Red Hat Gluster Storage 3.3

Console Installation Guide

Installing Red Hat Gluster Storage Console

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Red Hat Gluster Storage Documentation Team
Customer Content Services

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Abstract

This guide is a step-by-step guide for users to install the Red Hat Gluster Storage Console.

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PART I. BEFORE YOU BEGIN

CHAPTER 1. OVERVIEW

The Red Hat Gluster Storage Console helps to meet the challenges of managing complex environments. Red Hat's state of the art storage platform helps to reduce the cost and complexity of large deployments. Red Hat Gluster Storage Console platform provides features such as:

- Support to quickly create and manage storage clusters and volumes.

- Multilevel administration to enable administration of physical infrastructure as well as administration of virtual objects.

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1.1. SYSTEM COMPONENTS

The Red Hat Gluster Storage platform consists of one or more servers. Each server is based on either Red Hat Gluster Storage Servers or Red Hat Enterprise Linux 6.x and Red Hat Enterprise Linux 7.1. The hosts are grouped into Red Hat Gluster Storage clusters, and volumes are created in each cluster. The system and its components are managed through a centralized management system.

Red Hat Gluster Storage Console

The Red Hat Gluster Storage Console is a centralized management system and is used to view and manage storage servers. Red Hat Gluster Storage Console features include search capabilities, resource management, and provisioning. The Red Hat Gluster Storage Console runs on Red Hat Enterprise Linux 6.x systems.

The console provides a graphical user interface (GUI) to administer the storage environment's physical and logical resources. The console manages provisioning, user sessions, and high availability / clustering.

The Red Hat Gluster Storage Console exposes an Administration Portal and an Application Programming Interface (API).

- The Administration Portal is used for set up, configuration, and management tasks for the Red Hat Gluster Storage environment.

- The REST API is an interface used to automate manual user tasks. Scripts for the REST API can be written in any language that supports accessing HTTP and HTTPS resources.

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1.2. INSTALLATION WORKFLOW

Ensure that the following component requirements are met to use Red Hat Gluster Storage Console:

Check System Requirements

1. Install and configure the hardware requirements listed in Section 2.1, "Hardware Requirements".

2. Install and configure the software requirements listed in Section 2.3, "Software Requirements".

Red Hat Gluster Storage Console Installation

1. Install the Red Hat Gluster Storage Console. For details, see Part II, "Installing Red Hat Gluster Storage Console".

Contact Red Hat Support to address any errors or unexpected behavior during the installation and configuration process.

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CHAPTER 2. SYSTEM REQUIREMENTS

This chapter outlines the minimum hardware and software requirements to install the Red Hat Gluster Storage Console.

IMPORTANT

Ensure that all requirements are met before installation starts. Missing requirements can result in Red Hat Gluster Storage Console environment to not function as expected.

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2.1. HARDWARE REQUIREMENTS

The Red Hat Gluster Storage Console environment requires:

- One machine to act as the management server

- One or more machines to act as storage servers. At least two machines are required to support replicated volumes.

- One or more machines to be used as clients to access the Administration Portal.

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2.1.1. Management Server Requirements

The hardware requirements outlines are for a small to medium sized deployment. The requirements can vary for larger or smaller deployment sizes.

Minimum Requirements

- A dual core CPU.

- 4 GB of available system RAM that is not being consumed by existing processes.

- One Network Interface Card (NIC) with bandwidth of at least 1 Gbps.

Recommended Requirements

- A quad core CPU or multiple dual core CPUs.

- 16 GB of available system RAM that is not being consumed by existing processes.

- One Network Interface Card (NIC) with bandwidth of at least 1 Gbps.

- An out of band management card to manage and monitor the Red Hat Gluster Storage Console node even when the server is down.

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2.2. STORAGE SERVER REQUIREMENTS

For more information on the storage server requirements, see the *Prerequisites* section of the *Red Hat Gluster Storage 3.3 Installation Guide*.

> **NOTE**
>
> Installing Red Hat Gluster Storage Console 3.x on Red Hat Gluster Storage server is not supported.

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2.3. SOFTWARE REQUIREMENTS
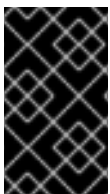
> **IMPORTANT**
>
> The Red Hat Gluster Storage Console setup script (`rhsc-setup`) supports the `en_US.UTF-8`, `en_US.utf8`, and `en_US.utf-8` locales. Installing on a system without one of the supported locale values fails.

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2.3.1. Red Hat Gluster Storage Console Operating System Requirements

The Red Hat Gluster Storage Console Management Server is supported on the Red Hat Enterprise Linux 6 64-bit version platform. Ensure complete and successful installation of the operating system before starting the installing the Red Hat Gluster Storage Console.

> **IMPORTANT**
>
> Red Hat Gluster Storage Console must be installed on a base installation of Red Hat Enterprise Linux. Do not install any additional packages after the base installation, as it could cause dependency issues when attempting to install the packages required by the Console.

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2.3.2. Red Hat Gluster Storage Console Client Requirements

Use a client with a supported web browser to access the Administration Portal. The portal support the following clients and browsers:

- Mozilla Firefox 24 or later, on Red Hat Enterprise Linux is required to access the Administration Portal.

- Internet Explorer 9 or 10 on Microsoft Windows is required to access the Administration Portal. Use the desktop version, not the touchscreen version for Internet Explorer version 10.

