CloudForms 3.0
Management Engine 5.2 Installation Guide

Installing the CloudForms Management Engine Appliance
Edition 1

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Keywords

Abstract

This guide provides installation and configuration instructions for the CloudForms Management Engine Appliance.

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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 Liberation Fonts 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** → **Accessories** → **Character Map** from the main menu bar. Next, choose **Search** → **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** → **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       home   = (EchoHome) ref;
      Echo           echo   = home.create();

      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.

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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.

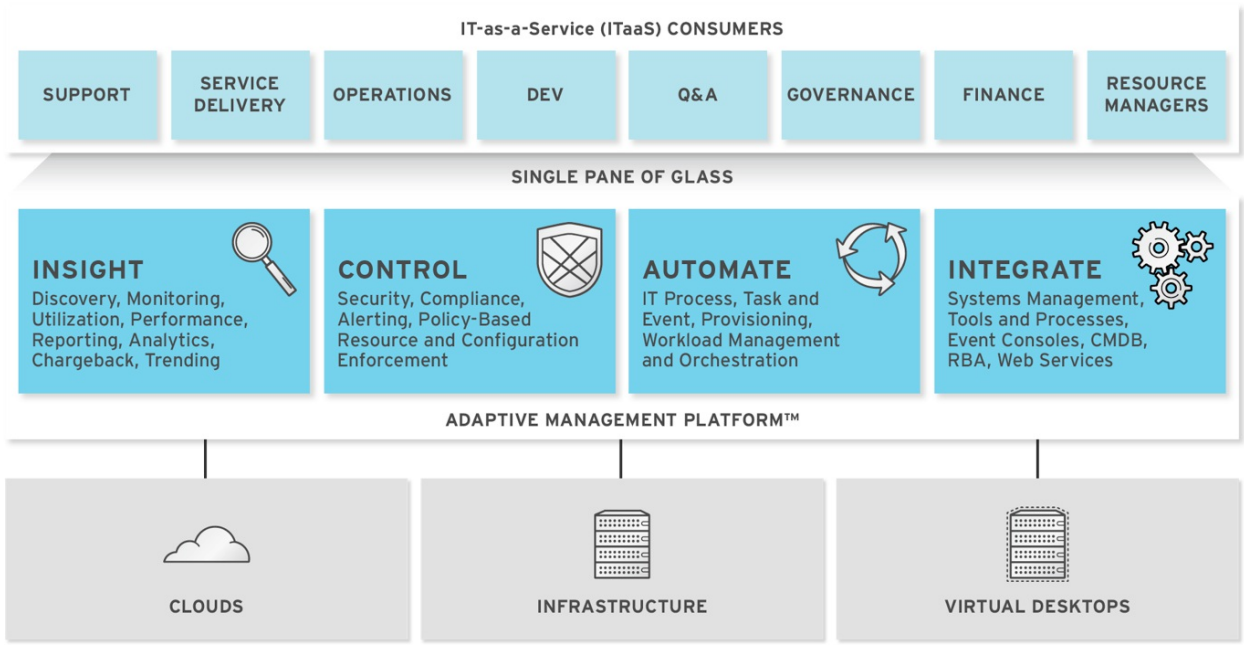

Figure 1.1. Features

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.

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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.

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Chapter 2. Installing CloudForms

CloudForms Management Engine is able to be installed and ready to configure in a few quick steps. After downloading CloudForms Management Engine as a virtual machine image template from the Red Hat Customer Portal, the installation process takes you through the steps of uploading the appliance to a supported virtualization or cloud provider, including:

- Red Hat Enterprise Virtualization Manager
- VMware vSphere
- OpenStack

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2.1. Obtaining the CloudForms Management Engine Appliance

Download the CloudForms Management Engine Appliance from the Red Hat Customer Portal using the following instructions.

Procedure 2.1. To download the CloudForms Management Engine Appliance

1. Go to **access.redhat.com** and log into the Red Hat Customer Portal using your Customer Account Details.
2. Navigate to **Downloads** → **Red Hat Enterprise Linux (Download Software)** → **Show All Child Channels**.
3. In the **Filter by Download Software** section, type **Red Hat CloudForms**.
4. Expand **Red Hat Enterprise Linux Server 6** and click on the desired architecture (**x86_64**) for **Red Hat CloudForms (Management Engine)** .
5. Click the **Downloads** tab.
6. Click the **Red Hat Virtual Appliance** download link for your appropriate cloud or virtualization infrastructure. Choices include Red Hat Enterprise Virtualization, VMware vSphere, or OpenStack.

