



# **Red Hat Hyperconverged Infrastructure for Virtualization 1.5**

## **Deploying Red Hat Hyperconverged Infrastructure for Virtualization on a single node**

Create a hyperconverged configuration with a single server



# Red Hat Hyperconverged Infrastructure for Virtualization 1.5 Deploying Red Hat Hyperconverged Infrastructure for Virtualization on a single node

---

Create a hyperconverged configuration with a single server

Laura Bailey  
lbailey@redhat.com

## Legal Notice

Copyright © 2019 Red Hat, Inc.

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

<http://creativecommons.org/licenses/by-sa/3.0/>

. 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, OpenShift, 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.

Node.js ® is an official trademark of Joyent. Red Hat Software Collections is not formally related to or endorsed by the official Joyent Node.js open source or commercial project.

The OpenStack ® Word Mark and OpenStack logo are either registered trademarks/service marks or trademarks/service marks of the OpenStack Foundation, in the United States and other countries and are used with the OpenStack Foundation's permission. We are not affiliated with, endorsed or sponsored by the OpenStack Foundation, or the OpenStack community.

All other trademarks are the property of their respective owners.

## Abstract

Read this for information about deploying a single self-contained Red Hat Hyperconverged Infrastructure for Virtualization server.

---

## Table of Contents

<b>CHAPTER 1. WORKFLOW FOR DEPLOYING A SINGLE HYPERCONVERGED HOST</b>	<b>3</b>
<b>CHAPTER 2. ADDITIONAL REQUIREMENTS FOR SINGLE NODE DEPLOYMENTS</b>	<b>4</b>
<b>CHAPTER 3. INSTALL THE VIRTUALIZATION HOST</b>	<b>5</b>
<b>CHAPTER 4. CONFIGURING A SINGLE NODE RHHI FOR VIRTUALIZATION DEPLOYMENT</b>	<b>6</b>
4.1. CONFIGURING RED HAT GLUSTER STORAGE ON A SINGLE NODE	6
4.2. DEPLOY THE HOSTED ENGINE ON A SINGLE NODE USING THE COCKPIT UI	10
<b>CHAPTER 5. CONFIGURE RED HAT GLUSTER STORAGE AS A RED HAT VIRTUALIZATION STORAGE DOMAIN</b>	<b>21</b>
5.1. CREATE THE LOGICAL NETWORK FOR GLUSTER TRAFFIC	21
5.2. CREATE STORAGE DOMAINS	21
<b>CHAPTER 6. VERIFY YOUR DEPLOYMENT</b>	<b>23</b>
<b>CHAPTER 7. MANAGING RED HAT GLUSTER STORAGE VOLUMES</b>	<b>26</b>
<b>CHAPTER 8. NEXT STEPS</b>	<b>27</b>
<b>APPENDIX A. CLEANING UP AUTOMATED RED HAT GLUSTER STORAGE DEPLOYMENT ERRORS</b>	<b>28</b>
<b>APPENDIX B. EXAMPLE CLEANUP CONFIGURATION FILES FOR GDEPLOY</b>	<b>29</b>



## CHAPTER 1. WORKFLOW FOR DEPLOYING A SINGLE HYPERCONVERGED HOST

1. Verify that your planned deployment meets [Support Requirements](#), with exceptions described in [Chapter 2, \*Additional requirements for single node deployments\*](#).
2. [Install the virtualization host machine](#).
3. Browse to the Cockpit UI and [deploy a single hyperconverged node](#).
4. Browse to the Red Hat Virtualization Administration Console and [configure Red Hat Gluster Storage as a Red Hat Virtualization storage domain](#).

## CHAPTER 2. ADDITIONAL REQUIREMENTS FOR SINGLE NODE DEPLOYMENTS

Red Hat Hyperconverged Infrastructure for Virtualization is supported for deployment on a single node provided that all [Support Requirements](#) are met, with the following additions and exceptions.

A single node deployment requires a physical machine with:

- 1 Network Interface Controller
- at least 12 cores
- at least 64GB RAM
- at most 48TB storage

Single node deployments cannot be scaled, and are not highly available.



## CHAPTER 3. INSTALL THE VIRTUALIZATION HOST

Follow the instructions in the Red Hat Virtualization *Installation Guide* to install either a [Red Hat Virtualization host](#) or a [Red Hat Enterprise Linux host](#).