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2.3.3. Directory Services

Directory services are a collection of software, hardware, and processes that store information about

an enterprise, subscribers, or both and provide this information to users. Each directory service contains at least one instance of Directory Server and at least one directory client program. Client programs access names, phone numbers, addresses, and other data stored in the directory service.

The Red Hat Gluster Storage Console platform has a default **admin** user configured. Use the domain management tool (**rhsc-manage-domains**) to authenticate additional users by attaching directory service domains.

> **NOTE**
>
> You do not require additional firewall rules if you use a local database server (default option) on the Console itself.

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2.3.4. Firewall Configuration

The ports listed in this section are the default ports that must be accessible through your system's firewall in order for certain parts of Red Hat Gluster Storage Console to work correctly. If you specified alternative ports during installation, adjust the firewall rules to allow access to the customized port.

This section does not cover specific configuration instructions for additional network infrastructure that may exist alongside your system.

If a firewall is not yet configured, run the **rhsc-setup** script to automatically set up the firewall rules required by Red Hat Gluster Storage Console. If a firewall is already configured, manually integrate the existing configuration with the Red Hat Gluster Storage requirements in this section.

> **NOTE**
>
> Firewall configuration tools differ between Red Hat Entperise Linux 6 and Red Hat Enterprise Linux 7.
>
> For Red Hat Enterprise Linux 6, use the **iptables** command to open a port:
>
> ```
> # iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport
> 5667 -j ACCEPT
>         # service iptables save
> ```
>
> For Red Hat Enterprise Linux 7, if default ports are in use, it is usually simpler to add a service rather than open a port:
>
> ```
> # firewall-cmd --zone=zone_name --add-service=glusterfs
> # firewall-cmd --zone=zone_name --add-service=glusterfs --
> permanent
> ```
>
> However, if the default ports are already in use, you can open a specific port with the following command:
>
> ```
> # firewall-cmd --zone=public --add-port=5667/tcp
> # firewall-cmd --zone=public --add-port=5667/tcp --permanent
> ```

Table 2.1. Red Hat Gluster Storage Console Firewall Requirements

Port(s)	Protocol	Source	Destination	Purpose
22	TCP	• System(s) used for maintenance of the console including back end configuration, and software upgrades.	• Red Hat Gluster Storage Console	SSH (optional)
80, 443	TCP	• Administration Portal clients • Red Hat Enterprise Linux host(s) • REST API clients	• Red Hat Gluster Storage Console	Provides HTTP and HTTPS access to the console.

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2.3.5. Directory Server Firewall Requirements

Red Hat Gluster Storage Console requires a directory server to support user authentication. A number of ports need to be opened in the directory server's firewall to support the GSS-API authentication as used by the Red Hat Gluster Storage Console.

Table 2.2. Directory Firewall Requirements

Port(s)	Protocol	Source	Destination	Purpose
88, 464	TCP, UDP	Red Hat Gluster Storage Console	Directory Server	Kerberos authentication
389, 636	TCP	Red Hat Gluster Storage Console	Directory Server	Lightweight Directory Access Protocol (LDAP) and LDAP over SSL

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2.3.6. Database Server Firewall Requirements

Red Hat Gluster Storage Console supports the use of a remote database server. If you plan to use a remote database server with Red Hat Gluster Storage Console, ensure that the remote database server allows connections from the Console

Table 2.3. Database Server Firewall Requirements

Port	Protocol	Source	Destination	Purpose
5432	TCP, UDP	Red Hat Gluster Storage Console	PostgreSQL database server	Default port for PostgreSQL database connections.

.

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2.3.7. Red Hat Gluster Storage Server Firewall Requirements

Red Hat Gluster Storage servers require that a number of ports be opened to allow network traffic through the system's firewall.

For more information on the ports that you need to open, see chapter *Planning Red Hat Gluster Storage Installation* in the *Red Hat Gluster Storage 3.3 Installation Guide*

Table 2.4. Server Firewall Requirements

Port	Protocol	Source	Destination	Purpose
22	TCP	Red Hat Gluster Storage Console	Red Hat Gluster Storage Servers	Secure Shell (SSH) access.
54321	TCP	Red Hat Gluster Storage Console	Red Hat Gluster Storage Servers	VDSM communications with the Red Hat Gluster Storage Console.

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2.3.8. Red Hat Gluster Storage Console User Accounts and Groups

When the rhsc package is installed, a number of user accounts are created. The default user identifier (UID) for each account and the default group identifier (GID) for each entry are:

- The **kvm** group (GID **36**) includes the **vdsm** user (UID **36**)

- The **ovirt** group (GID **108**) includes the **ovirt** user (UID**108**)

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PART II. INSTALLING RED HAT GLUSTER STORAGE CONSOLE

There are several ways to install Red Hat Gluster Storage Console.

Online installation

Install Red Hat Gluster Storage Console on a system that can access the internet to download installation packages.

Offline installation

Install Red Hat Gluster Storage Console on a system that cannot access the internet.

Both of these options allow automatic configuration by creating and specifying an answers file when running the `rhsc-setup` script. See Chapter 6, *Automating configuration* for details.

CHAPTER 3. PREREQUISITES

Before installing the Red Hat Gluster Storage Console, you must ensure that you meet all the prerequisites. To complete installation of the Red Hat Gluster Storage Console successfully, you must also be able to determine:

1. The firewall rules, if any, present on the system. The default option is to allow the Console's setup script to configure the firewall automatically; this overwrites any existing settings. To integrate the existing settings with the firewall rules required by the Console, you must configure the firewall manually. If you choose to manually configure the firewall, the setup script provides a custom list of ports that need to be opened, based on the options selected during setup.