Result:

The CloudForms Management Engine Appliance downloads to your local machine.

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2.2. Uploading the Appliance on Red Hat Enterprise Virtualization Manager

Uploading the CloudForms Management Engine Appliance file onto Red Hat Enterprise Virtualization Management systems has the following requirements:

- 44 GB of storage space on both the export domain and the local partition where **/tmp** resides since the OVF is locally expanded into that directory.
- Install the **rhevm-image-uploader** package to your local machine.

```
# yum install rhevm-image-uploader
```

  It is recommended to use **-v** (verbose logging) when using the **rhevm-image-uploader** script to see the progression of the upload.
- Depending on your infrastructure, allow approximately 90 minutes for the upload.
- Once the OVF is uploaded and imported as a template, add a network adapter to the template itself.

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2.2.1. Virtual Machine Image Uploader

Using the rhevm-image-uploader command, you can list export storage domains and upload virtual machines in OVF to an export storage domain and have them automatically recognized in the Red Hat Enterprise Virtualization Manager. The tool only supports gzip compressed OVF files created by Red Hat Enterprise Virtualization.

The image uploader makes creating distributable virtual machine images practical.

The archive should contain images and master directories that are in the following format:

```
|-- images
|   |-- [Image Group UUID]
|        |--- [Image UUID (this is the disk image)]
|        |--- [Image UUID (this is the disk image)].meta
|-- master
|   |---vms
|       |--- [UUID]
|            |--- [UUID].ovf
```

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2.2.2. Syntax for the rhevm-image-uploader Command

The basic syntax for the image uploader command is:

```
rhevm-image-uploader [options] list
rhevm-image-uploader [options] upload [file].[file]...[file]
```

The two supported modes of operation are ***list*** and ***upload***.

- The ***list*** parameter lists the valid export storage domains available for image uploads.
- The ***upload*** parameter uploads selected image file(s) to the specified image storage domain.

The image uploader command requires either the ***list*** or ***upload*** parameter be included for basic usage. The ***upload*** parameter requires a minimum of one local file name to upload.

There are numerous parameters to further refine the **rhevm-image-uploader** command. You can set defaults for any of these in the **/etc/ovirt-engine/imageuploader.conf** file.

General Options

-h*, *--help

Displays command usage information and returns to prompt.

--conf-file=PATH

Sets ***PATH*** as the configuration file the tool is to use. The default is **etc/ovirt-engine/imageuploader.conf**.

--log-file=PATH

Sets ***PATH*** as the specific file name the command should use for the log output.

--quiet

Sets quiet mode, reducing console output to a minimum. Quiet mode is off by default.

-v*, *--verbose

Sets verbose mode, providing more console output. Verbose mode is off by default.

-f*, *--force

Force mode is necessary when the source file being uploaded has an identical file name as an existing file at the destination; it forces the existing file to be overwritten. Force mode is off by default.

Red Hat Enterprise Virtualization Manager Options

-u USER*, *--user=USER

Sets the user associated with the file to be uploaded. The ***USER*** is specified in the format ***user*@*domain***, where ***user*** is the user name and ***domain*** is the directory services domain in use. The user must exist in directory services and be known to the Red Hat Enterprise Virtualization Manager.

-r FQDN*, *--rhevm=FQDN

Sets the fully qualified domain name of the Red Hat Enterprise Virtualization Manager server from which to upload images, where ***FQDN*** is replaced by the fully qualified domain name of the Manager. It is assumed that the image uploader is being run on the same client machine as the Red Hat Enterprise Virtualization Manager; the default value is **localhost:443**.

Export Storage Domain Options

These options specify the export domain to which files are uploaded. They are alternatives; do not use these parameters together.

-e*, *--export-domain=EXPORT_DOMAIN

Sets the storage domain ***EXPORT_DOMAIN*** as the destination for uploads.

-n*, *--nfs-server=NFSSERVER

Sets the NFS path ***NFSSERVER*** as the destination for uploads.

-i*, *--ovf-id

Use this option if you do not want to update the UUID of the image. By default, the tool will generate a new UUID for the image. This ensures that there is no conflict between the id of the incoming image and those already in the environment.

-d*, *-disk-instance-id

Use this option if you do not want to rename the instance ID for each disk (i.e. InstanceId) in the image. By default, this tool will generate new UUIDs for disks within the image to be imported. This ensures that there are no conflicts between the disks on the imported image and those within the environment.