## CHAPTER 4. CONFIGURING A SINGLE NODE RHHI FOR VIRTUALIZATION DEPLOYMENT

### 4.1. CONFIGURING RED HAT GLUSTER STORAGE ON A SINGLE NODE



#### IMPORTANT

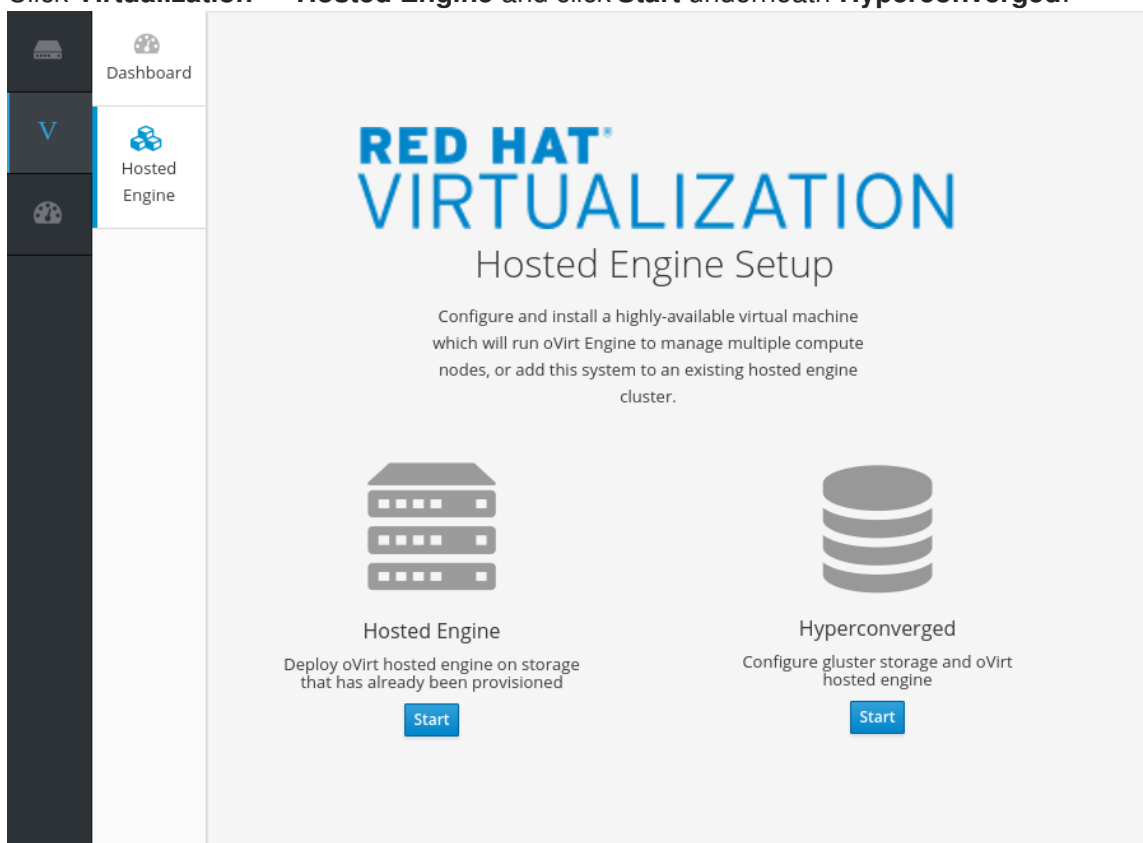
Ensure that disks specified as part of this deployment process do not have any partitions or labels.

#### 1. Log into the Cockpit UI

Browse to the Cockpit management interface of the first virtualization host, for example, <https://node1.example.com:9090/>, and log in with the credentials you created in [Chapter 3, Install the virtualization host](#).

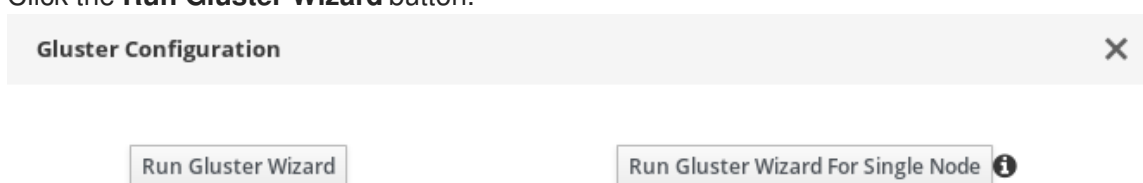
#### 2. Start the deployment wizard

- a. Click **Virtualization** → **Hosted Engine** and click **Start** underneath **Hyperconverged**.



The *Gluster Configuration* window opens.

- b. Click the **Run Gluster Wizard** button.



The *Gluster Deployment* window opens in single node mode.

### 3. Specify storage host

Specify the back-end FQDN on the storage network of the virtualization host and click **Next**.

Gluster Deployment

Hosts Volumes Bricks Review

1 2 3 4

Host1

Cancel < Back Next >

### 4. Specify volumes

Specify the volumes to create.

