add hosts to host collections.

#### Prerequisites

A host must be registered to Red Hat Satellite in order to add it to a Host Collection

#### To Add Hosts to a Host Collection:

- Click Hosts → Host Collections.

Name	Content Hosts	Limit
RHELCollection	50	Unlimited
RHEL7-Collection	35	Unlimited
RHV-Collection	11	Unlimited

- Click the host collection where the host should be added.

- On the **Hosts** tab, select the **Add** subtab.

**RHEL6-Collection**

Host Collections > RHEL6-Collection

**Details** **Hosts**

**Basic Information**

Name: RHEL6-Collection  
Description:  
Content Hosts: 50  
Content Host Limit: Unlimited

**Actions**

The following actions can be performed on content hosts in this host collection:

- Promote Installation, Removal, and Update
- Host Installation
- Host Collection Membership
- Change assigned Lifecycle Environment or Content View
- Subscription Management

- Select the hosts to be added from the table and click **Add Selected**.

**RHEL6-Collection**

Host Collections > RHEL6-Collection > List Hosts

**Details** **Hosts**

**List/Remove** **Add**

Filter... Search ▾

**Add Selected**

Name	Environment	Content View
bestapp01.ose Sindia.com	RHEL7	
bestapp02.ose Sindia.com	RHEL7	
bestapp03.ose Sindia.com	RHEL7	
bestapp04.ose Sindia.com	RHEL7	
bestapp05.ose Sindia.com	RHEL7	
bestapp06.ose Sindia.com	RHEL7	
bestapp07.ose Sindia.com	RHEL7	
bestapp08.ose Sindia.com	RHEL7	
bestapp09.ose Sindia.com	RHEL7	
bestapp10.ose Sindia.com	RHEL7	
bestapp11.ose Sindia.com	RHEL7	
bestapp12.ose Sindia.com	RHEL7	
bestapp13.ose Sindia.com	RHEL7	
bestapp14.ose Sindia.com	RHEL7	
bestapp15.ose Sindia.com	RHEL7	
bestapp16.ose Sindia.com	RHEL7	
bestapp17.ose Sindia.com	RHEL7	
bestapp18.ose Sindia.com	RHEL7	
bestapp19.ose Sindia.com	RHEL7	
bestapp20.ose Sindia.com	RHEL7	
bestapp21.ose Sindia.com	RHEL7	
bestapp22.ose Sindia.com	RHEL7	
bestapp23.ose Sindia.com	RHEL7	
bestapp24.ose Sindia.com	RHEL7	
bestapp25.ose Sindia.com	RHEL7	
bestapp26.ose Sindia.com	RHEL7	
bestapp27.ose Sindia.com	RHEL7	
bestapp28.ose Sindia.com	RHEL7	
bestapp29.ose Sindia.com	RHEL7	
bestapp30.ose Sindia.com	RHEL7	
bestapp31.ose Sindia.com	RHEL7	
bestapp32.ose Sindia.com	RHEL7	
bestapp33.ose Sindia.com	RHEL7	
bestapp34.ose Sindia.com	RHEL7	
bestapp35.ose Sindia.com	RHEL7	
bestapp36.ose Sindia.com	RHEL7	
bestapp37.ose Sindia.com	RHEL7	
bestapp38.ose Sindia.com	RHEL7	
bestapp39.ose Sindia.com	RHEL7	
bestapp40.ose Sindia.com	RHEL7	
osecdevel-inu1.ose Sindia.com	RHEL6	
osecdev-inu2.ose Sindia.com	Library	
osecTab1.ose Sindia.com	RHEL7	
osecTab2.ose Sindia.com	RHEL7	
oseccico-new.ose Sindia.com	Library	
oseccico1.ose Sindia.com	Library	

### 1.9.3. Adding Content to Host Collections

These steps show how to add content to host collections in Red Hat Satellite.

#### 1.9.4. Adding Packages to a Host Collection

The following procedure shows how to add packages to host collections.

##### Prerequisites

The content to be added should be available in one of the existing repositories or added prior to this procedure. Content should be promoted to the environment where the hosts are assigned.

##### To Add Packages to Host Collections:

- Click **Hosts** → **Host Collections**.

- Click the host collection where the package should be added.
- On the **Actions** tab, click **Package Installation, Removal, and Update**.

- 4. To update all packages, click the **Update All Packages** button to use the default method. Alternatively, select the drop-down icon to the right of the button to select a method to use. Selecting the **via remote execution – customize first** menu entry will take you to the **Job invocation** page where you can customize the action.
- 5. Select the **Package** or **Package Group** radio button as required.

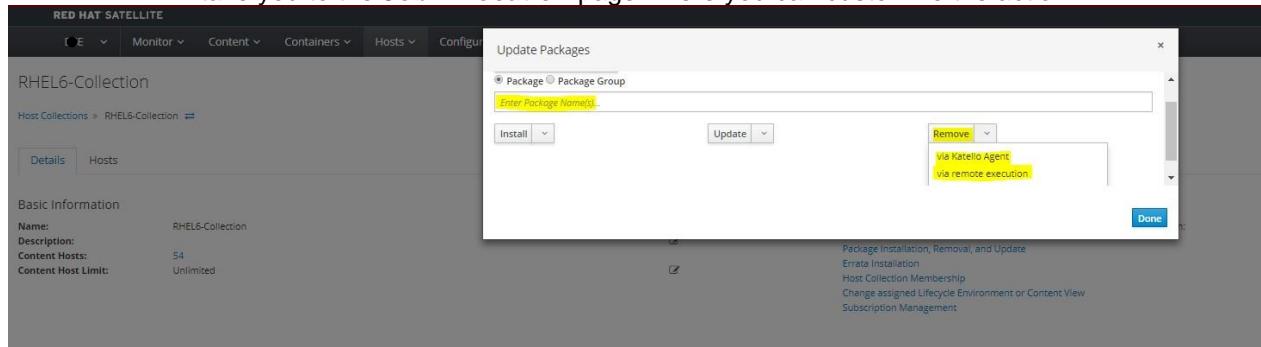
- 6. In the field provided, specify the package or package group name. Then click: **Install** — to install a new package using the default method. Alternatively, select the drop-down icon to the right of the button and select a method to use. Selecting the **via remote execution - customize first** menu entry will take you to the **Job invocation** page where you can customize the action. **Update** — to update an existing package in the host collection using the default method. Alternatively, select the drop-down icon to the right of the button and select a method to use. Selecting the **via remote execution - customize first** menu entry will take you to the **Job invocation** page where you can customize the action.

### 1.9.5. Removing Content from a Host Collection

The following procedure shows how to remove packages from host collections.

#### To Remove Content from a Host Collection:

- Click **Hosts → Host Collections**.
- Click the host collection where the package should be removed.
- On the **Collection Actions** tab, click **Package Installation, Removal, and Update**.
- Select the **Package or Package Group** radio button as required.
- In the field provided, specify the package or package group name.
- Click the **Remove** button to remove the package or package group using the default method. Alternatively, select the drop-down icon to the right of the button and select a method to use. Selecting the **via remote execution - customize first** menu entry will take you to the **Job invocation** page where you can customize the action.

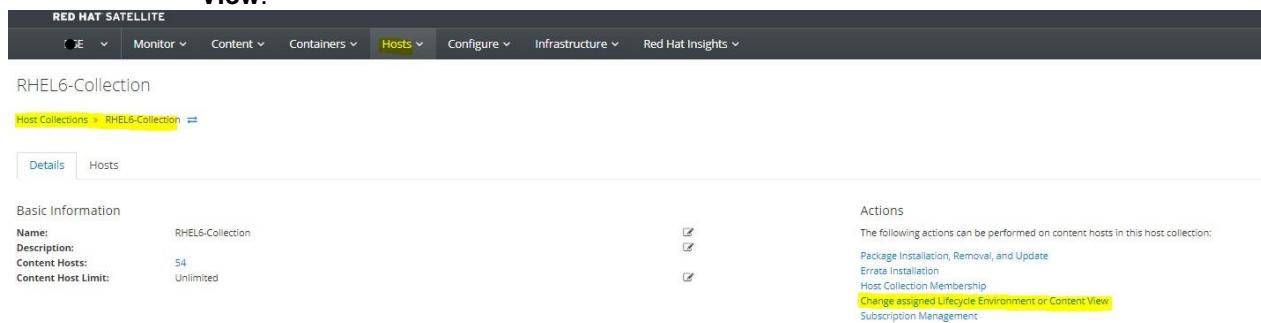


### 1.9.6. Changing the Life Cycle Environment or Content View of a Host Collection

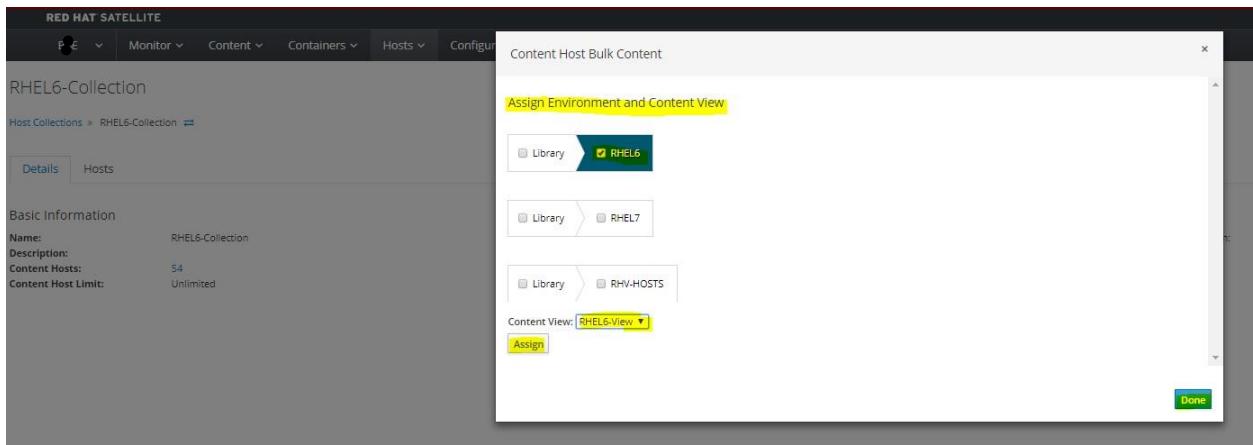
The following procedure shows how to change the assigned life cycle environment or content view of host collections.

#### To Change the Life Cycle Environment or Content View of a Host Collection:

- Click **Hosts → Host Collection**.
- Selection the host collection where the life cycle environment or content view should be changed.
- On the **Collection Actions** tab, click **Change assigned Life Cycle Environment or Content View**.



- Select the life cycle environment to be assigned to the host collection.



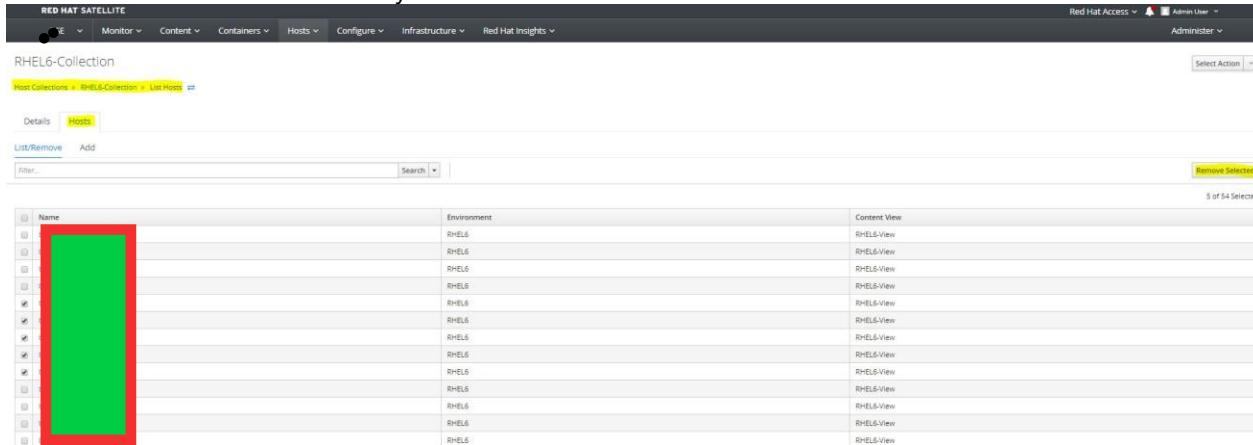
- Select the required content view from the drop-down list.
  - Click **Assign**.

### 1.9.7. Removing a Host from a Host Collection

The following procedure shows how to remove hosts from host collections.

### To Remove Hosts from a Host Collection:

- Click **Hosts** → **Host Collections**.
  - Choose the desired host collection.
  - On the **Hosts** tab, select the **List/Remove** subtab.
  - Select the hosts you want to remove from the host collection and click **Remove Selected**.



## 1.9.8. Removing a Host Collection

The following procedure shows how to remove a host collection.

### To Remove a Host Collection:

- Click **Hosts** → **Host Collections**.
  - Choose the host collection to be removed.
  - Click **Select Action**.
  - Click **Remove**.

## 2. Registering hosts in satellite6

- Remove host profile from satellite 5
- Delete rhn id from host  
**\$sudo rm -rf /etc/sysconfig/rhn/systemid**
- Add host entry in /etc/hosts  
**192.168.252.51 example.satellite.com** ~~satellite6~~  
satellite6
- Check subscription-manager package version (should be latest)  
**\$cd /usr/bin/  
\$sudo wget http://example.satellite.com/pub/bootstrap.py**

```
[hranjith@EL6CSM2 bin]$ cd /usr/bin/
[hranjith@EL6CSM2 bin]$ sudo wget http://192.168.252.51/pub/bootstrap.py
--2018-05-08 11:23:37-- http://192.168.252.51/pub/bootstrap.py
Connecting to 192.168.252.51:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 41377 (40K)
Saving to: "bootstrap.py.1"

100%[=====] 41,377      --.-K/s   in 0s

2018-05-08 11:23:37 (126 MB/s) - "bootstrap.py.1" saved [41377/41377]
[hranjith@EL6CSM2 bin]$
```

**\$sudo chmod +x bootstrap.py**

```
[hranjith@EL6CSM2 bin]$ sudo chmod +x bootstrap.py
[hranjith@EL6CSM2 bin]$ ls bootstrap.py
bootstrap.py
[hranjith@EL6CSM2 bin]$
```

### For RHEL 6 Servers

**\$ sudo ./bootstrap.py -l admin -s example.satellite.com -L MUMBAI -o DCE -a RHEL6-KEY -g RHEL6-Group -- force --skip-foreman**

### For RHEL 7 Servers

**\$ sudo ./bootstrap.py -l admin -s example.satellite.com -L MUMBAI -o DCE -a RHEL7-KEY -g RHEL7-Group -- force --skip-foreman**

Remove **katello-agent** package.

## 2.1. Registering RHV Hypervisors

```
$sudo rm -rf  
/etc/sysconfig/rhn/systemid Add host  
entry in /etc/hosts  
192.168.252.51 example.satellite.com L0satellite6  
$sudo rpm -Uvh http://example.satellite.com/pub/katello-ca-consumer-latest.noarch.rpm  
$sudo subscription-manager unsubscribe --all  
$sudo subscription-manager clean  
$sudo subscription-manager refresh  
$sudo subscription-manager register --org="ECE" --activationkey="RHV-KEY"  
$sudo yum repolist
```

## 2.2. Registering RHV VM'S

Add host entry in /etc/hosts

```
192.168.252.51 example.satellite.com L0satellite6  
$sudo rm -rf /etc/sysconfig/rhn/systemid  
$sudo rpm -Uvh http://example.satellite.com/pub/katello-ca-consumer-latest.noarch.rpm  
$sudo subscription-manager unsubscribe --all  
$sudo subscription-manager clean  
$sudo subscription-manager refresh  
$sudo subscription-manager register --org="ECE" --  
auto-attach Username: admin  
Password : *****  
Environment:  
Library
```

## 2.3. Registering hosts without katello agent

Add host entry in /etc/hosts

192.168.252.51 example.satellite.com satellite6

Check subscription-manager package version (should  
be latest)

\$sudo rm -rf

/etc/sysconfig/rhn/systemid delete

system profile from satellite 5.

\$sudo rpm -Uvh <http://example.satellite.com/pub/katello-ca-consumer>

[latest.noarch.rpm](#) Activation Key for RHEL6 servers

\$sudo subscription-manager register --org="DCE" --

activationkey="RHEL6-KEY" Activation Key for RHEL7 servers

\$sudo subscription-manager register --org="DCE" --activationkey="RHEL7-KEY"

## 2.4. Unregistering hosts

- Goto **Hosts** → **Content Hosts** → Select the host you want to unregister

The screenshot shows the Red Hat Satellite interface under the 'Content Hosts' section. The top navigation bar includes 'Monitor', 'Content', 'Containers', 'Hosts' (selected), 'Configure', 'Infrastructure', 'Red Hat Insights', and 'Administer'. Below the navigation is a search bar and a 'Register Content Host' button. The main area displays a table of hosts with columns: Name, Subscription Status, Installable, Environment, Content View, Registered, and Last Checkin. A modal window titled 'Content Hosts' is open, listing categories like PROVISIONING SETUP, TEMPLATES, and COMPLIANCE, each with a count of hosts.

- Click Unregister Host

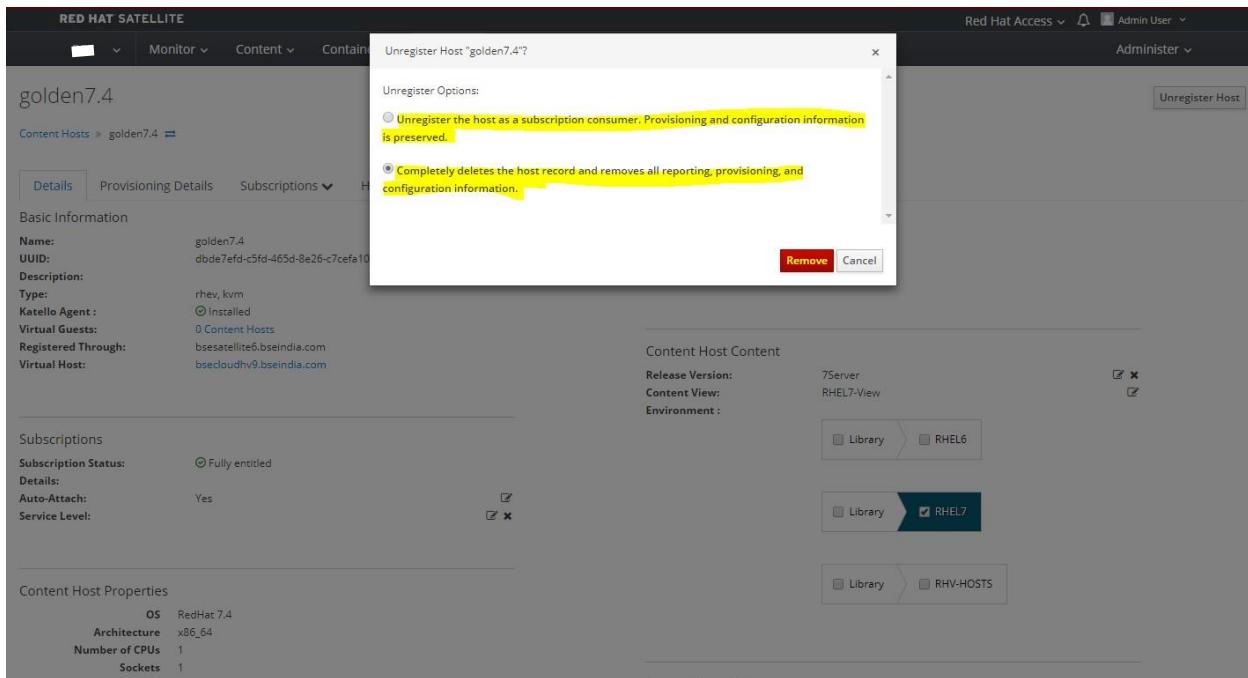
The screenshot shows the detailed view for the host 'golden7.4'. The top navigation bar is identical to the previous screen. The host details are organized into several tabs: Details, Provisioning Details, Subscriptions, Host Collections, Tasks, Packages, Errata, Traces, and Repository Sets. Under the 'Details' tab, basic information like Name, UUID, Description, Type (rhev, kvm), and Katello Agent status (Installed) are shown. The 'Subscriptions' tab indicates a Fully entitled status. The 'Content Host Properties' section lists OS (RedHat 7.4), Architecture (x86\_64), Number of CPUs (1), and Sockets (1). On the right side, sections for 'Installable Errata' (Security: 2, Bug Fix: 83, Enhancement: 22) and 'Content Host Content' (Release Version: 7Server, Content View: RHEL7-View, Environment: RHEL6) are displayed. Buttons for selecting content views (RHEL6, RHEL7, RHV-HOSTS) are shown as sliders.

