Red Hat CloudForms
4.1
Installing Red Hat CloudForms on Google Compute Engine

How to install and configure Red Hat CloudForms on a Google Compute Engine environment

Red Hat CloudForms Documentation
Team

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Abstract

This guide provides instructions on how to install and configure Red Hat CloudForms on a Google Compute Engine environment. If you have a suggestion for improving this guide or have found an error, please submit a Bugzilla report at http://bugzilla.redhat.com against Red Hat CloudForms Management Engine for the Documentation component. Please provide specific details, such as the section number, guide name, and CloudForms version so we can easily locate the content.

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1. INSTALLING RED HAT CLOUDFORMS

Red Hat CloudForms is able to be installed and ready to configure in a few quick steps. After downloading Red Hat CloudForms 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.

Important

After installing the Red Hat CloudForms appliance, you must configure the database for Red Hat CloudForms. See Section 2.3, “Configuring a Database for Red Hat CloudForms”.

1.1. Obtaining the Appliance

1. Go to access.redhat.com and log in to the Red Hat Customer Portal using your customer account details.
2. Click **Downloads** in the menu bar.
3. Click **A-Z** to sort the product downloads alphabetically.
4. Click **Red Hat CloudForms** → **Download Latest** to access the product download page.
5. From the list of installers and images, select the **Google Compute Engine** download link.

1.2. Uploading the Appliance on Google Compute Engine

When the Red Hat CloudForms Google Compute Engine appliance has finished downloading to your system, upload the appliance with the following steps:

1. Log in to the Google Cloud Platform dashboard.
2. Click on **Home** in the top left of the screen.
3. Click  to show the **Products and Services** menu. Click **Storage**.
4. Create a bucket by clicking **Create Bucket**, and configure the following details:
    a. Enter a unique **Name** for the bucket using lower case alphanumeric characters, hyphens, and/or underscores.
    b. Configure your location from the dropdown list.
    c. Click **Create**.
5. Click **Upload Files** and browse to the location of the Red Hat CloudForms Google Compute Engine appliance you downloaded. Select the `tar.gz` file on your local machine, and click **Open** to begin the upload.
6. When the upload is complete, click  **Products & services** → **Compute Engine** on the left menu.

7. Create an image by clicking **Images** from the left menu, then **Create Image**. Fill in the following details about the image:

    a. Enter a unique **Name** for the image using lower case alphanumeric characters and/or hyphens.

    b. Add a **Description** if desired.

    c. Configure **Encryption** if desired. This defaults to **`Automatic (recommended)`**.

    d. In **Source**, use the dropdown to select **`Cloud Storage file`**. This shows the **Cloud Storage file** field.

    e. In **Cloud Storage file**, click **Browse** to bring up the **Select object** window. Select the bucket containing the image you uploaded and click the **>** symbol to locate the **`tar.gz`** image inside the bucket. Select the image and click **Select**.

    f. Click **Create**. Creating the image will take a few minutes. When the image is created, the screen will refresh and the new image will appear in the **Images** list.

8. Create a virtual machine instance by navigating to **VM instances** → **Create Instance**, and configure the following fields:

    a. Enter a unique **Name** for the virtual machine instance using lower case alphanumeric characters and/or hyphens.

    b. Select the **Zone** closest to your location.

    c. Under **Boot disk**, click **Change** to bring up the **Boot disk** window. Click the **Your Image** tab and select the disk you previously created. Click **Select**.

    d. Under **Firewall**, select the check box for **Allow HTTPS traffic**.

    e. Click **Management, disk, networking, SSH keys**. Then, click the **SSH Keys** tab, add your entire SSH public key data in the **Username** box.

    f. Configure any other fields as desired, and click **Create**.

Your new virtual machine instance, as well as the external IP address for accessing the Red Hat CloudForms interface, appears under **VM instances**.

2. CONFIGURING RED HAT CLOUDFORMS

Although the Red Hat CloudForms appliance comes configured to be integrated immediately into your environment, you can make some changes to its configuration.

2.1. Changing Configuration Settings

The procedure describes how to make changes to the configuration settings on the Red Hat CloudForms appliance.

1. Log in to the appliance using the SSH key.
2. Enter the **`sudo appliance_console`** command. 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.

Note

The Red Hat CloudForms appliance console automatically logs out after five minutes of inactivity.

2.2. Advanced Configuration Settings

You can use the following options for advanced configuration of the appliance:

- Use **Set DHCP Network Configuration** to use DHCP to obtain the IP address and network configuration for your Red Hat CloudForms appliance. The appliance is initially configured as a DHCP client with bridged networking.
- Use **Set Static Network Configuration** if you have a specific IP address and network settings you need to use for the Red Hat CloudForms appliance.
- Use **Test Network Configuration** to check that name resolution is working correctly.
- Use **Set Hostname** to specify a hostname for the Red Hat CloudForms appliance.

Important

A valid fully qualified hostname for the Red Hat CloudForms appliance is required for SmartState analysis to work correctly,

- Use **Set Timezone, Date, and Time** to configure the time zone, date, and time for the Red Hat CloudForms appliance.
- 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 **Extend Temporary Storage** to add temporary storage to the appliance. The appliance formats an unpartitioned disk attached to the appliance host and mounts it at **/var/www/miq_tmp**. The appliance uses this temporary storage directory to perform certain image download functions.
- Use **Configure External Authentication (httpd)** to configure authentication through an IPA server.
- Use **Generate Custom Encryption Key** to regenerate the encryption key used to encode plain text password.
- Use **Harden Appliance Using SCAP Configuration** to apply Security Content Automation Protocol (SCAP) standards to the appliance. You can view these SCAP rules in the **/var/www/miq/lib/appliance_console/config/scap_rules.yml** file.

