

CloudForms 3.0 Management Engine 5.2 Quick Start Guide

An introduction to using CloudForms Management Engine's main features Edition 1

Marianne Feifer Julie Wu Dan Macpherson

Alexandra Settle

An introduction to using CloudForms Management Engine's main features Edition 1

Marianne Feifer mfeifer@redhat.com

Dan Macpherson dmacpher@redhat.com

Alexandra Settle asettle@redhat.com

Julie Wu juwu@redhat.com

Legal Notice

Copyright 2013 Red Hat. The text of and illustrations in this document are licensed by Red Hat under a Creative Commons Attribution—Share Alike 3.0 Unported license ("CC-BY-SA"). An explanation of CC-BY-SA is available at . In accordance with CC-BY-SA, if you distribute this document or an adaptation of it, you must provide the URL for the original version. Red Hat, as the licensor of this document, waives the right to enforce, and agrees not to assert, Section 4d of CC-BY-SA to the fullest extent permitted by applicable law. Red Hat, Red Hat Enterprise Linux, the Shadowman logo, JBoss, MetaMatrix, Fedora, the Infinity Logo, and RHCE are trademarks of Red Hat, Inc., registered in the United States and other countries. Linux is the registered trademark of Linus Torvalds in the United States and other countries. Java is a registered trademark of Oracle and/or its affiliates. XFS is a trademark of Silicon Graphics International Corp. or its subsidiaries in the United States and/or other countries. MySQL is a registered trademark of MySQL AB in the United States, the European Union and other countries. All other trademarks are the property of their respective owners. 1801 Varsity Drive Raleigh, NC 27606-2072 USA Phone: +1 919 754 3700 Phone: 888 733 4281 Fax: +1 919 754 3701

Keywords

Abstract

This guide provides instructions on the main features for getting started with CloudForms Management Engine.

Table of Contents

Table of Contents	2
1.1. Typographic Conventions 1.2. Pull-quote Conventions	5 5 6
2. Getting Help and Giving Feedback 2.1. Do You Need Help?	6 6 7
	8
	9
3 3 11	. 2 .2 .2
Chapter 3. Navigating the CloudForms Management Engine Console	
	.4 .4
G	.4
Chapter 4. Configuring CloudForms Management.Engine1	.6
	.6
, and the second se	.6 .6
· · · · · · · · · · · · · · · · · · ·	.7
	8.
	.9
	.9
4.2.1. Editing Customer Information	20
0 0 11	20
1 0 11	20
Chapter 5. Using. Virtualization.Infrastructure	22
	22
	23
	23
	24
	25
	25
	25 26
	26
5.2.1.2. ISO Provisioning	27
	27 28
	28
	28
· · · · · · · · · · · · · · · · · · ·	29
·	29
	30
ŭ ŭ	30
· ·	31 31
	31
5.3. Virtual Machines	3
· · · · · · · · · · · · · · · · · · ·	34
	34 38
	88
5.3.2.1. Controlling the Power State of Virtual Machines	88
, o	88
	39 39

 5.3.3.1.2. SmartState Analysis on Red Hat Enterprise Virtualization Manager 3.0 - Storage Support Notes 5.3.3.1.3. Upgrades from Red Hat Enterprise Virtualization Manager 3.0 to 3.1 5.3.3.2. VMware vSphere Prerequisites 5.3.3.2.1. Installing VMware VDDK on CloudForms Management Engine 	39 40 40 40
Chapter 6. Using Clouds	42
6.1. Clouds	42
6.1.1. Adding a Cloud Provider	42
6.1.2. Discovering Amazon EC2 Cloud Providers	42
6.1.3. Editing a Cloud Provider	43
6.1.4. Refreshing Cloud Providers	43
6.2. Provisioning Instances	43
6.2.1. Provisioning Instance	43
6.2.1.1. Provisioning an Instance from an Image	43
6.2.1.2. Approving a Provisioning Request	44
6.2.2. Controlling Instances	44
6.2.2.1. Controlling the Power State of an Instance	45
Customizing Provisioning Dialogs.	46
A.1. Adding a Provision Dialog for all Users	46
Revision History	47

Preface

1. Document Conventions

This manual uses several conventions to highlight certain words and phrases and draw attention to specific pieces of information.

In PDF and paper editions, this manual uses typefaces drawn from the <u>Liberation Fonts</u> set. The Liberation Fonts set is also used in HTML editions if the set is installed on your system. If not, alternative but equivalent typefaces are displayed. Note: Red Hat Enterprise Linux 5 and later include the Liberation Fonts set by default.

1.1. Typographic Conventions

Four typographic conventions are used to call attention to specific words and phrases. These conventions, and the circumstances they apply to, are as follows.

Mono-spaced Bold

Used to highlight system input, including shell commands, file names and paths. Also used to highlight keys and key combinations. For example:

To see the contents of the file my_next_bestselling_novel in your current working directory, enter the cat my_next_bestselling_novel command at the shell prompt and press Enter to execute the command.

The above includes a file name, a shell command and a key, all presented in mono-spaced bold and all distinguishable thanks to context.

Key combinations can be distinguished from an individual key by the plus sign that connects each part of a key combination. For example:

Press Enter to execute the command.

Press Ctrl+Alt+F2 to switch to a virtual terminal.

The first example highlights a particular key to press. The second example highlights a key combination: a set of three keys pressed simultaneously.

If source code is discussed, class names, methods, functions, variable names and returned values mentioned within a paragraph will be presented as above, in **mono-spaced bold**. For example:

File-related classes include **filesystem** for file systems, **file** for files, and **dir** for directories. Each class has its own associated set of permissions.

Proportional Bold

This denotes words or phrases encountered on a system, including application names; dialog box text; labeled buttons; check-box and radio button labels; menu titles and sub-menu titles. For example:

Choose System → Preferences → Mouse from the main menu bar to launch Mouse Preferences. In the Buttons tab, select the Left-handed mouse check box and click Close to switch the primary mouse button from the left to the right (making the mouse suitable for use in the left hand).

To insert a special character into a **gedit** file, choose **Applications** \rightarrow **Accessories** \rightarrow **Character Map** from the main menu bar. Next, choose **Search** \rightarrow **Find...** from the **Character Map** menu bar, type the name of the character in the **Search** field and click **Next**. The character you sought will be highlighted in the **Character Table**. Double-click this highlighted character to place it in the **Text to copy** field and then click the **Copy** button. Now switch back to your document and choose **Edit** \rightarrow **Paste** from the **gedit** menu bar.

The above text includes application names; system-wide menu names and items; application-specific menu names; and buttons and text found within a GUI interface, all presented in proportional bold and all distinguishable by context.

Mono-spaced Bold Italic or Proportional Bold Italic

Whether mono-spaced bold or proportional bold, the addition of italics indicates replaceable or variable text. Italics denotes text you do not input literally or displayed text that changes depending on circumstance. For example:

To connect to a remote machine using ssh, type **ssh username@domain.name** at a shell prompt. If the remote machine is **example.com** and your username on that machine is john, type **ssh john@example.com**.

The **mount -o remount** *file-system* command remounts the named file system. For example, to remount the **/home** file system, the command is **mount -o remount /home**.

To see the version of a currently installed package, use the rpm -q package command. It will return a result as follows: package-version-release.

Note the words in bold italics above — username, domain.name, file-system, package, version and release. Each word is a placeholder, either for text you enter when issuing a command or for text displayed by the system.

Aside from standard usage for presenting the title of a work, italics denotes the first use of a new and important term. For example:

Publican is a DocBook publishing system.

1.2. Pull-quote Conventions

Terminal output and source code listings are set off visually from the surrounding text.

Output sent to a terminal is set in mono-spaced roman and presented thus:

```
books Desktop documentation drafts mss photos stuff svn
books_tests Desktop1 downloads images notes scripts svgs
```

Source-code listings are also set in mono-spaced roman but add syntax highlighting as follows:

```
package org.jboss.book.jca.ex1;
import javax.naming.InitialContext;
public class ExClient
   public static void main(String args[])
       throws Exception
      InitialContext iniCtx = new InitialContext();
      Object
                     ref
                           = iniCtx.lookup("EchoBean");
                           = (EchoHome) ref;
      EchoHome
                     home
                            = home.create();
      Fcho
                     echo
      System.out.println("Created Echo");
      System.out.println("Echo.echo('Hello') = " + echo.echo("Hello"));
}
```

1.3. Notes and Warnings

Finally, we use three visual styles to draw attention to information that might otherwise be overlooked.



Note

Notes are tips, shortcuts or alternative approaches to the task at hand. Ignoring a note should have no negative consequences, but you might miss out on a trick that makes your life easier.



Important

Important boxes detail things that are easily missed: configuration changes that only apply to the current session, or services that need restarting before an update will apply. Ignoring a box labeled 'Important' will not cause data loss but may cause irritation and frustration.



Warning

Warnings should not be ignored. Ignoring warnings will most likely cause data loss.

2. Getting Help and Giving Feedback

2.1. Do You Need Help?

If you experience difficulty with a procedure described in this documentation, visit the Red Hat Customer Portal at http://access.redhat.com. Through the customer portal, you can:

- » search or browse through a knowledgebase of technical support articles about Red Hat products.
- » submit a support case to Red Hat Global Support Services (GSS).
- access other product documentation.

Red Hat also hosts a large number of electronic mailing lists for discussion of Red Hat software and technology. You can find a list of publicly available mailing lists at https://www.redhat.com/mailman/listinfo. Click on the name of any mailing list to subscribe to that list or to access the list archives.

2.2. We Need Feedback!

If you find a typographical error in this manual, or if you have thought of a way to make this manual better, we would love to hear from you! Please submit a report in Bugzilla: http://bugzilla.redhat.com/ against the product CloudForms Management Engine.

When submitting a bug report, be sure to mention the manual's identifier: Documentation

If you have a suggestion for improving the documentation, try to be as specific as possible when describing it. If you have found an error, please include the section number and some of the surrounding text so we can find it easily.

Chapter 1. About Red Hat CloudForms

Red Hat CloudForms Management Engine delivers the insight, control, and automation enterprises need to address the challenges of managing virtual environments, which are far more complex than physical ones. This technology enables enterprises with existing virtual infrastructures to improve visibility and control, and those starting virtualization deployments to build and operate a well-managed virtual infrastructure.

Red Hat CloudForms 3.0 is comprised of a single component, the CloudForms Management Engine. It has the following feature sets:

- ▶ Insight: Discovery, Monitoring, Utilization, Performance, Reporting, Analytics, Chargeback, and Trending.
- ▶ Control: Security, Compliance, Alerting, and Policy-Based Resource and Configuration Enforcement.
- Automate: IT Process, Task and Event, Provisioning, and Workload Management and Orchestration.
- Integrate: Systems Management, Tools and Processes, Event Consoles, Configuration Management Database (CMDB), Role-based Administration (RBA), and Web Services.

Report a bug

1.1. Architecture

The diagram below describes the capabilities of Red Hat CloudForms Management Engine. Its features are designed to work together to provide robust management and maintenance of your virtual infrastructure.

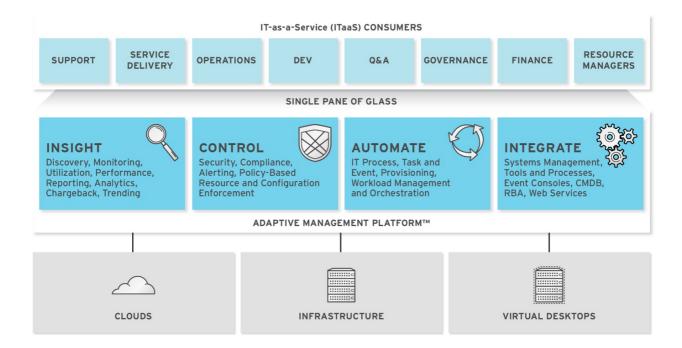


Figure 1.1. Features

The architecture comprises the following components:

- ▶ The CloudForms Management Engine Appliance (Appliance) which is supplied as a secure, high-performance, preconfigured virtual machine. It provides support for Secure Socket Layer (SSL) communications.
- ▶ The CloudForms Management Engine Server (Server) resides on the Appliance. It is the software layer that communicates between the SmartProxy and the Virtual Management Database. It includes support for Secure Socket Layer (SSL) communications.
- The Virtual Management Database (VMDB) resides either on the Appliance or another computer accessible to the Appliance. It is the definitive source of intelligence collected about your Virtual Infrastructure. It also holds status information regarding Appliance tasks.