2. The fully qualified domain name (FQDN) of the system on which the Console is to be installed. The default value is the system's current host name. The FQDN must be reachable from all the Red Hat Gluster Storage Nodes.

3. The password you use to secure the Red Hat Gluster Storage Console administration account.

4. The location of the database server to be used as the Console database. You can use the setup script to install and configure a local database server; this is the default setting. Alternatively, use an existing remote database server. This database must be created before the Console is configured. To use a remote database server you must know:

   - The host name of the system on which the remote database server exists.

   - The port on which the remote database server is listening. The default port is 5432.

   - That the `uuid-ossp` extension had been loaded by the remote database server.

   You must also know the name of the database, and the user name and password of a user that has permissions on the remote database server. The default name for both the database and the user is `redhat`.

5. The organization name to use when creating the Console's security certificates. The default value is an automatically-detected domain-based name.

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CHAPTER 4. INSTALLING THE CONSOLE FROM PACKAGES

This chapter covers how to install Red Hat Gluster Storage Console on a system that has access to the internet. Once you have confirmed that your system fulfils the prerequisites mentioned in Chapter 3, *Prerequisites*, the basic workflow is:

- Register your system so that it can download the packages required for installation.

- Install the Red Hat Gluster Storage Console packages.

- Run the setup script.

- Connect your storage servers to the console.

If required, you can also specify a database to use with Red Hat Gluster Storage Console. See Chapter 8, *Use a PostgreSQL Database Server with Red Hat Gluster Storage Console* for details.

4.1. REGISTERING TO RED HAT NETWORK

The Red Hat Gluster Storage Console installation requires that the system be subscribed/registered to a number of Subscription Manager repositories or Red Hat Satellite Server channels. These channels or repositories are used to retrieve both the initial installation packages and later updates as they become available.

Procedure 4.1. Registering with Subscription Manager using Command Line

1. **Register the System with Subscription Manager**
   Run the following command and enter your Red Hat Network user name and password to register the system with the Red Hat Network:

   ```
   # subscription-manager register
   ```

2. **Identify Available Entitlement Pools**
   Run the following commands to find entitlement pools containing the repositories required to install the Red Hat Gluster Storage Console:

   ```
   # subscription-manager list --available | grep -A8 "Red Hat
   Enterprise Linux Server"
   # subscription-manager list --available | grep -A8 "Red Hat Gluster
   Storage"
   ```

3. **Attach Entitlement Pools to the System**
   Use the pool identifiers located in the previous step to attach the `Red Hat Enterprise Linux Server` and `Red Hat Gluster Storage Console` entitlements to the system. Run the following command to attach the entitlements:

   ```
   # subscription-manager attach --pool=[POOLID]
   ```

4. **Enable the Required Repositories**
   Run the following commands to enable the repositories required to install Red Hat Gluster Storage Console:

   ```
   # subscription-manager repos --enable=rhel-6-server-rpms
   ```

```
# subscription-manager repos --enable=jb-eap-6-for-rhel-6-server-
rpms
# subscription-manager repos --enable=rhsc-3-for-rhel-6-server-rpms
# subscription-manager repos --enable=rhs-nagios-3-for-rhel-6-
server-rpms
```

5. **Verify if the Repositories are enabled**
   Run the following command to verify if the repositories are enabled:

   ```
   # yum repolist
   ```

Procedure 4.2. Registering with Subscription Manager using GUI

IMPORTANT

To attach Red Hat Gluster Storage Console subscription, select **Manually assign subscriptions after registration** option. Follow steps 4 and 5 from the Procedure 3.1 *Registering with Subscription Manager using Command Line,* to enable and verify repositories manually.

- **Verify if the Repositories are enabled**
  Run the following command to verify if the repositories are enabled:

  ```
  # yum repolist
  ```

Procedure 4.3. Registering with Red Hat Satellite Server

1. Configure the client system to access Red Hat Satellite. Refer section *Registering Clients with Red Hat Satellite Server* in *Red Hat Satellite 5.6 Client Configuration Guide*

2. Run **rhn_register** command to register the system with the Red Hat Satellite.

3. In the select operating system release page, select All available updates and follow the prompts to register the system to the standard base channel for Red Hat Enterprise Linux 6 **rhel-x86_64-server-6**.

4. Run the following command to subscribe the system to the required Red Hat Gluster Storage Console server channels.

   ```
   # rhn-channel --add --channel rhel-x86_64-server-6-rhs-rhsc-3 --
   channel  jbappplatform-6-x86_64-server-6-rpm --channel rhel-x86_64-
   server-6-rhs-nagios-3
   ```

5. Run the following command to verify that the system is registered successfully.

   ```
   # rhn-channel --list
   rhel-x86_64-server-6
   rhel-x86_64-server-6-rhs-rhsc-3
   jbappplatform-6-x86_64-server-6-rpm
   rhel-x86_64-server-6-rhs-nagios-3
   ```

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4.2. INSTALLING RED HAT GLUSTER STORAGE CONSOLE

The Red Hat Gluster Storage Console and its dependencies are available via Red Hat Network (RHN). To install the Console, you must ensure that connectivity with either Red Hat Network or a Red Hat Network Satellite Server is available. You need to ensure that you have access to all the required Red Hat Network channels.