Gluster Deployment

Hosts Volumes Bricks Review

1 2 3 4

Name	Volume Type	Arbiter	Brick Dirs
<input type="text" value="engine"/>	Replicate	<input type="checkbox"/>	<input type="text" value="/gluster_bricks/engine/engine"/>
<input type="text" value="data"/>	Replicate	<input type="checkbox"/>	<input type="text" value="/gluster_bricks/data/data"/>
<input type="text" value="vmstore"/>	Replicate	<input type="checkbox"/>	<input type="text" value="/gluster_bricks/vmstore/vmsto"/>

[+ Add Volume](#)

First volume in the list will be used for hosted-engine deployment

Cancel < Back Next >

#### Name

Specify the name of the volume to be created.

#### Volume Type

Specify a **Distribute** volume type. Only distributed volumes are supported for single node deployments.



#### IMPORTANT

This step is affected by a known issue, [BZ#1641483](#). It is not currently possible to select **Distribute**. Instead, select **Replicated**. The volume created is a single-brick distributed volume, which is correct for single-node RHHI for Virtualization deployments.

## Brick Dirs

The directory that contains this volume's bricks.

## 5. Specify bricks

Specify the bricks to create.

Gluster Deployment
✕

Hosts                      Volumes                      Bricks                      Review

1 ————— 2 ————— 3 ————— 4

---

**Raid Information** ⓘ

Raid Type: RAID 6

Stripe Size(KB): 256

Data Disk Count: 12

**Brick Configuration**

Select Host: host1.example.com

LV Name	Device Name	Size(GB)	Thinp	Mount Point	Enable Dedupe & Compression
engine	sdb	100	<input type="checkbox"/>	/gluster_bricks/engine	<input type="checkbox"/>
data	sdb	500	<input checked="" type="checkbox"/>	/gluster_bricks/data	<input type="checkbox"/>
vmstore	sdb	500	<input checked="" type="checkbox"/>	/gluster_bricks/vmstore	<input type="checkbox"/>

Configure LV Cache

ⓘ **Arbiter bricks will be created on the third host in the host list.**

Cancel
< Back
Next >

## RAID

Specify the RAID configuration to use. This should match the RAID configuration of your host. Supported values are **raid5**, **raid6**, and **jbod**. Setting this option ensures that your storage is correctly tuned for your RAID configuration.

## Stripe Size

Specify the RAID stripe size in KB. Do not enter units, only the number. This can be ignored for **jbod** configurations.

## Disk Count

Specify the number of data disks in a RAID volume. This can be ignored for **jbod** configurations.

## LV Name

Specify the name of the logical volume to be created.

## Device

Specify the raw device you want to use. Red Hat recommends an unpartitioned device.

**Size**

Specify the size of the logical volume to create in GB. Do not enter units, only the number.

**Mount Point**

Specify the mount point for the logical volume. This should be inside the brick directory that you specified on the previous page of the wizard.

**Thinp**

Specify whether to provision the volume thinly or not. Note that thick provisioning is recommended for the **engine** volume. Do not use **Enable Dedupe & Compression** at the same time as this option.

**Enable Dedupe & Compression**

Specify whether to provision the volume using VDO for compression and deduplication at deployment time. Do not use **Thinp** at the same time as this option.

**Logical Size (GB)**

Specify the logical size of the VDO volume. This can be up to 10 times the size of the physical volume, with an absolute maximum logical size of 4 PB.

**6. Review and edit configuration**

Review the contents of the generated configuration file and click **Edit** to modify the file, and **Save** to keep your changes.

Click **Deploy** when you are satisfied with the configuration file.

**Gluster Deployment** [X]

Hosts (1) — Volumes (2) — Bricks (3) — Review (4)

```

Generated Gdeploy configuration : /var/lib/ovirt-hosted-engine-setup/gdeploy/gdeployConfig.conf
#gdeploy configuration generated by cockpit-gluster plugin
[hosts]
host1.example.com

[script1:host1.example.com]
action=execute
ignore_script_errors=no
file=/usr/share/gdeploy/scripts/grafon-sanity-check.sh -d sdb -h host1.example.com

[disktype]
raid6
  
```

Cancel < Back **Deploy**

**7. Wait for deployment to complete**

You can watch the deployment process in the text field as the gdeploy process runs using the generated configuration file.

The window displays **Successfully deployed gluster** when complete.

Click **Continue to Hosted Engine Deployment** and continue the deployment process with the instructions in [Section 4.2, “Deploy the Hosted Engine on a single node using the Cockpit UI”](#).



### IMPORTANT

If deployment fails, click the **Redeploy** button. This returns you to the *Review and edit configuration* tab so that you can correct any issues in the generated configuration file before reattempting deployment.

It may be necessary to clean up previous deployment attempts before you try again. Follow the steps in [Appendix A, \*Cleaning up automated Red Hat Gluster Storage deployment errors\*](#) to clean up previous deployment attempts.