- The CloudForms Management Engine Console (Console) is the Web interface used to view and control the Server and Appliance. It is consumed through Web 2.0 mash-ups and web services (WS Management) interfaces.
- ▶ The SmartProxy can reside on the Appliance or on an ESX Server. If not embedded in the Server, the SmartProxy can be deployed from the Appliance. Each storage location must have a SmartProxy with visibility to it. The SmartProxy acts on behalf of the Appliance communicating with it over HTTPS (SSL) on standard port 443.

Report a bug

1.2. Terminology

The following terms are used throughout this document. Review them before proceeding.

Account Role

A designation assigned to a user allowing or restricting a user to parts and functions of the CloudForms Management Engine console.

Action

An execution that is performed after a condition is evaluated.

Alert

CloudForms Management Engine alerts notify administrators and monitoring systems of critical configuration changes and threshold limits in the virtual environment. The notification can take the form of either an email or an SNMP trap.

Analysis Profile

A customized scan of hosts, virtual machines, or instances. You can collect information from categories, files, event logs, and registry entries.

Cloud

A pool of on-demand and highly available computing resources. The usage of these resources are scaled depending on the user requirements and metered for cost.

CloudForms Management Engine Appliance

A virtual machine on which the virtual management database (VMDB) and CloudForms Management Engine server reside.

CloudForms Management Engine Console

A web-based interface into the CloudForms Management Engine Appliance.

CloudForms Management Engine Role

A designation assigned to a CloudForms Management Engine server that defines what a CloudForms Management Engine server can do.

CloudForms Management Engine Server

The application that runs on the CloudForms Management Engine Appliance and communicates with the SmartProxy and the VMDB.

Cluster

Hosts that are grouped together to provide high availability and load balancing.

Condition

A test of criteria triggered by an event.

Discovery

Process run by the CloudForms Management Engine server which finds virtual machine and cloud providers.

Drift

The comparison of a virtual machine, instance, host, cluster to itself at different points in time.

Event

A trigger to check a condition.

Event Monitor

Software on the CloudForms Management Engine Appliance which monitors external providers for events and sends them to the CloudForms Management Engine server.

Host

A computer on which virtual machine monitor software is loaded.

Instance/Cloud Instance

A on-demand virtual machine based upon a predefined image and uses a scalable set of hardware resources such as CPU, memory, networking interfaces.

Managed/Registered VM

A virtual machine that is connected to a host and exists in the VMDB. Also, a template that is connected to a provider and exists in the VMDB. Note that templates cannot be connected to a host.

Managed/Unregistered VM

A virtual machine or template that resides on a repository or is no longer connected to a provider or host and exists in the VMDB. A virtual machine that was previously considered registered may become unregistered if the virtual machine was removed from provider inventory.

Provider

A computer on which software is loaded which manages multiple virtual machines that reside on multiple hosts.

Policy

A combination of an event, a condition, and an action used to manage a virtual machine.

Policy Profile

A set of policies.

Refresh

A process run by the CloudForms Management Engine server which checks for relationships of the provider or host to other resources, such as storage locations, repositories, virtual machines, or instances. It also checks the power states of those resources.

Resource

A host, provider, instance, virtual machine, repository, or datastore.

Resource Pool

A group of virtual machines across which CPU and memory resources are allocated.

Repository

A place on a datastore resource which contains virtual machines.

SmartProxy

The SmartProxy can be configured to reside on the CloudForms Management Engine Appliance or on an ESX server version. The SmartProxy can be deployed from the CloudForms Management Engine Appliance, and provides visibility to the VMFS storage. Each storage location must have a SmartProxy with visibility to it. The SmartProxy acts on behalf of the CloudForms Management Engine Appliance. If the SmartProxy is not embedded in the CloudForms Management Engine server, it communicates with the CloudForms Management Engine Appliance over HTTPS (SSL) on standard port 443.

SmartState Analysis

Process run by the SmartProxy which collects the details of a virtual machine or instance. Such details include accounts, drivers, network information, hardware, and security patches. This process is also run by the CloudForms Management Engine server on hosts and clusters. The data is stored in the VMDB.

SmartTags

Descriptors that allow you to create a customized, searchable index for the resources in your clouds and infrastructure.

Storage Location

A device, such as a VMware datastore, where digital information resides that is connected to a resource.

Tags

Descriptive terms defined by a CloudForms Management Engine user or the system used to categorize a resource.

Template

A template is a copy of a preconfigured virtual machine, designed to capture installed software and software configurations, as well as the hardware configuration, of the original virtual machine.

Unmanaged Virtual Machine

Files discovered on a datastore that do not have a virtual machine associated with them in the VMDB. These files may be registered to a provider that the CloudForms Management Engine server does not have configuration information on. Possible causes may be that the provider has not been discovered or that the provider has been discovered, but no security credentials have been provided.

Virtual Machine

A software implementation of a system that functions similar to a physical machine. Virtual machines utilize the hardware infrastructure of a physical host, or a set of physical hosts, to provide a scalable and on-demand method of system provisioning.

Virtual Management Database (VMDB)

Database used by the CloudForms Management Engine Appliance to store information about your resources, users, and anything else required to manage your virtual enterprise.

Virtual Thumbnail

An icon divided into smaller areas that summarize the properties of a resource.

Report a bug

Chapter 2. Configuring the Appliance

While the CloudForms Management Engine Appliance comes configured to be integrated immediately into your environment, you may want to make some changes to its configuration.



Note

The CloudForms Management Engine Appliance is intended to have minimal configuration options.

After startup, a summary screen appears showing some basic information about the CloudForms Management Engine Appliance. It is password protected and configured as a DHCP client with bridged networking.

Change the appliance configuration using Advanced Settings. You have the following menu items.

- Use Set DHCP Network Configuration to use DHCP to obtain the IP address and network configuration for your CloudForms Management Engine Appliance.
- Use Set Static Network Configuration if you have a specific IP address and network settings you need to use for the CloudForms Management Engine Appliance.
- Use Test Network Configuration to check that name resolution is working correctly.
- ▶ Use Set Hostname to specify a hostname for the CloudForms Management Engine Appliance.
- ▶ Use Set Timezone, Date, and Time to configure the time zone, date, and time for the CloudForms Management Engine Appliance.
- ▶ Use **Disable PostgreSQL Database Server** if you know that you will be using another database server and do not want these additional services loaded. This option will disable **PostgreSQL** and unmount the disk associated with the database. The CloudForms Management Engine Appliance will need a restart.
- ▶ Use **Restore Factory Configuration** to overwrite any changes you have made to the CloudForms Management Engine Appliance, restore the factory configuration, add the **PostgreSQL** service, and restart the CloudForms Management Engine Appliance. Note that this does not set the Appliance to use the internal PostgreSQL database.
- ▶ Use Restore Database from Backup to restore the VMDB database from a previous backup.
- Use Setup Database Region to create regions for VMDB replication.
- Use Configure Database to configure the VMDB database. Use this option to configure the database for the appliance after installing and running it for the first time.
- ▶ Use Stop Server Processes to stop all server processes. You may need to do this to perform maintenance.
- ▶ Use Start Server Processes to start the server. You may need to do this after performing maintenance.
- Use Restart Appliance to restart the CloudForms Management Engine Appliance. You can either restart the appliance and clear the logs or just restart the appliance.
- Use Shut Down Appliance to power down the appliance and exit all processes.
- ▶ Use Summary Information to go back to the network summary screen for the CloudForms Management Engine Appliance.
- ▶ Use Log Off to log out of the CloudForms Management Engine Appliance console.

Report a bug

2.1. Changing Settings on the CloudForms Management Engine Appliance

Procedure 2.1. To change settings on the CloudForms Management Engine Appliance

- 1. After starting the appliance, log in with a user name of admin and the default password of smartvm
- 2. The CloudForms Management Engine Appliance summary screen displays.
- 3. Press **Enter** to manually configure settings.
- 4. Press the number for the item you want to change, and press Enter. The options for your selection are displayed.
- 5. Follow the prompts to make the changes.
- 6. Press **Enter** to accept a setting where applicable.

Result:

The CloudForms Management Engine Appliance console will automatically log out after five minutes of inactivity.

Report a bug

2.2. Configuring a Database for CloudForms Management Engine

Before using CloudForms Management Engine, configure the database options for it. CloudForms Management Engine provides two options for database configuration:

- Install an Internal PostgreSQL database to the appliance
- Description Configure the appliance to use an External PostgreSQL database



Note

If installing an Internal database, add a disk to the appliance specifically for the database.

Procedure 2.2. To Configure the CloudForms Management Engine database

- 1. Start up the appliance and open a terminal console from your virtualization or cloud provider.
- 2. The login screen appears:

To administer this appliance, browse to https://192.168.0.40/

Username:

Enter the administration username and password.

- 3. The status screen appears and displays details about the CloudForms Management Engine Appliance. Press **Enter** to change to the configuration menu.
- 4. Select 10) Configure Database from the menu.
- 5. Choose either 1) Internal or 2) External for the database location. .
- 6. If Internal database selected:
 - a. Choose a disk for the database. For example:

1) /dev/vdb: 20480 Choose disk:

Enter 1 to choose /dev/vdb for the database location.

7. Select to either 1) Create new region or 2) Join existing region . If creating a new region, enter a unique region ID when prompted.



Important

Creating a new region destroys any existing data on the chosen database. The database configuration procedure will ask you to confirm your selection.

- 8. If External database selected:
 - a. Enter the database hostname or IP address when prompted.
 - b. Enter the database name or leave blank for the default ($\textit{vmdb_production}).$
 - c. Enter the database username or leave blank for the default (root).
 - d. Enter the chosen database user's password.
- 9. Confirm the configuration if prompted.

Result:

CloudForms Management Engine configures the database.

Report a bug

Chapter 3. Navigating the CloudForms Management Engine Console

The CloudForms Management Engine Console (Console) is a web interface used to manage your virtual environment. It is highly customizable and allows easy access to your management tasks.



Note

While the Server is starting, you will not be able to log in to the Console. The Console will retry connecting every 10 seconds until all workers and processes have started.

Report a bug

3.1. Console Requirements

To access the CloudForms Management Engine console, you must have one of the following Web Browsers:

- Mozilla Firefox for versions supported under Mozilla's Extended Support Release (ESR) [1]
- Internet Explorer 8 or higher

You will need a monitor with minimum resolution of 1280x1024 and Adobe Flash Player 9 or above. At the time of this writing, you can access it at http://www.adobe.com/products/flashplayer/



Note

Due to browser limitations, Red Hat supports logging in to only one tab for each multi-tabbed browser. Console settings are saved for the active tab only. For the same reason, CloudForms Management Engine does not guarantee that the browser's Back button will produce the desired results. CloudForms Management Engine recommends using the breadcrumbs provided in the console.

Report a bug

3.2. Accessing the Console

Login to the CloudForms Management Engine Console using the following procedure.

Procedure 3.1. To access the CloudForms Management Engine Console

- 1. From a computer with network access to the CloudForms Management Engine Appliance, open your Web browser.
- 2. Go to https://<CloudForms Management Engine Appliance IP>.
- 3. Read and accept any security certificate dialogs.
- 4. Log in to the Console with a user name of admin and the default password of smartvm.