> **IMPORTANT**
>
> - Installing Red Hat Gluster Storage Console 3.x on Red Hat Gluster Storage 3.x is not supported.
>
> - Installing Red Hat Gluster Storage Console on Red Hat Enterprise Linux 7.x is not supported.

Procedure 4.4. Installing Red Hat Gluster Storage Console

1. Use the **yum** command to ensure that the most recent version of installed packages are in use.

   ```
   # yum update
   ```

2. Use **yum** to initiate the installation of the **rhsc** package and all the dependencies. You must run this command as the **root** user.

   ```
   # yum install rhsc
   ```

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4.3. CONFIGURING RED HAT GLUSTER STORAGE CONSOLE

When package installation is complete, the Red Hat Gluster Storage Console must be configured. The **rhsc-setup** script is provided to assist with this task. The script asks you a series of questions, and configures the environment based on the answers. When required values are provided, the updated configuration is applied and the Red Hat Gluster Storage Console services are started. The **rhsc-setup** script guides you through several distinct configuration stages. The script suggests possible configuration defaults in square brackets. No additional input is required wherever the default values are acceptable.

Procedure 4.5. Configuring the Console

1. **Start console setup**

   ```
   #rhsc-setup
   ```

   The script then checks whether it is performing an upgrade or an installation before proceeding.

   ```
   Checking for product updates...
   No product updates found
   ```

2. **Check hostname configuration**

The `rhsc-setup` script automatically detects the hostname. Correct the detected hostname if required. The fully qualified domain name should have both forward and reverse lookup records in DNS.

```
Host fully qualified DNS name of this server [autodetected domain-
based name]:
```

3. **Configure firewall**

   The `rhsc-setup` script looks for firewall managers which are both active and enabled in the environment and you can choose to configure the firewall.

```
Setup can automatically configure the firewall on this system.
Note: automatic configuration of the firewall may overwrite current
settings.
Do you want Setup to configure the firewall? (Yes, No) [Yes]: yes
[INFO] iptables will be configured as firewall manager.
```

4. **Configure database**

   You can use either a local or remote PostgreSQL database. The script can automatically configure the database, including adding a user and a database, or use the values that you provide.

```
Where is the database located? (Local, Remote) [Local]: Local
Setup can configure the local postgresql server automatically for
the engine to run. This may conflict with existing applications.
Would you like Setup to automatically configure postgresql, or
prefer to perform that manually? (Automatic, Manual) [Automatic]:
Automatic
```

   For information on how to prepare a PostgreSQL database, see Chapter 8, *Use a PostgreSQL Database Server with Red Hat Gluster Storage Console*

5. **Configure administrator credentials**

   You need to set an administrator password for the automatically created administrative user of the Red Hat Gluster Storage Console: **admin@internal**.

```
Engine admin password:
Confirm engine admin password:
```

   A message appears on the terminal if the password you have set is weak.

6. **Configure certificates**

   The Console uses certificates to communicate securely with its hosts. You need to provide the organization name for the certificate. This certificate can also optionally be used to secure HTTPS communications with the Console.

```
Organization name for certificate [autodetected domain-based name]:
```

7. **Configure web server**

   The external SSL (HTTPS) communications with the Console are secured with the self-signed certificate created in the PKI configuration stage by default, to securely communicate with hosts. You may choose to use another certificate for external HTTPS connections, without affecting how the Console communicates with hosts.

```
Setup can configure apache to use SSL using a certificate issued
from the internal CA.
Do you wish Setup to configure that, or prefer to perform that
manually? (Automatic, Manual) [Automatic]: Automatic
```

The Red Hat Gluster Storage Console uses the Apache web server to present a landing page to users. **rhsc-setup** script can make the Console's landing page the default page presented by Apache.

```
Setup can configure the default page of the web server to present
the application home page. This may conflict with existing
applications.
Do you wish to set the application as the default page of the web
server?
(Yes, No) [Yes]:
```

8. **Configure console settings**
   The **rhsc-setup** script by default uses the GlusterFS application mode and skips the NFS configuration.

   ```
   [ INFO ] NFS configuration skipped with application mode Gluster
   ```

   The **rhsc-setup** script validates all the inputs, and warns you of any possible problem. Further input is only required if any of the inputs you provided would adversely impact the environment.

   The **rhsc-setup** script prompts to confirm whether to connect to the Red Hat Access Plug-in.

   On agreeing to configure the proxy server, you are prompted to enter the IP address and the port number of the proxy server. You also have the option to set a user name for the proxy server with a password.

   ```
   Would you like transactions from the Red Hat Access Plug-in sent
   from the Red Hat Gluster Storage Console to be brokered through a
   proxy server? (Yes, No) [No]: No
   ```

   The **rhsc-setup** script prompts to confirm whether to enable or disable monitoring by entering **Yes** or **No**

   For information on how to configure Nagios, see *Configuring Nagios for Red Hat Gluster Storage Console* in *Red Hat Gluster Storage Console 3.3 Administration Guide*