## 4.2. DEPLOY THE HOSTED ENGINE ON A SINGLE NODE USING THE COCKPIT UI

This section shows you how to deploy the Hosted Engine on a single node using the Cockpit UI. Following this process results in Red Hat Virtualization Manager running in a virtual machine on your node, and managing that virtual machine. It also configures a Default cluster consisting only of that node, and enables Red Hat Gluster Storage functionality and the **virtual-host tuned** performance profile for the cluster of one.

### Prerequisites

- This procedure assumes you have continued directly from the end of [Configure Red Hat Gluster Storage for Hosted Engine using the Cockpit UI](#)
- Gather the information you need for Hosted Engine deployment  
Have the following information ready before you start the deployment process.
  - IP address for a pingable gateway to the virtualization host
  - IP address of the front-end management network
  - Fully-qualified domain name (FQDN) for the Hosted Engine virtual machine
  - MAC address that resolves to the static FQDN and IP address of the Hosted Engine

### Procedure

1. **Specify virtual machine details**

Hosted Engine Deployment
✕

VM                      Engine                      Prepare VM                      Storage                      Finish

① ————— ② ————— ③ ————— ④ ————— ⑤

---

VM Settings

Engine VM FQDN	<input type="text" value="engine.example.com"/>
MAC Address	<input type="text" value="00:xx:xx:xx:xx:xx"/>
Network Configuration	<input type="text" value="DHCP"/>
Bridge Interface	<input type="text" value="ens2f0"/>
Root Password	<input type="password" value="••••••"/>
Root SSH Access	<input type="text" value="Yes"/>
Number of Virtual CPUs	<input type="text" value="4"/>
Memory Size (MiB)	<input type="text" value="16348"/> 62,047MB available

> Advanced

- a. Enter the following details:

**Engine VM FQDN**

The fully qualified domain name to be used for the Hosted Engine virtual machine.

**MAC Address**

The MAC address associated with the FQDN to be used for the Hosted Engine virtual machine.

**Root password**

The root password to be used for the Hosted Engine virtual machine.

- b. Click **Next**.

**2. Specify virtualization management details**

- a. Enter the password to be used by the **admin** account in Red Hat Virtualization Manager. You can also specify notification behaviour here.

**Hosted Engine Deployment** ✕

VM                      Engine                      Prepare VM                      Storage                      Finish

① ————— ② ————— ③ ————— ④ ————— ⑤

---

Engine Credentials

Admin Portal Password

Notification Settings

Server Name

Server Port Number

Sender E-Mail Address

Recipient E-Mail Addresses

---

b. Click **Next**.

### 3. Review virtual machine configuration

a. Ensure that the details listed on this tab are correct. Click **Back** to correct any incorrect information.



### Hosted Engine Deployment ✕

VM                      Engine                      Prepare VM                      Storage                      Finish

①                      ②                      ③                      ④                      ⑤

Please review the configuration. Once you click the 'Prepare VM' button, a local virtual machine will be started and used to prepare the management services and their data. This operation may take some time depending on your hardware.

▼ VM

Engine FQDN: engine.example.com  
MAC Address: 00:xx:xx:xx:xx:xx  
Network Configuration: Static  
VM IP Address: 192.168.0.104  
Gateway Address: 192.168.0.104  
DNS Servers: 192.168.0.254  
Root User SSH Access: yes  
Number of Virtual CPUs: 4  
Memory Size (MiB): 16348  
Root User SSH Public Key: (None)  
Add Lines to /etc/hosts: yes  
Bridge Name: ovirtmgmt

▼ Engine

SMTP Server Name: localhost  
SMTP Server Port Number: 25  
Sender E-Mail Address: root@localhost


b. Click **Prepare VM**.

### Hosted Engine Deployment ✕

VM                      Engine                      Prepare VM                      Storage                      Finish

① ————— ② ————— ③ ————— ④ ————— ⑤

---

 Deployment in progress

```
[ INFO ] TASK [Gathering Facts]
[ INFO ] ok: [localhost]
[ INFO ] TASK [Stop libvirt service]
[ INFO ] changed: [localhost]
[ INFO ] TASK [Drop vdsm config statements]
[ INFO ] TASK [Restore initial abrt config files]
```

---


c. Wait for virtual machine preparation to complete.

Hosted Engine Deployment ✕

VM Engine Prepare VM Storage Finish

① — ② — ③ — ④ — ⑤

---



Execution completed successfully. Please proceed to the next step.

---

If preparation does not occur successfully, see [Viewing Hosted Engine deployment errors](#).

- d. Click **Next**.
4. **Specify storage for the Hosted Engine virtual machine**
  - a. Specify the back-end address and location of the **engine** volume.