Result:

The CloudForms Management Engine Console now displays.



Important

Change your default password immediately after logging in for the first time.

Report a bug

3.3. Navigating the Console



Figure 3.1. CloudForms Management Engine's main navigation menu

- a. Primary Navigation Bar
- b. Secondary Navigation Bar

Click an item on the Primary Navigation Bar to go to that category. Then, you can click on a secondary item to refine the type of function.

The Console consists of the following items on the Primary Navigation Bar:

- Cloud Intelligence uses Really Simple Syndication (RSS) feeds and charts to display information on your virtual enterprise devices. It also includes reports both out of the box and custom.
- Services provides a view of all of your discovered Catalogs of services and Workloads (Virtual Machines and Cloud Instances combined).
- ▶ Clouds allows you to see your Cloud Providers, Availability Zones, Hardware Flavors, Security Groups and Cloud Instances.
- ▶ Infrastructure allows you to see your Virtualization Providers, Clusters, Hosts, Virtual Machines, Resource Pools, Datastores, and Repositories.
- Control manages your policies through the Explorer, Simulation, Import/Export and the Log tabs. It further defines your policies by using Events, Conditions, and Actions.
- Automate provides models for process integration and adaptive automation for events and activities.
- Detimize allows you to identify bottlenecks and plan placement of Virtual Machines.

In addition to the items on the navigation bar, you can also use **Configure** to manage the user interface, create tags, set server, database and SmartProxy options, administer users, and update the software and view the documentation.

Report a bug

[1] http://www.mozilla.org/en-US/firefox/organizations/faq/

Chapter 4. Configuring CloudForms Management Engine

4.1. Changing Server Settings

This procedure show you how to change your server settings.

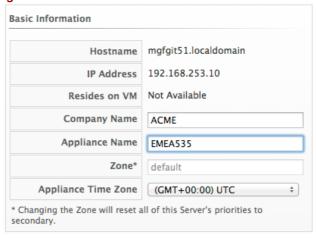
- 1. Navigate to Configure → Configuration.
- 2. Click on the **Settings** accordion, then click **Zones**.
- 3. Click the zone where the CloudForms Management Engine server is located.
- 4. in the Servers area, click on the CloudForms Management Engine server.
- 5. Click Server.
- 6. Make any required changes.
- 7. Click Save.

Result:

Your server setting is changed.

Report a bug

4.1.1. Basic Information Settings



- Use Company Name to customize the interface with your company's name. You will see the company name when you are viewing or modifying the tags of an infrastructure object or virtual machine.
- Specify the Appliance Name you want displayed as the appliance that you are logged into. You will see this in the upper right corner of the interface with the name of the consoles logged on user.
- Use Zone to isolate traffic and provide load balancing capabilities. Specify the zone that you want this CloudForms Management Engine Appliance to be a member of. At startup, the zone is set to default.
- ▶ Use **Appliance Time Zone** to set the time zone for this server.



Note

This is the time zone used when created scheduled analyses. This is not the same as the **Time Zone** parameter, which is found by navigating to **Configure** \rightarrow **My Settings**, then exploring the **Display Settings** area, and is the time zone displayed in the console.

Report a bug

4.1.2. Server Control Settings

Server role defines what a server can do. Red Hat recommends that **Event Monitor**, **Reporting**, **Scheduler**, and **SmartState Analysis** be enabled on at least one server in each zone. These roles are enabled by default on all servers.



Note

Only super administrators can change server roles.

Report a bug

4.1.2.1. Server Roles

Server Role	Description
Automation Engine	Use this role if you are licensed for CloudForms Management Engine Automate and want to use this CloudForms Management Engine server to process automation tasks.
Capacity and Utilization (3 Server Roles)	 The Capacity & Utilization Coordinator role checks to see if it is time to collect data, somewhat like a scheduler. If it is time, a job is queued for the Capacity and Utilization Data Collector. The coordinator role is required to complete Capacity and Utilization data collection. If more than one CloudForms Management Engine server in a specific zone has this role, only one will be active at a time. The Capacity & Utilization Data Collector performs the actual collection of capacity and utilization data. This role has a dedicated worker, and there can be more than one CloudForms Management Engine server with this role in a zone. The Capacity & Utilization Data Processor processes all of the data collected, allowing CloudForms Management Engine to create charts. This role has a dedicated worker, and there can be more than one CloudForms Management Engine server with this role in a zone.
Database Operations	Use Database Operations to enable this CloudForms Management Engine server to run database backups or garbage collection.
Database Synchronization	Use Database Synchronization to enable this CloudForms Management Engine server's VMDB to replicate to a higher-level VMDB. This should only be enabled after creating settings for the Replication Worker.
Event Monitor	This role is enabled by default and provides the information shown in timelines. Event Monitor is responsible for the work between the CloudForms Management Engine server and your providers. It starts 2 workers for each provider. One worker, the monitor, is responsible for maintaining a connection to a provider, catching events, and putting them on the CloudForms Management Engine message queue for processing. The second worker, the handler, is a message queue worker responsible for delivering only those messages for a provider. You should have at least one of these in each zone.
Provider Inventory	This role is enabled by default. This role is responsible for refreshing provider information including EMS, hosts, virtual machines, and clusters, and is also responsible for capturing datastore file lists. If more than one CloudForms Management Engine server in a specific zone has this role, only one will be active at a time.
Provider Operations	This role is enabled by default. This role sends stop, start, suspend, shutdown guest, clone, reconfigure, and unregister to the provider, directly from the console or through a policy action if you have CloudForms Management Engine Control. More than one CloudForms Management Engine server can have this role in a zone.
Notifier	Use this role if you will be using CloudForms Management Engine Control or Automate to forward SNMP traps to a monitoring system or send e-mails. See the <i>CloudForms Management Engine Control Guide</i> for details on creating SNMP alerts. If more than one CloudForms Management Engine server in a specific zone has this role, only one will be active at a time.
Reporting	This role is enabled by default. The Reporting role specifies which CloudForms Management Engine servers can generate reports. If you do not have a CloudForms Management Engine server set to this role in a zone, then no reports can be generated in that zone. You should have at least one of these in each zone.
RHN Mirror	An appliance with RHN Mirror enabled acts as a server containing a repository with the latest CloudForms Management Engine packages. This also configures other Appliances within the same region to point to the chosen RHN Mirror server for updates. This provides a low bandwidth method to update environments with

	multiple Appliances.
Scheduler	This role is enabled by default. The Scheduler sends messages to start all schedulable activities such as report generation and SmartState Analysis. This role also controls all system schedules such as capacity and utilization data gathering. One server in each zone must be assigned this role or scheduled CloudForms Management Engine events will not occur. If more than one CloudForms Management Engine server in a specific zone has this role, only one will be active at a time.
SmartProxy	Enabling the SmartProxy role turns on the embedded SmartProxy on the CloudForms Management Engine server. The embedded SmartProxy can analyze virtual machines that are registered to a Host and templates that are associated with a provider. To provide visibility to repositories, install the SmartProxy on a host from the CloudForms Management Engine console. This SmartProxy can also analyze virtual machines on the host on which it is installed.
SmartState Analysis	This role is enabled by default. The SmartState Analysis role controls which CloudForms Management Engine servers can control SmartState Analyses and process the data from the analysis. You should have at least one of these in each zone.
User Interface	This role is enabled by default. Uncheck User Interface if you do <i>not</i> want users to be able to access this CloudForms Management Engine server using the CloudForms Management Engine console. For example, you may want to turn this off if the CloudForms Management Engine server is strictly being used for capacity and utilization or reporting generation. More than one CloudForms Management Engine server can have this role in a zone.
Web Services	This role is enabled by default. Uncheck Web Services to stop this CloudForms Management Engine server from acting as a Web service provider. More than one CloudForms Management Engine server can have this role in a zone.

Red Hat recommends that **Database Operations**, **Event Monitor**, **Reporting**, **Scheduler**, **SmartState Analysis**, **User Interface**, **Provider Inventory**, **Provider Operations**, and **Web Services** be enabled on at least one server in each zone. These roles are enabled by default on all servers.

▶ Use **Default Repository SmartProxy** to set the SmartProxy from which you will be refreshing your virtual machine repositories. This host must have access to your repositories to analyze its virtual machines.



Note

If you are using more than one CloudForms Management Engine Appliance, be sure to set this on all of the Appliances.

Report a bug

4.1.3. Outgoing SMTP Email Settings

To use the email action in CloudForms Management Engine, you need to set an email address that you will have the emails sent from.



Note

To be able to send any emails from the server, you must have the **Notifier Server** role enabled. You can test the settings without the role enabled.



- Use **Host** to specify the host name of the mail server.
- Use Port to specify the port for the mail server.
- Use Domain to specify domain name for the mail server.
- Check Start TLS Automatically if the mail server requires TLS.
- Select the appropriate SSL Verify Mode.
- ▶ Use the **Authentication** drop down to specify if you want to use login or plain authentication.
- » Use User Name to specify the user name required for login authentication.
- Use Password to specify the password for login authentication.
- Use From Email Address to set the address you want to send the email from.
- Use To Email Address if you want to test your email settings.

Report a bug

4.1.3.1. Testing Outgoing SMTP Email Server Settings

This procedure shows you how to test outgoing SMTP Email server settings

Procedure 4.1. To test outgoing SMTP email server settings

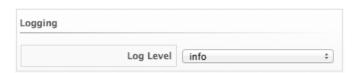
- 1. Type in all settings in the Outgoing SMTP Email Server settings, including Test Email Address.
- Click
 ✓ (Send test email).

Result:

An email is sent to the address specified.

Report a bug

4.1.4. Logging Settings



Use Log Level to set the level of detail you want in the log. You may select from fatal, error, warn, info, and debug. The default setting is 'info'.

Report a bug

4.2. Registering and Updating CloudForms Management Engine

The **Red Hat Updates** page allows you to edit customer information, register appliances, and update appliances. Editing customer information allows you to determine the registration point, User ID, and password. CloudForms prompts you to update the Server URL when updating the registration point to a local Red Hat Satellite. The **Status of Available Servers** area provides options to refresh, register, check for updates, and to update. The Red Hat Updates page enables the Content Delivery Network (CDN) to assign the necessary update packages to the CloudForms Management Engine Server.

Using the **Check For Updates** task button, the CDN assigns any necessary update packages to your server and notifies you. Click **Update** and the CloudForms Management Engine packages install and update.



Important

The update worker synchronizes the VMDB with the status of available CloudForms Management Engine content every 12 hours.



Note

Servers with the **RHN Mirror** role also act as a repository for other Appliances to pull CloudForms Management Engine packages updates.

Report a bug

4.2.1. Editing Customer Information

The Red Hat Updates page allows the user to edit customer information.

Procedure 4.2. To edit customer information

- 1. Navigate to Configure → Configuration.
- 2. Click on the Settings accordion, then Region, then click on the Red Hat Updates tab.
- 3. Click Edit Registration in the Customer Information area
- 4. The Customer Information area will display options to edit registration, User ID and Password.
 - ▶ **Register to** field provides options for the Customer Portal, RHN Satellite v5 for Red Hat Satellite 5.x servers, and RHN Satellite v6 for Red Hat Satellite 6.x servers. If switching to RHN Satellite v5 or v6, the page will refresh and a prompt for a Server URL will be included in the Customer Information area.
 - The HTTP Proxy area displays options to enable usage of the HTTP Proxy.
 - ▶ The User ID and Password are the customer account details for the Customer Portal or Satellite.

Result:

The customer information is now edited.

Report a bug

4.2.2. Registering Appliances

The Red Hat Updates page allows the user to register appliances.

Procedure 4.3. To register with customer portal

- 1. Navigate to Configure → Configuration.
- 2. Click on the Settings accordion, then Region, then click on the Red Hat Updates tab.
- 3. In the Appliance Updates area, check the appliance to register.
- 4. Click Register

Result:

The registration has been initiated for the selected servers.