Select below option to just remove the subscription

- **Unregister the host as a subscription consumer, provisioning and configuration information is preserved.**

Select below option to completely remove the host record

- **Completely deletes the host record and removes all reporting, provisioning, and Configuration information.**



## 2.5. Virt-who Configuration in RHV Hypervisors

- As RHVH is a read-write filesystem, RPM packages can be directly installed on it. Install consumer RPM (<http://satellite.example.com/pub/katello-ca-consumer-latest.noarch.rpm>) and register it with Red Hat Satellite 6 server.
- Attach **Red Hat Enterprise Linux Server (Unlimited Guests)** or equivalent subscription which provides 1 Physical and Unlimited Guest subscription to the hypervisor profile.
- By default, virt-who is installed on RHVH 4.1 hypervisor, so directly follow the instructions for configuring listed below

```
# rpm -qa |grep virt-who
virt-who-0.12-
10.el6.noarch
```

- Edit the virt-who configuration file and enable only the below parameters.

```
#vi /etc/sysconfig/virt-who
```

```
VIRTWHO_DEBUG=0
VIRTWHO_BACKGROUND=1
VIRTWHO_INTERVAL=3600
VIRTWHO_SATELLITE6=1
```

```
[root@192.168.122.1 ~]# cat /etc/sysconfig/virt-who | grep -v ^# | grep .
VIRIWHO_DEBUG=0
VIRIWHO_BACKGROUND=1
VIRIWHO_INTERVAL=3600
VIRIWHO_SATELLITE6=1
[root@192.168.122.1 ~]#
```

- Create a new configuration file inside /etc/virt-who.d/

```
$sudo vi /etc/virt-who.d/config.conf
```

```
[root@192.168.122.1 ~]# cat /etc/virt-who.d/config.conf
[OSECLOUDHVM]
type=vdsd
hypervisor_id=OSECLOUDHVM
[root@192.168.122.1 ~]#
```

```
[OSECLOUDHVM]
type=vdsd
hypervisor_id=OSECLOUDHVM
```

- After completing the above steps, restart the virt-who service

```
$sudo systemctl restart virt-who
$sudo systemctl enable virt-who
$sudo tailf /var/log/rhsm/rhsm.log
```

- Try to register guests created on the hypervisor and confirm whether they are using subscription attached to the hypervisor or not.

### 3. Provisioning

We explore four main ways to provision bare metal instances with Red Hat Satellite 6. These include:

- **Unattended Provisioning** - You identify a host using a MAC address and the Satellite Server provisions it using a PXE boot process.
- **Unattended Provisioning with Discovery** - New hosts use PXE boot to load the Satellite Discovery service. This service identifies hardware information about the host and lists it as an available host to provision.
- **PXE-less provisioning** - The ability to provision new hosts using a boot disk or PXE-less discovery image that the Satellite Server generates.
- **PXE-less Provisioning with Discovery** - New hosts use an ISO boot disk that loads the Satellite Discovery service. This service identifies hardware information about the host and lists it as an available host to provision.

### **3.1. Configuring RED HAT Satellite's Discovery Service**

Red Hat Satellite provides a Discovery feature. This provides a method to automatically detect blank hosts on a network. These hosts boot a special image that performs hardware detection and relays this information back to the Satellite Server. This provides a method to create a pool of ready-to-provision hosts on the Satellite Server and without needing to enter the MAC address of each host.

### **3.2. Discovering Bare-metal Hosts on Satellite**

Red Hat Satellite 6.2 ships with the Discovery plug-in already installed. The Discovery plug-in enables automatic bare-metal discovery of unknown hosts on the provisioning network. These new hosts are registered to the Satellite Server and the Puppet agent on the client uploads system facts collected by Factor, such as serial ID, network interface, memory, and disk information. After registration, the hosts are displayed on the Discovered Hosts page in the Satellite web UI. You can then initiate provisioning either manually (using the web UI, CLI, or API) or automatically, using predefined discovery rules.

The Discovery plug-in communicates through the Satellite Capsule Server, which has direct access both to the provisioning network and the Satellite Server instance. It is possible to discover hosts directly from the Satellite Server, but Red Hat recommends the following scheme be used:

Satellite Server (Satellite Server Discovery plug-in) <--> Satellite Capsule (Satellite Capsule Discovery plug-in) <--> Discovered Host (Satellite Discovery image)

The Satellite Discovery plug-in consists of three different components:

#### **The Satellite Server Discovery plug-in**

This runs on the Satellite Server and provides API and UI functionality for working with discovered hosts. The `tfm-rubygem-foreman_discovery` package contains this plug-in.

#### **The Satellite Capsule Server Discovery plug-in**

This is a communication proxy between discovered hosts on a provisioning network and the Satellite Server. The `rubygem-smart_proxy_discovery` package contains this plug-in.

#### **The Satellite Discovery image**

This is the minimal operating system based on Red Hat Enterprise Linux that is PXEbooted on hosts to acquire initial hardware information and to check in to the Satellite Server. Discovered hosts keep running the Satellite Discovery image until they are rebooted into Anaconda, which then initiates the provisioning process. The `foreman_discovery-image` package contains this image. It must be installed on the Satellite Capsule Server that provides TFTP services.

#### **Configuring the Satellite Discovery Plug-in**

The following sections describe how to configure the Satellite Discovery plug-in and how to prepare the PXE-boot template on the Satellite Server.

#### **Deploying the Satellite Discovery Image**

Install the package containing the Satellite Discovery image on the Satellite Capsule Server that provides TFTP services (not on the Satellite Server itself):

```
# yum install foreman-discovery-image rubygem-smart_proxy_discovery
```

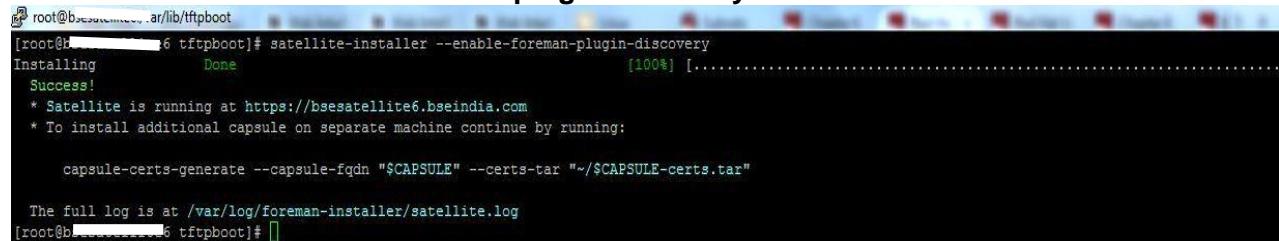
This package contains the Linux kernel and initial RAM disk image as a bootable ISO file which is used for PXE-booting discovered hosts. You can run the following command to investigate the contents of the package. This produces output similar to the following:

```
$ rpm -ql foreman-discovery-image /usr/share/foreman-discovery-image  
/usr/share/foreman-discovery-image/fdi-image-rhel_7-2.1.0-20150212.1.iso
```

When you install this package, it extracts the kernel and image from the ISO file into the TFTP directory and creates symbolic links to the latest versions of the image and kernel. Use the symbolic links in the PXE-boot provisioning template to make sure that you do not need to change the version in the template every time the foreman-discovery-image package is upgraded. For example:

```
$ find /var/lib/tftpboot/boot  
/var/lib/tftpboot/boot  
/var/lib/tftpboot/boot/fdi-image-rhel_7-2.1.0-20150212.1-img  
/var/lib/tftpboot/boot/fdi-image-rhel_7-2.1.0-20150212.1-vmlinuz  
/var/lib/tftpboot/boot/fdi-image-rhel_7-img /var/lib/tftpboot/boot/fdi-image-rhel_7-vmlinuz
```

```
#satellite-installer --enable-foreman-plugin-discovery
```



```
[root@bsesatellite6 tftpboot]# satellite-installer --enable-foreman-plugin-discovery  
Installing Done [100%] [...]  
Success!  
* Satellite is running at https://bsesatellite6.bseindia.com  
* To install additional capsule on separate machine continue by running:  
  
capsule-certs-generate --capsule-fqdn "$CAPSULE" --certs-tar "~/${CAPSULE}-certs.tar"  
  
The full log is at /var/log/foreman-installer/satellite.log  
[root@bsesatellite6 tftpboot]#
```

This installs and enables the Discovery service plugin on the Satellite Server. After installation completes, install the following packages:

```
#Katello-service restart
```

The **PXE Linux global default template** in the **Hosts > Provisioning templates** section includes an entry for the Discovery service.

**LABEL discovery**

**MENU LABEL (discovery)**

**KERNEL boot/fdi-image-rhel\_7-vmlinuz**

**APPEND initrd=boot/fdi-image-rhel\_7-img rootflags=loop**

**root=live:/fdi.iso rootfstype=auto ro rd.live.image acpi=force**

**rd.luks=0 rd.md=0 rd.dm=0 rd.lvm=0 rd.bootif=0 rd.neednet=0**

**nomodeset proxy.url=https://SATELLITE\_SERVER\_URL:9090**

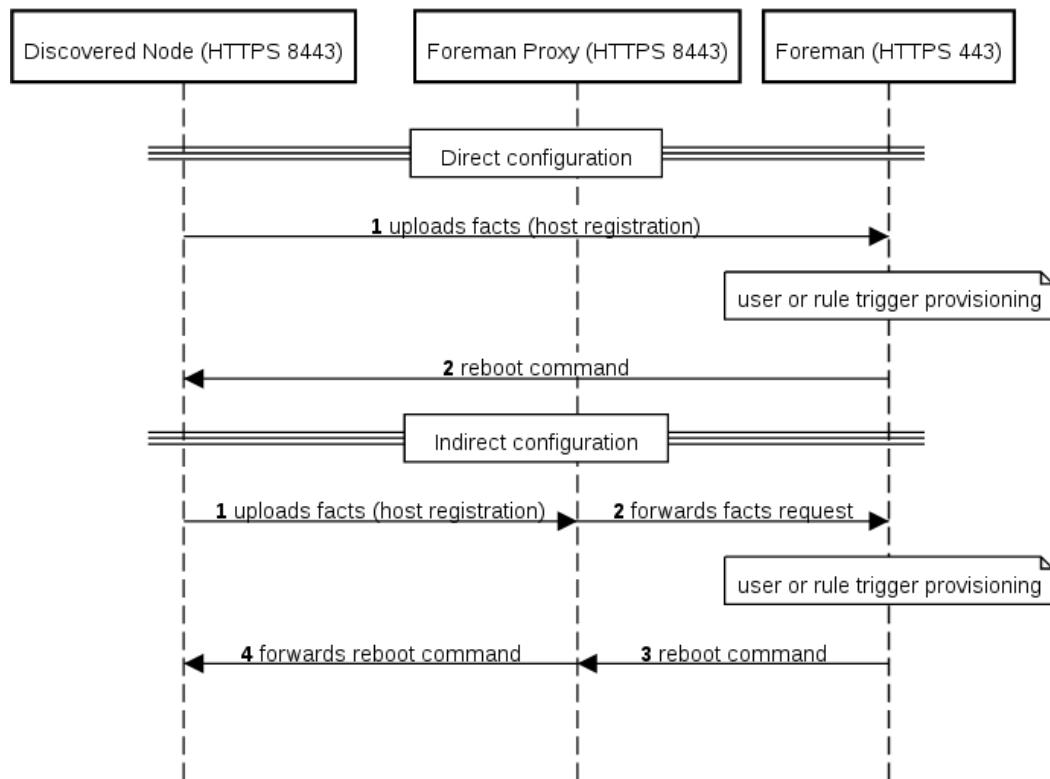
**proxy.type=proxy IPAPPEND 2**

The **KERNEL** and **APPEND** options boot the Discovery image and ramdisk. Also note the **APPEND** option contains a **proxy.url** parameter, which specifies the URL of the Satellite Server to use for provisioning. Edit the **SATELLITE\_SERVER\_URL** to the name of the provisioning capsule that you want. In this scenario, it is the Satellite Server's integrated Capsule:

You can change the Discovery service to be the default service that boots for blank hosts. Edit the **ONTIMEOUT** value in the **PXE Linux global default** to the following **ONTIMEOUT discovery**.

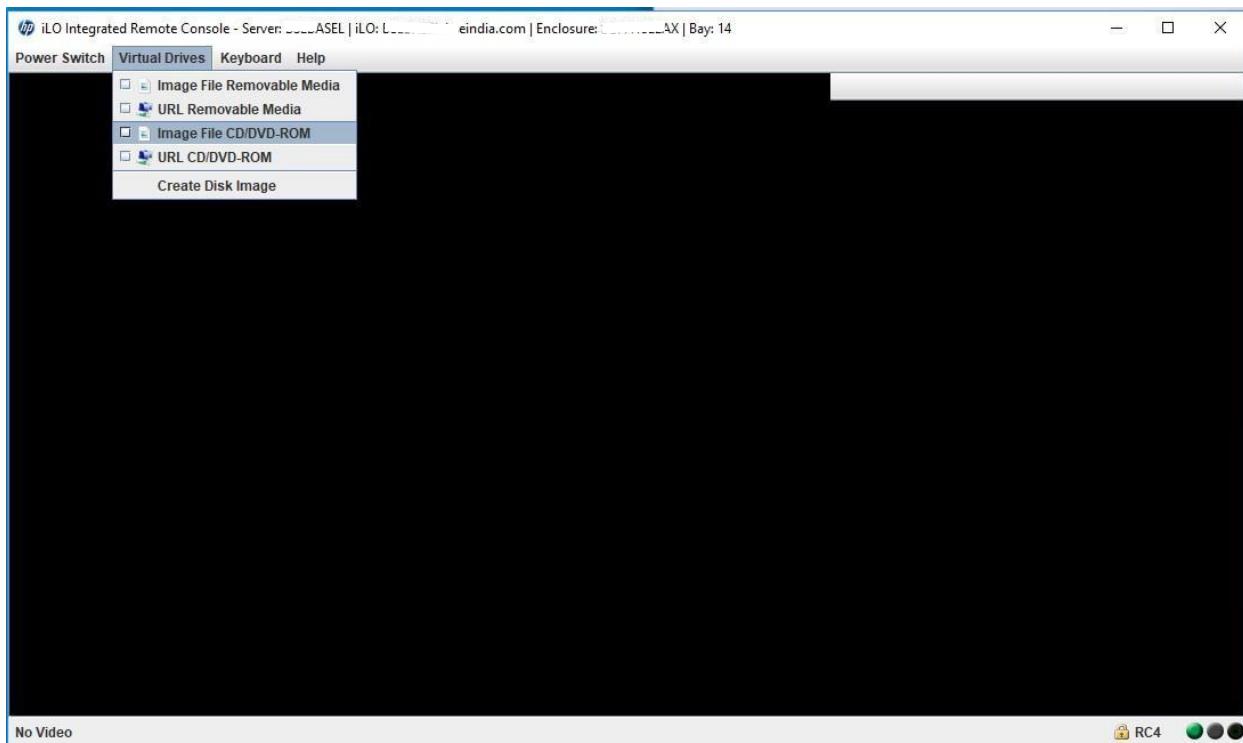
You need to push the changes from the **PXE Linux global default template** to the Satellite Server's default PXE template. Navigate to **Hosts > Provisioning templates** and click **Build PXE Default**. This refreshes the default PXE template on the Satellite Server.

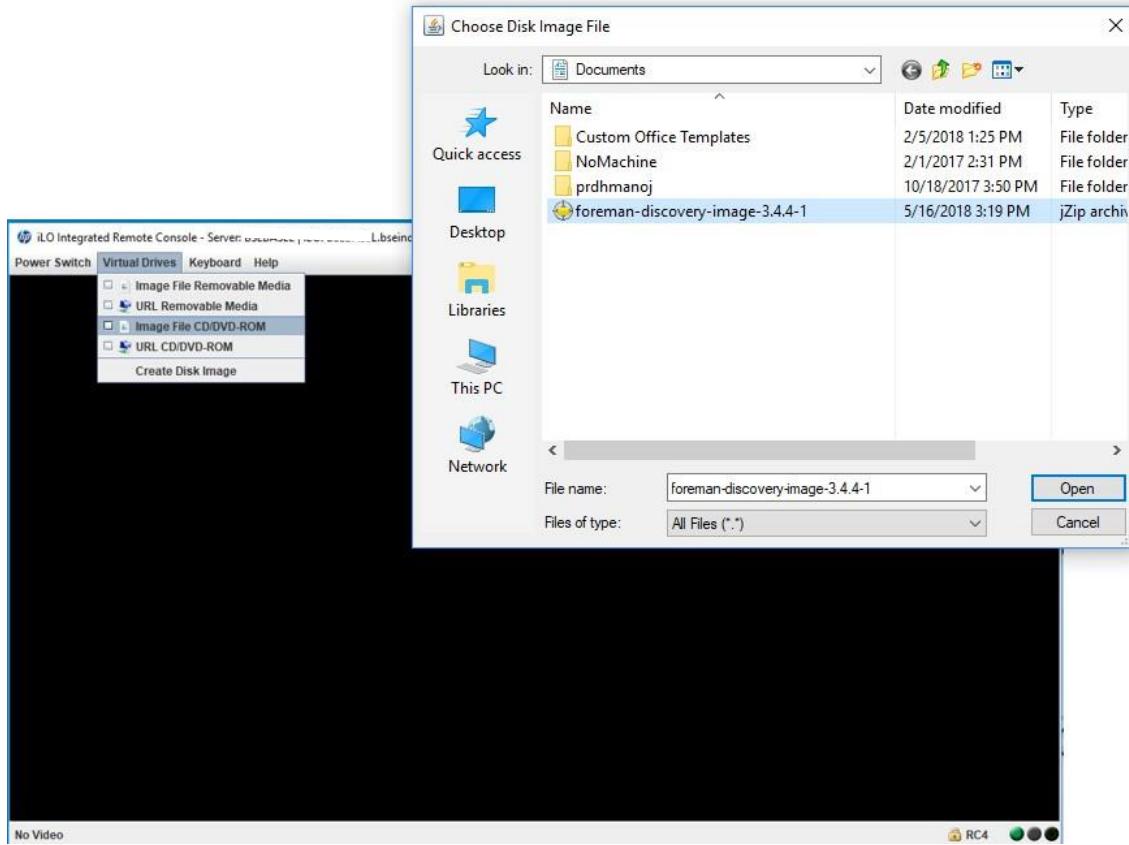
### Foreman Discovery communication paths



### 3.3. Provisioning Hosts

- Login with ILO & mount foreman discovery image iso.





- Boot with foreman discovery ISO & select Manual network setup

Power Switch Virtual Drives Keyboard Help

### Manual/PXE-less provisioning workflow

Select Manual network setup to select primary interface, configure network (no DHCP required), setup server credentials, add custom facts and trigger auto-provisioning via Discovery rules. This will lead to kernel reload (kexec) into installer. Select Discover with DHCP to select primary interface and proceed with DHCP configuration and standard discovery without any custom facts. This will reboot the host once the system is provisioned either manually or via Discovery rules.

**Manual network setup**

**Discover with DHCP**

Foreman Discovery Image v3.4.4 (20180123.1)

- Select the primary interface

Power Switch Virtual Drives Keyboard Help

### Primary interface

Select primary (provisioning) network interface with connection to server or proxy:

```
00:17:a4:77:5c:ea enp2s0f7
00:17:a4:77:5c:e8 enp2s0f6
00:17:a4:77:5c:9a enp2s0f1 (link up)
00:17:a4:77:5c:98 enp2s0f0 (link up)
00:17:a4:77:5c:e4 enp2s0f4 (link up)
00:17:a4:77:5c:e6 enp2s0f5 (link up)
3c:d9:2b:f5:a7:c6 ens1f1
```

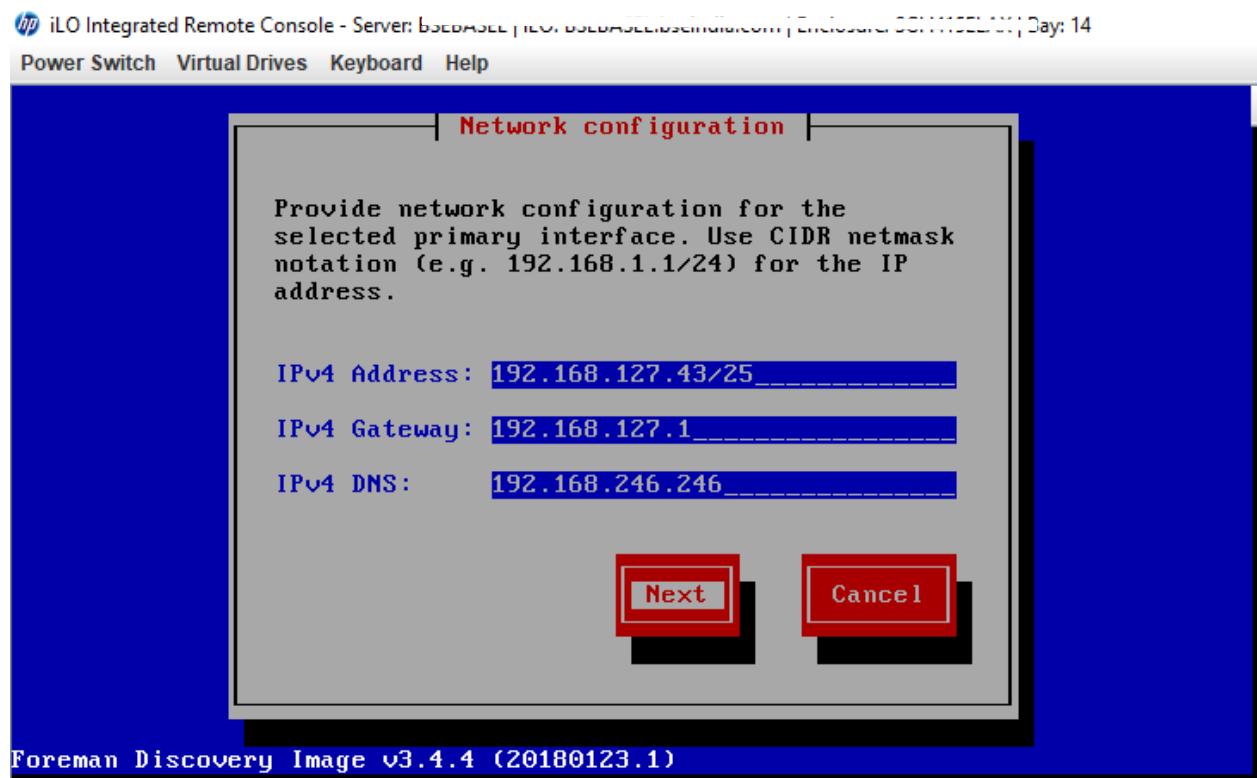
VLAN ID: \_\_\_\_\_

**Select**

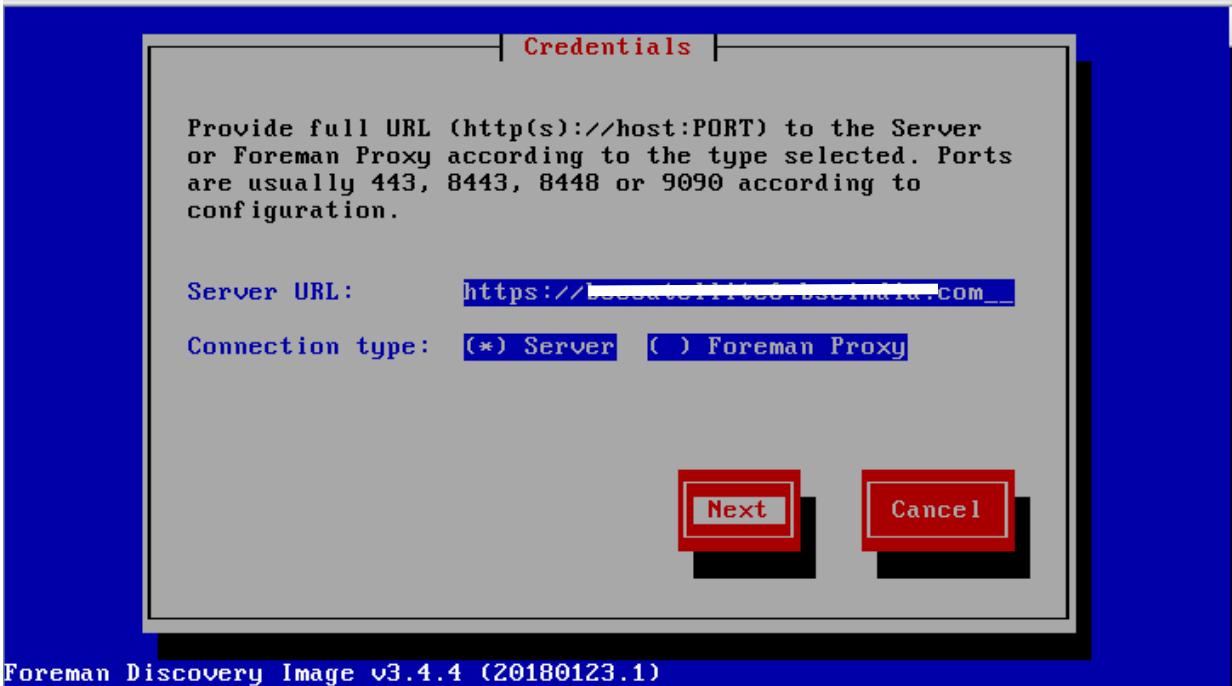
**Cancel**

Foreman Discovery Image v3.4.4 (20180123.1)