Hosted Engine Deployment
✕

VM                      Engine                      Prepare VM                      Storage                      Finish

① ————— ② ————— ③ ————— ④ ————— ⑤

---

Please configure the storage domain that will be used to host the disk for the management VM. Please note that the management VM needs to be responsive and reliable enough to be able to manage all resources of your deployment, so highly available storage is preferred.

Storage Settings

Storage Type	<input type="text" value="Gluster"/>
Storage Connection	<input type="text" value="192.168.0.101:/engine"/>
Mount Options	<input type="text"/>

> Advanced

b. Click **Next**.

## 5. Finalize Hosted Engine deployment

a. Review your deployment details and verify that they are correct.



### NOTE

The responses you provided during configuration are saved to an answer file to help you reinstall the hosted engine if necessary. The answer file is created at `/etc/ovirt-hosted-engine/answers.conf` by default. This file should not be modified manually without assistance from Red Hat Support.

Hosted Engine Deployment ✕

VM Engine Prepare VM Storage Finish

1 2 3 4 5

Please review the configuration. Once you click the 'Finish Deployment' button, the management VM will be transferred to the configured storage and the configuration of your hosted engine cluster will be finalized. You will be able to use your hosted engine once this step finishes.

▼ Storage

**Storage Type:** glusterfs

**Storage Domain Connection:** node1.example.com:/engine

**Mount Options:** backup-volfile-servers=node2.example.com;node3.example.com

**Disk Size (GiB):** 58

b. Click **Finish Deployment**.

6. **Wait for deployment to complete**

This takes up to 30 minutes.

### Hosted Engine Deployment ✕

VM                      Engine                      Prepare VM                      Storage                      Finish

1                      2                      3                      4                      5

Deployment in progress

```
[ INFO ] TASK [Start ovirt-ha-agent service on the host]
[ INFO ] changed: [localhost]
[ INFO ] TASK [Wait for the engine to come up on the target VM]
[ INFO ] changed: [localhost]
[ INFO ] TASK [include_tasks]
[ INFO ] ok: [localhost]
[ INFO ] TASK [Obtain SSO token using username/password credentials]
[ INFO ] ok: [localhost]
[ INFO ] TASK [Check for the local bootstrap VM]
[ INFO ] ok: [localhost]
[ INFO ] TASK [Make the engine aware that the external VM is stopped]
[ INFO ] TASK [Wait for the local bootstrap VM to be down at engine eyes]
[ INFO ] ok: [localhost]
[ INFO ] TASK [Remove bootstrap external VM from the engine]
[ INFO ] changed: [localhost]
[ INFO ] TASK [Include custom tasks for after setup customization]
[ INFO ] TASK [Include Host vars]
[ INFO ] TASK [Set Engine public key as authorized key without validating the TLS/SSL certificates]
[ INFO ] TASK [Add additional gluster hosts to engine]
[ INFO ] TASK [Add additional glusterfs storage domains]
```


The window displays the following when complete.

Hosted Engine Deployment ✕

VM      Engine      Prepare VM      Storage      Finish

① ——— ② ——— ③ ——— ④ ——— ⑤

---



Hosted engine deployment complete!

---

Close



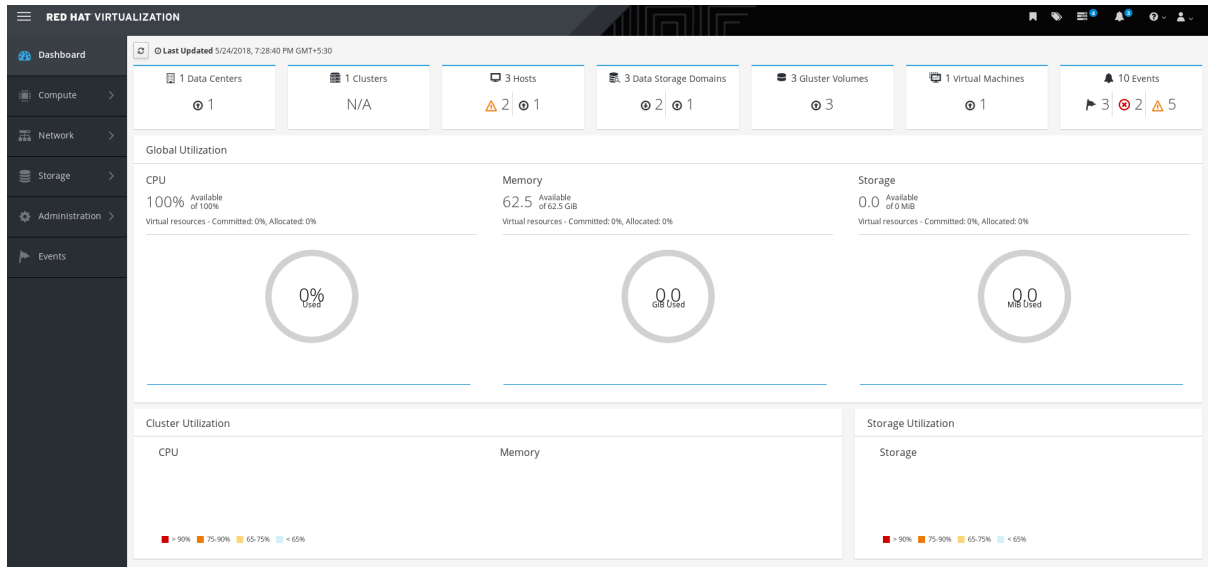
### IMPORTANT

If deployment does not complete successfully, see [Viewing Hosted Engine deployment errors](#).