-m*, *--mac-address

Use this option if you do not want to remove the network components from the image that will be imported. By default, this tool will remove any network interface cards from the image to prevent conflicts with network cards on other virtual machines within the environment. Once the image has been imported, use the Administration Portal to add network interface cards back and the Manager will ensure that there are no MAC address conflicts.

-N NEW_IMAGE_NAME*, *--name=NEW_IMAGE_NAME

Supply this option if you want to rename the image.

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2.2.3. Uploading the Appliance with the Image Uploader

The following procedure uploads the CloudForms Management Engine Appliance using the Image Uploader tool.

Procedure 2.2. To upload the CloudForms Management Engine Appliance

1. Change to the directory containing the CloudForms Management Engine Appliance.
2. Run the following command:

```
# rhevm-image-uploader -e myexportdomain -v -m upload evm-v5.1.0.4-r.ovf
```

Substitute the ***myexportdomain*** with your chosen Export storage domain.

3. Enter your Red Hat Enterprise Virtualization Manager login details when prompted.

```
Please provide the REST API username for RHEV-M: admin@internal
Please provide the REST API password for the admin@internal RHEV-M user: **********
```

Important

Make sure your Red Hat Enterprise Virtualization Manager has administrator access to the chosen Export storage domain.

Result:

The Image Uploader tool begins uploading the CloudForms Management Engine Appliance.

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2.2.4. Uploading the Appliance without the Image Uploader

The following procedure provides manual upload instructions if the Image Uploader tool is not available or fails to upload.

Procedure 2.3. To manually upload the CloudForms Management Engine Appliance

1. Log into a host in your Red Hat Enterprise Virtualization with a mount to the Export storage domain.
2. Change to the Export storage domain's directory.
3. Copy the CloudForms Management Engine Appliance OVF to this directory.
4. Extract the OVF file using **tar**.

```
tar xvf evm-v5.1.0.4-r.ovf
```

Result:

The CloudForms Management Engine Appliance manually extracts to your Export storage domain.

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2.2.5. Running CloudForms Management Engine

After uploading the appliance to the Export storage domain, import it as a template and create a virtual machine. Use the following

procedure as a guide.

Procedure 2.4. To create and run CloudForms Management Engine

1. Import the appliance from the Export storage domain as a template in a Red Hat Enterprise Virtualization Data storage domain. See the *Red Hat Enterprise Virtualization Administrator Guide* for instructions.
2. Once the import is complete, check the template for a network interface (NIC). If the template does not include one, create a NIC for it.
3. Create a new virtual machine using the CloudForms Management Engine Appliance template as a basis. See the *Red Hat Enterprise Virtualization Administrator Guide* for instructions.
4. Start the newly created CloudForms Management Engine Appliance virtual machine

Result:

Your Red Hat Enterprise Virtualization environment now contains a running CloudForms Management Engine Appliance.

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2.3. Uploading the Appliance on VMware vSphere

Uploading the CloudForms Management Engine Appliance file onto VMware vSphere systems has the following requirements:

- 44 GB of space on the chosen vSphere datastore.
- Administrator access to the vSphere Client.
- Depending on your infrastructure, allow time for the upload.

Note

This is the procedural steps as of the time of writing. For more information, consult your official VMware documentation.

Use the following procedure to upload the CloudForms Management Engine Appliance OVF template from your local file system using the vSphere Client.

1. In the vSphere Client, select **File** → **Deploy OVF Template**. The Deploy OVF Template wizard appears.
2. Specify the source location and click **Next**.
   - Select **Deploy from File** to browse your file system for the OVF template.
   - Select **Deploy from URL** to specify a URL to an OVF template located on the internet.
3. View the **OVF Template Details** page and click **Next**.
4. Select the deployment configuration from the drop-down menu and click **Next**. The option selected typically controls the memory settings, number of CPUs and reservations, and application-level configuration parameters.
5. Select the host or cluster on which you want to deploy the OVF template and click **Next**.
6. Select the host on which you want to run the run the CloudForms Management Engine appliance, and click **Next**.
7. Navigate to, and select the resource pool where you want to run the CloudForms Management Engine appliance and click **Next**.
8. Select a datastore to store the deployed CloudForms Management Engine Appliance, and click **Next**. Ensure to select a datastore large enough to accommodate the virtual machine and all of its virtual disk files.
9. Select the disk format to store the virtual machine virtual disks, and click **Next**.
   - Select **Thin Provisioned** if the storage is allocated on demand as data is written to the virtual disks.
   - Select **Thick Provisioned** if all storage is immediately allocated.
10. For each network specified in the OVF template, select a network by right-clicking the **Destination Network** column in your infrastructure to set up the network mapping and click **Next**.
11. The **IP Allocation** page does not require any configuration changes. Leave the default settings in the **IP Allocation** page and click **Next**.
12. Set the user-configurable properties and click **Next**. The properties to enter depend on the selected IP allocation scheme. For example, you are prompted for IP related information for the deployed virtual machines only in the case of a fixed IP allocation scheme.
13. Review your settings and click **Finish**.