- Assign IP address, Gateway & DNS details

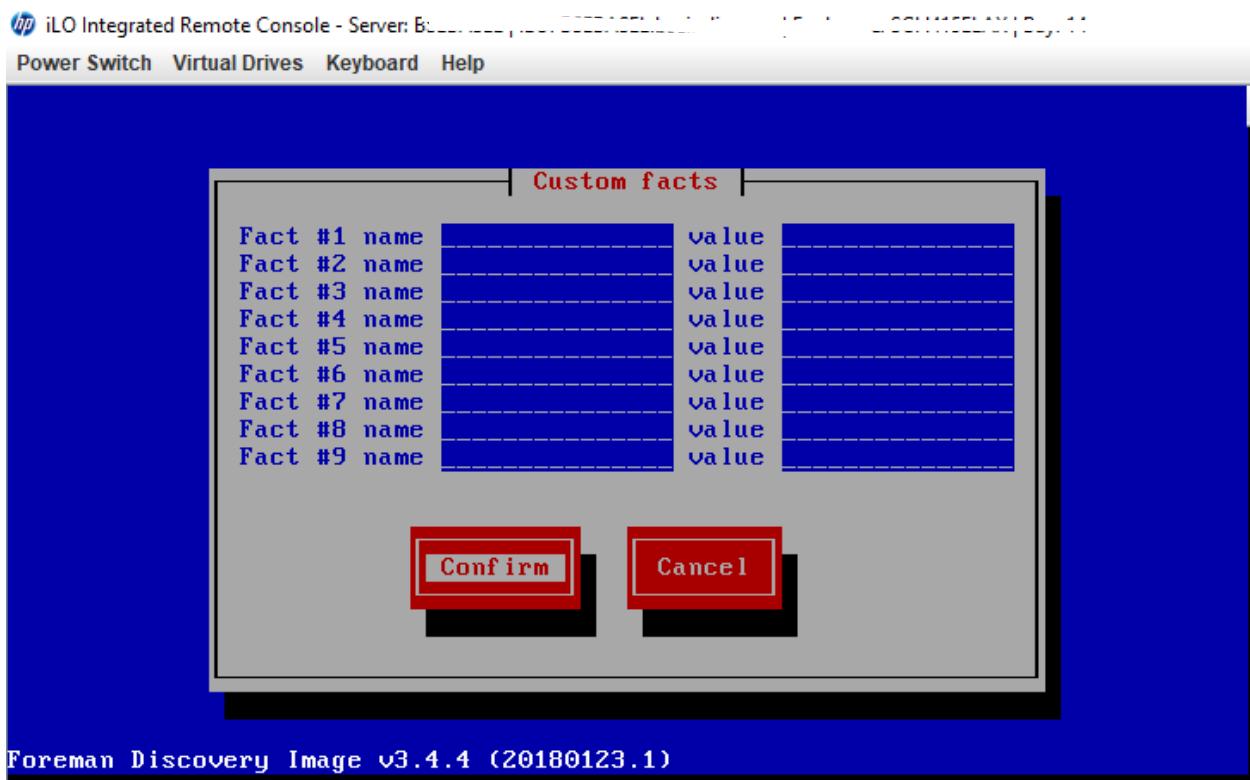


- Enter satellite URL & select connection type as server.

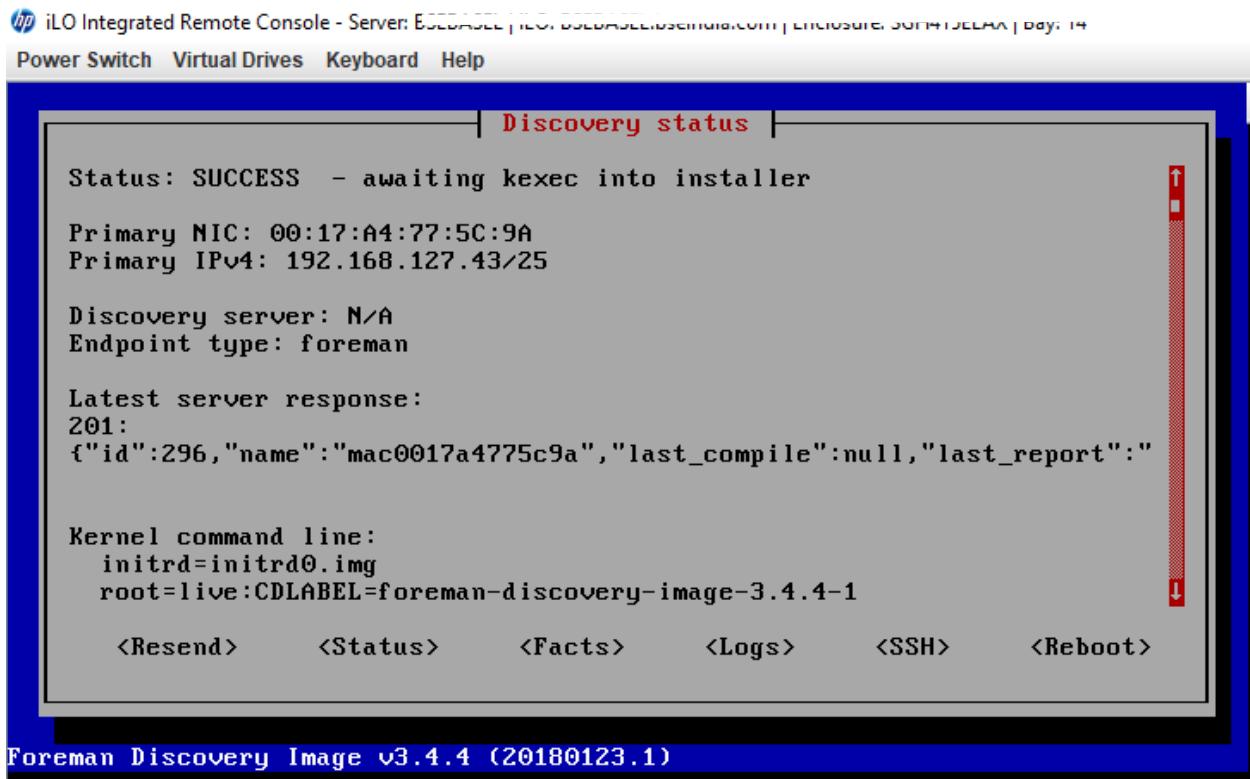


Foreman Discovery Image v3.4.4 (20180123.1)

- In the custom facts section, do not enter facts if you want to have the provisioned server check against the search parameters of our defined web server and database server discovery rules. Depending on the hardware setup of the server, one of the rules will match, and the system will be auto-provisioned accordingly.
- Select confirm option.



- The status showing success means the host will be discovered in satellite 6 & ready for provision.



- Go to discovered hosts → select the host & click on provision.

The screenshot shows the Red Hat Satellite web interface. The top navigation bar includes links for Apps, Imported, Scripting, Study, REDHAT, Download, seminar, Chef Docs, MySQL, audit-logs, IRCTC Tekal Magic, myRailInfo - Browser, Zendesk 3: Powerful, New Tab, and Issues - Change M... The main menu has sections for Hosts, Configure, Infrastructure, and Red Hat Insights. The 'Hosts' section is active. On the left, a sidebar lists options like All hosts, Discovered hosts, Content Hosts, Host Collections, Create host, PROVISIONING SETUP, Architectures, Hardware models, Installation media, Operating systems, TEMPLATES, Partition tables, Provisioning templates, Job templates, COMPLIANCE, Policies, SCAP Contents, Reports, and Tailoring files. The main content area displays a table of hosts with columns for Operating system, Environment, Model, Host group, Last report, and Actions. One host entry is highlighted with a red box: 'mac0017a4775cfa' (Model: ProLiant BL460c G7, IP Address: 192.168.127.43, CPU: 2, Memory: 62.9 GB, Disk Count: 18, Disk Size: 50.4 TB, Location: MUMBAI, Organisation: BSE, Subnet: NTA-LAB (192.168.127.0/25), Last Facts Upload: 3 minutes ago). An export button, Select Action dropdown, and a 'Create Host' button are at the top right of the table.

This screenshot shows the 'Discovered Hosts' page. It features a table with columns for Name, Model, IP Address, CPUs, Memory, Disk Count, Disk Size, Location, Organisation, Subnet, Last Facts Upload, and a 'Select Action' dropdown. The same host entry from the previous screenshot is listed here. Buttons for Reboot All, Auto Provision All, and Select Action are at the top right. A message at the bottom says 'Displaying 1 entry'.

- Select the Host group & click Create Host

This screenshot shows a modal dialog titled 'Select initial host properties'. It contains fields for Host Group (set to 'RHEL7-Group'), Organisation, and Location (set to 'MUMBAI'). At the bottom are Close, Quick Create, and Create Host buttons. The background shows the 'Discovered Hosts' table from the previous screenshots.

**RED HAT SATELLITE**

Red Hat Access Admin User Administer

Provision mac0017a4775c9a

**Host**   Puppet Classes   Interfaces   Operating System   Parameters   Additional Information

Name \*  This value is used also as the host's primary interface name.

Organisation \*

Location \*

Host Group

Lifecycle Environment

Content View

Content Source

Environment  Use this puppet server as an initial Puppet Server or to execute puppet runs

Puppet Master  Use this puppet server as a CA server

OpenSCAP Capsule  OpenSCAP Capsule to use for fetching SCAP content and uploading ARF reports

**Cancel** **Submit**

- In Interface tab select the appropriate subnet for the network.
- Create subnet if it is not there.
- Go to Infrastructure → subnets → Create subnet

**Subnet**   Remote Execution   Domains   Capsules   Parameters   Locations   Organisations

Name \*

Protocol \*  IPv4  IPv6

Network address \*

Network prefix \*  Suffix or prefix length for this subnet, e.g. 32

Network mask \*  Netmask for this subnet

Gateway address  Optional: Gateway for this subnet

Primary DNS server  Optional: Primary DNS for this subnet

Secondary DNS server  Optional: Secondary DNS for this subnet

IPAM

VLAN ID  Optional: VLAN ID for this subnet

Boot mode  Default boot mode for interfaces assigned to this subnet, applied to hosts from provisioning templates

**Cancel** **Submit**

- Assign Remote Execution capsule

Subnet    Remote Execution    Domains    Capsules    Parameters    Locations    Organisations

Capsules    All items Filter +    Selected items -

bsesatellite6.bseindia.com

Select as many remote execution Capsules as applicable for this subnet. When multiple Capsules with the same provider are added, actions will be load balanced among them.

Cancel    Submit

This screenshot shows the 'Remote Execution' configuration page. It features tabs for Subnet, Remote Execution, Domains, Capsules, Parameters, Locations, and Organisations. The 'Capsules' tab is active, displaying a list of available capsules on the left and a selected list on the right. A single capsule, 'bsesatellite6.bseindia.com', is selected. A note at the bottom indicates that selecting multiple capsules will result in load balancing. At the bottom are 'Cancel' and 'Submit' buttons.

- Assign Domain

Subnet    Remote Execution    Domains    Capsules    Parameters    Locations    Organisations

Domains    All items Filter +    Selected items -

bseindia.com

Domains in which this subnet is part

Cancel    Submit

This screenshot shows the 'Domains' configuration page. It has tabs for Subnet, Remote Execution, Domains, Capsules, Parameters, Locations, and Organisations. The 'Domains' tab is active, showing a list of domains on the left and a selected list on the right. A single domain, 'bseindia.com', is selected. A note at the bottom states that the subnet is part of the selected domain. At the bottom are 'Cancel' and 'Submit' buttons.

- Assign TFTP & Discovery capsule as satellite server.

Subnet    Remote Execution    Domains    Capsules    Parameters    Locations    Organisations

TFTP Capsule    bsesatellite6.bseindia.com        TFTCP Capsule to use within this subnet

Discovery Capsule    bsesatellite6.bseindia.com        Discovery Capsule to use within this subnet for managing connection to discovered hosts

Cancel    Submit

This screenshot shows the 'Capsules' configuration page. It includes tabs for Subnet, Remote Execution, Domains, Capsules, Parameters, Locations, and Organisations. The 'Capsules' tab is active. Two fields are present: 'TFTP Capsule' containing 'bsesatellite6.bseindia.com' and 'Discovery Capsule' also containing 'bsesatellite6.bseindia.com'. Each field has a clear button ('x') and a descriptive label. At the bottom are 'Cancel' and 'Submit' buttons.

- Assign Location

Subnet Remote Execution Domains Capsules Parameters Locations Organisations

Locations

All items Filter +

Hyderabad

Selected items -

MUMBAI

Cancel Submit

- Assign Organisation

Subnet Remote Execution Domains Capsules Parameters Locations Organisations

Organisations

All items Filter +

Selected items -

Cancel Submit

- Click on submit

Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights

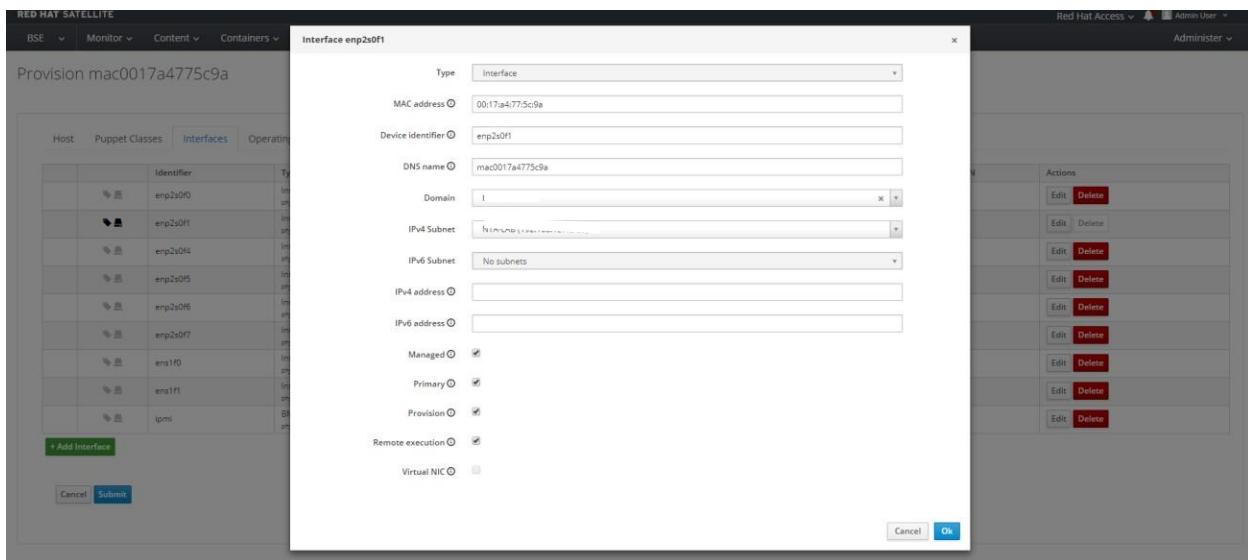
Administrator

Subnets

Create Subnet

Name	Network address	Domains	VLAN ID	DHCP Capsule	Actions
[Red Square]	192.168.24.0/27	[Yellow Square]			Delete Delete Delete
	192.168.25.0/27				
	192.168.129.823				

Displaying all 3 entries



Select the OS, Media, and Partition Table you want to install. Resolve the provisioning templates

Field	Value
Architecture *	x86_64
Operating system *	RedHat 7.4
Build mode	<input checked="" type="checkbox"/> Enable this host for provisioning
Media Selection	<input type="radio"/> Synced Content <input checked="" type="radio"/> All Media
Media *	BSE/Library/Red_Hat_Server/Red_Hat_Enterprise_Linux_7_Server_Kickstart_x86_64_7_4
Partition table *	Kickstart default
PXE loader	pxelinux BIOS
Custom partition table	(Empty text area)
Root password *	*****
Provisioning templates	<input checked="" type="checkbox"/> Resolve Display the templates that will be used to provision this host Templates resolved for this operating system

- Click on submit.

```
ip iLO Integrated Remote Console - Server: 192.168.1.10 | Date: 2017-07-11, 11:11  
Power Switch Virtual Drives Keyboard Help  
[ 0.707924] TCP: Hash tables configured (established 524288 bind 65536)  
[ 0.708153] TCP: reno registered  
[ 0.708423] UDP hash table entries: 32768 (order: 8, 1048576 bytes)  
[ 0.708902] UDP-Lite hash table entries: 32768 (order: 8, 1048576 bytes)  
[ 0.709429] NET: Registered protocol family 1  
[ 0.710955] Unpacking initramfs...  
[ 5.062344] Freeing initrd memory: 486000k freed  
[ 5.072963] DMAR: Host address width 39  
[ 5.073157] DMAR: DRHD base: 0x000000f2ffe000 flags: 0x1  
[ 5.073366] DMAR: dmar0: reg_base_addr f2ffe000 ver 1:0 cap c90780106f0462 ec  
ap f0207e  
[ 5.073702] DMAR: RMRR base: 0x000000eb7fc000 end: 0x000000eb7fdfff  
[ 5.073903] DMAR: RMRR base: 0x000000eb7f5000 end: 0x000000eb7fafff  
[ 5.074098] DMAR: RMRR base: 0x000000eb63e000 end: 0x000000eb63ffff  
[ 5.074294] DMAR: ATSR flags: 0x0  
[ 5.074546] PCI-DMA: Using software bounce buffering for IO (SWIOTLB)  
[ 5.074742] software IO TLB [mem 0xe762f000-0xeb62f000] (64MB) mapped at [ffff  
f8000e762f000-fffff8000eb62effff]  
[ 5.077140] sha1_ssse3: Using SSSE3 optimized SHA-1 implementation  
[ 5.077386] sha256_ssse3: Using SSSE3 optimized SHA-256 implementation  
[ 5.078128] futex hash table entries: 8192 (order: 7, 524288 bytes)  
[ 5.078393] Initialise system trusted keyring  
[ 5.078604] audit: initializing netlink socket (disabled)  
[ 5.078815] type=2000 audit(1526550061.842:1):  
[ 5.072963] DMAR: Host address width 39  
  
Red Hat Enterprise Linux  
Kernel 3.10.0-862.2.3.el7.x86_64 on an x86_64  
  
mac001a4a16016f login:
```

## 4. Puppet

Puppet is a tool for applying and managing system configurations. Puppet collects system information, or facts, and uses this information to create a customized system configuration using a set of modules.

These modules contain parameters, conditional arguments, actions, and templates. Puppet is used as either a local system command line tool or in a client-server relationship where the server acts as the Puppet master and applies configuration to multiple client systems using a Puppet agent. This provides a way to automatically configure newly provisioned systems, either individually or simultaneously to create a specific infrastructure.