Click **Close**.

#### 7. Verify hosted engine deployment

Browse to the engine user interface (for example, <http://engine.example.com/ovirt-engine>) and verify that you can log in using the administrative credentials you configured earlier. Click **Dashboard** and look for your hosts, storage domains, and virtual machines.



### Next steps

- [Log in to Red Hat Virtualization Manager to complete configuration.](#)



## CHAPTER 5. CONFIGURE RED HAT GLUSTER STORAGE AS A RED HAT VIRTUALIZATION STORAGE DOMAIN

### 5.1. CREATE THE LOGICAL NETWORK FOR GLUSTER TRAFFIC

1. Log in to the engine  
Browse to the engine user interface (for example, <http://engine.example.com/ovirt-engine>) and log in using the administrative credentials you configured in [Section 4.2, “Deploy the Hosted Engine on a single node using the Cockpit UI”](#).
2. Create a logical network for gluster traffic
  - a. Click the **Networks** tab and then click **New**. The **New Logical Network** wizard appears.
  - b. On the **General** tab of the wizard, provide a **Name** for the new logical network, and uncheck the **VM Network** checkbox.
  - c. On the **Cluster** tab of the wizard, uncheck the **Required** checkbox.
  - d. Click **OK** to create the new logical network.
3. Enable the new logical network for gluster
  - a. Click the **Networks** tab and select the new logical network.
  - b. Click the **Clusters** subtab and then click **Manage Network**. The **Manage Network** dialogue appears.
  - c. In the **Manage Network** dialogue, check the **Migration Network** and **Gluster Network** checkboxes.
  - d. Click **OK** to save.
4. Attach the gluster network to the host
  - a. Click the **Hosts** tab and select the host.
  - b. Click the **Network Interfaces** subtab and then click **Setup Host Networks**.
  - c. Drag and drop the newly created network to the correct interface.
  - d. Ensure that the **Verify connectivity** checkbox is checked.
  - e. Ensure that the **Save network configuration** checkbox is checked.
  - f. Click **OK** to save.
5. Verify the health of the network  
Click the **Hosts** tab and select the host. Click the **Network Interfaces** subtab and check the state of the host's network.

If the network interface enters an "Out of sync" state or does not have an IPv4 Address, click the **Management** tab that corresponds to the host and click **Refresh Capabilities**.

### 5.2. CREATE STORAGE DOMAINS

The hosted engine storage domain is imported automatically, but other storage domains must be added to be used.