Report a bug

4.2.3. Updating Appliances

The Red Hat Updates page allows the user to check for updates and update registered appliances.

Procedure 4.4. To update with customer portal

- 1. Navigate to Configure → Configuration.
- 2. Click on the Settings accordion, then Region, then click on the Red Hat Updates tab.
- 3. In Appliance Updates, check the Appliance to update.
- 4. Click Check for Updates
- 5. Click **Update**

Result:

The update has been initiated for the selected servers.

Report a bug

4.3. Setting Provisioning Notification Email Addresses

CloudForms Management Engine contains a set of Automate instances for provisioning. These Automate instances also include email fields to set the sender and recipient of provisioning notifications, such as requests. These fields are set to evmadmin@company.com as a default.

Procedure 4.5. To Change the Email Address for Provisioning Notifications

- 1. Navigate to Automate → Explorer.
- 2. Choose the following Namespace: Datastore → Alert.
- 3. Select the ${\it Email}$ ${\it Notifications}$ (${\it EmailNotifications}$) class.
- 4. Select an instance within the chosen class.
- 5. Navigate to Configuration → Edit Selected Instance.
- 6. Type the desired email addresses in the to_email_address and from_email_address fields.
- 7. Click the Save button.

Result:

An email address is set for the chosen Automate instance.

Report a bug

Chapter 5. Using Virtualization Infrastructure

5.1. Providers

A provider is a server with software to manage multiple virtual machines that reside on multiple hosts. The **Providers** page, found under the Infrastructure tab, displays all discovered or added providers in your enterprise.



Note

Any applied filters will be in effect on this page.

Use the **Providers** taskbar to manage the existence of your providers and to initiate a refresh of them. These buttons are used to manage multiple providers at one time. To manage one provider, click on that item in the main area of the screen.

Console uses virtual thumbnails to describe providers. Each thumbnail contains four quadrants by default. This allows a user to glance at a provider for a quick view of its number of hosts and authentication status.



- a. Top left quadrant: Number of hosts
- b. Bottom left quadrant: Management system software
- c. Top right quadrant: For future use
- d. Bottom right quadrant: Authentication status

Icon	Description
\bigcirc	Validated: Valid authentication credentials have been added.
· ·	Invalid: Authentication credentials are invalid.
?	Unknown: Authentication status is unknown or no credentials have been entered.

Report a bug

5.1.1. Adding a Provider

After initial installation and creation of a CloudForms Management Engine environment, add providers to the appliance with the following procedure.

Procedure 5.1. To Add a Provider

- 1. Navigate to Infrastructure → Providers.
- 2. Click ** (Configuration), then click + (Add a New Infrastructure Provider).
- 3. Type in the Name of the provider to add. The Name is how the device is labeled in the console.
- 4. Select the Type of provider: Red Hat Enterprise Virtualization Manager or VMware vCenter.
- 5. Type in the Host Name, and IP Address of the provider to add.
- 6. For Red Hat Enterprise Virtualization providers, enter the API Port if your provider uses a non-standard port for access.
- 7. If you have multiple zones, select the appropriate one from **Zone**.
- 8. Type in a User ID and Password with administrator privileges to the provider. To refresh a provider, these credentials are required.
- 9. Click **Validate** to confirm that the user and password connects.
- 10. Click Save.

Result:

CloudForms Management Engine adds a new provider. Use this provider for virtual machine provisioning.



Note

To obtain historical Capacity and Utilization (C & U) data for Red Hat Enterprise Virtualization Manager, you will need to add credentials for the Red Hat C & U Database. Once discovered, and set up for C & U in CloudForms Management Engine, you can use CloudForms Management Engine to collect C & U from this point forward. For further information, refer to Chapter 4. Data Collection Setup and Reports Installation in the Red Hat Enterprise Virtualization 3.1 Installation Guide.

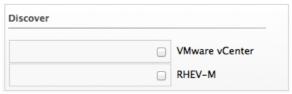
Report a bug

5.1.2. Discovering Providers

After initial creation of a CloudForms Management Engine environment, discover the providers in your environment. To do this, use CloudForms Management Engine's ability to discover using a range of IP addresses.

Procedure 5.2. To Discover Providers by Subnet Range

- 1. Navigate to Infrastructure → Providers.
- 2. Click (Configuration), then click (Discover Infrastructure Providers).
- 3. Check the type of provider to discover.



4. Type in a **Subnet Range** of IP addresses staring with a **From Address** and ending with a **To Address**. The cursor automatically advances as you complete each octet.



5. Click **Start** to confirm the discovery process.

Result:

The server searches for computers running supported providers. When available, the new providers display. These providers are named using a Hostname and IP address. To make them identifiable, edit the basic information for each provider.

Report a bug

5.1.3. Editing Provider Information

Edit information about a provider such as the name, IP address, and login credentials.

Procedure 5.3. To Edit Provider Information

- 1. Navigate to Infrastructure → Providers.
- 2. Click the provider to edit.
- 3. Click ** (Configuration), and then / (Edit Selected Infrastructure Provider).
- 4. In Basic Info, edit the following:
 - Use Name to set an easily identifiable name for the provider.
 - Use Host Name to specify the hostname for the device.
 - Use IP Address to set the IP address for communication with the provider.
 - You cannot change the Type of provider.
 - Edit the API Port if your provider uses a non-standard port for access.
 - ▶ Use **Zone** to isolate traffic and provide load balancing capabilities. Specify the **Zone** this CloudForms Management Engine Appliance is a member. At startup, the zone is set to **Default**.
- 5. Use ${\bf Credentials}$ to provide login credentials required for the provider.



- Use User ID to specify a login name.
- Use Password to specify the password for the User ID.
- Use Verify Password to confirm the password.
- 6. Click **Validate** to confirm the user and password connects.
- 7. Click Save.

Result:

The provider settings are updated and the changes take effect immediately.



Note

To obtain historical Capacity and Utilization (C & U) data for Red Hat Enterprise Virtualization Manager, you will need to add credentials for the Red Hat C & U Database. Once discovered, and set up for C & U in CloudForms Management Engine, you can use CloudForms Management Engine to collect C & U from this point forward. For further information, refer to Chapter 4. Data Collection Setup and Reports Installation in the Red Hat Enterprise Virtualization 3.1 Installation Guide.

Report a bug

5.1.4. Refreshing Providers

Refresh a provider to find other resources related to it. Use **Refresh** after initial discovery to get the latest data about the provider and the virtual machines it can access. Ensure the provider has credentials to do this. If the providers was added using **Discovery**, see *Editing Provider Information*.

Procedure 5.4. To Refresh Multiple Providers

- 1. Navigate to Infrastructure → Providers.
- 2. Check the providers to refresh.
- 3. Click (Configuration), and then (Refresh Relationships and Power States).
- 4. Click **OK** to confirm the refresh.

Result:

The chosen providers are refreshed.

Report a bug

5.2. Hosts

The Hosts page under Infrastructure displays the hosts discovered in your enterprise environment.



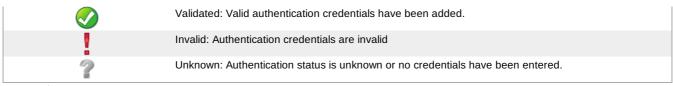


After adding or sorting your hosts, click on one to examine it more closely and see its virtual machines, SmartProxy settings, and properties.



- a. Top left quadrant: Number of virtual machines on this host
- b. Bottom left quadrant: Virtual machine software
- c. Top right quadrant: Power state of host
- d. Bottom right quadrant: Authentication status

Icon Description



Report a bug

5.2.1. Requirements for Provisioning a Host

CloudForms Management Engine can also provision hosts using PXE and IPMI technologies. To do this, you will need to complete the following steps before you provision your first host.

- 1. Make a PXE server accessible to the CloudForms Management Engine server.
- 2. Create system images types for the host.
- 3. Associate images with the image types.
- 4. Enable IPMI on provisioning hosts and add them to the CloudForms Management Engine Infrastructure.

Report a bug

5.2.1.1. PXE Provisioning

PXE is a boot method that allows you to load files from across a network link. CloudForms Management Engine uses it for files required for provisioning virtual machines. PXE can be used for provisioning for either Red Hat Enterprise Virtualization Manager or VMware.

- Connect to the PXE Server.
- Create a System Image Type.
- Associate each PXE image with an image type.
- Create a customization template.

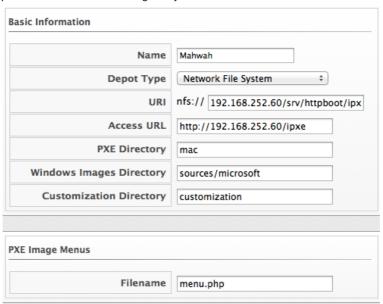
Report a bug

5.2.1.1.1. Connecting to a PXE Server

The following procedure connects to a PXE server and adds its details to CloudForms Management Engine.

Procedure 5.5. To connect to a PXE server

- 1. Navigate to Infrastructure → PXE.
- 2. Click (Configuration), then (Add a New PXE Server).
- 3. In **Basic Information**, type a **Name** that will be meaningful in your environment.



- 4. For Depot Type, select either Network File System (NFS) or Samba. The fields to enter in the dialog depend on the Depot Type.
 - ▶ For NFS, type in the URI, Access URL, PXE Directory, Windows Images Directory and Customization Directory. When you provision, CloudForms Management Engine writes a text file to the PXE Directory. The file is named after the MAC address of the NIC that is assigned to the virtual machine. It contains where to get the kernel and initrd image. This file is removed after a successful provision. The Windows Images Directory is where the files are located on your NFS for the provisioning of Windows operating systems. The Customization Directory is where your Kickstart and Sysprep files are located.
 - If using a Depot Type of Samba, you will not need Access URL, but you will need a User ID, and Password, in addition to the items required for NFS.

- 5. For PXE Image Menus, type the filename for the PXE Boot menu.
- 6. Click Add.
- 7. Select the new PXE server from the tree on the left, and click ** (Configuration), then (Refresh) to see your existing images.

Result:

The PXE server is added to CloudForms Management Engine.



Note

Next, create PXE Image types to associate with the customization templates and to specify if the image type is for a virtual machine, a host, or both.

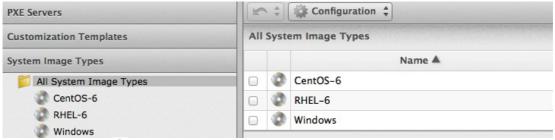
Report a bug

5.2.1.1.2. Creating System Image Types for PXE

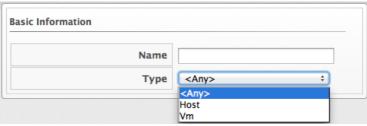
The following procedure creates a system image type for PXE servers.

Procedure 5.6. To create system image types

- 1. Navigate to Infrastructure → PXE.
- 2. Click the System Image Types accordion.



- 3. Click Configuration, then (Add a new System Image Type).
- 4. In Basic Information, type in a Name and select a Type.



- Use Host if you want this image type to only apply to hosts.
- ▶ Use **Vm** if you want this image type to only apply to virtual machines.
- Use Any if this image type can be used for either hosts or virtual machines.
- 5. Click Add.

Result:

System image types are added.



Note

After creating the System Image Types, assign the types to each image on your PXE servers. To do this, you will select each image on the PXE server and identify its type.

Report a bug

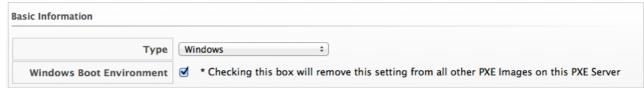
5.2.1.1.3. Setting the PXE Image Type for a PXE Image

The following procedure sets the image type for a chosen PXE image.