   ```
   Would you like external monitoring to be enabled? (Yes, No) [Yes]:

     --== CONFIGURATION PREVIEW ==--

         Application mode                           : gluster
         Firewall manager                           : iptables
         Update Firewall                            : True
         Host FQDN                                  : rhsc.example.com
         Engine database name                       : engine
         Engine database secured connection         : False
         Engine database host                       : localhost
   ```

```
        Engine database user name            : engine
        Engine database host name validation : False
        Engine database port                 : 5432
        Engine installation                  : True
        PKI organization                     : redhat
        Configure local Engine database      : True
        Set application as default page       : True
        Configure Apache SSL                 : True
        Nagios monitoring enabled for gluster hosts: True

        Please confirm installation settings (OK, Cancel) [OK]: OK
[ INFO  ] Stage: Transaction setup
[ INFO  ] Stopping engine service
[ INFO  ] Stage: Misc configuration
[ INFO  ] Stage: Package installation
[ INFO  ] Stage: Misc configuration
[ INFO  ] Initializing PostgreSQL
[ INFO  ] Creating PostgreSQL 'engine' database
[ INFO  ] Configuring PostgreSQL
[ INFO  ] Creating Engine database schema
[ INFO  ] Creating CA
[ INFO  ] Generating post install configuration file '/etc/ovirt-
engine-setup.conf.d/20-setup-ovirt-post.conf'
[ INFO  ] Stage: Transaction commit
[ INFO  ] Stage: Closing up
```

- To confirm the displayed configuration values, type **OK** and press **Enter**.

- To correct one or more configuration values, type `cancel`, this causes the set-up to fail. Run the setup again to provide the correct values.

9. **Confirm summary**
   When all the required values are provided, the script lists the values for a final confirmation.

   When the script completes, note the additional information provided. Copy the **SSH Certificate fingerprint**, **SSH Public key fingerprint**, and **Red Hat Gluster Storage Console URL** for later reference.

```
  --== SUMMARY ==--

[ INFO  ]  To enable monitoring, ensure the managed nodes are
migrated to Red Hat Gluster Storage 3.3. Also make sure the auto
discovery tool is executed to start monitoring the Red Hat Gluster
Storage Nodes, after the cluster nodes are added to Red Hat Gluster
Storage Console. For detail, refer to Red Hat Gluster Storage
Console Administration Guide.
[WARNING] Less than 16384MB of memory is available
        SSH fingerprint:
        Internal CA
        Web access is enabled at:
            http://HostURL:portnumber/ovirt-engine
            https://HostURL:portnumber/ovirt-engine
        Please use the user "admin" and password specified in order
to login.

[ INFO  ] To enable monitoring, ensure that the managed nodes are
```

```
migrated to Red Hat Gluster Storage 3.0 or above. Also ensure that
the auto-discovery command (configure-gluster-nagios) is executed to
start monitoring the Red Hat Gluster Storage Nodes after the nodes
are added to Red Hat Gluster Storage Console. For more details,
refer Red Hat Gluster Storage Console Administration Guide.
[WARNING] Less than 16384MB of memory is available
          Engine database resources:
          Database name:
          Database user name:
          SSH fingerprint:
          Internal CA
          Web access is enabled at:
          http://HostURL:portnumber/ovirt-engine
          https://HostURL:portnumber/ovirt-engine
      Please use the user "admin" and password specified in order
to login
```

At this stage, the engine service and httpd daemon are started.

```
          --== END OF SUMMARY ==--


[ INFO  ] Starting engine service
[ INFO  ] Restarting httpd
[ INFO  ] Stage: Clean up
        Log file is located at /var/log/ovirt-engine/setup/ovirt-
engine-setup-20150722181911-5zsqnr.log
[ INFO  ] Generating answer file '/var/lib/ovirt-
engine/setup/answers/20150722182856-setup.conf'
[ INFO  ] Stage: Pre-termination
[ INFO  ] Stage: Termination
[ INFO  ] Execution of setup completed successfully
```

Result:

The Red Hat Gluster Storage Console is installed and configured. You can connect to the Administration Portal using the instructions in Chapter 7, *Connecting to the Administration Portal*.

> **NOTE**
>
> Red Hat periodically provides updates for the Red Hat Gluster Storage Console.

4.3.1. Enabling SELinux

To enable SELinux on Console and the storage nodes refer *Red Hat Gluster Storage 3.3 Administration Guide* which provides more information on enabling SELinux.

> **NOTE**
>
> Ensure to place the nodes into maintenance mode before enabling SELinux on the Red Hat Gluster Storage nodes managed via Console.

On the upgraded Red Hat Gluster Storage Console and Red Hat Gluster Storage nodes, set following SELinux booleans:

- If Nagios server is installed on the Console node, set the following boolean:

```
# setsebool -P nagios_run_sudo on
```

- Set the following booleans on Red Hat Gluster Storage node for Nagois to function:

```
# setsebool -P nagios_run_sudo on
# setsebool -P logging_syslogd_run_nagios_plugins on
```

CHAPTER 5. INSTALLING THE CONSOLE FROM THE VIRTUAL APPLIANCE

Red Hat Gluster Storage Console provides a virtual appliance that can be used to quickly set up a pre-installed and partially configured Red Hat Gluster Storage Console. This also enables offline installation of the Red Hat Gluster Storage Console on virtual machines managed by Red Hat Virtualization Management.

5.1. INSTALLING THE VIRTUAL APPLIANCE ON A VIRTUAL MACHINE

This section covers how to install Red Hat Gluster Storage Console on a virtual machine managed by Red Hat Virtualization Manager.

The basic workflow for this process is:

1. Obtain the Red Hat Gluster Storage Console Appliance and upload it to Red Hat Virtualization Management.

2. Create a virtual machine to act as a server for Red Hat Gluster Storage Console, using the Red Hat Gluster Storage Console Appliance OVA file as a template.