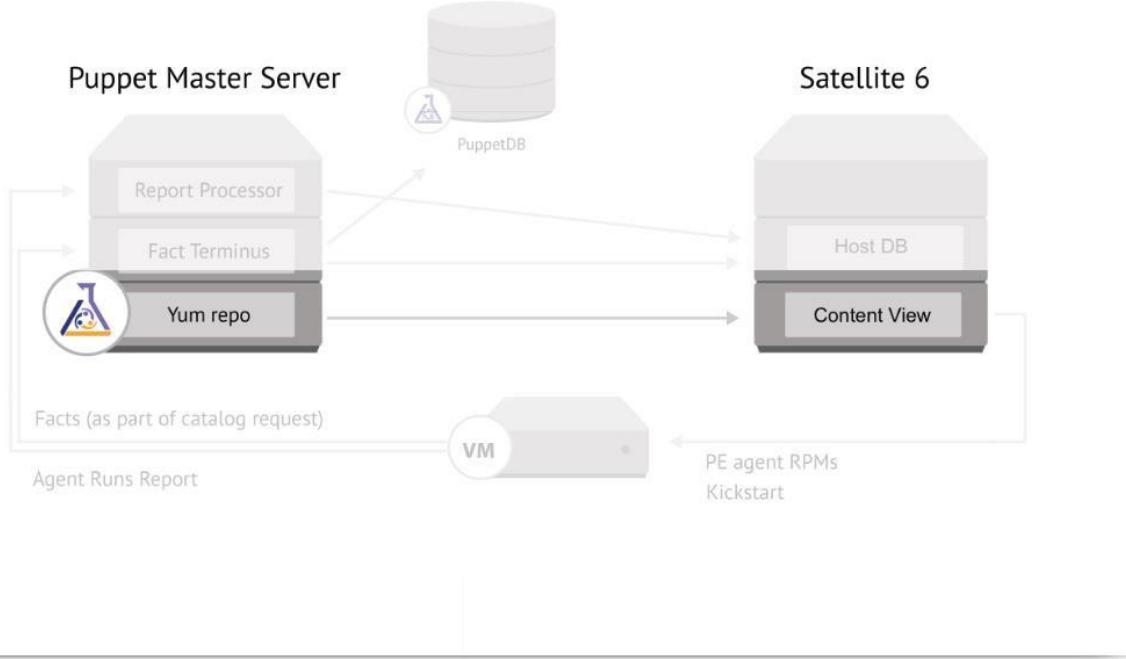
## Defining the Puppet Workflow

- Puppet uses the following workflow to apply configuration to a system.
- Collect facts about each system. These facts can include hardware, operating systems, package versions, and other information. The Puppet agent on each system collects this information and sends it to the Puppet master.
- The Puppet master generates a custom configuration for each system and sends it to the Puppet agent. This custom configuration is called a catalog.
- The Puppet agent applies the configuration to the system.
- The Puppet agent sends a report back to the Puppet master that indicates the changes applied and if any changes were unsuccessful.
- Third-party applications can collect these reports using Puppet's API.

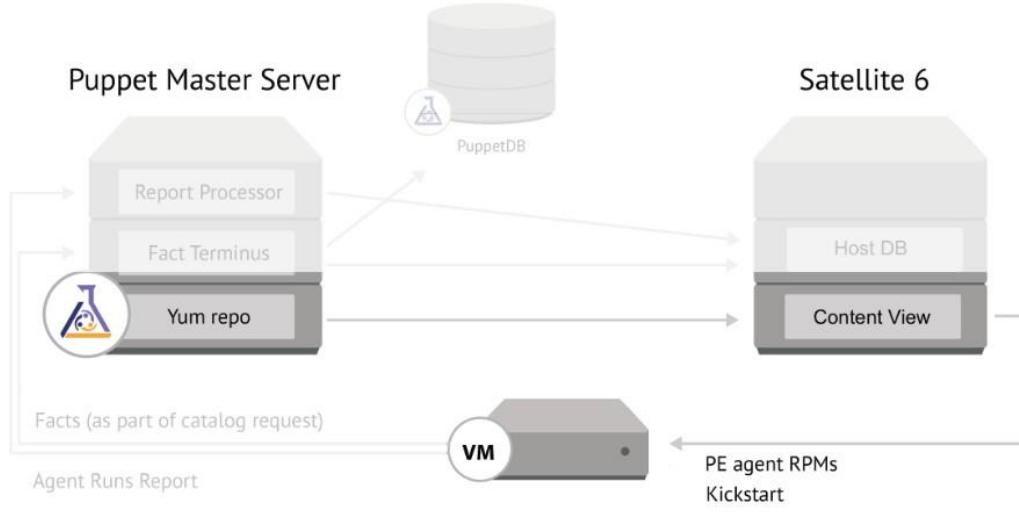
### How It Works

First, Red Hat Satellite is used to synchronize in the Puppet Enterprise (PE) Agent RPMs for the versions of RHEL that will be managed. This is done by means of a Custom Product, and a repository of type **yum**.

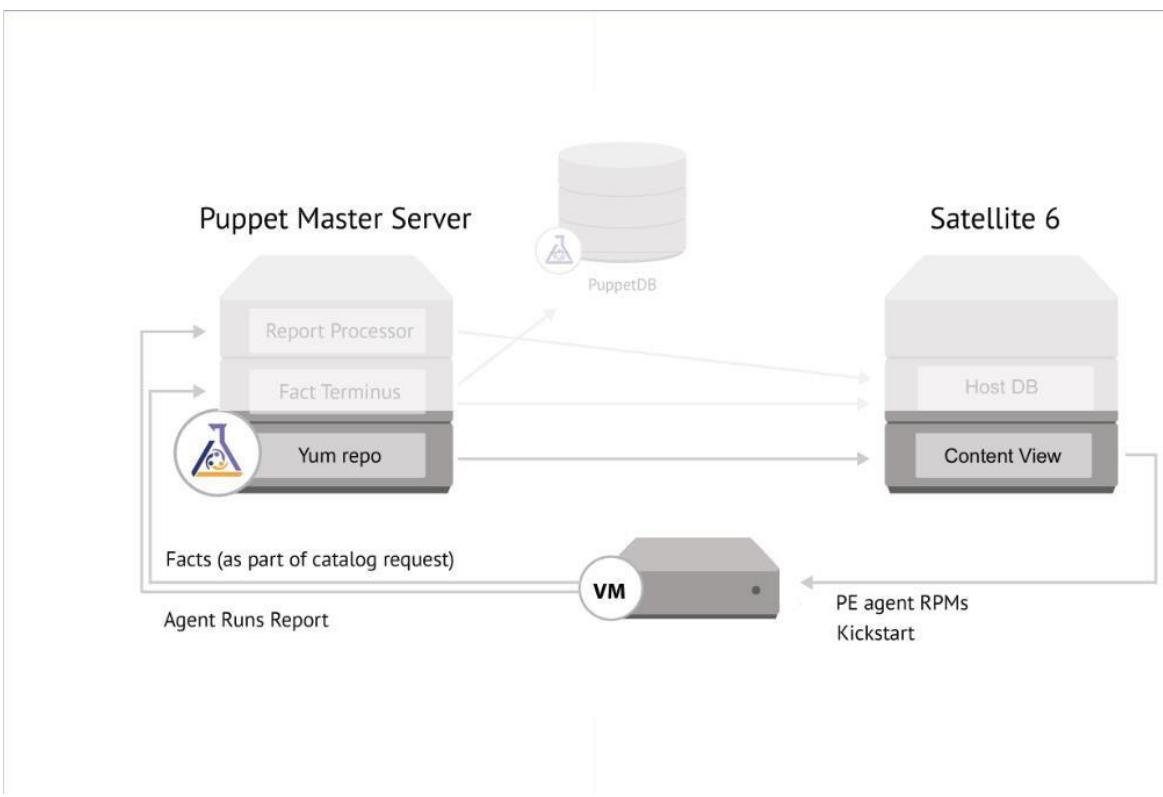
This allows the customer to deploy the Agent RPM during provisioning as part of a Content View. Additionally, as with all custom product, subscription tracking capabilities (via **hammer subscription list** for example)



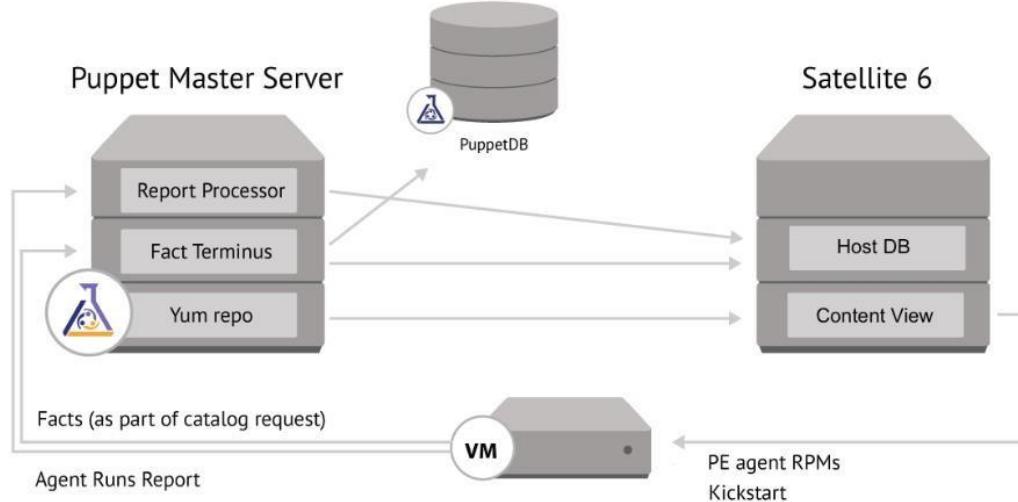
Next, the system is provisioned using any of the supported methods in Satellite. We provide a customized provisioning template & snippet (more on these below), which install the PE agent and not the Puppet Agent as shipped in the Satellite tools repository. Additionally, the provisioning templates configure the `pe-puppet.conf` file with the user-provided hostname of the Puppet Master that is to be used. A Hostgroup Parameter is used to configure the hostname of the Puppet Master and Puppet Certificate Authority.



After the node completes its first puppet run, its agent certificate is approved and it is classified (either manually or via rules). Ongoing puppet runs are reported to whichever Puppet Master was designated during provisioning.



Lastly, ongoing facts and reporting data are reported to Satellite via the custom reports processor and facts terminus. Additionally this data is stored in Puppet DB.



### **Satellite 6 uses Puppet in several ways:**

- Satellite 6 imports Puppet modules used to define the system configuration. This includes control over module versions and their environments.
- Satellite 6 imports sets of parameters, also known as Puppet class parameters, from Puppet modules. Users can accept the default values from Puppet classes or provide their own at a global or system-specific level.
- Satellite 6 triggers the execution of Puppet between the master and the respective agents on each system. Puppet runs can occur either:
- Automatically, such as after the provisioning process completes or as a daemon that checks and manages the machine's configuration over its lifecycle.
- Manually, such as needing to trigger an immediate Puppet run.
- Satellite 6 collects reports from Puppet after the configuration workflow completes. This helps with auditing and archiving system configuration over long term periods.

These functions provide an easy way for users to control system configuration aspects of the application lifecycle using Puppet.

- **Creating Product**
- **Building puppet module**
- **Configuring Clients**
- **Deploying Puppet Modules**

## 4.1. Creating Product

- Create Products → New Product → Puppet name & Save puppet repositories → type → Puppet → Enter URL → Save

Name	Description	Sync Status	Sync Plan
Centos6	Centos 6.x64	Last synced 14 days ago.	None
EPEL6	EPEL6 Created locally repo	Last synced 14 days ago.	None
EPE7 local		Last synced 14 days ago.	None
Errata		Last synced 4 days ago.	Satellite-6 Weekly Sync (weekly)
Packages		Last synced 3 days ago.	None
Puppet Modules		Last synced 4 days ago.	Satellite-6 Weekly Sync (weekly)
Docker Tags		Last synced 4 days ago.	puppet sync (weekly)
Files		Last synced 4 days ago.	Satellite-6 Weekly Sync (weekly)
OSTree Branches		Last synced 3 days ago.	None
RHIBS Server		Last synced 4 days ago.	Satellite-6 Weekly Sync (weekly)
Red Hat Virtualization Host		Last synced 3 days ago.	Satellite-6 Weekly Sync (weekly)

Create Product

Products > New Product

Name:

Label:

GPG Key:

Sync Plan:

Description:

Basic Information	Sync Status
Name: PuppetForge	Sync Plan: puppet sync
Label: PuppetForge	Sync Interval: Weekly on 2017-08-10 18:00:00 +0530 et 2017-08-10 18:00:00 +0530 (Server Time)
GPG Key: <input checked="" type="checkbox"/>	Last Sync: 4 days Ago (4 days ago Local Time)
Description: Puppet Module repos	Next Sync: 2018-08-10 18:00:00 +0530 (Server Time)
Number of Repositories: 1	Sync State: Sync Incomplete
Active Tasks: 0	

**PuppetForge**

**Basic Information**

- Name: PuppetForge
- Label: PuppetForge
- Backend Identifier: B2B-PuppetForge-Puppet\_Forge\_Repo
- Type: puppet

**Sync Settings**

- Upstream URL: <http://forge.puppetlabs.com/>
- Verify SSL: Yes
- Upstream Username:
- Upstream Password:
- Ignore Global HTTP Proxy: No
- Proxy:
- Publish via HTTPS: Yes
- Publish via HTTP: Yes
- Published At: [http://satellite1:redhat/pulp/api/v2/PuppetForge/Puppet\\_Forge\\_Repo/](http://satellite1:redhat/pulp/api/v2/PuppetForge/Puppet_Forge_Repo/)

**Content Counts**

Content Type	Count
Puppet Modules	4739

**Upload Puppet Module**

Choose File: No file chosen

Upload

## 4.2. Building puppet module

- Creating simple **motd** module  
**#puppet module generate cloud (author name)-motd** → it will generate puppet module at /root/cloud-motd/

```
[root@h*****llite ~]# puppet module generate cloud-motd
We need to create a metadata.json file for this module. Please answer the
following questions; if the question is not applicable to this module, feel free
to leave it blank.

Puppet uses Semantic Versioning (semver.org) to version modules.
What version is this module? [0.1.0]
-->

Who wrote this module? [cloud]
-->

What license does this module code fall under? [Apache 2.0]
-->

How would you describe this module in a single sentence?
-->

Where is this module's source code repository?
-->

Where can others go to learn more about this module?
-->

Where can others go to file issues about this module?
-->

-----
{
  "name": "cloud-motd",
  "version": "0.1.0",
  "author": "cloud",
  "summary": null,
  "license": "Apache 2.0",
  "source": "",
  "project_page": null,
  "issues_url": null,
  "dependencies": [
    {"name": "puppetlabs-stdlib", "version_requirement": ">= 1.0.0"}
  ]
}
-----

About to generate this metadata; continue? [n/Y]
--> y

Notice: Generating module at /root/cloud-motd...
Notice: Populating templates...
Finished; module generated in cloud-motd.
cloud-motd/Rakefile
cloud-motd/Gemfile
cloud-motd/manifests
cloud-motd/manifests/init.pp
cloud-motd/tests
cloud-motd/tests/init.pp
cloud-motd/metadata.json
cloud-motd/README.md
cloud-motd/spec
cloud-motd/spec/spec_helper.rb
cloud-motd/spec/classes
cloud-motd/spec/classes/init_spec.rb
[root@h*****llite ~]#
```

#cd /root/cloud-motd/

#vi metadata.json → Basic Information about the puppet module. Remove dependencies from the file.

```
[root@bse-satellite6 bse-motd]# cd ../../cloud-motd/
[root@bse-satellite6 cloud-motd]# ll
total 28
-rw-r----- 1 root root 242 Jun  4 21:25 Gemfile
drwxr-x--- 2 root root 4096 Jun  4 21:25 manifests
-rw-r----- 1 root root 270 Jun  4 21:25 metadata.json
-rw-r----- 1 root root 633 Jun  4 21:25 Rakefile
-rw-r----- 1 root root 2891 Jun  4 21:25 README.md
drwxr-x--- 3 root root 4096 Jun  4 21:25 spec
drwxr-x--- 2 root root 4096 Jun  4 21:25 tests
[root@bse-satellite6 cloud-motd]# vi metadata.json
{
  "name": "cloud-motd",
  "version": "0.1.0",
  "author": "cloud",
  "summary": null,
  "license": "Apache 2.0",
  "source": "",
  "project_page": null,
  "issues_url": null,
  "dependencies": [
    {"name": "puppetlabs-stdlib", "version_requirement": ">= 1.0.0"}
  ]
}
```

```
loli@bse-satellite6:~/cloud-motd
```

```
{
  "name": "cloud-motd",
  "version": "0.1.0",
  "author": "cloud",
  "summary": null,
  "license": "Apache 2.0",
  "source": "",
  "project_page": null,
  "issues_url": null,
  "dependencies": [
  ]
}
```

**manifests/**: Contains all of the manifests in the module.

**init.pp**: Contains a class definition. The init.pp class, if used, is the main class of the module. This class's name must match the module's name.

```
#cd
manifests
#vi init.pp
```

```
[root@el7-elite6 manifests]# pwd
/root/cloud-motd/manifests
[root@el7-elite6 manifests]# cat init.pp
# == Class: motd
#
# Full description of class motd here.
#
# === Parameters
#
# Document parameters here.
#
# [*sample_parameter*]
#   Explanation of what this parameter affects and what it defaults to.
#   e.g. "Specify one or more upstream ntp servers as an array."
#
# === Variables
#
# Here you should define a list of variables that this module would require.
#
# [*sample_variable*]
#   Explanation of how this variable affects the function of this class and if
#   it has a default. e.g. "The parameter enc_ntp_servers must be set by the
#   External Node Classifier as a comma separated list of hostnames." (Note,
#   global variables should be avoided in favor of class parameters as
#   of Puppet 2.6.)
#
# === Examples
#
#   class { 'motd':
#     servers => [ 'pool.ntp.org', 'ntp.local.company.com' ],
#   }
#
# === Authors
#
# Author Name <author@domain.com>
#
# === Copyright
#
# Copyright 2018 Your name here, unless otherwise noted.
#
class motd {

}

[root@el7-elite6 manifests]#
```

```

root@xxxxxxxxxx:/cloud-motd/manifests
# == Class: motd
#
# Full description of class motd here.
#
# === Parameters
#
# Document parameters here.
#
# [*sample_parameter*]
#   Explanation of what this parameter affects and what it defaults to.
#   e.g. "Specify one or more upstream ntp servers as an array."
#
# === Variables
#
# Here you should define a list of variables that this module would require.
#
# [*sample_variable*]
#   Explanation of how this variable affects the function of this class and if
#   it has a default. e.g. "The parameter enc_ntp_servers must be set by the
#   External Node Classifier as a comma separated list of hostnames." (Note,
#   global variables should be avoided in favor of class parameters as
#   of Puppet 2.6.)
#
# === Examples
#
#   class { 'motd':
#     servers => [ 'pool.ntp.org', 'ntp.local.company.com' ],
#   }
#
# === Authors
#
# Author Name <author@domain.com>
#
# === Copyright
#
# Copyright 2018 Your name here, unless otherwise noted.
#
class motd ($message = "Welcome to ██████") {
  file {'/etc/motd':
    ensure => 'present',
    content => "$message \n",
  }
}

```

```

class motd($message = " This is the default
message"){ file { '/etc/motd':
  ensure => 'present',
  content => "$message \n",
}
}

```

To build the puppet module  
**#puppet module build cloud-motd**

```
[root@b*****6 manifests]# cd  
[root@b*****6 ~]# puppet module build cloud-motd  
Notice: Building /root/cloud-motd for release  
Module built: /root/cloud-motd/pkg/cloud-motd-0.1.0.tar.gz  
[root@b*****6 ~]#
```

## 4.3. Configuring Clients

- Configuring Puppet agent

```
#Subscription-manager repos –enable="reponame"
```

Red Hat Satellite Tools 6.3 (for RHEL 7 Server) (RPMs) → which provides puppet client packages

```
[mpmano]# puppet-test -i9 sudo yum repolist
Loaded plugins: enabled_repos_update, package_upload, product-id, search-disabled-repos, subscription-manager
repo id                                repo name
rhel-7-server-extras-rpm/x86_64          Red Hat Enterprise Linux 7 Server - Extras (RPMs)
rhel-7-server-optional-rpm/x86_64         Red Hat Enterprise Linux 7 Server - Optional (RPMs)
rhel-7-server-rpms/x86_64                 Red Hat Enterprise Linux 7 Server (RPMs)
rhel-7-server-supplementary-rpm/x86_64    Red Hat Enterprise Tools 6.4 (for RHEL 7 Server) (RPMs)
rhel-7-server-supplementary-rpm/x86_64    Red Hat Enterprise Linux 7 Server - Supplementary (RPMs)
rhel-server-rhadt-7-rpm/x86_64           Red Hat Software Collections RPMs for Red Hat Enterprise Linux 7 Server
repolist: 46,720
Uploading Enabled Repositories Report
Loaded plugins: product-id
[mpmano]# puppet-test -i9
```

```
#yum install puppet
```

```
[root@node Puppet-1.7] # sudo yum install puppet
Loaded plugins: enabled_repos_upload, package_upload, product_id, search-disabled-repos, subscription-manager
rhel-7-server-extras-rpms
rhel-7-server-optional-rpms
rhel-7-server-supplementary-rpms
rhel-7-server-supplementary-tools-6.3-rpms
rhel-7-server-rhui-rpms
rhel-7-server-rhui-tools-rpms
rhel-7-server-rhui-tools-supplementary-rpms
rhel-7-server-rhui-tools-supplementary-tools-rpms
rhel-7-server-rhui-tools-supplementary-tools-supplementary-rpms
--> Running transaction check
--> Package puppet.noarch 0.8.6-4.el7_1 will be installed
--> Processing Dependency: ruby-redhat-0.6.0 for package: puppet-0.8.6-4.el7_1.noarch
--> Processing Dependency: ruby-1.9.3-p194-1.el7_1 for package: puppet-0.8.6-4.el7_1.noarch
--> Processing Dependency: ruby >= 1.8 for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: hiera >= 1.0.0 for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: facter >= 1.1.17-7.9 for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: libyaml-0.1.4-12.el7 for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: ruby-shadow for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: ruby-augparse for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: ruby-selinux for package: puppet-3.6.6-4.el7_8.noarch
--> Processing Dependency: libxml2-2.9.1-10.el7 for package: puppet-3.6.6-4.el7_8.noarch
```