- 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 Red Hat CloudForms 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 Red Hat CloudForms appliance.
- Use **Quit** to leave the Red Hat CloudForms appliance console.

2.3. Configuring a Database for Red Hat CloudForms

Red Hat CloudForms uses a database to store information about the cloud environment it manages. You must configure a database for the appliance before you can use it to administer your cloud infrastructure. Red Hat CloudForms provides the following two options for database configuration:

- Configuring an internal PostgreSQL database
- Configuring an external PostgreSQL database

2.3.1. Configuring an Internal Database

Important

Before installing an internal database, add a disk to the infrastructure hosting your appliance. See the storage documentation specific to your infrastructure for instructions on how to add a disk. As a storage disk usually cannot be added while a virtual machine is running, Red Hat recommends adding the disk before starting the appliance. Red Hat CloudForms only supports installing of an internal VMDB on blank disks. The installation will fail if the disks are not blank.

1. Start the appliance and open a terminal console.
2. Log in to the appliance using the SSH key.
3. Enter the **`sudo appliance_console`** command. The Red Hat CloudForms appliance summary screen displays.
4. Press **Enter** to manually configure settings.
5. Select **8) Configure Database** from the menu.
6. You are prompted to create or fetch an encryption key.
   - If this is the first Red Hat CloudForms appliance, choose **1) Create key**.
   - If this is not the first Red Hat CloudForms appliance, choose **2) Fetch key** from remote machine to fetch the key from the first Red Hat CloudForms appliance. All Red Hat CloudForms appliances in a multi-region deployment must use the same key.
7. Choose **1) Internal** for the database location.

8. Choose a disk for the database. For example:

```
1)  /dev/vdb: 20480

Choose disk:
```

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

9. When prompted, enter a unique three digit region ID to create a new region. As your deployment grows, you can add more regions in the future to manage multiple appliances.

Important

Creating a new region destroys any existing data on the chosen database.

10. Confirm the configuration when prompted.

Red Hat CloudForms configures the internal database.

2.3.2. Configuring an External Database

Based on your setup, you will choose to configure the appliance to use an external PostgreSQL database. For example, we can only have one database in a single region. However, a region can be segmented into multiple zones where each zone provides specific functionality, such as Database, User Interface, Reporting among others. The appliances in these zones must be configured to use an external database.

Note that the **`postgresql.conf`** file used with Red Hat CloudForms databases requires specific settings for correct operation. For example, it must correctly reclaim table space, control session timeouts, and format the PostgreSQL server log for improved system support. Due to these requirements, Red Hat recommends that external Red Hat CloudForms databases use a **`postgresql.conf`** file based on the standard file used by the Red Hat CloudForms appliance.

Ensure you configure the settings in the **`postgresql.conf`** to suit your system. For example, customize the **`shared_buffers`** setting according to the amount of real storage available in the external system hosting the PostgreSQL instance. In addition, depending on the aggregate number of appliances expected to connect to the PostgreSQL instance, it may be necessary to alter the **`max_connections`** setting.

Note

- Red Hat CloudForms 4.x requires PostgreSQL version 9.4.
- Because the **`postgresql.conf`** file controls the operation of all databases managed by a single instance of PostgreSQL, do not mix Red Hat CloudForms databases with other types of databases in a single PostgreSQL instance.

1. Start the appliance and open a terminal console.
2. Log in to the appliance using the SSH key.
3. Enter the **`sudo appliance_console`** command. The Red Hat CloudForms appliance summary screen displays.

4. Press **Enter** to manually configure settings.
5. Select **8) Configure Database** from the menu.
6. You are prompted to create or fetch a security key.
   - If this is the first Red Hat CloudForms appliance, select the option to create a key.
   - If this is not the first Red Hat CloudForms appliance, select the option to fetch the key from the first Red Hat CloudForms appliance. All Red Hat CloudForms appliances in a multi-region deployment must use the same key.
7. Choose **2) External** for the database location.
8. Enter the database hostname or IP address when prompted.
9. Enter the database name or leave blank for the default (**`vmdb_production`**).
10. Enter the database username or leave blank for the default (**`root`**).
11. Enter the chosen database user's password.
12. Confirm the configuration if prompted.

Red Hat CloudForms will then configure the external database.

2.4. Configuring a Worker Appliance for Red Hat CloudForms

You can use multiple appliances to facilitate horizontal scaling, as well as for dividing up work by roles. Accordingly, configure an appliance to handle work for one or many roles, with workers within the appliance carrying out the duties for which they are configured. You can configure a worker appliance through the terminal. The following steps demonstrate how to join a worker appliance to an appliance that already has a region configured with a database.

1. Start the appliance and open a terminal console.
2. Log in to the appliance using the SSH key.
3. Enter the **`sudo appliance_console`** command. The Red Hat CloudForms appliance summary screen displays.
4. Press **Enter** to manually configure settings.
5. Select **8) Configure Database** from the menu.
6. You are prompted to create or fetch a security key. Select the option to fetch the key from the first Red Hat CloudForms appliance. All Red Hat CloudForms appliances in a multi-region deployment must use the same key.
7. Choose **2) External** for the database location.
8. Enter the database hostname or IP address when prompted.
9. Enter the database name or leave blank for the default (**`vmdb_production`**).
10. Enter the database username or leave blank for the default (**`root`**).
11. Enter the chosen database user's password.

12. Confirm the configuration if prompted.