3. Boot the new virtual machine and run the setup script.

If necessary, you can then register the virtual machine with Red Hat Subscription Management to allow that machine to receive updates from Red Hat.

> **IMPORTANT**
>
> Support for offline installation of Red Hat Gluster Storage Console is currently limited to the installation of Red Hat Gluster Storage Console Appliance on a virtual machine managed by Red Hat Virtualization Management.

5.1.1. Before you begin

To perform the following procedures you will need an installation of Red Hat Virtualization Manager.

5.1.2. Install Red Hat Gluster Storage Console on a RHV-M virtual machine

Procedure 5.1. Uploading the appliance into Red Hat Virtualization Manager

This only needs to be done once for a single instance of Red Hat Virtualization Manager.

1. **Download the appliance**

   a. Log on to the Red Hat Customer Portal (http://access.redhat.com/).

   b. Click on **Downloads** to go to *Software and Download Center.*

   c. Click **Red Hat Gluster Storage** to go to *Download Red Hat Gluster Storage*

   d. Set the `Product Variant` to `Red Hat Gluster Storage Management Console (for RHEL Server)`.

e. Set the `Version` to the appropriate version. The appliance is available in version 3.1 or later.

f. Click on `Download Now` beside the appropriate version of Red Hat Gluster Gluster Storage Console Appliance to download the appliance OVA file.

2. **Upload the appliance to RHV-M**
Upload the appliance OVA file from `/path/to/appliance.ova` to a Red Hat Virtualization Manager storage domain.

```
# ovirt-image-uploader -n appliance_name -e rhvm_storage_domain
upload /path/to/appliance.ova
```

Enter the REST API password for the Red Hat Virtualization Manager administrative user (`admin@internal`) when prompted.

Procedure 5.2. Creating a virtual machine with the appliance template

1. **Start creating a new virtual machine**
Log in to the Red Hat Virtualization Manager interface and navigate to the `Virtual Machines` tab in the navigation pane.

Click `New VM` to start the creation process.

2. **Use the appliance as a template**
Follow the prompts, ensuring that you select *appliance_name* in the `Based on Template` drop-down menu.

Procedure 5.3. Configuring the console appliance virtual machine

1. **Ensure spice-xpi is installed**
Ensure that spice-xpi is installed on your local system so that you can view the console of your new virtual machine.

2. **Start the new virtual machine**
When your new virtual machine is finished installing, start the virtual machine.

3. **Configure the new virtual machine**
Open the console of your new virtual machine. Run the `rhsc-setup` command and follow the prompts to complete setup of Red Hat Gluster Storage.

By default, `rhsc-setup` runs in the online mode. This requires registration to Red Hat Network channels or repositories. Follow the steps in Section 4.1, "Registering to Red Hat Network" to register with Red Hat Network and subscribe to the appropriate channels and repositories.

If your system has limited connectivity, or you don't want to configure repositories now, you can run this command in the offline mode:

```
# rhsc-setup --offline
```

If you are configuring a number of machines the same way, you can also use the *--config-append* parameter to use a pre-configured answers file.

When setup is complete, you can follow the normal process of setting up bricks, volumes, and trusted storage pools. If you set up in offline mode, you can also optionally register Red Hat Gluster Storage Console for updates by following the instructions in Section 4.1, "Registering to Red Hat Network".

CHAPTER 6. AUTOMATING CONFIGURATION

Automated installations are created by providing the **rhsc-setup** script with an answer file. An answer file contains answers to the questions asked by the **rhsc-setup** command.

- To create an answer file, use the ***--generate-answer*** parameter to specify a path and file name with which to create the answer file. When this option is specified, the answers for the questions in the setup process are recorded in the answer file.

  ```
  # rhsc-setup --generate-answer=[ANSWER_FILE]
  ```

- To use an answer file for a new installation, use the ***--config-append*** parameter to specify the path and file name of the answer file to be used. The **rhsc-setup** command will use the answers stored in the file to complete the installation.

  ```
  # rhsc-setup --config-append=[ANSWER_FILE]
  ```

  --config - replaces default system configuration.

  --config-append - appends configuration to existing system configuration.

Run **rhsc-setup** ***--help*** for a full list of parameters.

CHAPTER 7. CONNECTING TO THE ADMINISTRATION PORTAL

Use the Administration Portal to create, configure, monitor, and maintain the Red Hat Gluster Storage environment using a graphical user interface. To begin configuring the Red Hat Gluster Storage environment you must first log into the Administration Portal.

1. In a browser, navigate to https://*<IP Address>*/ovirt-engine. Replace *<IP Address>* with the URL provided during installation.

2. When initially connecting to the Administration Portal, a prompt appears asking if the `ca.cer` certificate is trusted. Follow the prompts and then click the new link that appears on the page to reload the Administration Portal.

3. The portal log in screen displays. Enter `admin` as the `User Name`. Enter the password set during installation in the `Password` field. Select the `internal` domain from the `Domain` list.

   Click **Login** to log in.

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CHAPTER 8. USE A POSTGRESQL DATABASE SERVER WITH RED HAT GLUSTER STORAGE CONSOLE

You can manually configure a database server to host the Red Hat Gluster Storage Console database. It can be hosted either locally on the Red Hat Gluster Storage Console server, or remotely on another server where **posgresql** and **postgresql-server** packages are installed.

Complete these steps on the database server before running the **rhsc-setup** utility.