## /etc/puppet/puppet.conf

## Adding server parameter

```
echo "server = example.satellite.com" >> /etc/puppet/puppet.conf
```

```
echo "environment = KT BSE Library Puppet View 51" >> /etc/puppet/puppet.conf
```

```
[hpmanoj@puppet-test ~]$ cat /etc/puppet/puppet.conf
[main]
# The Puppet log directory.
# The default value is '$vardir/log'.
logdir = /var/log/puppet

# Where Puppet PID files are kept.
# The default value is '$vardir/run'.
rundir = /var/run/puppet

# Where SSL certificates are kept.
# The default value is '$confdir/ssl'.
ssldir = $vardir/ssl

[agent]
# The file in which puppetd stores a list of the classes
# associated with the retrieved configuration. Can be loaded in
# the separate ``puppet`` executable using the ``--loadclasses``
# option.
# The default value is '$confdir/classes.txt'.
classfile = $vardir/classes.txt

# Where puppetd caches the local configuration. An
# extension indicating the cache format is added automatically.
# The default value is '$confdir/localconfig'.
localconfig = $vardir/localconfig
server = [REDACTED].com
environment = KT_BSE_Library_Puppet_View_51
[hpmanoj@puppet-test ~]$
```

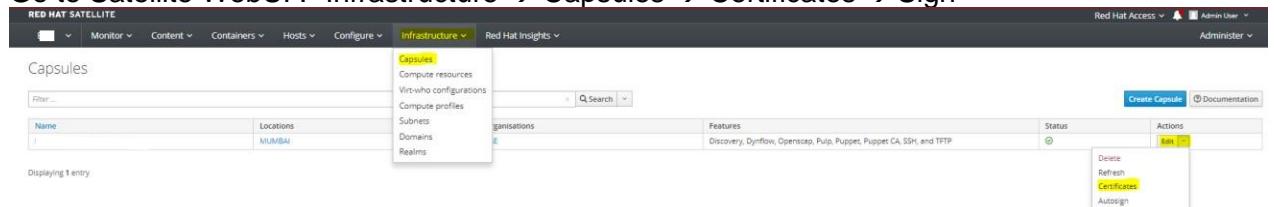
Sending certificate request to puppet master

**#puppet agent -tv**

```
[hpmanoj@puppet-test ~]$ sudo puppet agent -tv
Info: Caching certificate for ca
Info: csr_attributes file loading from /etc/puppet/csr_attributes.yaml
Info: Creating a new SSL certificate request for puppet-test.bseindia.com
Info: Certificate Request fingerprint (SHA256): AC:15:74:69:7D:08:0D:0C:E9:53:02:EF:DC:43:FC:1B:C3:EB:17:A4:14:CC:9F:F9:09:74:85:A4:E5:53:CF:E5
Info: Caching certificate for ca
Exiting; no certificate found and waitforcert is disabled
[hpmanoj@puppet-test ~]$
```

## 4.4. Deploying Puppet Modules

- Go to Satellite WebUI :- Infrastructure → Capsules → Certificates → Sign



RED HAT SATELLITE

Capsule: b [https://bse.satellite6.aseinidla.com](#)

Overview Services Puppet Puppet CA Certificates Autosign entries

**Certificates**

Certificate Name	State	Valid from	Expires	Fingerprint	Actions
puppet-test.aseinidla.com	pending	N/A	N/A	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
testemt.bse.satellite6.aseinidla.com	valid	10 months ago	in about 4 years	SHA256	<a href="#">Revoke</a>
golden1.4	valid	about 1 year ago	in almost 4 years	SHA256	<a href="#">Revoke</a>
localhost.localhost	valid	16 days ago	in almost 5 years	SHA256	<a href="#">Revoke</a>
puppet-test.aseinidla.com	pending	10 months ago	in about 4 years	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
testemt.bse.satellite6.aseinidla.com	valid	N/A	N/A	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
showing 1 to 11 of 11 items					

RED HAT SATELLITE

Capsule: b [https://bse.satellite6.aseinidla.com](#)

Overview Services Puppet Puppet CA Certificates Autosign entries

**Certificates**

Certificate Name	State	Valid from	Expires	Fingerprint	Actions
bsehydratog.aseinidla.com	pending	N/A	N/A	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
bsehydratog-4.aseinidla.com	valid	10 months ago	in about 4 years	SHA256	<a href="#">Revoke</a>
bsesatellite6.aseinidla.com	valid	about 1 year ago	in almost 4 years	SHA256	<a href="#">Revoke</a>
golden1.4	valid	16 days ago	in almost 5 years	SHA256	<a href="#">Revoke</a>
localhost.localhost	pending	N/A	N/A	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
puppet-test.aseinidla.com	valid	1 day ago	in almost 5 years	SHA256	<a href="#">Revoke</a>
testemt.bse.satellite6.aseinidla.com	valid	8 months ago	in over 4 years	SHA256	<a href="#">Sign</a> <a href="#">Revoke</a>
showing 1 to 7 of 7 items (of 11)					

## Uploading Puppet Module

Products → Puppet module name → Repositories → Browse puppet module  
**→cloud-motd.tar.gz →Open→ Upload**

RED HAT SATELLITE

BSE Products PuppetForge Repositories Puppet Forge Repo

Basic Information

Name:	Puppet Forge Repo
Label:	Puppet_Forge_Repo
Backend Identifier:	BSE-PuppetForge_Puppet_Forge_Repo
Type:	puppet

Sync Settings

Upstream URL:	http://forge.puppetlabs.com/
Verify SSL:	Yes
Upstream Username:	
Upstream Password:	
Ignore Global HTTP Proxy:	No
Published via HTTPS:	Yes
Published via HTTP:	Yes
Published At:	<a href="http://bsesatellite6.aseinidla.com/pulp/puppet/BSE-PuppetForge-Puppet_Forge_Repo">http://bsesatellite6.aseinidla.com/pulp/puppet/BSE-PuppetForge-Puppet_Forge_Repo</a>

Sync Status

Sync Interval:	Weekly on 2017-08-10 18:00:00 +0530 at 2017-08-10 18:00:00 +0530 (Server)
Last Sync:	4 days Ago (2018-05-31 19:58:16 +0530 Local Time)
Next Sync:	Synced manually, no interval set.
Sync State:	warning

Content Counts

Content Type	Puppet Modules	4739
--------------	----------------	------

Upload Puppet Module

**Choose File: cloud-motd-0.1.0.tar**

**File Explorer**

File name: cloud-motd-0.1.0.tar

Open

This PC

Desktop

Documents

Downloads

Pictures

Rangith

Satellite

Satellite 6

OneDrive

Network

Quick access

cloud-motd-0.1.0.tar

foreman-discovery-image-3.4.4-1

osisport-bacnemon-2018040110571.tar

osisport-bacnemon-201804020849261.tar

rhvm-guest-agent-common-1.8.11-fed

0010001.out

test

http-140.18

http-140.14

Custom Office Templates

prohmanoj

NoMachine

Date modified

Type

Size

Content Views → Content name → Puppet Modules → Select Version → Publish New Version → Library

Version	Status	Environments	Content	Description	Actions
Version 1.0	Published (2018-06-04 22:51:24 +0530)	Library	33317 Packages 3847 Errata ( 550 ▲ 2244 ▲ 533 □ ) 1 Puppet Modules		Promote

This will create new puppet Environment

Name	Hosts	Actions
K7_BSE_library_Puppet_View_51	1	Classes
production	1	Classes

Goto Puppet Classes → smart class parameter → message → Default value(Change select Override this) → Submit

**RED HAT SATELLITE**

Monitor ▾ Content ▾ Containers ▾ Hosts ▾ Configure ▾ Infrastructure ▾ Red Hat Insights ▾

Edit Puppet Class motd

Puppet Class	Smart Class Parameter	Smart Variables
Class name *	motd	
Puppet environments	KT_BSE_Library_Puppet_View_31	
Host groups	All items Filter +	Selected items -
		RHEL6-Group RHEL7-Group
<input type="button" value="Cancel"/> <input type="button" value="Submit"/>		

**RED HAT SATELLITE**

Monitor ▾ Content ▾ Containers ▾ Hosts ▾ Configure ▾ Infrastructure ▾ Red Hat Insights ▾

Red Hat Access Admin User Administrator

Edit Puppet Class motd

Puppet Class	Smart Class Parameter	Smart Variables
<input type="text" value="Filter by name"/> <input type="button" value="Documentation"/>		
<input type="text" value="message"/>		
<b>Parameter details</b>		
Key * message Description Puppet Environments KT_BSE_Library_Puppet_View_31		
<b>Default behavior</b> Override <input type="checkbox"/> Key type <input type="text" value="string"/> Default value <input type="text" value="Welcome to BSE"/> Omit <input type="checkbox"/> Hidden value <input type="checkbox"/>		
<b>Optional input validator</b> <small>If ERB is used in a parameter value, the validation of the value will happen during the ENC request. If the value is invalid, the ENC request will fail.</small> Required <input type="checkbox"/> Validator type <input type="text" value="None"/> Validator rule		
<input type="button" value="Cancel"/> <input type="button" value="Submit"/>		

Hosts → Select Host → Select action → Edit the host → Add Lifecycle Environment & Content View

**RED HAT SATELLITE**

Monitor ▾ Content ▾ Containers ▾ Hosts ▾ Configure ▾ Infrastructure ▾ Red Hat Insights ▾

Red Hat Access Admin User Administrator

Hosts

puppet-test	Power	Name	Operating system	Environment	Model	Host group	Last report	Actions
<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="radio"/> puppet-test	Redhat 7.4	production	RHEV Hypervisor	RHEL7-Group		<input type="button" value="Edit"/>

Displaying 1 entry - 1 selected

RED HAT SATELLITE

Edit puppet-test.t...

Host Puppet Classes Interfaces Operating System Parameters Additional Information

Name \* **puppet-test** This value is used also as the host's primary interface name.

Organisation \* BSE

Location \* MUMBAI

Host Group RHEL7-Group

Lifecycle Environment RHEL7

Content View RHEL7-View

Content Source https://content.example.com

Puppet Environment RHEL7-View\_Puppet\_View\_31

Puppet Master https://puppet-test.example.com

Puppet CA use https://puppet-test.example.com

OpenSCAP Capsule https://content.example.com

**Cancel** **Submit**

RED HAT SATELLITE

Edit puppet-test.bs...

Host Puppet Classes Interfaces Operating System Parameters Additional Information

Included Classes foreman\_scap\_client::params  
- Inherited Classes from RHEL7-Group  
foreman\_scap\_client  
**motd**

Available Classes Filter classes + editlib

access\_insights\_client  
foreman\_scap\_client

**Cancel** **Submit**

```
[hpmanoj@puppet-test ~]$ cat /etc/motd
*****  
| This system is for the use of authorized personnel only. |  
| Unauthorized or improper use of this system may result in |  
| administrative disciplinary action and/or legal action by |  
| the BSE Ltd. management. By continuing to use this system |  
| indicate your awareness of IS policies of BSE Ltd. and |  
| adhering to the same. |  
*****  
[hpmanoj@puppet-test ~]$ date  
Tue Jun 5 10:52:15 UTC 2018  
[hpmanoj@puppet-test ~]$
```

**On client server**  
**#puppet agent –**  
**tv**

```
[hpmanoj@puppet-test:~]
[hpmanoj@puppet-test ~]$ sudo puppet agent -tv
Info: Retrieving pluginfacts
Info: Retrieving plugin
Info: Loading facts
Info: Caching catalog for puppet-test.bseindia.com
Info: Applying configuration version '1528195971'
Notice: /Stage/main/Motd/File[/etc/motd]/content:
--- /etc/motd   2017-12-16 12:57:35.000000000 +0000
+++ /tmp/puppet-file20180605-21424-1ny6ogw   2018-06-05 10:52:53.126486459 +0000
@@ -1,8 +1 @@
*****
-| This system is for the use of authorized personnel only.
-| Unauthorized or improper use of this system may result in
-| administrative disciplinary action and/or legal action by
-| the BSE Ltd. management. By continuing to use this system
-| indicate your awareness of IS policies of BSE Ltd. and
-| adhering to the same.
*****
+Welcome to BSE

Info: Computing checksum on file /etc/motd
Info: /Stage/main/Motd/File[/etc/motd]: Filebucketed /etc/motd to puppet with sum 2e04e116c28b8469b64aaa1088c326d1
Notice: /Stage/main/Motd/File[/etc/motd]/content: content changed '{md5}2e04e116c28b8469b64aaa1088c326d1' to '{md5}46575d8120ed42aeb5dc8eaf7e258ec'
Notice: /Stage/main/Access insights_client/Package[redhat-access-insights]/ensure: created
Notice: Finished catalog run in 2.97 seconds
[hpmanoj@puppet-test ~]$ cat /etc/motd
Welcome to BSE
[hpmanoj@puppet-test ~]$
```

## 5. Remote Execution

**Remote execution**, enabling users to take multiple actions against a group of systems while automating workflows. With these new capabilities, users can reboot a system after a patch install, or conduct rolling upgrades across hundreds of systems with the same ease and consistency as updating a single system.

New scheduling features and dashboards enhance interaction with systems under Red Hat Satellite management, bringing increased efficiency to its provisioning and discovery processes.

### 5.1. Remote Execution using non-root users

- On the client machine first create a user and add it to the sudoers.

```
[root@mac001a4a16016f ~]# useradd -m hpmanoj
[root@mac001a4a16016f ~]# echo "hpmanoj    ALL=NOPASSWD:    ALL" > /etc/sudoers.d/hpmanoj
[root@mac001a4a16016f ~]#
```

- Check if hpmanoj user can run the sudo commands without password.

```
[root@mac001a4a16016f ~]# su - hpmanoj
Last login: Sat May 19 14:20:41 UTC 2018 on pts/0
[hpmanoj@mac001a4a16016f ~]$ cat /etc/shadow
cat: /etc/shadow: Permission denied
[hpmanoj@mac001a4a16016f ~]$ sudo cat /etc/shadow
root:$5$0FcvlBi$uwRBPF9UZtd/m8PTbxScwBor0wtaq5mIyxUm35L0gN9::0:99999:7:::
bin:*:16925:0:99999:7:::
daemon:*:16925:0:99999:7:::
adm:*:16925:0:99999:7:::
lp:*:16925:0:99999:7:::
sync:*:16925:0:99999:7:::
shutdown:*:16925:0:99999:7:::
halt:*:16925:0:99999:7:::
mail:*:16925:0:99999:7:::
operator:*:16925:0:99999:7:::
games:*:16925:0:99999:7:::
ftp:*:16925:0:99999:7:::
nobody:*:16925:0:99999:7:::
systemd-network:!!:17668:::::
dbus:!!:17668:::::
polkitd:!!:17668:::::
ntp:!!:17668:::::
postfix:!!:17668:::::
chrony:!!:17668:::::
sshd:!!:17668:::::
puppet:!!:17668:::::
hpmanoj:!!:17670:0:99999:7:::
[hpmanoj@mac001a4a16016f ~]$
```

- Create ssh keygen for the user & Copy over the foreman-proxy public key using curl into authorized keys file under hpmanoj user account

```
[hpmanoj@mac001a4a16016f ~]$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/hpmanoj/.ssh/id_rsa):
Created directory '/home/hpmanoj/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/hpmanoj/.ssh/id_rsa.
Your public key has been saved in /home/hpmanoj/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:nuQf+EoBi/D9zUlREchKDM+4HvPz7p9s5kwjnf+GxRY hpmanoj@mac001a4a16016f.bseindia.com
The key's randomart image is:
+---[RSA 2048]---+
|       .o .+o |
|       +o o.  |
| . . .o..   |
| o o o.. . E |
| o o S . ..|
| * X o . .+|
| O * o =+ |
| . o + =++.|
| ..oo+=*.+|
+---[SHA256]---+
[hpmanoj@mac001a4a16016f ~]$ curl https://example.satellite.bseindia.com:9090/ssh/pubkey >> .ssh/authorized_keys
  % Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload Upload Total Spent   Left Speed
100    413  100    413     0      0  1324      0 --:--:-- --:--:-- 1327
[hpmanoj@mac001a4a16016f ~]$ chmod 600 .ssh/authorized_keys
[hpmanoj@mac001a4a16016f ~]$ restorecon -Rv .ssh/
[hpmanoj@mac001a4a16016f ~]$
```

**\$ssh-keygen -t rsa**

**\$ curl https://example.satellite.com:9090/ssh/pubkey >> .ssh/authorized\_keys**

**\$ chmod 600 .ssh/authorized\_keys**

**\$ restorecon -Rv .ssh/**

Now check from the Satellite server if **hpmanoj** user can execute the **sudo** commands without requiring any password interactions.

```
[root@h...llitef ~]# su - foreman-proxy -s /bin/bash
Last login: Sat May 19 20:44:09 IST 2018 on pts/0
-bash-4.2$ ssh -t -i .ssh/id_rsa_foreman_proxy hpmanoj@192.168.127.55 'sudo df -h'
Filesystem      Size  Used Avail Use% Mounted on
/dev/mapper/rhel_mac001a4a16016f-root  47G   1.8G   46G   4% /
devtmpfs        875M    0  875M   0% /dev
tmpfs          887M    0  887M   0% /dev/shm
tmpfs          887M   8.7M  878M   1% /run
tmpfs          887M    0  887M   0% /sys/fs/cgroup
/dev/sdal       1014M  168M  847M  17% /boot
tmpfs          178M    0  178M   0% /run/user/0
tmpfs          178M    0  178M   0% /run/user/1000
Connection to 192.168.127.55 closed.
-bash-4.2$
```

\$su - foreman-proxy -s /bin/bash

\$ssh -t -i .ssh/id\_rsa\_foreman\_proxy hpmanoj@192.168.127.55 'sudo df -h'

If foreman-proxy user can execute commands without any issues, then add the following parameter to the client host from the Satellite Server.

Satellite webUI >> Hosts >> All Hosts >> Edit the mac001a4a16016f.bccindia.com >>

Parameters tab >> Host Parameters >> Add Parameter >> Specify Name as

**remote\_execution\_ssh\_user** and set its value to hpmanoj >> click Submit

Now Remote Execution jobs can be scheduled using a non-root user.

The screenshot shows two views of the Red Hat Satellite web interface. The top view is the 'Hosts' list page, displaying a single host entry: 'mac001a4a16016f'. The bottom view is the 'Edit' screen for this specific host, focusing on the 'Parameters' tab. In the host parameters section, a new parameter is being added with the name 'remote\_execution\_ssh\_user' and the value 'hpmanoj'. Other parameters shown include 'activation\_keys' with value 'RHEL7-KEY' and 'override' checked, and 'foreman' with value 'foreman'.

- Go to Satellite webUI >> Hosts >> All Hosts >> Select the host >> Select Action >> Schedule Remote Job >> Run commands >> in search query specify the ip address of the host otherwise you need to add host entry in satellite server /etc/hosts file.

Type the command >> select execute now >> submit

The screenshot shows the Red Hat Satellite webUI interface. In the top navigation bar, 'Hosts' is selected. Below it, a table lists hosts. One host, with IP 192.168.127.55, is highlighted. A context menu is open over this host, with 'Select Actions' highlighted. The menu includes options like 'Schedule Remote job' which is also highlighted.

The screenshot shows the 'Job invocation' form. It has fields for 'Job category' (Commands), 'Job template' (Run Command - SSH Default), 'Search query' (192.168.127.55), 'Resolves to' (1 hosts), 'command' (stop yum remove netgear-usb3), and a 'Schedule' section with 'Execute now' checked. At the bottom are 'Cancel' and 'Submit' buttons.

This screenshot is similar to the previous one, but the 'command' field now contains 'stop yum remove netgear-usb3'. The rest of the form fields and settings are identical to the first screenshot.

RED HAT SATELLITE

Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights

Red Hat Access Admin User Administrator

Run sudo yum remove telnet -y

Overview Hosts

Target hosts  
Manual selection using Static Query  
192.168.42.35  
Evaluated at: 2018-05-19 20:55:09+05:00  
Total hosts: 1

running 100%  
100% Success

Providers and templates  
Run Command - SSH Default through SSH  
Preview for target mac001a4a16016f.tseindia.com  
sudo yum remove telnet -y  
following user inputs were provided:  
+ command: sudo yum remove telnet -y  
Effective user: root

```
[hpmanoj@mac001a4a16016f ~]$ sudo yum history
[hpmanoj@mac001a4a16016f ~]$ sudo yum history info 7
[hpmanoj@mac001a4a16016f ~]$ rpm -qa | grep telnet
```

```
[hpmanoj@mac001a4a16016f ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Sat 2018-05-19 15:28:25 UTC; 1min 15s ago
     Docs: man:httpd(8)
           man:apachectl(8)
 Main PID: 2910 (httpd)
    Status: "Total requests: 0; Current requests/sec: 0; Current traffic: 0 B/sec"
   CGroup: /system.slice/httpd.service
           └─2910 /usr/sbin/httpd -DFOREGROUND
             ├─2911 /usr/sbin/httpd -DFOREGROUND
             ├─2912 /usr/sbin/httpd -DFOREGROUND
             ├─2913 /usr/sbin/httpd -DFOREGROUND
             ├─2914 /usr/sbin/httpd -DFOREGROUND
             ├─2915 /usr/sbin/httpd -DFOREGROUND
             └─2916 /usr/sbin/httpd -DFOREGROUND

[hpmanoj@mac001a4a16016f ~]$
```

- Disabling httpd service via Remote Execution

Job invocation

Job category: Services  
 Job template: Service Action - SSH Default  
 Search query: 192.168.127.55  
 Resolves to: 1 hosts  
 action: stop  
 service: httpd  
 Schedule: Execute now

stop service httpd

Target hosts:  
 Manual selection using Static Query:  
 192.168.127.55  
 Evaluated at: 2018-05-19 21:00:32 +0530  
 Total hosts: 1  
 Providers and templates:  
 Service Action - SSH Default through SSH  
 Preview for target mac001a4a16016f@seaindia.com  
 systemctl stop httpd  
 following user inputs were provided:  
 • action: stop  
 • service: httpd  
 Effective user: root

running 100%

100%  
 Success

```
[hpmanoj@mac001a4a16016f ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd(8)
           man:apachectl(8)
[hpmanoj@mac001a4a16016f ~]$ date
Sat May 19 15:31:27 UTC 2018
[hpmanoj@mac001a4a16016f ~]$ █
```

## 6. Security Compliance Management with OpenScap

Security compliance management is the ongoing process of defining security policies, auditing for compliance with those policies and resolving instances of non-compliance. Once a security policy is defined, an audit is conducted to verify compliance with the policy. Any non-compliance is managed according to the organization's configuration management policies. Security policies vary in their scope, from being host-specific to industry-wide, so there is a need for flexibility in their definition.