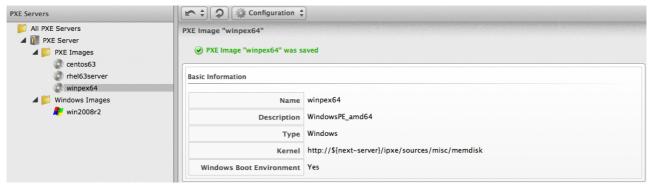
Procedure 5.7. To set the PXE image type for a PXE image

- 1. Navigate to Infrastructure → PXE.
- 2. Click the ${\bf PXE}$ Servers accordion and select the image that you want to set a type for.

- 3. Click (Configuration), then (Edit this PXE Image).
- 4. From the Basic Information area, select the correct type. If this PXE image will be used as the Windows Boot Environment, check Windows Boot Environment. At the time of this writing, only one PXE Image can be identified as the Windows Boot Environment. Therefore, checking one as the Windows Boot Environment, will remove that from any other PXE image with that check.



5. Click Save.



Result:

The image type is saved.

Report a bug

5.2.1.2. ISO Provisioning

CloudForms Management Engine also allows ISO provisioning from **Red Hat Enterprise Virtualization Manager** datastores. To use this feature, you will need to do the following before creating a provision request.

Procedure 5.8. To prepare for an ISO provision request

- Add the ISO Datastore. The Red Hat Enterprise Virtualization Manager system must have already been discovered or added into the VMDB. For more information, see the Insight Guide.
- 2. Refresh the ISO Datastore.
- 3. Create a **System Image Type**.
- 4. Set the **ISO Image Type**.
- 5. **Create** a customization template.

Result:

Your ISO is ready to be provisioned.

Report a bug

5.2.1.2.1. Adding an ISO Datastore

The following procedure adds an ISO Datastore from your Red Hat Enterprise Virtualization environment.

Procedure 5.9. To add an ISO datastore

- 1. Navigate to Infrastructure → PXE.
- 2. Click the ISO Datastores accordion.
- 3. Click (Configuration), (Add a new ISO Datastore).
- 4. Select the Red Hat Enterprise Virtualization Manager Provider hosting the ISO Datastore.
- 5. Click Add.

Result:

The ISO datastore is added to CloudForms Management Engine.

Report a bug

5.2.1.2.2. Refreshing an ISO Datastore

The following procedure refreshes the chosen ISO datastore and updates CloudForms Management Engine with available ISOs.

Procedure 5.10. To refresh the ISO datastore

- 1. Navigate to Infrastructure → PXE.
- 2. Click the ISO Datastores accordion, and select an ISO datastore.
- 3. Click (Configuration), then click (Refresh).

Result:

The ISO datastore refreshes and updates the available ISOs.

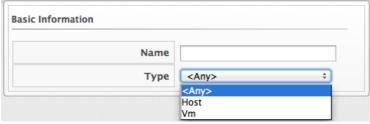
Report a bug

5.2.1.2.3. Creating System Image Types for ISO

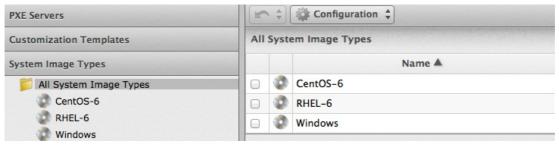
The following procedure creates a system image type for ISO Servers.

Procedure 5.11. To create System Image Types

- 1. Navigate to Infrastructure \rightarrow PXE.
- 2. Click the **System Image Types** accordion.
- 3. Click (Configuration), then (Add a new System Image Type).
- 4. In **Basic Information**, type in a **Name** and select a **Type**.



- Use Host if you want this image type to only apply to hosts.
- ▶ Use **Vm** if you want this image type to only apply to virtual machines.
- Use Any if this image type can be used for either hosts or virtual machines.
- 5. Click Add.



Result:

The system image types are added.



Vote

After creating the system image types, assign the types to each image on your ISO servers. To do this, you will select each image on the ISO server and identify its type.

Report a bug

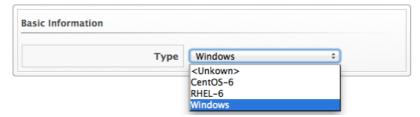
5.2.1.2.4. Setting the Image Type for an ISO Image

The following procedure sets the image type for an ISO image.

Procedure 5.12. To set the image type for an ISO image

- 1. Navigate to Infrastructure \rightarrow PXE.
- 2. Click the $\mbox{\bf PXE}$ $\mbox{\bf Servers}$ accordion, and select the image that you want to set a type for.
- 3. Click (Configuration), then (Edit this ISO Image).

4. From the Basic Information area, select the correct Type.



5. Click Save.

Result:

The image type is saved.

Report a bug

5.2.1.3. Customization Templates for Host Provisioning

Add a customization template to provide Kickstart files for the initial loading of the operating system. There are certain sections to use to allow for interactions with the provisioning dialogs provided by CloudForms Management Engine.

Report a bug

5.2.1.3.1. Customization Script Additions

Table 5.1. Customization Script Additions

Customization Type	Reason to Include	Script entries
Kickstart	Takes the values from the Customize tab in Provisioning Dialog and substitutes them into the script.	<pre>#Configure Networking based on values from provisioning dialog <% if evm[:addr_mode].first == 'static' %></pre>
Kickstart	Encrypts the root password from the Customize tab in the Provisioning Dialog .	<pre>rootpwiscrypted <%= MiqPassword.md5crypt(evm[:root_password]) %></pre>
Kickstart	Sends status of the provision back to CloudForms Management Engine for display in the CloudForms Management Engine Console.	<pre># Callback to EVM during post-install wgetno-check-certificate <%= evm[:callback_url_on_post_install] %></pre>

Report a bug

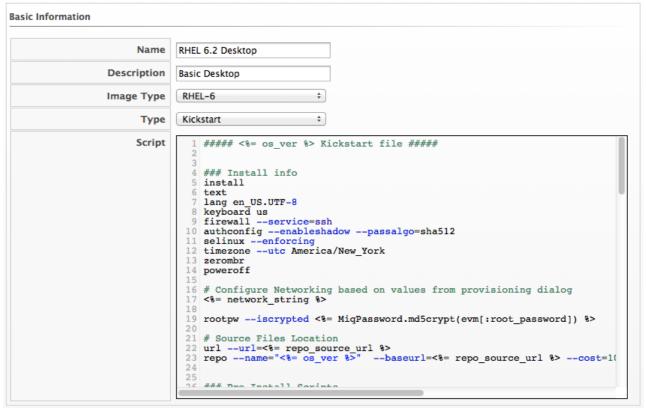
5.2.1.3.2. Adding a Customization Template

The following procedure adds a customization template to CloudForms Management Engine.

Procedure 5.13. To add a customization template

- 1. Navigate to Infrastructure \rightarrow PXE.
- 2. Click the ${\bf Customization}\ {\bf Templates}\ {\bf accordion}.$

- 3. Click ** (Configuration), then + (Add a New Customization Template).
- 4. In Basic Information, type in a Name and Description.



- 5. Select the Image Type dropdown. This list should include the PXE image types you created.
- 6. In Type, select Kickstart or Cloudinit for Linux based systems, and Sysprep for Windows based system.
- 7. In the **Script** area, either paste the script from another source or type the script directly into the CloudForms Management Engine interface.
- 8. Click Add.

Result:

The customization template is added.



Note

The default dialogs show all possible parameters for provisioning. To limit the options shown, see Customizing Provisioning Dialogs.

Report a bug

5.2.1.4. IPMI Hosts

There are two ways to get the Intelligent Platform Management Interface (IPMI) Host into the VMDB. You can either use the CloudForms Management Engine's discovery process or add the host using its IP address and credentials.

Report a bug

5.2.1.4.1. Discovering the Management Interface for an IPMI Host

Use the following procedure to discover the management interface for any IPMI hosts.

Procedure 5.14. To discover the management interface for a IPMI host

- 1. Navigate to Infrastructure → Hosts.
- 2. Click (Configuration), then (Discover Hosts).
- 3. In Discover, check IPMI.
- 4. Optionally, in IPMI Credentials, type in a User ID and Password.



You can also add IPMI credentials after the host has been discovered. See Adding IPMI Credentials to a Discovered Host.

- 5. In Subnet Range, type in a range of IP addresses. For quickest results, use the actual IP address in both fields.
- 6. Click Discover.

Result:

The IPMI host discovery is initiated.



After the host is discovered, you can add credentials for IPMI.

Report a bug

5.2.1.4.2. Adding IPMI Credentials to a Discovered Host

After discovering an IPMI host, add the credentials using the following procedures

Procedure 5.15. To add IPMI credentials

- 1. Navigate to Infrastructure → Hosts.
- 2. Click on the host you want to edit.
- 3. Click ** (Configuration), and then / (Edit this Host).
- 4. In the Credentials area, IPMI tab, type in the IPMI credentials
 - a. Use User ID to specify a login ID.
 - b. Use **Password** to specify the password for the user ID.
 - c. Use **Verify Password** to confirm the password.
- 5. Click Validate to test the credentials.
- 6. Click Save.

Result:

The credentials are added and the changes take effect immediately.

Report a bug

5.2.1.4.3. Adding the Management Interface for an IPMI Host

This procedure shows you how to add a management interface for an IPMI host.

Procedure 5.16. Add the management interface for the IPMI host

- 1. Navigate to Infrastructure → Hosts.
- 2. Click (Configuration), then + (Add a New Host).
- 3. In Basic Information, type in a Name and the IPMI IP address.
- 4. In the Credentials area, under IPMI tab, type in the IPMI credentials
 - a. Use User ID to specify a login ID.
 - b. Use **Password** to specify the password for the User ID.
 - c. Use **Verify Password** to confirm the password.
- 5. Click Validate to test the credentials.
- 6. Click Add.

Result:

The IPMI host is added to the CloudForms Management Engine environment; an operating system can now be provisioned onto it.

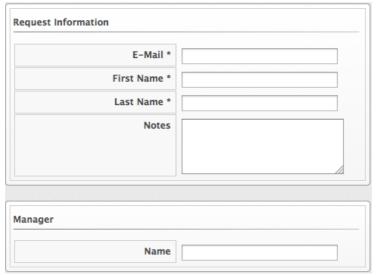
Report a bug

5.2.2. Provisioning a Host

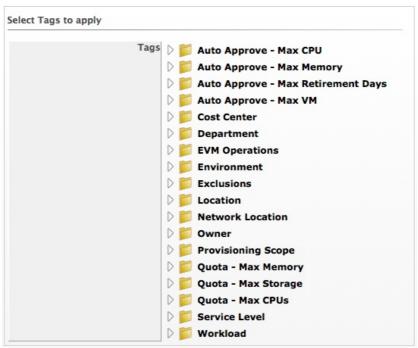
After setting up the IPMI and PXE environments, you are ready to provision a host. Currently, you can only provision in the cluster where the template is located or you can create a template in each cluster and let a CloudForms Management Engine Automate method automatically switch the selected template in the provision object.

Procedure 5.17. To provision a host

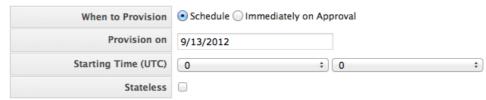
- 1. Navigate to Infrastructure → Hosts.
- 2. Select a host with IPMI enabled.
- 3. Click (Lifecycle), then + (Provision Hosts).
- 4. In **Request Information**, type in at least a **First Name** and **Last Name** and an email address. This email is used to send the requester status emails during the provisioning. The other information is optional. If the CloudForms Management Engine server is configured to use LDAP, you can use the **Look Up** button to populate the other fields based on the email address.



5. On the Purpose page, select the appropriate tags for the provisioned host.



- 6. On the Catalog page, select the hosts to provision.
 - ▶ In the **Host** area, select the hosts you want to provision
 - ▶ In the **PXE** area, select the PXE server and image.
- 7. On the **Customize** page, you can select how you might want to customize the operating system of the new host. These options vary based on the operating system to be provisioned.
 - Use Credentials to type in a root password
 - ▶ In the IP Address area, select either Static or DHCP and enter any other address information you need. If needed, type in DNS specifications.
 - Under Customize Template, select a script.
- 8. On the Schedule page, decide if you want the provisioning to begin as soon as it is approved, or at a specific time.