Result:

The progress of the import task appears in the vSphere Client Status panel.

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2.4. Uploading the Appliance on OpenStack

Login to your OpenStack dashboard to upload your CloudForms Management Engine Appliance.

Procedure 2.5. To Upload the Appliance on OpenStack

1. Log in to the OpenStack dashboard.
2. In the **Project** tab, click on **Images & Snapshots** under the **Manage Compute** menu.
3. Click the **Create Image** button. The **Create An Image** dialog is displayed.
4. Configure the settings that define your instance on the **Details** tab.
    a. Enter a name for the image.
    b. Include the location URL of the image in the **Image Location** field, or save the image file to your machine and use this location in the **Image File** field.
    c. Select the correct type from the drop down menu for the **Format** field (for example, **QCOW2**).
    d. Leave the **Minimum Disk (GB)** and **Minimum RAM (MB)** fields empty.
    e. Check the **Public** box.
    f. Click the **Create Image** button.

Result:

You have successfully uploaded the CloudForms Management Engine Appliance.

Note

As a result of this procedure, the appliance image is placed in a queue to be uploaded. It may take some time before the **Status** of the image changes from **Queued** to **Active**.

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Chapter 3. 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.

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3.1. Changing Settings on the CloudForms Management Engine Appliance

Procedure 3.1. 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

3.2. 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
- 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 3.2. 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 (**`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 4. 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

4.1. 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

4.2. Accessing the Console

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

Procedure 4.1. 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

4.3. Navigating the Console

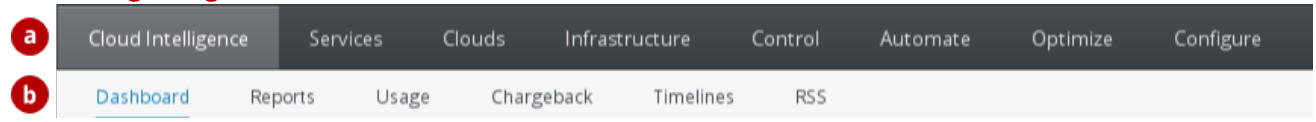

Figure 4.1. CloudForms Management Engine's main navigation menu

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.
- **Optimize** 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 5. 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

5.1. Editing Customer Information

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

Procedure 5.1. 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

5.2. Registering Appliances

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

Procedure 5.2. 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

5.3. Updating Appliances

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

Procedure 5.3. 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

5.4. Updating the Appliance Operating System

Users update CloudForms Management Engine packages through the web console under **Configure** → **Configure** → **Settings** → **Region** → **RHN Updates**. However, updating the Appliance's operating system requires a manual update with **yum**.

Procedure 5.4. To update an Appliance's operating system

1. Log in to the Appliance as the **root** user.
2. Run **yum update** and confirm any updates.

```
# yum update
...
Transaction Summary
============================================
Upgrade  52 Packages

Total download size: 34 M
Is this ok [y/N]: Y
```

Result:

yum updates the operating system for your CloudForms Management Engine Appliance.

Report a bug

Additional Red Hat Enterprise Virtualization Requirements

A.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

A.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.