The Security Content Automation Protocol (SCAP) enables the definition of security configuration policies. For example, a security policy might specify that for hosts running Red Hat Enterprise Linux, login via SSH is not permitted for the root account. In Satellite 6, tools provided by the OpenSCAP project are used to implement security compliance auditing. For more information about OpenSCAP see the Red Hat Enterprise Linux 7 Security Guide. The Satellite web UI enables scheduled compliance auditing and reporting on all hosts under management by Red Hat Satellite.

The following specifications are supported by OpenSCAP:

- XCCDF: The Extensible Configuration Checklist Description Format (version 1.2)
- OVAL: Open Vulnerability and Assessment Language (version 5.11)
- Asset Identification (version 1.1)
- ARF: Asset Reporting Format (version 1.1)
- CCE: Common Configuration Enumeration (version 5.0)
- CPE: Common Platform Enumeration (version 2.3)
- CVE: Common Vulnerabilities and Exposures
- CVSS: Common Vulnerability Scoring System (version 2.0)

### SCAP Content

SCAP content is a datastream format containing the configuration and security baseline against which hosts are checked. Checklists are described in the extensible checklist configuration description format (XCCDF) and vulnerabilities in the open vulnerability and assessment language (OVAL). Checklist items,

also known as rules express the desired configuration of a system item. For example, you may specify that no one can log in to a host over SSH using the root user account. Rules can be grouped into one or more profiles, allowing multiple profiles to share a rule. SCAP content consists of both rules and profiles.

### XCCDF Profile

An XCCDF profile is a checklist against which a host or host group is evaluated. Profiles are generally created to verify compliance with a standard, whether that be an industry standard or a custom standard.

To list all available profiles, open the Satellite web UI, navigate to Hosts → Policies, select Edit from the drop-down list next to the policy of interest and select the SCAP Content tab. Select the SCAP Content of interest and browse the available profiles in the XCCDF Profile drop-down list.

## 6.1. Installing and Configuring OpenScap

- On Satellite Server.

```
[root@bsesatellite6 ~]# satellite-installer --enable-foreman-plugin-  
openscap [root@bsesatellite6 ~]# yum -y install puppet-  
foreman_scap_client [root@bsesatellite6 ~]# foreman-rake  
foreman_openscap:bulk_upload:default
```

- 2. OpenSCAP Content Requirements.

On Satellite command line:

```
[root@ bsesatellite6 ~]# yum -y install scap-security-guide
```

- 3. On Satellite Web UI
- 4. Go to **Hosts >> Scap Contents** to Upload New SCAP Content file.

The screenshot shows the Red Hat Satellite web interface. In the top navigation bar, 'Content' is selected under the 'Hosts' dropdown. On the left, a sidebar menu has 'SCAP Contents' expanded, and 'SCAP contents' is highlighted. A modal dialog box is open in the center, titled 'File Upload'. It contains fields for 'Title' (set to 'Red hat rhel7 Lynis default') and 'Scap file' (with a 'Choose file' button and a note 'No file chosen'). Below these are buttons for 'Cancel' and 'Submit'.

- 5. Select Upload New SCAP Content >> Enter the Title & click the choose file option to upload the Scap file.
- Assign the Location & Organisation
- Submit

The screenshot shows the Red Hat Satellite interface with the 'Hosts' dropdown selected. In the main content area, a modal dialog box is open for 'Create New Compliance Policy'. It lists 'Locations' and 'Organisations' tabs, with 'Locations' currently selected. The 'Policies' tab is also visible. The 'New Compliance Policy' form has a title 'Red hat rhel7 Lynis default' and a 'Scap file' field with a 'Choose file' button. At the bottom are 'Cancel' and 'Submit' buttons.

### Create New Compliance Policy

- Hosts >> Policies >> New Compliance Policy

The screenshot shows the Red Hat Satellite web interface. In the top navigation bar, 'Hosts' is selected. On the left, a sidebar menu under 'COMPLIANCE' has 'Policies' highlighted. In the main content area, there is a table of compliance policies. One row is selected, showing 'Test\_policy' with 'Red Hat rhel7 default content'. A context menu is open over this row, with 'Policies' highlighted.

- Create New Compliance Policy

The screenshot shows the 'New Compliance Policy' wizard. Step 2, 'SCAP Content', is active. The 'Name' field contains 'RHEL7-C2S' and the 'Description' field contains 'C2S for RHEL7'. The 'Next' button is visible at the bottom right.

- Select the scap content

New Compliance Policy

The screenshot shows the 'New Compliance Policy' wizard. Step 2, 'SCAP Content', is active. The 'SCAP Content' dropdown is set to 'Red Hat rhel7 default content', the 'XCCDF Profile' dropdown is set to 'C2S for Red Hat Enterprise Linux 7', and the 'Tailoring File' dropdown is set to 'Choose Tailoring File'. The 'Next' button is visible at the bottom right.

- Assign schedule time period

The screenshot shows the 'New Compliance Policy' wizard in the Red Hat Satellite interface. The current step is 'Schedule'. The 'Period' dropdown is set to 'Weekly' and the 'Weekday' dropdown is set to 'Monday'. There are 'Cancel' and 'Next' buttons at the bottom.

- Assign the Locations

New Compliance Policy

The screenshot shows the 'Locations' selection screen. On the left, there is a list of locations with a 'Filter' input field. On the right, a 'Selected items' list contains 'Hyderabad' and 'Mumbai'. There are 'Cancel' and 'Next' buttons at the bottom.

- Assign Organisations

The screenshot shows the 'Organizations' selection screen. On the left, there is a list of organizations with a 'Filter' input field. On the right, a 'Selected items' list contains one organization. There are 'Cancel' and 'Next' buttons at the bottom.

New Compliance Policy

The screenshot shows the 'Hostgroups' selection screen. On the left, there is a list of hostgroups with a 'Filter' input field. On the right, a 'Selected items' list contains one hostgroup. There are 'Cancel' and 'Next' buttons at the bottom.

- Select the Hostgroup

## New Compliance Policy

The screenshot shows the 'Hostgroups' step of a compliance policy creation wizard. On the left, a list of hostgroups includes 'RHEL7-Group'. On the right, 'RHEL7-Group' is selected and highlighted in yellow. At the bottom right are 'Cancel' and 'Submit' buttons.

- Goto Hosts → Select the host and Edit it.

The screenshot shows the 'Hosts' list page. A single host entry is displayed: mac001a4a16016f. The host details include: Power (on), Name (mac001a4a16016f), Operating system (RedHat 7.5), Environment (production), Model (RHEV Hypervisor), Host group (RHEL7-Group), Last report (29 minutes ago), and Actions (Edit).

- Assign the HostGroup & Puppet Environment for the host.

The screenshot shows the 'Host' edit page. The host details are as follows: Name (mac001a4a16016f), Organisation (not specified), Location (MUMBAI), Host Group (RHEL7-Group), Lifecycle Environment (RHEL7), Content View (RHEL7-View), Content Source (b), Puppet Environment (production), Puppet Master (b), Puppet CA (b), and OpenSCAP Capsule (b). At the bottom are 'Cancel' and 'Submit' buttons.

- Goto Puppet classes and add **foreman\_scap\_client** Classes to this host & submit it.

BSE ▾ Monitor ▾ Content ▾ Containers ▾ Hosts ▾ Configure ▾ Infrastructure ▾ Red Hat Insights ▾

Administrator ▾

Unmanage host

Host Puppet Classes Interfaces Operating System Parameters Additional Information

Included Classes

- `access_insights_client`
- `foreman_scap_client`
- `foreman_scap_client::params`

↳ Inherited Classes from RHEL7-Group

Available Classes

Filter classes

- `access_insights_client`
- `foreman_scap_client`

+ stdlib

Cancel Submit

## • Prepare RHEL7 Client

```
root@mac001a4a16016f:~#
[root@mac001a4a16016f ~]# rpm -qa | grep puppet
[root@mac001a4a16016f ~]# yum -y install puppet
Loaded plugins: enabled_repos, upload, package_upload, product-id, search-disabled-repos, security, subscription-manager
Setting up Install Process
RPMS
rhel-6-server-extras-rpms
rhel-6-server-optimal-rpms
rhel-6-server-rh-common-rpms
rhel-6-server-rhn-tools-rpms
rhel-6-server-rpms
rhel-6-server-satellite-tools-6.3-rpms
rhel-server-rhaci-6-rpms
Resolving Dependencies
--> Running transaction check
--> Package puppet.noarch 0:3.8.6-2.el6sat will be installed
--> Processing Dependency: ruby-rgen >= 0.6.5 for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: ruby >= 1.8.7 for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: ruby >= 1.8 for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: hiera >= 1.0.0 for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: facter >= 1.1.7.0 for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: rubygem-json for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: ruby-shadow for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: ruby-auges for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: ruby(selinux) for package: puppet-3.8.6-2.el6sat.noarch
--> Processing Dependency: /usr/bin/ruby for package: puppet-3.8.6-2.el6sat.noarch
--> Running transaction check
--> Package facter.x86_64 1:2.4.6-3.el6sat will be installed
--> Processing Dependency: ruby(abi) = 1.8 for package: 1:facter-2.4.6-3.el6sat.x86_64
--> Package hiera.noarch 0:1.3.1-2.el6sat will be installed
--> Package libselinux-ruby.x86_64 0:2.0.94-7.el6 will be installed
--> Package ruby.x86_64 0:1.8.7-374-5.el6 will be installed
--> Package ruby-auges.x86_64 0:0.4.1-1.el6_4 will be installed
--> Package ruby-shadow.x86_64 0:0.1.4.1-13.el6_4 will be installed
--> Package rubygem-json.x86_64 0:1.4.6-2.el6 will be installed
--> Processing Dependency: rubygems for package: rubygem-json-1.4.6-2.el6.x86_64
--> Running transaction check
--> Package ruby-libs.x86_64 0:1.8.7.374-5.el6 will be installed
--> Processing Dependency: libreadline.so.5()(64bit) for package: ruby-libs-1.8.7.374-5.el6.x86_64
--> Package rubygems.noarch 0:1.3.7-5.el6 will be installed
--> Processing Dependency: ruby-rdoc for package: rubygems-1.3.7-5.el6.noarch
--> Running transaction check
--> Package compat-readline5.x86_64 0:5.2-17.el6 will be installed
--> Package ruby-rdoc.x86_64 0:1.8.7.374-5.el6 will be installed
--> Processing Dependency: ruby-irb = 1.8.7.374-5.el6 for package: ruby-rdoc-1.8.7.374-5.el6.x86_64
--> Running transaction check
--> Package ruby-irb.x86_64 0:1.8.7.374-5.el6 will be installed
--> Finished Dependency Resolution

Dependencies Resolved
```

```
[root@mac001a4a16016f ~]# echo "    server = b[REDACTED].ia.com" >> /etc/puppet/puppet.conf
[root@mac001a4a16016f ~]# echo "    environment = production" >> /etc/puppet/puppet.conf
[root@mac001a4a16016f ~]# cat /etc/puppet/puppet.conf | grep -v ^# | grep .
[main]
  # The Puppet log directory.
  # The default value is '$vardir/log'.
  logdir = /var/log/puppet
  # Where Puppet PID files are kept.
  # The default value is '$vardir/run'.
  rundir = /var/run/puppet
  # Where SSL certificates are kept.
  # The default value is '$confdir/ssl'.
  ssldir = $vardir/ssl
[agent]
  # The file in which puppetd stores a list of the classes
  # associated with the retrieved configuration. Can be loaded in
  # the separate ``puppet`` executable using the ``--loadclasses``
  # option.
  # The default value is '$confdir/classes.txt'.
  classfile = $vardir/classes.txt
  # Where puppetd caches the local configuration. An
  # extension indicating the cache format is added automatically.
  # The default value is '$confdir/localconfig'.
  localconfig = $vardir/localconfig
  server = b[REDACTED].ia.com
  environment = production
[root@mac001a4a16016f ~]#
```

Install and Configure Puppet on Client

```
[root@puppet-test ~]# yum -y install
puppet
[root@puppet-test ~]# echo " server = example.satellite.com" >>
/etc/puppet/puppet.conf [root@puppet-test ~]# echo " environment = production" >>
/etc/puppet/puppet.conf [root@puppet-test ~]# systemctl start puppet && systemctl
enable puppet
```

```
[root@mac001a4a16016f ~]# puppet agent -tv
Exiting; no certificate found and waitforcert is disabled
[root@mac001a4a16016f ~]#
```

```
[root@puppet-test ~]# puppet agent -t
Exiting; no certificate found and waitforcert is disabled
```

- Go to next step to sign

**certificate Sign Certificate on**

### Capsule

Satellite Web UI: **Infrastructure > Capsule**

For this demo, we only have the all-in-one **Satellite/Capsule/Puppet**

**Master** On the Actions column, click on the available actions and  
select Certificates Click Sign to **sign** the certificate

A scan will run base on the "Cron line:" setting in the earlier step. Monitor **/var/log/messages** on the client to see activities.

- Run "puppet agent -t" again on the client.

RED HAT SATELLITE

Infrastructure Capsules

Create Capsule Documentation

Name	Locations	Organizations
xxxxxxxxxx	MUMBAI	EE

Displaying 1 entry

RED HAT SATELLITE

Capsule: Location: https://localhost:443

Back Actions Edit Delete

Overview Services Puppet **Puppet CA**

General Certificates Autosign entries

Version 1.15.6.4  
Hosts managed: 2

**8 Certificates**  
1 | 4 | 0

CA certificate expiry date in almost 4 years

0 Autosign entries

- Goto **Puppet** section to know the certificate signing steps.
- Select the host and Click on **Select Action→ Assign Compliance Policy**

RED HAT SATELLITE

Hosts

mac

Export Select Action Create Host

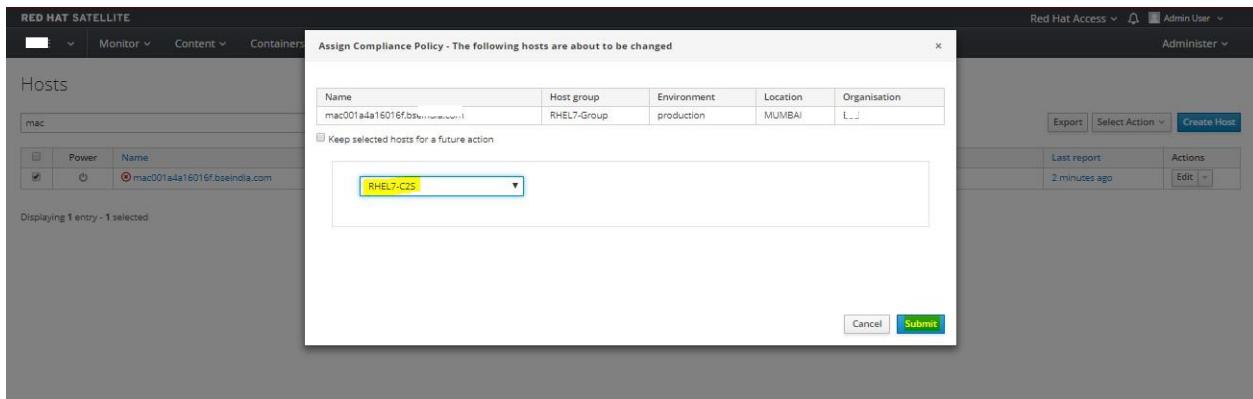
Power	Name	Operating system	Environment	Model	Host group
mac001ada16016fb	mac	RedHat 7.5	production	RHEV Hypervisor	RHEL7-Group

Displaying 1 entry - 1 selected

Actions Edit

Change Group  
Build Hosts  
Change Environment  
Edit Parameters  
Disable Notifications  
Enable Notifications  
Dissociate Hosts  
Rebuild Config  
Assign Organization  
Assign Location  
Change Owner  
Change Puppet Master  
Change Puppet CA  
Change Power State  
Delete Hosts  
Schedule Remote Job  
**Assign Compliance Policy**  
Unassign Compliance Policy

- Select the **Policy** and **Submit** it.



- Again Goto Select Action and Click Schedule Remote Job

The screenshot shows the 'Select Action' dropdown menu open. The 'Schedule Remote Job' option is highlighted with a yellow box. Other options visible include Change Group, Build Hosts, Change Environment, Edit Parameters, Disable Notifications, Enable Notifications, Disassociate Hosts, Rebuild Config, Assign Organisation, Assign Location, Change Owner, Change Puppet Master, Change Puppet CA, Change Power State, Delete Hosts, Assign Compliance Policy, and Unassign Compliance Policy.

- Select OpenSCAP & Submit

The screenshot shows the 'Job invocation' configuration form. The 'Job category' is set to 'OpenSCAP' and the 'Job template' is 'Run OpenSCAP scans'. The 'Search query' field contains the search term 'name ~ (mac001a4a16016f.bse... )'. The 'Resolves to' section shows '1 hosts' selected. Under the 'Schedule' section, the 'Execute now' radio button is selected. At the bottom are 'Cancel' and 'Submit' buttons.

Before Submit check if any reports are available in Compliance Reports

**RED HAT SATELLITE**

- [BSC](#) ▾
- [Monitor](#) ▾
- [Content](#) ▾
- [Containers](#) ▾
- [Hosts](#) ▾
- [Configure](#) ▾
- [Infrastructure](#) ▾
- [Red Hat Insights](#) ▾

Red Hat Access ▾ Admin User ▾

Administer ▾

Compliance Reports

[Delete reports](#)

Host
------

Reported At
-------------

Policy
--------

Openscap Capsule
------------------

Passed
--------

Failed
--------

Other
-------

No entries found

**RED HAT SATELLITE**

- [BSC](#) ▾
- [Monitor](#) ▾
- [Content](#) ▾
- [Containers](#) ▾
- [Hosts](#) ▾
- [Configure](#) ▾
- [Infrastructure](#) ▾
- [Red Hat Insights](#) ▾

Red Hat Access ▾ Admin User ▾

Administer ▾

Run scan for all OpenSCAP policies on host

[Refresh](#) [Rerun](#) [Rerun failed](#) [Job Task](#) [Cancel Job](#) [Abort Job](#)

[Overview](#) [Hosts](#)

Target hosts

Manual selection using Static Query

```
name ^ (mac001a410810f.bsi*)
```

Evaluated at: 2018-05-21 09:05:09 +0530

Total hosts

1

Providers and templates

Run OpenSCAP scans through SSH

Preview for target mac001a410810f.bsi.....

```
/usr/bin/foreman_scap_client 2
/usr/bin/foreman_scap_client 3
```

Effective user: root

After Submit it will showing 100% Success

**RED HAT SATELLITE**

- [BSC](#) ▾
- [Monitor](#) ▾
- [Content](#) ▾
- [Containers](#) ▾
- [Hosts](#) ▾
- [Configure](#) ▾
- [Infrastructure](#) ▾
- [Red Hat Insights](#) ▾

Red Hat Access ▾ Admin User ▾

Administer ▾

Run scan for all OpenSCAP policies on host

[Refresh](#) [Rerun](#) [Rerun failed](#) [Job Task](#) [Cancel Job](#) [Abort Job](#)

[Overview](#) [Hosts](#)

Target hosts

Manual selection using Static Query

```
name ^ (mac001a410810f*)
```

Evaluated at: 2018-05-21 09:05:09 +0530

Total hosts

1

Providers and templates

Run OpenSCAP scans through SSH

Preview for target mac001a410810f.bsi.....

```
/usr/bin/foreman_scap_client 2
/usr/bin/foreman_scap_client 3
```

Effective user: root

- Goto Hosts→Reports

Internal &amp; Confidential

The screenshot shows the Red Hat Satellite web interface. In the top navigation bar, 'Hosts' is selected. On the left, a sidebar menu includes 'Hosts', 'PROVISIONING SETUP', 'Architectures', 'TEMPLATES', 'COMPLIANCE', and 'Tailoring Files'. Under 'COMPLIANCE', 'Reports' is highlighted. The main content area displays a table of compliance results for the host 'mac001a4a16016fb'. The table has columns: Policy (RHEL7-C2S), Openscap Capsule (bsesatellite6.bsi), Passed (39), Failed (165), Other (4), and Delete. A 'Delete reports' button is located at the top right of the table.

Now the Compliance report generated for this particular host.

- Click the Down Arrow near to Delete option to get **Full Report**

This screenshot shows the same Red Hat Satellite interface as above, but the 'Full Report' button in the table header is highlighted with a yellow box. The table structure is identical to the previous screenshot, showing compliance results for the host 'mac001a4a16016fb'.

## OpenSCAP Evaluation Report

### Guide to the Secure Configuration of Red Hat Enterprise Linux 7

with profile C2S for Red Hat Enterprise Linux 7  
 — This profile demonstrates compliance against the U.S. Government Commercial Cloud Services (C2S) baseline.

This baseline was inspired by the Center for Internet Security (CIS) Red Hat Enterprise Linux 7 Benchmark, v1.0 - 04-02-2015. For the SCAP Security Guide project to remain in compliance with CIS terms and conditions, specifically Restrictions(8), note that there is no representation or claim that the C2S profile will ensure a system is in compliance or consistency with the CIS baseline.

This guide presents a catalog of security-relevant configuration settings for Red Hat Enterprise Linux 7 formatted in the eXtensible Configuration Checklist Description Format (XCCDF).