- ▶ In **Schedule Info**, choose if you want the provisioning to begin as soon as it is approved, or at a specific time. If you select **Schedule**, you will be prompted to enter a date and time.
- Check Stateless if you do not want the files deleted after the provision completes. A stateless provision does not write to the disk so it will need the PXE files on the next boot.
- 9. Click Submit.

Result:

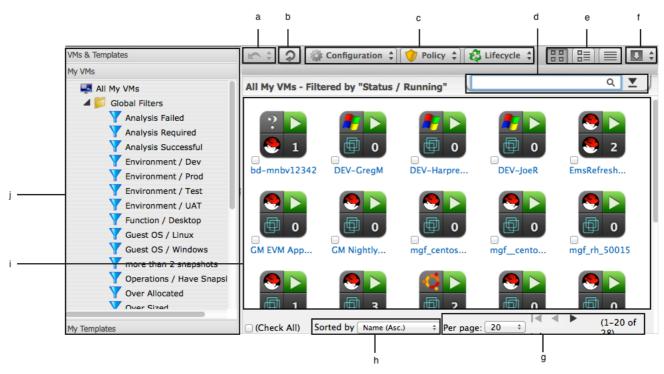
The provisioning request is sent for approval. For the provisioning to begin, a user with the admin, approver, or super admin account role must approve the request. The admin and super admin roles can also edit, delete, and deny the requests. You will be able to see all provisioning requests where you are either the requestor or the approver.

Report a bug

5.3. Virtual Machines

The heterogeneous virtual machine container and guest support combined with the ability to analyze information inside the virtual machine such as disk space, patch level or installed applications - provides in-depth information across the virtual environment. This rich set of information enables CloudForms Management Engine users to improve problem resolution times and effectively manage virtual machines.

The **Virtual Machines** pages display all virtual machines that were discovered by your Server. Note that if you have applied a filter to a user, it will be in effect here. The **Virtual Machines** taskbar is a menu driven set of buttons that provide access to functions related to virtual machines.



- a. History button
- b. Refresh screen button
- c. Taskbar
- d. Name search bar/Advanced Search button
- e. View buttons
- f. Download buttons
- g. Navigation bar
- h. Sort dropdown
- i. Main area in Grid View
- j. Provider/Filter Navigation

Console uses **Virtual Thumbnails** to describe virtual machines and templates. Each thumbnail contains four quadrants by default. This allows you to glance at a virtual machine for a quick view of its contents.



- a. Top left quadrant: Operating system of the Virtual Machine
- b. Bottom left quadrant: Virtual Machine Hosts software
- c. Top right quadrant: Power state of Virtual Machine or Status icon
- d. Bottom right quadrant: Number of Snapshots for this Virtual Machine

Icon	Description
T	Template: Virtual Template
R	Retired: Virtual Machine has been retired
A	Archived: Virtual Machine has no Host or Datastore associated with it.
O	Orphaned: Virtual Machine has no Host but does have a Datastore associated with it.
D	Disconnected: Virtual Machine is disconnected.
	On: Virtual Machine is powered on.
100	Off: Virtual Machine is powered off.
00	Suspended: Virtual Machine has been suspended.

The **Virtual Machines** page has three accordions organizing your virtual machines and templates in different ways. All of these accordions share a set of common controls

- ▶ Use VMs and Templates to view your virtual machines and templates organized by Provider. In addition, you can see archived and orphaned items here.
- Use the VMs to view, apply filters, and collect information about all of your virtual machines.
- ▶ Use **Templates** to view, apply filters, and collect information about all of your templates.

Through the console, you are able to view your virtual machines in multiple ways. For your virtual machines, you can:

- Filter virtual machines
- Change views
- Sort
 ■
- Create a report
- Search by MyTags
- Search by collected data

Report a bug

5.3.1. Provisioning

When a virtual machine or cloud instance is provisioned, it goes through multiple phases. First, the request must be made. The request includes ownership information, tags, virtual hardware requirements, the operating system, and any customization of the request. Second, the request must go through an approval phase, either automatic or manual. Finally, the request is executed. This part of provisioning consists of pre-processing where IP addresses may be acquired or CMDB instances created, processing which consists of creating the virtual machine or instance based on information in the request, and post-processing where a CMDB instance may be activated or an email sent to the owner. The steps for provisioning may be modified using CloudForms Management Engine.



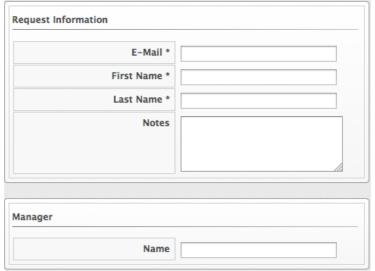
Report a bug

5.3.1.1. Provisioning a Virtual Machine from a Template

Users provision virtual machines through various methods. One method is to provision a virtual machine directly from a template stored on a Provider.

Procedure 5.18. To provision a virtual machine from a template

- 1. Navigate to Infrastructure → Virtual Machines.
- 2. Click [©] (Lifecycle), and then + (Provision).
- 3. Select a template from the list presented.
- 4. Click Continue.
- 5. On the Request tab, enter information about this provisioning request.

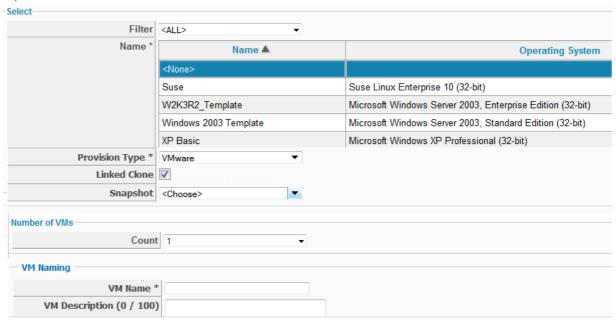


In **Request Information**, type in at least a **First Name** and **Last Name** and an email address. This email is used to send the requester status emails during the provisioning process for items such as auto-approval, quota, provision complete, retirement, request pending approval, and request denied. The other information is optional. If the CloudForms Management Engine server is configured to use LDAP, you can use the **Look Up** button to populate the other fields based on the email address.



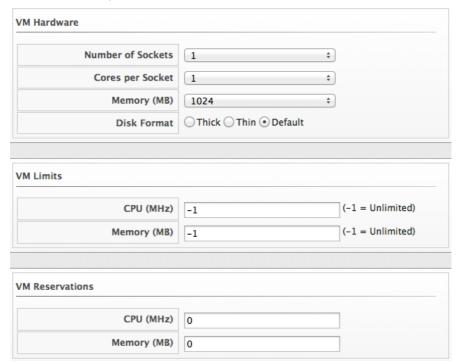
Parameters with a * next to the label are required to submit the provisioning request. To change the required parameters, see *Customizing Provisioning Dialogs*.

- 6. Click the **Purpose** tab to select the appropriate tags for the provisioned virtual machines.
- 7. Click the **Catalog** tab to select the template to provision from. This tab is context sensitive based on provider.
- 8. For Templates on VMware Providers:



- a. For ${\bf Provision}\ {\bf Type},$ select either ${\bf NetApp}$ or ${\bf VMware}.$
- b. Check **Linked Clone** if you want to create a linked clone to the virtual machine instead of a full clone. Since a snapshot is required to create a linked clone, this box is only enabled if a snapshot is present. Select the snapshot you want to use for the linked clone.
- c. Under Count, select the number of virtual machines you want to create in this request.

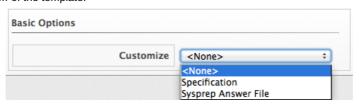
- d. Use **VM Naming** to specify a virtual machine name and virtual machine description. When provisioning multiple virtual machines, a number will be appended to the virtual machine name.
- 9. For Templates on Red Hat Providers:
 - a. Select the Name of a template to use.
 - b. For Provision Type, select either ISO, PXE, or Native Clone.
 - a. If Native Clone is selected, check Linked Clone if you want to create a linked clone to the virtual machine instead of a full clone. Since a snapshot is required to create a linked clone, this box is only enabled if a snapshot is present. Select the snapshot you want to use for the linked clone.
 - b. If ISO is selected, select an ISO Image to use for provisioning
 - c. If PXE is selected, select a PXE Server and Image to use for provisioning
 - c. Under Count, select the number of virtual machines you want to create in this request.
 - d. Use **VM Naming** to specify a **VM Name** and **VM Description**. When provisioning multiple virtual machines, a number will be appended to the **VM Name**.
- 10. Click the **Environment** tab to decide where you want the new virtual machines to reside.
 - a. If provisioning from a template on VMware, you can either let CloudForms Management Engine decide for you by checking **Choose Automatically**, or select a specific cluster, resource pool, folder, host, and datastore.
 - b. If provisioning from a template on Red Hat, you can either let CloudForms Management Engine decide for you by checking **Choose Automatically**, or select a datacenter, cluster, host and datastore.
- 11. Click the Hardware tab to set hardware options.



- a. In VM Hardware, set the number of CPUs, amount of memory, and disk format: thin, pre-allocated/thick or same as the provisioning template (default).
- b. For VMware provisioning, set the VM Limits of CPU and memory the virtual machine can use.
- c. For VMware provisioning, set the In VM Reservation amount of CPU and memory.
- 12. Click **Network** to set the vLan adapter. Additional networking settings that are internal to the operating system appear on the Customize tab.



- a. In Network Adapter Information, select the vLan.
- 13. Click **Customize** to select how you might want to customize the operating system of the new virtual machine. These options vary based on the *operating system* of the template.



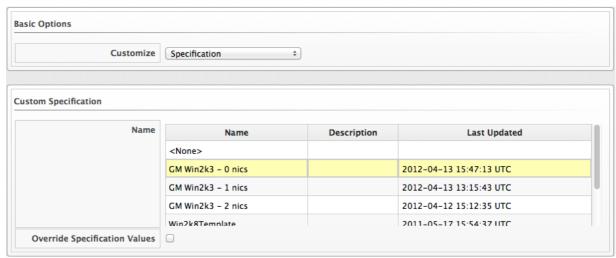
14. For Windows provisioning:

a. To use a customer specification from the Provider, click **Specification**. To select an appropriate template, a list will be provided in the custom specification area. The values that are honored by CloudForms Management Engine will display.



Note

Any values in the specification that do not show in the CloudForms Management Engine console's request dialogs will not be used by CloudForms Management Engine. For example, for Windows operating systems, if you have any run once values in the specification, they will not be used in creating the new virtual machines. Currently, for a Windows operating system, CloudForms Management Engine honors the unattended GUI, identification, workgroup information, user data, windows options, and server license. If more than one network card is specified, only the first will be used.

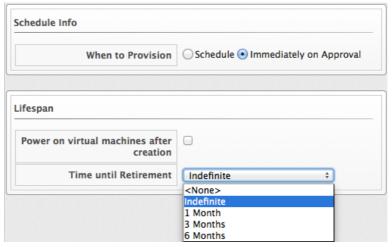


To modify the specification, check Override Specification Values.

b. Select Sysprep Answer File, to upload a Sysprep file or use one that exists for a custom specification on the Provider where the template resides. To upload a file, click Browse to find the file, and then upload. To use an answer file in Customization Specification, simply click on the item. The answer file will automatically upload for viewing. You cannot make modifications to it.