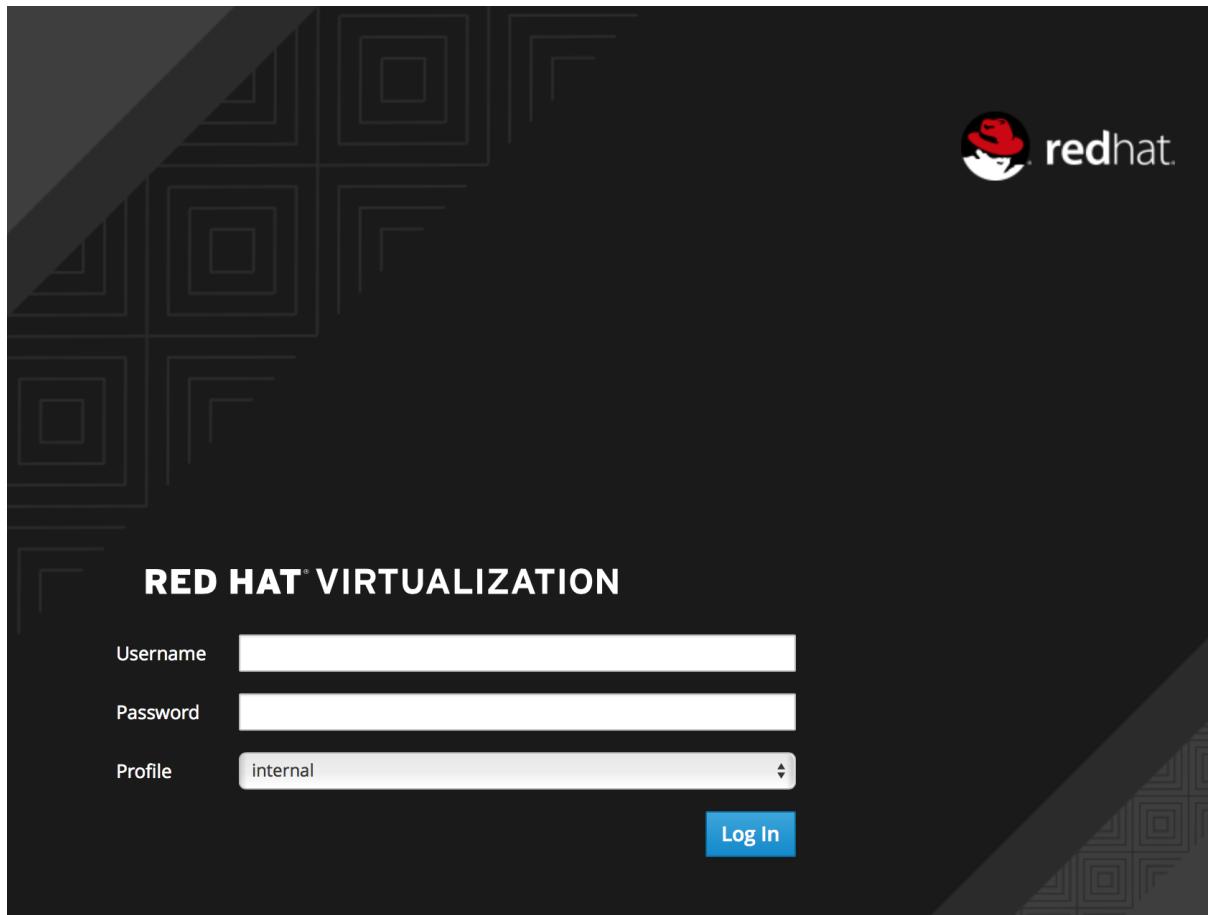
1. Click the **Storage** tab and then click **New Domain**.
2. Select **GlusterFS** as the **Storage Type** and provide a **Name** for the domain.
3. Check the **Use managed gluster volume** option and select the volume to use.
4. Click **OK** to save.

## CHAPTER 6. VERIFY YOUR DEPLOYMENT

After deployment is complete, verify that your deployment has completed successfully.

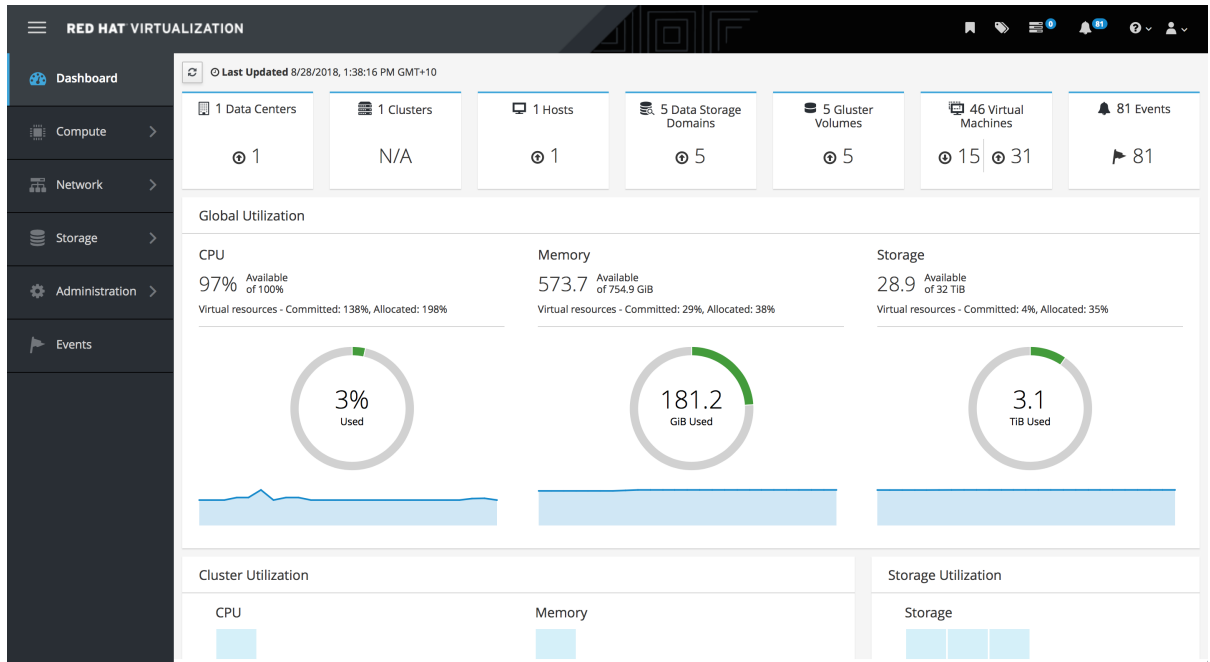
1. Browse to the engine user interface, for example, <http://engine.example.com/ovirt-engine>.