Providing system administrators with such guidance informs them how to securely configure systems under their control in a variety of network roles. Policy makers and baseline creators can use this catalog of settings, with its associated references to higher-level security control catalogs, in order to assist them in security baseline creation. This guide is a catalog, not a checklist, and satisfaction of every item is not likely to be possible or sensible in many operational scenarios. However, the XCCDF format enables granular selection and adjustment of settings, and their association with OVAL and OCIL content provides an automated checking capability. Transformations of this document, and its associated automated checking content, are capable of providing baselines that meet a diverse set of policy objectives. Some example XCCDF Profiles, which are selections of items that form checklists and can be used as baselines, are available with this guide. They can be processed, in an automated fashion, with tools that support the Security Content Automation Protocol (SCAP). The DISA STIG for Red Hat Enterprise Linux 7 is one example of a baseline created from this guidance.

**Do not attempt to implement any of the settings in this guide without first testing them in a non-operational environment. The creators of this guidance assume no responsibility whatsoever for its use by other parties, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic.**

**Evaluation Characteristics**

Evaluation target	mac001a4a16016f1.....
Benchmark URL	/var/lib/openscap/content/96c2a9d5278d5da905221bbb2dc
Benchmark ID	xccdf_org.ssgproject.content_benchmark_RHEL-7
Profile ID	xccdf_org.ssgproject.content_profile_C2S
Started at	2018-05-21T03:36:02
Finished at	2018-05-21T03:36:35
Performed by	hpmanoj

CPE Platforms

- cpe:/o:redhat:enterprise\_linux:7
- cpe:/o:redhat:enterprise\_linux:7::stated
- cpe:/o:redhat:enterprise\_linux:7::compliance

Addresses

- IP4 127.0.0.1
- IP4 192.168.127.55
- IP6 0:0:0:0:0:1
- IP6 fe80:0:0:21a:4afffe16:16f
- MAC 00:00:00:00:00:00
- MAC 00:1A:4A:16:01:6F

**Compliance and Scoring**

The target system did not satisfy the conditions of 105 rules! Please review rule results and consider applying remediation.

Rule results

Severity of failed rules

**Score**

Scoring system	Score	Maximum	Percent
urn:xccdf:scoring:default	66.787148	100.000000	66.79%

**Rule Overview**

Filter checkboxes: pass, fail, notchecked, fixed, error, notapplicable, informational, unknown.

Search: Search through XCCDF rules, Group rules by Severity.

Group	Severity	Result
▼ severity = high		
Ensure Red Hat GPG Key Installed	high	pass
Ensure gpgcheck Enabled In Main Yum Configuration	high	pass
Ensure Software Patches Installed	high	notchecked
Verify and Correct File Permissions with RPM	high	fail
Verify File Hashes with RPM	high	pass
Uninstall Ielnets-server Package	high	pass
Uninstall rsh-server Package	high	pass
Uninstall ypeserv Package	high	pass
Uninstall Iftp-server Package	high	pass
Remove ftp Daemon	high	pass

## 7. Compute Resources

Compute resources are hardware abstractions from virtualization and cloud providers. Satellite uses compute resources to provision virtual machines and containers. Supported private providers include **Red Hat Enterprise Virtualization**, **oVirt**, **OpenStack**, **VMware**, **Libvirt**, and **Docker**. Supported public cloud providers include **Amazon EC2**, **Google Compute Engine**, and **Rackspace**.

The screenshot shows the Red Hat Satellite web interface. At the top, there's a navigation bar with links like 'Monitor', 'Content', 'Containers', 'Hosts', 'Configure', 'Infrastructure', and 'Red Hat Insights'. Below the navigation is a section titled 'Compute Resources' with a table showing one entry: 'rhv' of type 'RHV'. A context menu is open over this entry, with 'Compute resources' highlighted.

To Add a Compute Resource:

- Navigate to **Infrastructure → Compute Resources**.
- Click **New Compute Resource**.
- On the Compute Resource tab, specify the following settings:
  - Specify a Name and a Provider type for the Compute Resource. Optionally, insert a Description.
  - Depending on the provider type chosen, the next few fields ask for authentication and datacentre details.
- 3. Provide RHV URL **<https://scoprimgn.bccindia.com/ovirt-engine/api/v3>**
- Username :  
admin@internal Password :  
\*\*\*\*\*
- 4. Click on **Test Connection** option to test the connectivity.
- 5. Select the **DataCenter** → Default
- 6. Assign Location & Organisation
- Click on **Submit**

The screenshot shows the 'Compute Resource' configuration dialog. The 'Compute Resource' tab is selected. The form includes the following fields:
 

- Name: rhv
- Provider: RHV
- Description: (empty)
- URL: http://scoprimgn.bccindia.com/ovirt-engine/api/v3
- Username: admin@internal
- Password: (redacted)
- Datacenter: Default
- Quota ID: (redacted)
- X509 Certification Authorities: (contains a certificate snippet)

 At the bottom, there are 'Cancel' and 'Submit' buttons.

Compute Resource Locations Organisations

Locations

All items	Filter	+
Hyderabad		

Selected items

MUMBAI	-
--------	---

Compute Resource Locations Organisations

Organisations

All items	Filter	+
B		

Selected items

B	-
---	---

Now RHV Compute resource is added successfully.

RED HAT SATELLITE

Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights Admin User Administer

Compute Resources

Filter... Search Create Compute Resource Documentation

Name	Type	Actions
RHV	RHV	Edit

Displaying 1 entry

**RED HAT SATELLITE**

Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights

Red Hat Access Admin User Administer

RHV

Compute Resource Virtual Machines Images Compute profiles

Associate VMs Edit Create Image

Property	Value
Provider	RHV
URL	https://l... a.com/ovirt-engine/api/v3
Operating systems API supported?	Yes

You can control the VM's from here.

**RED HAT SATELLITE**

Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights

Red Hat Access Admin User Administer

PR-RHV

Compute Resource Virtual Machines Images Compute profiles

Associate VMs Edit Create Image

Name	CPU	Memory	Power	Actions
rhel7_new	8	16 GB	Off	Power On
OUDERA1	4	8 GB	Off	Power On
OUDERA2	4	8 GB	Off	Power On
SVN	4	16 GB	Off	Power On
PROD_7.4	4	12 GB	Off	Power On
oVirtEngine	5	16 GB	On	Power Off
rhel7_4_New	8	32 GB	On	Power Off
TCS-RHEL-6.3	4	8 GB	On	Power Off

You can create Images & it can deploy according to the compute profiles.

**RED HAT SATELLITE**

BSE Monitor Content Containers Hosts Configure Infrastructure Red Hat Insights

Red Hat Access Admin User Administer

Create Image

Name \* RHEL7-TEST

Operating system \* Red Hat 7.4

Architecture \* x86\_64

Username \* root

User data  Does this image support user data input (e.g. via cloud-init)?

Password ..... Password to authenticate with - used for SSH finish step.

Image \* GOLD-RHEL\_7.4\_3par

Cancel Submit

The screenshot displays two overlapping configuration windows in the RHV interface:

- Top Window (Compute profiles):**
  - Compute profile: 1-Small
  - Compute resource: PR-RHV (RHV)
  - Cluster: Default
  - Template: Select template
  - Cores: 1
  - Memory: 2 GB
- Bottom Window (Storage):**
  - Compute profile: 1-Small
  - Compute resource: PR-RHV (RHV)
  - Cluster: Default
  - Template: GOLD-RHEL 7.4 (RHEL 7.4)
  - Cores: 1
  - Memory: 2 GB
  - Network interfaces:
    - Name: nic1
    - Network: ovirtmgmt
  - Storage:
    - Size (GB): 100
    - Storage domain: VMDATA
    - Preallocate disk:  Uses thin provisioning if unchecked
    - Bootable:  Only one volume can be bootable

## 8. Updating Between Minor Versions of Satellite

Updating is the process of migrating Satellite Server, Capsule Server, and Content Hosts to a new minor version. Updates typically patch security vulnerabilities and correct minor issues discovered after code is released. Generally speaking, updates require little time and are non-disruptive to your operating environment.

## Prerequisites

- Ensure you have synchronized Satellite Server repositories for Satellite, Capsule, and Satellite Tools.
- Ensure each external Capsule and Content Host can be updated by promoting the updated repositories to all relevant Content Views.

### Updating Satellite Server to the Next Minor Version

To Update Satellite Server:

1. Check that only the correct repositories are enabled:

- List the enabled repositories:

```
# subscription-manager repos --list-enabled
```

- Ensure you only have the following repositories enabled:

```
rhel-X-server-rpms
rhel-X-server-satellite-6.2-
rpms rhel-server-rh scl-X-
rpms
```



```
[root@b...:~]# yum repolist
[root@b...:~]# Loaded plugins: product-id, search-disabled-repos, subscription-manager
repo id                                repo name                               status
!EPEL7                                     EPFL7                                 12,530
!rhel-7-server-rpms/7Server/x86_64        Red Hat Enterprise Linux 7 Server (RPMS) 20,133
!rhel-7-server-satellite-6.2-rpms/x86_64   Red Hat Satellite 6.2 (for RHEL 7 Server) (RPMS) 966
!rhel-server-rh scl-7-rpms/7Server/x86_64  Red Hat Software Collections RPMS for Red Hat Enterprise Linux 7 Server 9,961
repolist: 43,590
[root@b...:~]#
```

- Stop Katello services:

```
# katello-service stop
```

```
[root@192.168.252.51 lin.admin:EDGATELLITE3-SSH LINUX]# katello-service stop
Redirecting to /bin/systemctl stop foreman-tasks.service

Redirecting to /bin/systemctl stop httpd.service

Redirecting to /bin/systemctl stop pulp_workers.service

Redirecting to /bin/systemctl stop foreman-proxy.service

Redirecting to /bin/systemctl stop pulp_streamer.service

Redirecting to /bin/systemctl stop pulp_resource_manager.service

Redirecting to /bin/systemctl stop pulp_celerybeat.service

Redirecting to /bin/systemctl stop smart_proxy_dynflow_core.service

Redirecting to /bin/systemctl stop tomcat.service

Redirecting to /bin/systemctl stop squid.service

Redirecting to /bin/systemctl stop qdrouterd.service

Redirecting to /bin/systemctl stop qpidd.service

Redirecting to /bin/systemctl stop postgresql.service

Redirecting to /bin/systemctl stop mongod.service

Success!
[root@192.168.252.51 lin.admin:EDGATELLITE3-SSH LINUX]# ]
```

- Update all packages:

```
[root@xxxxxxxxx ~]# yum update --disablerepo=EPFL7
Loaded plugins: product-id, search-disabled-repos, subscription-manager
Resolving Dependencies
--> Running transaction check
----> Package NetworkManager.x86_64 1:1.8.0-9.el7 will be updated
----> Package NetworkManager.x86_64 1:1.10.2-13.el7 will be an update
----> Package NetworkManager-config-server.x86_64 1:1.4.0-19.el7_3 will be updated
----> Package NetworkManager-config-server.noarch 1:1.10.2-13.el7 will be an update
----> Package NetworkManager-libnm.x86_64 1:1.8.0-9.el7 will be updated
----> Package NetworkManager-libnm.x86_64 1:1.10.2-13.el7 will be an update
----> Package NetworkManager-team.x86_64 1:1.8.0-9.el7 will be updated
----> Package NetworkManager-team.x86_64 1:1.10.2-13.el7 will be an update
----> Package NetworkManager-tui.x86_64 1:1.8.0-9.el7 will be updated
----> Package NetworkManager-tui.x86_64 1:1.10.2-13.el7 will be an update
----> Package OpenIPMI-modalias.x86_64 0:2.0.19-15.el7 will be updated
----> Package OpenIPMI-modalias.x86_64 0:2.0.23-2.el7 will be an update
----> Package acl.x86_64 0:2.2.51-12.el7 will be updated
----> Package acl.x86_64 0:2.2.51-14.el7 will be an update
----> Package alsa-lib.x86_64 0:1.1.1-1.el7 will be updated
----> Package alsa-lib.x86_64 0:1.1.4.1-2.el7 will be an update
----> Package apache-commons-daemon.x86_64 0:1.0.13-6.el7 will be updated
----> Package apache-commons-daemon.x86_64 0:1.0.13-7.el7 will be an update
----> Package atk.x86_64 0:2.14.0-1.el7 will be updated
----> Package atk.x86_64 0:2.22.0-3.el7 will be an update
----> Package audit.x86_64 0:2.6.5-3.el7_3.1 will be updated
----> Package audit.x86_64 0:2.8.1-3.el7 will be an update
----> Package audit-libs.x86_64 0:2.6.5-3.el7_3.1 will be updated
----> Package audit-libs.x86_64 0:2.8.1-3.el7 will be an update
----> Package audit-libs-python.x86_64 0:2.6.5-3.el7_3.1 will be updated
----> Package audit-libs-python.x86_64 0:2.8.1-3.el7 will be an update
----> Package augeas-libs.x86_64 0:1.4.0-2.el7 will be updated
----> Package augeas-libs.x86_64 0:1.4.0-5.el7 will be an update
----> Package avahi-autoipd.x86_64 0:0.6.31-17.el7 will be updated
----> Package avahi-autoipd.x86_64 0:0.6.31-19.el7 will be an update
----> Package avahi-libs.x86_64 0:0.6.31-17.el7 will be updated
----> Package avahi-libs.x86_64 0:0.6.31-19.el7 will be an update
----> Package bash.x86_64 0:4.2.46-21.el7_3 will be updated
----> Package bash.x86_64 0:4.2.46-30.el7 will be an update
----> Package bind-libs-lite.x86_64 32:9.9.4-51.el7_4.2 will be updated
----> Package bind-libs-lite.x86_64 32:9.9.4-61.el7 will be an update
----> Package bind-license.noarch 32:9.9.4-51.el7_4.2 will be updated
----> Package bind-license.noarch 32:9.9.4-61.el7 will be an update
```

- Perform the update by running the installer script with the --upgrade option.

```
# satellite-installer --scenario satellite --upgrade
```

```
[root@satellite6 ~]# satellite-installer --scenario satellite --upgrade
Upgrading...
Upgrade Step: stop_services...
Redirecting to /bin/systemctl stop foreman-tasks.service

Redirecting to /bin/systemctl stop httpd.service

Redirecting to /bin/systemctl stop pulp_workers.service

Redirecting to /bin/systemctl stop foreman-proxy.service

Redirecting to /bin/systemctl stop pulp_streamer.service

Redirecting to /bin/systemctl stop pulp_resource_manager.service

Redirecting to /bin/systemctl stop pulp_celerybeat.service

Redirecting to /bin/systemctl stop smart_proxy_dynflow_core.service

Redirecting to /bin/systemctl stop tomcat.service

Redirecting to /bin/systemctl stop squid.service

Redirecting to /bin/systemctl stop qdrouterd.service

Redirecting to /bin/systemctl stop qpidd.service

Success!

Upgrade Step: start_databases...
Redirecting to /bin/systemctl start mongod.service

Redirecting to /bin/systemctl start postgresql.service

Success!

Upgrade Step: update_http_conf...

Upgrade Step: fix_pulp_httpd_conf...
Upgrade Step: upgrade_qpidd_paths...
Backing up /var/lib/qpidd in case of migration failure
tar: Removing leading '/' from member names
```

Upgrade process started..

Moving pulp.agent.d166ac2c-4e6b-4ff8-8673-07af17a7ae5a

Moving pulp.agent.75aa2e5b-a8a8-4c77-b92f-a95b7387613f

Moving pulp.agent.9a932d51-9242-4aal-9352-543f620517e4

Moving pulp.agent.4bea88cc-8065-433f-a69d-a726b396b064

Moving pulp.agent.0963c438-5441-45e6-92b2-834b490302db

Moving pulp.agent.0f607dec-f241-4c3c-821e-4162d31a86c0

Moving pulp.task

Moving katello\_event\_queue

Moving pulp.agent.541cdc29-2800-46fa-9cld-920de4e69df6

Moving pulp.agent.1b95ab69-dbbe-4cc0-a4b8-d76de3dlle66

Moving pulp.agent.c8a3cb35-45f8-4b9f-af92-60fd47868c50

```
Moving pulp.agent.e8b563ad-a220-4d05-be66-6553d88cdb82
```

```
Moving pulp.agent.2dd46878-af21-4135-93d7-1ff2202ba4c8
```

```
Moving pulp.agent.8914f60b-6961-4fc8-8a76-14443079a691
```

```
Moving pulp.agent.fc0858da-1897-4abc-b807-592c38f4ba0e
```

```
Moving pulp.agent.0374026e-blfl-4db7-b74f-9bb2c5c9e880
```

```
Moving pulp.agent.0e60ecf0-d750-4a95-96de-7ea7c731f31b
```

```
Moving pulp.agent.d61e99f8-ad7f-4ab6-b496-340f502d0a8a
```

```
Moving pulp.agent.fe5974cc-775d-4d00-9bc4-alab4197edc5
```

```
Moving resource_manager
```

```
Moving pulp.agent.2fcfd173b-4242-4dc3-9763-d45c57c694fc
```

```
Moving pulp.agent.29c7eaf3-694b-4538-9ca4-1f713266b165
```

```

Upgrade Step: migrate_pulp...
22182

Attempting to connect to localhost:27017
Attempting to connect to localhost:27017
Write concern for Mongo connection: {}
Loading content types.
Loading type descriptors []
Parsing type descriptors
Validating type descriptor syntactic integrity
Validating type descriptor semantic integrity
Loading unit model: docker_blob = pulp_docker.plugins.models:Blob
Loading unit model: docker_manifest = pulp_docker.plugins.models:Manifest
Loading unit model: docker_image = pulp_docker.plugins.models:Image
Loading unit model: docker_tag = pulp_docker.plugins.models:Tag
Loading unit model: erratum = pulp_rpm.plugins.db.models:Errata
Loading unit model: distribution = pulp_rpm.plugins.db.models:Distribution
Loading unit model: package_group = pulp_rpm.plugins.db.models:PackageGroup
Loading unit model: package_category = pulp_rpm.plugins.db.models:PackageCategory
Loading unit model: iso = pulp_rpm.plugins.db.models:ISO
Loading unit model: package_environment = pulp_rpm.plugins.db.models:PackageEnvironment
Loading unit model: drpm = pulp_rpm.plugins.db.models:DRPM
Loading unit model: srpm = pulp_rpm.plugins.db.models:SRPM
Loading unit model: rpm = pulp_rpm.plugins.db.models:RPM
Loading unit model: yum_repo_metadata_file = pulp_rpm.plugins.db.models:YumMetadataFile
Loading unit model: puppet_module = pulp_puppet.plugins.db.models:Module
Loading auxiliary model: erratum_pklist = pulp_rpm.plugins.db.models:ErratumPklist
Updating the database with types []
Found the following type definitions that were not present in the update collection [puppet_module, docker_tag, docker_manifest, docker_blob, erratum, yum_repo_metadata_file, package_group, package_category, iso, package_environment, drpm, srpm, rpm, distribution, docker_image]
Updating the database with types [puppet_module, drpm, erratum, docker_blob, docker_manifest, yum_repo_metadata_file, package_group, package_category, iso, package_environment, docker_tag, distribution, rpm, srpm, docker_image]
Content types loaded.
Ensuring the admin role and user are in place.
Admin role and user are in place.
Beginning database migrations.
Migration package pulp.server.db.migrations is up to date at version 24
Migration package pulp_docker.plugins.migrations is up to date at version 2

```

```

Upgrade Step: start_httpd...
Redirecting to /bin/systemctl start httpd.service

Success!

Upgrade Step: start_qpidd...
Redirecting to /bin/systemctl start qpidd.service

Redirecting to /bin/systemctl start qdrouterd.service

Success!

Upgrade Step: start_pulp...
Redirecting to /bin/systemctl start pulp_celerybeat.service

Redirecting to /bin/systemctl start pulp_resource_manager.service

Redirecting to /bin/systemctl start pulp_workers.service

Success!

Upgrade Step: migrate_candlepin...
Migrating Candlepin database
--driver=org.postgresql.Driver --classpath=/usr/share/java/postgresql-jdbc.jar:/var/lib/tomcat/webapps/candlepin/WEB-INF/classes/ --changeLogFile=db/changelog/changelog
--update.xml --url=jdbc:postgresql:candlepin --username=candlepin --password=TcbZvfB4a2Hren9ognGKA3VwURAXSzWJ --logLevel=severe
Libpurple Update Successful

Upgrade Step: start_tomcat...
Redirecting to /bin/systemctl start tomcat.service

Success!

Upgrade Step: migrate_foreman...
API controllers newer than Apipie cache! Run apipie:cache rake task to regenerate cache.
true

API controllers newer than Apipie cache! Run apipie:cache rake task to regenerate cache.
== 20161003204325 AddUserToKatelloSubscriptionFacets: migrating =====
-- add_column(:katello_subscription_facets, :user_id, :integer)
  -> 0.1774s
-- add_index(:katello_subscription_facets, [:user_id], {:unique=>true})
  -> 0.3469s
-- add_foreign_key("katello_subscription_facets", "users", {:column=>"user_id"})

```

```

-> 0.0017s
-- add_index(:katello_installed_packages, [:name, :nvra])
-> 0.0879s
-- add_foreign_key("katello_host_installed_packages", "hosts", (:name=>"katello_host_installed_packages_host_id", :column=>"host_id"))
-> 0.0113s
-- add_foreign_key("katello_host_installed_packages", "katello_installed_packages", (:name=>"katello_host_installed_packages_installed_package_id", :column=>"installed_package_id"))
-> 0.0170s
-- add_index(:katello_installed_packages, [:nvra], {:unique=>true})
-> 0.1258s
-- add_index(:katello_host_installed_packages, [:host_id, :installed_package_id], {:unique=>true, :name=>:katello_host_installed_packages_h_id_ip_id})
-> 0.1030s
== 20171114150937 CleanupInstalledPackages: migrated (1.5783s) =====

API controllers newer than Apipie cache! Run apipie:cache rake task to regenerate cache.
false

Upgrade Step: Running installer...
Installing Done [100%] [.....]
The full log is at /var/log/foreman-installer/satellite.log
Upgrade Step: restart_services...
Redirecting to /bin/systemctl stop foreman-tasks.service
Redirecting to /bin/systemctl stop httpd.service
Redirecting to /bin/systemctl stop pulp_workers.service
Redirecting to /bin/systemctl stop foreman-proxy.service
Redirecting to /bin/systemctl stop pulp_streamer.service
Redirecting to /bin/systemctl stop pulp_resource_manager.service
Redirecting to /bin/systemctl stop pulp_celerybeat.service
Redirecting to /bin/systemctl stop smart_proxy_dynflow_core.service
Redirecting to /bin/systemctl stop tomcat.service
Redirecting to /bin/systemctl stop squid.service
Redirecting to /bin/systemctl stop qdrouterd.service