15. For Linux provisioning:

- a. Under Credentials, enter a Root Password for the root user to access the instance.
- b. Enter a IP Address Information for the instance. Leave as DHCP for automatic IP assignment from the provider.
- c. Enter any **DNS** information for the instance if necessary.
- d. Select a **Customize Template** for additional instance configuration. Select from the Kickstart scripts stored on your appliance.
- 16. Click the **Schedule** tab to decide if you want the provisioning to begin as soon as it is approved, or at a specific time.
 - a. In **Schedule Info**, choose if you want the provisioning to begin as soon as it is approved, or at a specific time. If you select **Schedule**, you will be prompted to enter a date and time.
 - b. In **Lifespan**, select if you want to power on the virtual machines after they are created, and if you want to set a retirement date. If you select a retirement period, you will be prompted for when you want a retirement warning.



17. Click Submit.

Result:

The provisioning request is sent for approval. For the provisioning to begin, a user with the administrator, approver, or super administrator account role must approve the request. The administrator and super administrator roles can also edit, delete, and deny the requests. You will be able to see all provisioning requests where you are either the requestor or the approver.

Report a bug

5.3.1.2. Approving a Provisioning Request

After a user creates provisioning request, administrators have the ability to approve the request and allow CloudForms Management Engine to complete virtual machine or instance creation.

Procedure 5.19. To approve a provisioning request

- 1. Navigate to Services → Requests.
- 2. Click on the request you want to approve.
- 3. Type in a **Reason** for the approval.
- Click ✓ (Approve this request).

Result:

The provision request is sent for completion.

Report a bug

5.3.2. Controlling Virtual Machines

You can start, stop, and suspend a virtual machine through the CloudForms Management Engine console. To do this, the following requirements must be met:

- The virtual machine must be discovered.
- The virtual machine must be registered to a host and have a SmartProxy associated with it. It may not be on a repository.

Report a bug

5.3.2.1. Controlling the Power State of Virtual Machines

Start, stop, and suspend any number of virtual machines through the CloudForms Management Engine console using the following procedure.

Procedure 5.20. To control the power state of virtual machines

- 1. Navigate to Infrastructure → Virtual Machines.
- 2. Check the virtual machines that you want to change the power state for.
- 3. Click (Power Operations). Note that the only operations that will be available are the ones that apply to the virtual machines' current power state.
- 4. Click the button for the power operation you want.
 - a. Click (Power On) to start the selected virtual machines.
 - b. Click (Power Off) to stop the selected virtual machines.
 - c. Click (Suspend) to suspend the selected virtual machines.
 - d. Click (Reset) to stop the selected virtual machines
 - e. Click (Shutdown Guest) to stop the guest operating system.
 - f. Click (Restart Guest) to restart the guest operating system.
- 5. Click **OK** to confirm the choice you selected.

Result:

The requested action is initiated.

Report a bug

5.3.3. Analyzing Virtual Machines and Templates

Analyze a virtual machine to collect metadata such as user accounts, applications, software patches, and other internal information. If CloudForms Management Engine is not set up for automatic analysis, perform a manual analysis of a virtual machine. To perform a SmartState analysis, CloudForms Management Engine requires a running SmartProxy with visibility to the virtual machine's storage location. If the virtual machine is associated with a host or provider, ensure the virtual machine is registered with that system to be properly analyzed; the server requires this information since a snapshot might be created.



Vote

SmartState Analysis of a virtual machine requires access to its host. To perform a successful analysis, edit the virtual machine's host and enter the host's authentication credentials.

Procedure 5.21. To Analyze Multiple Virtual Machines Or Templates

- 1. Navigate to Infrastructure Virtual Machines.
- 2. Click the accordion for the items to analyze.
- 3. Check the Virtual Machines and Templates to analyze.
- 4. Click (Configuration), and then (Perform SmartState Analysis) on the taskbar.
- 5. Click **OK** to confirm.

Result:

The SmartProxy returns the current data.

Report a bug

5.3.3.1. Red Hat Enterprise Virtualization Prerequisites

5.3.3.1.1. SmartState Analysis on Red Hat Enterprise Virtualization Manager 3.1 - Storage Support Notes

Note the following requirements when performing a SmartState Analysis on Red Hat Enterprise Virtualization Manager 3.1.

NFS

The CloudForms Management Engine Server requires a mount to the NFS Datastore.

iSCSI / FCP

- ▶ Cluster must use full Red Hat Enterprise Linux (not Red Hat Enterprise Virtualization Hypervisor) Hosts.
- ▶ CFME VM will leverage the DirectLUN Disk to connect to each Storage Domain LUN.
- A CloudForms Management Engine Appliance must reside in each Datacenter with the iSCSI / FCP storage type.
- ▶ Each CloudForms Management Engine Appliance performing Smart State Analysis requires a sharable, non-bootable DirectLUN attached for each iSCSI/FCP storage domain.

Other Notes

- Set Server Relationship This is required to allow the VM SmartState Analysis job to determine what datacenter a CloudForms Management Engine Appliance is running in and therefore identify what storage it has access to in a RHEV environment.
 - 1. After setting up a CloudForms Management Engine Appliance and performing a refresh of the Provider, find the CloudForms Management Engine Appliance in the **Virtual Machine** accordion list and view its summary screen.
 - 2. Click Configuration → Edit Server Relationship.
 - 3. Select the server that relates to this instance of the CloudForms Management Engine Appliance.



Note

Only one DirectLUN for each storage domain may be mounted at a time.

Report a bug

5.3.3.1.2. SmartState Analysis on Red Hat Enterprise Virtualization Manager 3.0 - Storage Support Notes

There are two additional steps required to perform a SmartState Analysis on Red Hat Enterprise Virtualization Manager 3.0 using iSCSI or FCP storage. NFS storage does not have these requirements.

- 1. Enable DirectLUN support for the host and CloudForms Management Engine Appliance that performs the analysis.
 - Enable DirectLUN on host.
 - ▶ Enable DirectLUN on the CloudForms Management Engine Appliance. To do this, edit the desired Red Hat Enterprise Virtualization storage and get the LUNID value. Then, on the CloudForms Management Engine Appliance virtual machine in the Red Hat Enterprise Virtualization user interface, right-click and select Edit+Custom Properties and enter the following in the Custom Properties edit box:

directlun=<LUN ID>:readonly

If you have multiple storage domains separate them by a comma, similar to:

directlun=<LUN ID 1>:readonly,<LUN ID 2>:readonly,<LUN ID N>:readonly



Note

The CloudForms Management Engine Appliance must reside in the same data center as the storage you are trying to connect. If you have multiple data centers with iSCSI or FCP storage, you need a CloudForms Management Engine Appliance in each data center to support virtual machine scanning.

- Set Server Relationship This is required to allow the virtual machine SmartState analysis job to determine which data center a CloudForms Management Engine Appliance is running and therefore identify what storage it has access to in a Red Hat Enterprise Virtualization environment.
 - a. After setting up a CloudForms Management Engine Appliance and performing a refresh of the Provider, find the CloudForms Management Engine Appliance in the **Virtual Machine** accordion list and view its summary screen.
 - b. Click (Configuration), and then (Edit Server Relationship)
 - c. Select the server that relates to this instance of the CloudForms Management Engine Appliance.

Report a bug

5.3.3.1.3. Upgrades from Red Hat Enterprise Virtualization Manager 3.0 to 3.1

Environments upgrading from Red Hat Enterprise Virtualization Manager 3.0 to 3.1 might encounter issues regarding SSL communications with CloudForms Management Engine. This issue occurs from version 3.1 due to Apache being used as a front end to handle the SSL requests. The upgrade to 3.1 does not reconfigure the Management System for this. [2]

A change to the Red Hat Enterprise Virtualization Manager configuration allows CloudForms Management Engine to use SSL to connect rather than the current TLS.

- 1. Log into the Red Hat Enterprise Virtualization Manager server's terminal as the ${\bf root}$ user.
- 2. Modify the /usr/share/ovirt-engine/service/engine-service.xml.in file.
- 3. Scroll to protocols inside the ssl tag. The current value of the protocols attribute is TLSv1.

```
<ssl>
  </ssl>
```

4. Replace the value of the protocols attribute with SSLv3, TLSv1.

- 5. Save the file.
- 6. Restart the Red Hat Enterprise Virtualization Manager server.

In addition, set the ${\bf Server}$ ${\bf Relationship}$ for CloudForms Management Engine.

- 1. Select the CloudForms Management Server's virtual machine from Services Virtual Machines.
- 2. Go to Configuration → Edit Server Relationship and select the appropriate CloudForms Management Engine Server.

Report a bug

5.3.3.2. VMware vSphere Prerequisites

5.3.3.2.1. Installing VMware VDDK on CloudForms Management Engine

Execution of SmartState Analysis on virtual machines within a VMware environment requires the Virtual Disk Development Kit (VDDK). CloudForms Management Engine supports VDDK 1.2.2.

Procedure 5.22. To install the VDDK on a CloudForms Management Engine Appliance

1. Download VDDK 1.2.2 (VMware-vix-disklib-1.2.2-702422.x86_64.tar at the time of this writing) from the VMware website.



Note

If you do not already have a login ID to VMware, then you will need to create one. At the time of this writing, the file can be found by navigating to Support & Downloads → All Downloads → VMware vSphere → Drivers & Tools. Expand Automation Tools and SDKs, and select VMware vSphere 5.1 Virtual Disk Development Kit. Alternatively, find the file by searching for it using the Search on the VMware site.

- 2. Download and copy the file VMware-vix-disklib-1.2.2-702422.x86_64.tar.gz to the /root folder of the appliance.
- 3. Start an SSH session into the appliance.
- 4. Extract and install VDDK 1.2.2. using the following commands:

```
# cd /root
# tar -xvf VMware-vix-disklib-1.2.2-702422.x86_64.tar
# cd vmware-vix-disklib-distrib
# ./vmware-install.pl
```

5. Accept the defaults during the installation

```
Installing VMware VIX DiskLib API.
You must read and accept the VMware VIX DiskLib API End User License Agreement to continue.
Press enter to display it.
Do you accept? (yes/no) yes

Thank you.
What prefix do you want to use to install VMware VIX DiskLib API?
The prefix is the root directory where the other folders such as man, bin, doc, lib, etc. will be placed.
[/usr]

(Press Enter)

The installation of VMware VIX DiskLib API 1.2.2 build-702422 for Linux completed successfully. You can decide to remove this software from your system at any time by invoking the following command: "/usr/bin/vmware-uninstall-vix-disklib.pl".
Enjoy,
--the VMware team
```

6. Run **Idconfig** in order for CloudForms Management Engine to find the newly installed VDDK library.



7. Restart the CloudForms Management Engine Appliance.

Result:

The VDDK is now installed on the CloudForms Management Engine Appliance. This now allows use of the SmartState Analysis Server Role on the appliance.

Report a bug

 $\hbox{\cite{thm:com/show_bug.cgi?id=893979}} \label{thm:com/show_bug.cgi?id=893979} This is documented in the following link on Red Hat Bugzilla: $$https://bugzilla.redhat.com/show_bug.cgi?id=893979$. The property of the complex of t$

Chapter 6. Using Clouds

6.1. Clouds

Cloud computing provides a set of pooled resources used to create a set of scalable virtual machine instances. Resources includes CPUs, memory, storage, and networking. While users of virtualization infrastructure environments provision whole virtual machines, users of cloud computing environments provision only the necessary resources to build their instances. This means the customer can easily scale their instances by provisioning more resources. Metric usage is focused on the hardware layer, and results in the user paying only the necessary resources.

For example, a user might use an instance to store a web server. During peak times of use, the user provisions more cloud resources to maintain the performance of the server. During quiet times, the user reduces the consumption of cloud resources. As a result, the user only uses and pays for the resources used.

CloudForms Management Engine offers a set of tools for viewing and maintaining cloud providers and their associated resources. Supported cloud providers include:

- Amazon EC2 (public cloud)
- OpenStack (private cloud)

Report a bug

6.1.1. Adding a Cloud Provider

After initial installation and creation of a CloudForms Management Engine environment, add cloud providers with the following procedure.