### Administration Console Login

The image shows the login page for the Red Hat Virtualization Administration Console. The background is dark with a subtle pattern of squares. In the top right corner, the Red Hat logo is visible. The main heading is "RED HAT VIRTUALIZATION". Below this, there are three input fields: "Username" (a text box), "Password" (a text box), and "Profile" (a dropdown menu with "internal" selected). A blue "Log In" button is positioned to the right of the "Profile" dropdown.


2. Log in using the administrative credentials added during hosted engine deployment. When login is successful, the Dashboard appears.

### Administration Console Dashboard



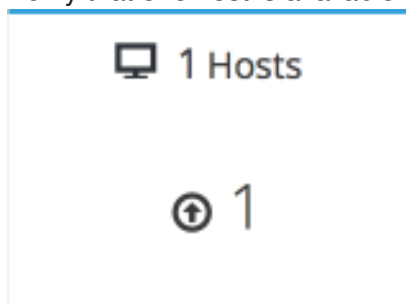
3. Verify that your cluster is available.

### Administration Console Dashboard - Clusters

 1 Clusters

 1

4. Verify that one host is available.



- a. Click **Compute** → **Hosts**.
  - b. Verify that your host is listed with a **Status** of **Up**.
5. Verify that all storage domains are available.
    - a. Click **Storage** → **Domains**.
    - b. Verify that the **Active** icon is shown in the first column.

### Administration Console - Storage Domains

Storage » Storage Domains

Storage:  ✕ ☆ ▾ Q

New Domain Import Domain Manage Domain Remove ⋮

1 - 5 < >

	Domain Name	Comment	Domain Type	Storage Type	Format	Cross Data Center Status	Total Space	Free Space
▲	<a href="#">data</a>		Data	GlusterFS	V4	Active	4998 GiB	4563 GiB
▲ 🏠	<a href="#">hosted_storage</a>		Data (Master)	GlusterFS	V4	Active	99 GiB	88 GiB
▲	<a href="#">vmstore</a>		Data	GlusterFS	V4	Active	9998 GiB	9284 GiB

## **CHAPTER 7. MANAGING RED HAT GLUSTER STORAGE VOLUMES**

## CHAPTER 8. NEXT STEPS

- Learn to create and manage Red Hat Gluster Storage using the Administration Portal in [Managing Red Hat Gluster Storage using the RHV Administration Portal](#)
- Learn to create and manage virtual machines in the Red Hat Virtualization [Virtual Machine Management Guide](#).
- Review the [RHHI for Virtualization documentation](#) on the Red Hat Customer Portal.

## APPENDIX A. CLEANING UP AUTOMATED RED HAT GLUSTER STORAGE DEPLOYMENT ERRORS

If the deployment process fails after the physical volumes and volume groups are created, you need to undo that work to start the deployment from scratch. Follow this process to clean up a failed deployment so that you can try again.

### Procedure

1. Create a `volume_cleanup.conf` file based on the `volume_cleanup.conf` file in [Appendix B, Example cleanup configuration files for gdeploy](#).
2. Run `gdeploy` using the `volume_cleanup.conf` file.

```
# gdeploy -c volume_cleanup.conf
```

3. Create a `lv_cleanup.conf` file based on the `lv_cleanup.conf` file in [Appendix B, Example cleanup configuration files for gdeploy](#).
4. Run `gdeploy` using the `lv_cleanup.conf` file.

```
# gdeploy -c lv_cleanup.conf
```

5. Check mount configurations on all hosts  
Check the `/etc/fstab` file on all hosts, and remove any lines that correspond to XFS mounts of automatically created bricks.



## APPENDIX B. EXAMPLE CLEANUP CONFIGURATION FILES FOR GDEPLOY

In the event that deployment fails, it is necessary to clean up the previous deployment attempts before retrying the deployment. The following two example files can be run with gdeploy to clean up previously failed deployment attempts so that deployment can be reattempted.

### volume\_cleanup.conf

```
[hosts]
<Gluster_Network_NodeA>
<Gluster_Network_NodeB>
<Gluster_Network_NodeC>

[volume1]
action=delete
volname=engine

[volume2]
action=delete
volname=vmstore

[volume3]
action=delete
volname=data

[peer]
action=detach
```

### lv\_cleanup.conf

```
[hosts]
<Gluster_Network_NodeA>
<Gluster_Network_NodeB>
<Gluster_Network_NodeC>

[backend-reset]
pvs=sdb, sdc
unmount=yes
```