```

```

Processing Repository 170/194: Red Hat Enterprise Linux 6 Server - RH Common RPMs x86_64 6Server (615)
Processing Repository 171/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (616)
Processing Repository 172/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (617)
Processing Repository 173/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (618)
Processing Repository 174/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (619)
Processing Repository 175/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (620)
Processing Repository 176/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (621)
Processing Repository 177/194: MRG Realtime RPMs x86_64 6Server (622)
Processing Repository 178/194: MRG Realtime RPMs x86_64 6Server (623)
Processing Repository 179/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (624)
Processing Repository 180/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (625)
Processing Repository 181/194: EPEL6 (626)
Processing Repository 182/194: EPEL6 (627)
Processing Repository 183/194: Red Hat Enterprise Linux 6 Server - Supplementary RPMs x86_64 6Server (628)
Processing Repository 184/194: Red Hat Enterprise Linux 6 Server RPMs x86_64 6Server (629)
Processing Repository 185/194: Red Hat Enterprise Linux 6 Server - RH Common RPMs x86_64 6Server (630)
Processing Repository 186/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (631)
Processing Repository 187/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (632)
Processing Repository 188/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (633)
Processing Repository 189/194: MRG Realtime RPMs x86_64 6Server (634)
Processing Repository 190/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (635)
Processing Repository 191/194: EPEL6 (636)
Processing Repository 192/194: RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 6Server (637)
Processing Repository 193/194: Red Hat Virtualization 4 Agents for RHEL 6 Server RPMs x86_64 6Server (638)
Processing Repository 194/194: Red Hat Satellite Tools 6.2 for RHEL 6 Server RPMs x86_64 (639)

Upgrade Step: correct_puppet_environments (this may take a while) ...
Processing Puppet Environment 1/4: BSE-RHEL6-View-1_0 (27)
Processing Puppet Environment 2/4: BSE-RHEL7-View-1_0 (28)
Processing Puppet Environment 3/4: BSE-RHV-View-1_0 (29)
Processing Puppet Environment 4/4: BSE-RHEL6VM-View-1_0 (30)

Upgrade Step: clean_backend_objects (this may take a while) ...
1 orphaned consumer id(s) found.

Upgrade completed!
[root@satellite6 ~]#

```

- Upgrade completed successfully. Review the **/var/log/foreman-installer/satellite.log** #tailf /var/log/foreman-installer/satellite.log

```

Processing Repository 171/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (616)
Processing Repository 172/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (617)
Processing Repository 173/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (618)
Processing Repository 174/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (619)
Processing Repository 175/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (620)
Processing Repository 176/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (621)
Processing Repository 177/194: MRG Realtime RPMs x86_64 6Server (622)
Processing Repository 178/194: MRG Realtime RPMs x86_64 6Server (623)
Processing Repository 179/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (624)
Processing Repository 180/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (625)
Processing Repository 181/194: EPEL6 (626)
Processing Repository 182/194: EPEL6 (627)
Processing Repository 183/194: Red Hat Enterprise Linux 6 Server - Supplementary RPMs x86_64 6Server (628)
Processing Repository 184/194: Red Hat Enterprise Linux 6 Server RPMs x86_64 6Server (629)
Processing Repository 185/194: Red Hat Enterprise Linux 6 Server - RH Common RPMs x86_64 6Server (630)
Processing Repository 186/194: Red Hat Enterprise Linux 6 Server - Optional RPMs x86_64 6Server (631)
Processing Repository 187/194: Red Hat Enterprise Linux 6 Server - Fastrack RPMs x86_64 (632)
Processing Repository 188/194: Red Hat Enterprise Linux 6 Server - Extras RPMs x86_64 (633)
Processing Repository 189/194: MRG Realtime RPMs x86_64 6Server (634)
Processing Repository 190/194: JBoss Enterprise Web Server 2 RHEL 6 Server RPMs x86_64 6Server (635)
Processing Repository 191/194: EPEL6 (636)
Processing Repository 192/194: RHN Tools for Red Hat Enterprise Linux 6 Server RPMs x86_64 6Server (637)
Processing Repository 193/194: Red Hat Virtualization 4 Agents for RHEL 6 Server RPMs x86_64 6Server (638)
Processing Repository 194/194: Red Hat Satellite Tools 6.2 for RHEL 6 Server RPMs x86_64 (639)

[ INFO 2018-05-14 20:08:13 main] Upgrade Step: correct_puppet_environments (this may take a while) ...
[DEBUG 2018-05-14 20:08:30 main] Processing Puppet Environment 1/4: BSE-RHEL6-View-1_0 (27)
Processing Puppet Environment 2/4: BSE-RHEL7-View-1_0 (28)
Processing Puppet Environment 3/4: BSE-RHV-View-1_0 (29)
Processing Puppet Environment 4/4: BSE-RHEL6VM-View-1_0 (30)

[ INFO 2018-05-14 20:08:30 main] Upgrade Step: clean_backend_objects (this may take a while) ...
[DEBUG 2018-05-14 20:09:03 main] 1 orphaned consumer id(s) found.

[ INFO 2018-05-14 20:09:03 main] Upgrade completed!
[DEBUG 2018-05-14 20:09:03 main] Hook /usr/share/katello-installer-base/hooks/post/30-upgrade.rb returned [<Logging::Logger:0xf54f38 name="main">, <Logging::Logger:0xf69bcc name="#fatal">]
[ INFO 2018-05-14 20:09:03 main] All hooks in group post finished
[DEBUG 2018-05-14 20:09:03 main] Exit with status code: 2 (signal was 2)
[DEBUG 2018-05-14 20:09:03 main] Cleaning /etc/foreman-installer/scenarios.d/d20180514-21739-ldcl26m
[DEBUG 2018-05-14 20:09:03 main] Cleaning /tmp/kafo_hiera20180514-21739-ywvtnx
[DEBUG 2018-05-14 20:09:03 main] Cleaning /tmp/default_values.yaml

```

## 9. Upgrading Satellite Server Version to Satellite 6.3

Use this procedure for a Satellite Server connected to the Red Hat Content Delivery Network.

### Prerequisites

- Create a backup.
  - On a virtual machine, take a snapshot.
  - On a physical machine, create a backup.
- Back up the DNS and DHCP configuration files **/etc/zones.conf** and **/etc/dhcp/dhcpd.conf** as the installer only supports one domain or subnet, and therefore restoring changes from these backups might be required.
- In the Satellite web UI, navigate to **Hosts > Discovered hosts**. On the Discovered Hosts page, power off and then delete the discovered hosts. From the **Select an Organization** menu, select each organization in turn and repeat the process to power off and delete the discovered hosts. Make a note to reboot these hosts when the upgrade is complete.

- In the Satellite web UI, navigate to **Content > Red Hat Subscriptions**, and then click **Manage Manifest**. In the Subscription Manifest pane, click the **Actions** tab, and then click **Refresh Manifest** to download the latest copy of the Subscription Manifest.
- Configure the repositories in the Satellite web UI:
  - In the Satellite web UI, navigate to **Content > Red Hat Repositories** and select the **RPMs** tab.
  - From the **PRODUCT** list, find and expand **Red Hat Enterprise Linux Server**.
  - From the **REPOSITORY SET** list, find and expand **Red Hat Satellite Tools 6.3 (for RHEL7 Server) (RPMs)**.
  - Select **Red Hat Satellite Tools 6.3 for RHEL 7 Server RPMs x86\_64**.
- Synchronize the newly enabled repositories:
  - In the Satellite web UI, navigate to **Content > Sync Status**.
  - Click the arrow next to the product to view available repositories.
  - Select the repositories for 6.3.
  - Click **Synchronize Now**.
    - If you get an error when trying to update a repository, ensure you do not delete the manifest from the Customer Portal or in the Satellite Web UI because this removes all the entitlements of your content hosts. Refresh the manifest and if the problem persists, raise a support request.
- Update any pre-existing Content Views that utilize 6.2 version repositories with the new version for 6.3. Publish and promote updated versions of any Content Views that now have the new 6.3 version repositories.
- Refresh your subscription:

```
# subscription-manager refresh
```

- Enable the Satellite Maintenance repository:

```
# subscription-manager repos --enable rhel-7-server-satellite-maintenance-6-rpms
```

- Install foreman-maintain:

```
# yum install rubygem-foreman_maintain
```

```
[root@] ~ -]# yum repolist
Loaded plugins: product-id, search-disabled-repos, subscription-manager
repo id                                repo name                               status
epel7                                     EPEL7                                 12,539
rhel-7-server-rpms/7Server/x86_64          Red Hat Enterprise Linux 7 Server (RPMS) 20,393
rhel-7-server-satellite-6.2-rpms/x86_64    Red Hat Satellite 6.2 (for RHEL 7 Server) (RPMS) 966
rhel-7-server-satellite-maintenance-6-rpms/x86_64 Red Hat Satellite Maintenance 6 (for RHEL 7 Server) (RPMS) 20
rhel-server-rhac1-7-rpms/7Server/x86_64     Red Hat Software Collections RPMS for Red Hat Enterprise Linux 7 Server 9,963
repolist: 43,881

[root@bsesatellite6 ~]# yum install rubygem-foreman_maintain
Loaded plugins: product-id, search-disabled-repos, subscription-manager
Resolving Dependencies
--> Running transaction check
--> Package rubygem-foreman_maintain.noarch 0:0.1.5-1.el7sat will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package           Arch      Version       Repository      Size
=====
Installing:
rubygem-foreman_maintain   noarch   0.1.5-1.el7sat  rhel-7-server-satellite-maintenance-6-rpms  75 k

Transaction Summary
=====
Install 1 Package

Total download size: 75 k
Installed size: 195 k
Is this ok [y/d/N]:
```

- Check the available versions to confirm 6.3 is listed:

```
# foreman-maintain upgrade list-versions
```

```
[root@bsesatellite6 ~]# foreman-maintain upgrade list-versions
6.2.z
6.3
[root@bsesatellite6 ~]# cat /etc/zermos.conf
```

- Use the health check option to determine if the system is ready for upgrade. When prompted, enter the hammer admin user credentials to configure foreman-maintainwith hammer credentials. These changes are applied to the /etc/foreman-maintain/foreman-maintain- hammer.yml file.

```
# foreman-maintain upgrade check --target-version 6.3
```

```
[root@XXXXXXXXXX ~]# foreman-maintain upgrade check --target-version 6.3
Running preparation steps required to run the next scenarios
=====
Setup hammer:
Hammer username [admin]: admin
Hammer password:
New settings saved into /etc/foreman-maintain/foreman-maintain-hammer.yml
[OK]
-----
Procedures::Packages::Install:
Loaded plugins: product-id, search-disabled-repos, subscription-manager
Resolving Dependencies
--> Running transaction check
--> Package fio.x86_64 0:3.1-2.el7 will be installed
--> Processing Dependency: libibverbs.so.1(LIBVERBS_1.0)(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libibverbs.so.1(LIBVERBS_1.1)(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libpmem.so.1(LIBPMEM_1.0)(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libpmemblk.so.1(LIBPMEMBLK_1.0)(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: librdmacm.so.1(RDMACM_1.0)(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libibverbs.so.1()(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libpmem.so.1()(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: libpmemblk.so.1()(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: librados.so.2()(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: librbd.so.1()(64bit) for package: fio-3.1-2.el7.x86_64
--> Processing Dependency: librdmacm.so.1()(64bit) for package: fio-3.1-2.el7.x86_64
--> Package hdparm.x86_64 0:9.43-5.el7 will be installed
--> Running transaction check
--> Package libibverbs.x86_64 0:15-7.el7_5 will be installed
--> Processing Dependency: rdma-core(x86-64) = 15-7.el7_5 for package: libibverbs-15-7.el7_5.x86_64
--> Package libpmem.x86_64 0:1.3-3.el7 will be installed
--> Package libpmemblk.x86_64 0:1.3-3.el7 will be installed
--> Package librados2.x86_64 1:0.94.5-2.el7 will be installed
--> Package librbd1.x86_64 1:0.94.5-2.el7 will be installed
--> Package librdmacm.x86_64 0:15-7.el7_5 will be installed
--> Running transaction check
--> Package rdma-core.i686 0:15-6.el7 will be updated
--> Package rdma-core.x86_64 0:15-6.el7 will be updated
--> Package rdma-core.i686 0:15-7.el7_5 will be an update
--> Package rdma-core.x86_64 0:15-7.el7_5 will be an update
--> Finished Dependency Resolution

Dependencies Resolved
```

- Review the results and address any highlighted error conditions before performing the upgrade.

```
[root@bsesatellite6 ~]# foreman-maintain upgrade check --target-version 6.3
Running Checks before upgrading to Satellite 6.3
=====
Check for paused tasks: [OK]
Check whether all services are running using hammer ping: [OK]
Check to validate candlepin database: [OK]
Check for running tasks: [OK]
Check for old tasks in paused/stopped state: [FAIL]
Found 2850 paused or stopped task(s) older than 30 days
=====
Continue with step [Delete old tasks]? , [y(yes), n(no), q(quit)] y
Delete tasks:
- Deleted old stopped and paused tasks: 2850 [OK]
=====
Rerunning the check after fix procedure
Check for old tasks in paused/stopped state: [OK]
=====
Check for pending tasks which are safe to delete: [OK]
=====
Check for tasks in planning state: [OK]
=====
Check for recommended disk speed of pulp, mongodb, pgsql dir.:
| Finished

/var/lib/pulp : 269 MB/sec
/var/lib/mongodb : 203 MB/sec
/var/lib/pgsql : 64 MB/sec [FAIL]
Slow disk detected /var/lib/pgsql mounted on /dev/mapper/vg_rhn-lv_rhnpql.
    Actual disk speed: 64 MB/sec
    Expected disk speed: 80 MB/sec.
=====
Check to verify remote_execution_ssh settings already exist: [OK]
=====
Validate availability of repositories:
- Validating availability of repositories for 6.3 [OK]
=====
Scenario [Checks before upgrading to Satellite 6.3] failed.

The following steps ended up in failing state:
```

```
The following steps ended up in failing state:
```

```
[disk-performance]
```

```
Resolve the failed steps and rerun
the command. In case the failures are false positives,
use --whitelist="disk-performance"
```

```
[root@bsesatellite6 ~]# █
```

Due to the lengthy upgrade time, use a utility such as screen to suspend and reattach a communication session. You can then check the upgrade progress without staying connected to the command shell continuously

- If you lose connection to the command shell where the upgrade command is running you can see the logged messages in the **/var/log/foreman-installer/satellite.log** file to check if the process completed successfully.
  - Perform the upgrade:

```
# foreman-maintain upgrade run --target-version 6.3 --whitelist="disk-performance"
```

```
[root@xxxxxxxxx ~]# foreman-maintain upgrade run --target-version 6.3 --whitelist="disk-performance"
Running Checks before upgrading to Satellite 6.3
=====
Check for paused tasks: [OK]
Check whether all services are running using hammer ping: [OK]
Check to validate candlepin database: [OK]
Check for running tasks: [OK]
Check for old tasks in paused/stopped state: [OK]
Check for pending tasks which are safe to delete: [OK]
Check for tasks in planning state: [OK]
Check for recommended disk speed of pulp, mongodb, postgresql dir.: [SKIPPED]
Check to verify remote_execution_ssh settings already exist: [OK]
Validate availability of repositories:
- Validating availability of repositories for 6.3 [OK]

The pre-upgrade checks indicate that the system is ready for upgrade.
It's recommended to perform a backup at this stage.
Confirm to continue with the modification part of the upgrade, [y(yes), n(no), q(quit)]
```

If using a BASH shell, after a successful or failed upgrade, enter:

```
# hash -d katello-service 2> /dev/null
```

- Check and restore any changes required to the DNS and DHCP configuration files using the backups made earlier.
  - If you made changes in the previous step, restart **Katello** services:

```
# katello-service restart
```

[screen 0: root@xxxxxxxxxx ~] #

```
/usr/sbin/service-wait postgresql stop
Redirecting to /bin/systemctl stop postgresql.service

/usr/sbin/service-wait mongod stop
Redirecting to /bin/systemctl stop mongod.service

Success!
/usr/sbin/service-wait mongod start
Redirecting to /bin/systemctl start mongod.service

/usr/sbin/service-wait postgresql start
Redirecting to /bin/systemctl start postgresql.service

/usr/sbin/service-wait qpidd start
Redirecting to /bin/systemctl start qpidd.service

/usr/sbin/service-wait qdrouterd start
Redirecting to /bin/systemctl start qdrouterd.service

/usr/sbin/service-wait squid start
Redirecting to /bin/systemctl start squid.service

/usr/sbin/service-wait tomcat start
Redirecting to /bin/systemctl start tomcat.service

/usr/sbin/service-wait pulp_workers start
Redirecting to /bin/systemctl start pulp_workers.service

/usr/sbin/service-wait smart_proxy_dynflow_core start
Redirecting to /bin/systemctl start smart_proxy_dynflow_core.service

/usr/sbin/service-wait pulp_resource_manager start
Redirecting to /bin/systemctl start pulp_resource_manager.service

/usr/sbin/service-wait pulp_streamer start
Redirecting to /bin/systemctl start pulp_streamer.service

/usr/sbin/service-wait foreman-proxy start
Redirecting to /bin/systemctl start foreman-proxy.service

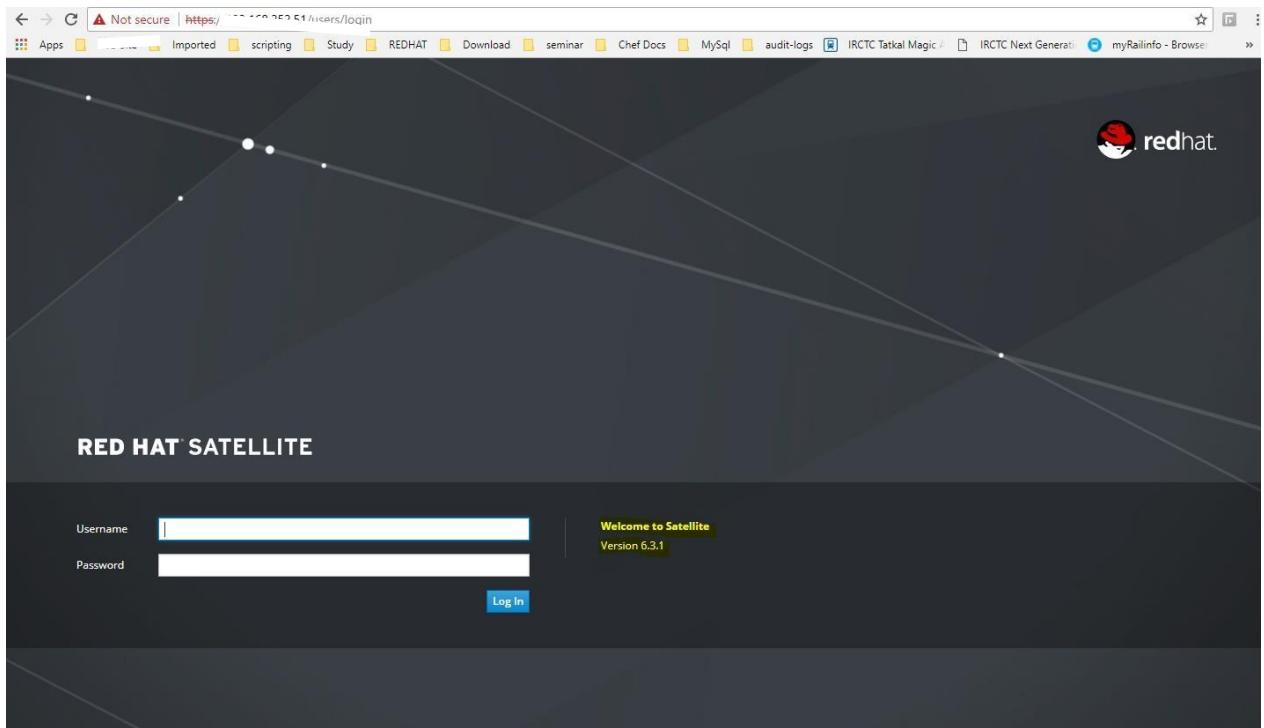
/usr/sbin/service-wait pulp_celerybeat start
Redirecting to /bin/systemctl start pulp_celerybeat.service

/usr/sbin/service-wait httpd start
Redirecting to /bin/systemctl start httpd.service

/usr/sbin/service-wait foreman-tasks start
Redirecting to /bin/systemctl start foreman-tasks.service

Success!
[root@xxxxxxxxxx ~] #
```

- Check the **Satellite 6.3 WebUI Login**



Now it successfully upgraded to **Satellite 6.3**.

## 10. References

- [https://access.redhat.com/documentation/en-us/red\\_hat\\_satellite/6.2/html/server\\_administration\\_guide/index](https://access.redhat.com/documentation/en-us/red_hat_satellite/6.2/html/server_administration_guide/index)
- <https://access.redhat.com/solutions/2650071>
- <https://access.redhat.com/solutions/3145861>
- [https://access.redhat.com/documentation/en-us/red\\_hat\\_satellite/6.2/html/provisioning\\_guide/index](https://access.redhat.com/documentation/en-us/red_hat_satellite/6.2/html/provisioning_guide/index)
- <https://access.redhat.com/solutions/2599261>

\*\*\*\*\*