Procedure 6.1. To Add a Cloud Provider

- 1. Navigate to Clouds → Providers.
- 2. Click (Configuration), then click (Add a New Cloud Provider).
- 3. Enter a Name for the provider.
- 4. Select the **Type** of cloud provider.
 - If selecting an Amazon EC2, select an Amazon Region.
 - ▶ If selecting an OpenStack provider, use the AMQP subtab to provide credentials required for the Advanced Message Queuing Protocol service on your OpenStack Nova component. Also enter the API Port of your Keystone service.
- 5. Select the appropriate **Zone** if you have more than one available.
- 6. Fill out the Credentials by typing in a User ID, Password, and a verification of this password (Verify Password).
 - If selecting an Amazon EC2, generate an Access Key in the Security Credentials of your Amazon AWS account. The Access Key ID acts as your User ID, and your Secret Access Key acts as your Password.
 - » If selecting **OpenStack**, use the Keystone User ID and Password for your login credentials.
- 7. If editing an OpenStack provider, use the **AMQP** subtab to provide credentials required for the Advanced Message Queuing Protocol service on your OpenStack Nova component.
- 8. Click Validate to validate the credentials.
- 9. Click Add.

Result:

CloudForms Management Engine adds a new cloud provider. Use this cloud provider for instance provisioning.

Report a bug

6.1.2. Discovering Amazon EC2 Cloud Providers

CloudForms Management Engine provides the ability to discover cloud providers associated with a particular set of Amazon EC2 account details.

Procedure 6.2. To Discover an Amazon Ec2 Cloud Provider

- 1. Navigate to Clouds \rightarrow Providers.
- 2. Click (Configuration), then click (Discover Cloud Providers).
- 3. Enter your Amazon EC2 User ID and Password. Reenter your password in the Verify Password field.
- 4. Click Start.

Result:

The Amazon EC2 providers discovery begins. CloudForms Management Engine adds all cloud providers associated with the chosen account.

Report a bug

6.1.3. Editing a Cloud Provider

Edit information about a provider such as the name, IP address, and login credentials.

Procedure 6.3. To Edit a Cloud Provider

- 1. Navigate to Clouds → Providers.
- 2. Click the cloud provider to edit.
- 3. Click (Configuration), and then (Edit Selected Cloud Provider).
- 4. Edit the Basic Information. This varies depending on the Type of provider.



The **Type** value is unchangeable. To use a different cloud provider, create a new one.

- 5. Fill out the Credentials by typing in a User ID, Password, and a verification of this password (Verify Password).
 - ▶ If selecting an Amazon EC2, generate an Access Key in the Security Credentials of your Amazon AWS account. The Access Key ID acts as your User ID, and your Secret Access Key acts as your Password.
 - » If selecting OpenStack, use the Keystone User ID and Password for your login credentials.
- 6. If editing an OpenStack provider, use the AMQP subtab to provide credentials required for the Advanced Message Queuing Protocol service on your OpenStack Nova component.
- 7. Click Validate and wait for notification of successful validation.
- 8. Click Save.

Result:

CloudForms Management Engine saves the modified provider details.

Report a bug

6.1.4. Refreshing Cloud Providers

Refresh a cloud provider to find other resources related to it. Ensure the chosen cloud providers have the correct credentials before refreshing.

Procedure 6.4. To Refresh Cloud Providers

- 1. Navigate to Clouds \rightarrow Providers.
- 2. Select the checkboxes for the cloud providers to refresh.
- 3. Click (Configuration), and then (Refresh Relationships and Power States).
- 4. Click **OK** to confirm the refresh.

Result:

CloudForms Management Engine refreshes the details for the chosen cloud providers.

Report a bug

6.2. Provisioning Instances

Cloud instances follow the same process (Request, Approval, Deployment) as a standard virtual machine from virtualization infrastructure. First, a user makes a request for instances and specifies the image, tags, availability zone and hardware profile flavor. Second, the request goes through the approval phase. Finally, CloudForms Management Engine executes the request.

Report a bug

6.2.1. Provisioning Instance

6.2.1.1. Provisioning an Instance from an Image

Users provision instances from images stored on their cloud provider. This procedure steps through the provisioning process.

Procedure 6.5. To provision an instance from an image

- 1. Navigate to Clouds → Instances.
- 2. Click (Lifecycle), then click (Provision Instances).
- 3. Select an image from the list presented.
- 4. Click Continue.

5. On the **Request** tab, enter information about this provisioning request. In **Request Information**, type in at least a first and last name and an email address. This email is used to send the requester status emails during the provisioning process for items such as auto-approval, quota, provision complete, retirement, request pending approval, and request denied. The other information is optional. If the CloudForms Management Engine Server is configured to use LDAP, you can use the **Look Up** button to populate the other fields based on the email address.



Note

Parameters with a * next to the label are required to submit the provisioning request. To change the required parameters, see *Customizing Provisioning Dialogs*.

- 6. Click the **Purpose** tab to select the appropriate tags for the provisioned instance.
- 7. Click the **Catalog** tab for basic instance options.
 - a. To change the image to use as a basis for the instance, select it from the list of images.
 - b. Select the **Number of VMs** to provision.
 - c. Type a VM Name and VM Description.
- 8. Click the **Environment** tab to select the instance's **Availability Zone**. If no specific availability zone is require, select the **Choose Automatically** checkbox.
- 9. Click the Hardware tab to set provider options such as hardware flavor and security settings.
 - a. Select a flavor from the Instance Type list.
 - b. Select a Guest Access Key Pair for access to the instance.
 - c. In **Security Groups**, select which security group suits your allowed port and IP address requirements. Otherwise, leave at the default group.
 - d. If provisioning from an Amazon EC2 provider, select the **CloudWatch** monitoring level. Leave as **Basic** for the default EC2 monitoring.
 - e. In Public IP Address, select the public IP address that suits your requirements.
- 10. Click the **Customize** tab to set additional instance options.
 - a. Under Credentials, enter a Root Password for the root user access to the instance.
 - b. Enter a IP Address Information for the instance. Leave as DHCP for automatic IP assignment from the provider.
 - c. Enter any **DNS** information for the instance if necessary.
 - d. Select a **Customize Template** for additional instance configuration. Select from the Cloudinit scripts stored on your appliance.
- 11. Click the **Schedule** tab to set the provisioning and retirement date and time.
 - a. In **Schedule Info**, choose whether the provisioning begins upon approval, or at a specific time. If you select **Schedule**, you will be prompted to enter a date and time.
 - b. In **Lifespan**, select whether to power on the instances after they are created, and whether to set a retirement date. If you select a retirement period, you will be prompted for when to receive a retirement warning.
- 12. Click Submit.

Result:

The provisioning request is sent for approval. For the provisioning to begin, a user with the admin, approver, or super admin account role must approve the request. The admin and super admin roles can also edit, delete, and deny the requests. You will be able to see all provisioning requests where you are either the requestor or the approver.

Report a bug

6.2.1.2. Approving a Provisioning Request

After a user creates provisioning request, administrators have the ability to approve the request and allow CloudForms Management Engine to complete virtual machine or instance creation.

Procedure 6.6. To approve a provisioning request

- 1. Navigate to Services → Requests.
- 2. Click on the request you want to approve.
- 3. Type in a Reason for the approval.
- Click ✓ (Approve this request).

Result

The provision request is sent for completion.

Report a bug

6.2.2. Controlling Instances

6.2.2.1. Controlling the Power State of an Instance

Start, stop, and suspend an instance through the CloudForms Management Engine console using the following procedure.

Procedure 6.7. To control the power state of a instance

- 1. Navigate to Cloud \rightarrow Instance.
- 2. Click the instance to change the power state.
- 3. Click **Power Operations**, then click the button for the desired power operation.
 - a. Click (Power On) to start the selected instances.
 - b. Click (Power Off) to stop the selected instances.
 - c. Click (Suspend) to suspend the selected instances.
 - d. Click (Reset) to stop the selected instances.
 - e. Click (Stop Guest) to stop the guest operating system.
 - f. Click (Restart Guest) to restart the guest operating system.
- 4. Click **OK** to confirm the choice you selected.

Result:

The requested action is initiated.

Report a bug

Customizing Provisioning Dialogs

The default set of provisioning dialogs shows all possible options. However, CloudForms Management Engine also provides the ability to customize which tabs and fields are shown. You can decide what fields are required to submit the provisioning request or set default values.

For each type of provisioning, there is a dialog that can be created to adjust what options are presented. While samples are provided containing all possible fields for provisioning, you can remove what fields are shown. However, you cannot add fields or tabs.

Edit the dialogs to:

- 1. Hide or show provisioning tabs.
- 2. Hide or show fields. If you hide an attribute, the default will be used, unless you specify otherwise.
- 3. Set default values for a field.
- 4. Specify if a field is required to submit the request.
- 5. Create custom dialogs for specific users.

Report a bug

A.1. Adding a Provision Dialog for all Users

This procedure shows you how to add a provision dialog.

Procedure A.1. To add a provision dialog for all users

- 1. Navigate to Automate → Customization.
- 2. Click the **Provisioning Dialogs** accordion.
- 3. Click the type of dialog you want to create: Host Provision, VM Provision or VM Migrate.
- 4. Select one of the default dialogs.
- 5. Click (Configuration), and then (Copy this Dialog).
- 6. Type a new Name and Description for the dialog.
- 7. In the **Content** field,
 - To remove a tab from display, change its display value to ignore. By choosing ignore, you not only hide the tab, but also skip any fields on that tab that were required. To show the tab, change the display value to show.
 - ▶ To hide a field, change its display value from *edit* to *hide*. To display fields of most data types, use *edit*. To display a button, use *show*. To set a default value for a field, use *:default => defaultvalue* to the list of parameters for the field. Set the required parameter to either *true* or *false* based on your needs. Note that if you set required parameter to *true*, the field must have a value for the provision request to be submitted.
- 8. Click Add.

Result:

If you are using **Provisioning Profiles**, you can specify a specific file that holds the customizations. To do this, you must create an instance mapping to this file in the CloudForms Management Engine Applications/provisioning/profile/VM provisioning by group class. By default, if you are using provisioning profiles and the group does not have a defined instance, the appropriate default dialog file will be used based on the type of provisioning selected.

Report a bug

Revision History

Revision 1.0.0-13 Thu Oct 17 2013 Dan Macpherson
Finalizing

Revision 1.0.0-12 Tue Oct 15 2013 Dan Macpherson

Bumping to version 3.0

Revision 1.0.0-11 Mon Oct 14 2013 Dan Macpherson

Adding appendix for Customizing Provisioning Dialogs

Revision 1.0.0-10 Mon Oct 14 2013 Dan Macpherson

QE Implementation for #1012233

Revision 1.0.0-9 Mon Oct 14 2013 Dan Macpherson

Implemented QE Review for BZ#1009624, BZ#1012081, BZ#1012229, BZ#1012749, BZ#1005847, BZ#1016051, BZ#1016030, BZ#1014504, BZ#1014541, BZ#1014539, BZ#1014538, BZ#1014536, BZ#1014551, BZ#1012236

Revision 1.0.0-8 Fri Oct 11 2013 Dan Macpherson

Updating Product and Component for Feedback page

Revision 1.0.0-7 Tue Oct 1 2013 Dan Macpherson

Rebrewing for QE Review implementation

Revision 1.0.0-6 Thu Sep 26 2013 Dan Macpherson

New methods added to the Settings and Ops Guide Default password added to Quick Start Guide

Revision 1.0.0-5 Wed Sep 19 2013 Dan Macpherson

Revision of some provisioning sections

Revision 1.0.0-4 Wed Sep 18 2013 Dan Macpherson

Minor changes

Revision 1.0.0-3 Wed Sep 18 2013 Dan Macpherson

Generation of new Beta

Revision 1.0.0-1 Fri Aug 24 2013 Dan Macpherson

Creation of first draft