2. 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

A.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 **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>
  <protocols>TLSv1</protocols>
</ssl>
```

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

```
<ssl>
  <protocols>SSLv3,TLSv1</protocols>
</ssl>
```

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

In addition, set the **Server 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

[2] This is documented in the following link on Red Hat Bugzilla: https://bugzilla.redhat.com/show_bug.cgi?id=893979

Additional VMware vSphere Requirements

B.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 B.1. 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 **`ldconfig`** in order for CloudForms Management Engine to find the newly installed VDDK library.

   Note

   Use the following command to verify the VDDK files are listed and accessible to the appliance:

   ```
   # ldconfig -p | grep vix
   ```

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

Security

C.1. Configuring Firewall for CloudForms Management Engine

These following procedure contains instructions on how to configure the firewall on CloudForms Management Engine.

Procedure C.1. To configure the firewall

1. Run each of the following commands to add the **iptables** configuration rules to memory. Each rule is added and followed in sequence order.

   Table C.1. Firewall commands

Command	Reason
iptables -A INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT	Allow existing connections.
iptables -A INPUT -p tcp --dport ssh -j ACCEPT	Allow SSH.
iptables -A INPUT -p tcp --dport 443 -j ACCEPT	Allow tcp SSL.
iptables -A INPUT -p udp --dport 443 -j ACCEPT	Allow udp SSL.
iptables -A INPUT - p tcp -- dport 5432 -j ACCEPT	Allow remote connections to PostgreSQL. PostgreSQL only allows **root** login. Only the appliance running the VMDB needs this port open. If that appliance is not using the PostgreSQL database, this port should remain closed. Do not run this command if this appliance is not hosting the VMDB. Refer to Example C.1, “Change default configuration to limit PostgreSQL communication” to only allow connections to PostgreSQL from approved IP addresses.
iptables -A INPUT -p icmp -j ACCEPT	Allow icmp.
iptables -A INPUT -m limit --limit 5/m --limit-burst 7 -j LOG --log-prefix 'iptables drop**' --log-level 4**	Log any dropped packets to /var/log/messages.
iptables -A INPUT -j DROP	Drop any traffic that doesn't match above.
iptables -I INPUT 1 -i lo -j ACCEPT	Insert this rule as first in chain allow loop back connections.
iptables -A OUTPUT -p icmp -j ACCEPT	Output icmp packets.
iptables -A FORWARD -p icmp -j ACCEPT	Forward icmp packets.

2. Save the file with the configuration using the following command.

```
# iptables-save > /etc/sysconfig/iptables
```

   This command creates **/etc/sysconfig/iptables**, which looks similar to:

```
# Generated by iptables
# Generated by iptables
-
save v1.3.5 on Tue Oct 5 11:55:42 2010
*filter
:INPUT ACCEPT [12246:3938412]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [55985:245536782]
-A INPUT -i lo -j ACCEPT
-A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT
-A INPUT -p tcp -m tcp --dport 22 -j ACCEPT
-A INPUT -p tcp -m tcp --dport 443 -j ACCEPT
-A INPUT -p udp -m udp --dport 443 -j ACCEPT
-A INPUT -p tcp -m tcp --dport 5432 -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -m limit --limit 5/min --limit-burst 7 -j LOG --log-prefix "**iptables drop**"
-A INPUT -j DROP
-A FORWARD -p icmp -j ACCEPT
-A OUTPUT -p icmp -j ACCEPT
COMMIT
# Completed on Tue Oct 5 11:55:42 2010
```

Result:

The firewall is configured for your CloudForms Management Engine Appliance.

Copy the **/etc/sysconfig/iptables** file to any other CloudForms Management Engine Appliance's respective **/etc/sysconfig** directory

and restart the firewall for each server using the following command:

```
# service iptables restart
```

Note the following:

- If modifying the iptables file directly, restart the firewall after saving the file by typing:

  ```
  # service iptables restart
  ```

- To update **/etc/sysconfig/rsyslog** to only log fatal errors to the console, add the following line:

  ```
  KLOGD_OPTIONS="-x -c 1"
  ```

- To check firewall status, type:

  ```
  # service iptables status
  ```

Example C.1. Change default configuration to limit PostgreSQL communication

The commands shown in the table below change the firewall configuration for PostgreSQL.

Command	Reason
iptables -A INPUT -s 192.168.0.0/16 -p tcp --dport 5432 -j ACCEPT	Allow only IP addresses in 192.168.x.x subnets.
iptables -A INPUT -s 192.168.20.0/24 -p tcp --dport 5432 -j ACCEPT	Allow only IP addresses in 192.168.20.x subnet.

To make these changes, use one of the following options:

- Flush the existing rules using **iptables -F**. Add the rules in sequence order shown in Table C.1, “Firewall commands” substituting the port 5432 line with one of the examples. Save the new configuration as shown in Table C.1, “Firewall commands”.
- Change the current **/etc/sysconfig/iptables** file substituting the port 5432 line with one of the examples. Follow the same format that exists in the **iptables** file. Restart the firewall using:

  ```
  # service iptables restart
  ```

Report a bug

C.2. CloudForms Management Engine Ports Reference

Table C.2. Ports used by CloudForms Management Engine

Initiator (CFME Role if applicable)	Receiver (CFME Role if applicable)	Application	TCP Port	UDP Port	Purpose/Reason
Administrator (Internet Browser)	CFME Appliance (User Interface)	HTTPS	443		Access to CFME Appliance User Interface
Administrator (Internet Browser)	CFME Appliance (User Interface)	HTTP	80		Redirect Web Browser to HTTPS service (443)
Service Catalog or other integration through Web Service	CFME Appliance (Web Service)	HTTPS	443		Access to CFME Appliance Web Service
CFME Appliance (SmartProxy)	RHEV-M Server	HTTPS	8443		API communications to RHEV-M environment (Inventory, Operations, SmartProxy)
CFME Appliance (C&U)	RHEV-M Server	PostgreSQL	5432		RHEV-M History Database (Database connectivity not enabled by default). See How to access RHEV-M Postgres DB from remote machine.
CFME Appliance	RHEVH Hosts or RHEL Hypervisors	SSH	22		SSH connections.
CFME Appliance	RHEVH Hosts or RHEL Hypervisors	DirectLUN			Direct LUN hook must be installed and enabled for embedded VM scanning on FC or iSCSI storage devices. Not a tcp/udp connection.
CFME Appliance	NFS Server	NFS	2049	2049	Embedded NFS VM scanning
CFME Appliance(Management System Inventory, Management System Operations, C & U Data Collection, SmartProxy)	vCenter	HTTPS	443		CFME Appliance running any of these roles will initiate communication with vCenter on this port.
CFME Appliance (SmartProxy)	ESX, ESXi Host	HTTPS	443		CFME Appliance
CFME Appliance (SmartProxy)	ESX Hosts(if analyzing VMs through Host)	SOAP over HTTPS	902		Communication from CFME Appliance to Hosts.
CFME Appliance (SmartProxy)	vCenter (if analyzing VMs through VC)	SOAP over HTTPS	902		Communication from CFME Appliance to vCenters.
CFME Appliance(SmartProxy)	ESX Hosts (not needed for ESXi)	SSH	22		CFME Appliance console access (ssh) to ESX hosts
CFME Appliance (User Interface)	Any Virtual Machine	TCP	903		VM Remote Console (if using MKS plugin)
CFME Appliance (User Interface)	Any Virtual Machine	TCP	5900		VM Remote Console (if using VNC)
CFME Appliance (any role)	CFME Appliance running the VMDB (or MS SQL)	PostgreSQL Named Pipes	5432 (1433 MS SQL)		CFME Appliance connectivity to the CFME Database (PostgreSQL or MS SQL)
CFME Subordinate Region VMDB Appliance(Database Synchronization)	CFME Master Region VMDB Appliance	PostgreSQL Named Pipes	5432		Regional VMDB node replication up to Master VMDB node (PostgreSQL only)
CFME Appliance(Authentication through LDAP)	LDAP Server (AD or other)	LDAP	389		LDAP integration
CFME Appliance (Authentication through LDAPs)	LDAP Server (AD or other)	LDAPs	636		LDAPS integration
SNMP Agent	CFME Appliance (Notifier)	SNMP (UDP)		161	SNMP Polling

CFME Appliance (Notifier)	SNMP Server	SNMP (TCP)	162		SNMP Trap Send
CFME Appliance (Notifier)	Mail server	SMTP	25		SNMP Trap Send
CFME Appliance (any role)	NTP Server	NTP		123	Time Source
CFME Appliance	CFME SmartProxy installed on Windows or Linux	HTTPS	1139		Communication with SmartProxy
CFME SmartProxy installed on Windows or Linux	CFME Appliance	HTTPS	443		SmartProxy Heartbeat
CFME Appliance	DNS Server	UDP		53	DNS Lookups

Report a bug

Revision History

Revision 1.0.0-12	**Thu Oct 17 2013**	**Dan Macpherson**

Finalizing

Revision 1.0.0-11	**Wed Oct 16 2013**	**Dan Macpherson**

Adding procedures for registering and updating the Appliance and operating system

Revision 1.0.0-10	**Tue Oct 15 2013**	**Dan Macpherson**

Bumping to version 3.0

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