Procedure 8.1. Manually Preparing a PostgreSQL Database Server for use with Red Hat Gluster Storage Console

1. Initialize the database and start the postgreSQL service by running the commands:

   ```
   # service postgresql initdb
   # service postgresql start
   ```

2. Create a postgreSQL user for the Red Hat Gluster Storage Console to use when it reads from and writes to the database, and a database to store information about the environment in. This step is required on both local and remote manually configured database servers.

   ```
   # su - postgres
   $ psql
   postgres=# create user USER password 'PASSWORD';
   postgres=# create database DATABASE owner USER;
   ```

3. Make sure that database can be accessed remotely by enabling client authentication. This step is required on manually configured remote database servers. Edit the **/var/lib/pgsql/data/pg_hba.conf** file, and add this line:

   ```
   host all all X.X.X.X/24 trust
   ```

   Replace *X.X.X.X* with the IP address of the Console server.

4. Allow TCP/IP connections to the database. This step is required on manually configured remote database servers. Edit the **/var/lib/pgsql/data/postgresql.conf** file, and add this line:

   ```
   listen_addresses='*'
   port = 5432
   ```

   This example makes postgreSQL listen for connections on all interfaces. You can specify an interface by giving its IP address.This requires a restart of the postgreSQL server.

5. Restart the **postgres** service. This step is required on both local and remote manually configured database servers.

   ```
   service postgresql restart
   ```

Procedure 8.2. Configuring the Manager to use a Manually Configured Local or Remote PostgreSQL Database

1. During the Red Hat Gluster Storage Console installation using the **rhsc-setup** utility, you are prompted to decide where the database is located.

   ```
   Where is the database located? (Local, Remote) [Local]:
   ```

   The steps involved in manually configuring the Red Hat Gluster Storage Console to use remote and local databases are the same, except that to use a remotely hosted database, you need to provide the hostname of the remote database server, and the port it is listening on.

2. If you are using a remote manually configured database, supply the **rhsc-setup** utility with the hostname of the database server and the port it is listening on.

   ```
   Database host [localhost]:
   Database port [5432]:
   ```

3. In either case, you are prompted to confirm whether the database uses a secured connection. Provide a username and password for the newly configured database.

   ```
   Database secured connection (Yes, No) [No]:
   Database name [engine]:
   Database user [engine]:
   Database password:
   ```

   NOTE

   Using a secured connection to the database requires you to have also manually configured secured database connections.

You have configured the Red Hat Gluster Storage Console to use a manually configured database. The **rhsc-setup** utility continues with the rest of the storage environment configuration.

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CHAPTER 9. UPGRADING RED HAT GLUSTER STORAGE CONSOLE

This section covers both updating your Red Hat Gluster Storage Console environment between minor releases, and upgrading to the next major version. Always update to the latest minor version of your current Red Hat Gluster Storage Console version before you upgrade to the next major version.

Upgrading Red Hat Gluster Storage Console involves three main steps:

- Configuring channels and entitlements.

- Updating the required packages.

- Performing the upgrade.

The command used to perform the upgrade is **rhsc-setup**, which provides an interactive interface. While the upgrade is in process, Red Hat Gluster Storage hosts continue to operate independently. When the upgrade is complete, you can then upgrade your hosts to the latest versions of Red Hat Gluster Storage.

9.1. UPGRADES BETWEEN MINOR RELEASES

You can upgrade Red Hat Gluster Storage Console between minor releases.

Procedure 9.1. Checking for Red Hat Gluster Storage Console Updates

1. Run the following command on the machine on which the Red Hat Gluster Storage Console is installed:

   ```
   # rhsc-upgrade-check
   ```

2. o If there are no updates are available, the command will output the text **No upgrade**:

      ```
      # rhsc-upgrade-check
      VERB: queue package rhsc-setup for update
      VERB: Building transaction
      VERB: Empty transaction
      VERB: Transaction Summary:
      No upgrade
      ```

   o If updates are available, the command will list the packages to be updated:

      ```
      # rhsc-upgrade-check
      VERB: queue package rhsc-setup for update
      VERB: Downloading: repomdoInTMztmp.xml (0%)
      VERB: Downloading: repomdoInTMztmp.xml 4.4 k(100%)
      VERB: Downloading: repomdhPVwA7tmp.xml (0%)
      VERB: Downloading: repomdhPVwA7tmp.xml 4.4 k(100%)
      VERB: Downloading: repomdvWktrFtmp.xml (0%)
      VERB: Downloading: repomdvWktrFtmp.xml 3.3 k(100%)
      VERB: Downloading: rhs-nagios-3-for-rhel-6-server-rpms/primary_db
      (0%)
      VERB: Downloading: rhs-nagios-3-for-rhel-6-server-rpms/primary_db
      ```

```
13 k(74%)
VERB: Downloading: rhs-nagios-3-for-rhel-6-server-rpms/primary_db
18 k(100%)
VERB: Downloading: repomds0eFt9tmp.xml (0%)
VERB: Downloading: repomds0eFt9tmp.xml 2.8 k(100%)
VERB: Downloading: repomdrL4fCttmp.xml (0%)
VERB: Downloading: repomdrL4fCttmp.xml 3.3 k(100%)
VERB: Downloading: rhsc-3-for-rhel-6-server-rpms/primary_db (0%)
VERB: Downloading: rhsc-3-for-rhel-6-server-rpms/primary_db 9.1
k(55%)
VERB: Downloading: rhsc-3-for-rhel-6-server-rpms/primary_db 16
k(100%)
VERB: package rhsc-setup queued
VERB: Building transaction
VERB: Transaction built
VERB: Transaction Summary:
VERB:       updated    - otopi-1.2.3-1.el6ev.noarch
VERB:       update     - otopi-1.4.0-0.0.1.master.el6ev.noarch
VERB:       updated    - otopi-java-1.2.3-1.el6ev.noarch
VERB:       update     - otopi-java-1.4.0-0.0.1.master.el6ev.noarch
VERB:       updated    - rhsc-lib-3.0.4-1.25.el6rhs.noarch
VERB:       update     - rhsc-lib-3.1.0-0.62.el6.noarch
VERB:       updated    - rhsc-setup-3.0.4-1.25.el6rhs.noarch
VERB:       update     - rhsc-setup-3.1.0-0.62.el6.noarch
VERB:       updated    - rhsc-setup-base-3.0.4-1.25.el6rhs.noarch
VERB:       update     - rhsc-setup-base-3.1.0-0.62.el6.noarch
VERB:       updated    - rhsc-setup-plugin-ovirt-engine-3.0.4-
1.25.el6rhs.noarch
VERB:       update     - rhsc-setup-plugin-ovirt-engine-3.1.0-
0.62.el6.noarch
VERB:       updated    - rhsc-setup-plugin-ovirt-engine-common-
3.0.4-1.25.el6rhs.noarch
VERB:       update     - rhsc-setup-plugin-ovirt-engine-common-
3.1.0-0.62.el6.noarch
VERB:       updated    - rhsc-setup-plugins-3.0.4-1.2.el6rhs.noarch
VERB:       update     - rhsc-setup-plugins-3.1.0-3.el6rhs.noarch
Upgrade available
```

You have checked for updates to the Red Hat Gluster Storage Console.

Procedure 9.2. Updating Red Hat Gluster Storage Console

Updates to the Red Hat Gluster Storage Console are released via Red Hat Network. Before installing an update from Red Hat Network, ensure you read the advisory text associated with it and the latest version of the *Red Hat Gluster Storage Release Notes* and *Red Hat Gluster Storage Technical Notes* A number of actions must be performed to complete an upgrade, including:

- Stopping the `ovirt-engine` service.

- Downloading and installing the updated packages.

- Backing up and updating the database.

- Performing post-installation configuration.

- Starting the `ovirt-engine` service.

1. Run the following command to update the `rhsc-setup` package:

   ```
   # yum update rhsc-setup
   ```

2. Run the following command to update the Red Hat Gluster Storage Console:

   ```
   # rhsc-setup
   ```

3. Run the following command to ensure that all packages are up to date:

   ```
   # yum update
   ```

   If this includes updates to the Nagios plugin (nagios-server-addons), re-run the Nagios configuration command to ensure it is correctly configured after upgrade.

   ```
   # configure-gluster-nagios
   ```

You have successfully updated the Red Hat Gluster Storage Console.

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9.2. POST-UPGRADE TASKS

The Red Hat Gluster Storage Console clusters have a compatibility version. The cluster compatibility version need to be changed after upgrading the Red Hat Gluster Storage Console version. The cluster compatibility version indicates the features of Red Hat Gluster Storage Console supported by all of the hosts in the cluster. The cluster compatibility is set according to the version of the least capable host operating system in the cluster.

NOTE

To change the cluster compatibility version, you must have first updated all the hosts in your cluster to a level that supports your desired compatibility level.

Procedure 9.3. Migrating Red Hat Gluster Storage Nodes

1. Log in to the Administration Portal as the administrative user. By default this is the `admin` user.

2. Click the `Hosts` tab and select the desired host to display the Details pane.

3. Click `Maintenance` and to place the host in maintenance mode.

4. Upgrade the Red Hat Gluster Storage nodes.

   For more information, refer section *Upgrading from Red Hat Gluster Storage 2.1 Update 4 to Red Hat Gluster Storage 3.0 using yum* in *Red Hat Gluster Storage 3 Administration Guide*

5. Click `Edit` and change the protocol to JSON by checking the `Use JSON Protocol` checkbox.

6. On the `Hosts` tab, click `Reinstall` to reinstall the hosts.

7. Enter the password for the Host in `Install Host` window and click **OK**.

You have migrated the Red Hat Gluster Storage Nodes.

Procedure 9.4. Changing the Cluster Compatibility Version

1. Log in to the Administration Portal as the administrative user. By default this is the `admin` user.

2. Click the `Clusters` tab.

3. Select the cluster to change from the list displayed. If the list of clusters is too long to filter visually then perform a search to locate the desired cluster.

4. Click the `Edit` button.

5. Change the `Compatibility Version` to the desired value.

   For more information on the Cluster compatibility version, refer *Cluster Properties* section in *Red Hat Gluster Storage Console Administration Guide*

6. Click **OK** to open the `Change Cluster Compatibility Version` confirmation window.

7. Click **OK** to confirm.

You have updated the compatibility version of the cluster.

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CHAPTER 10. REMOVING RED HAT GLUSTER STORAGE CONSOLE

> ⚠ **WARNING**
>
> The `rhsc-cleanup` command removes all the existing Red Hat Gluster Storage Console data. This includes configuration settings, certificates, and database tables.

Procedure 10.1. Removing the Console

The Red Hat Gluster Storage Console provides the `rhsc-cleanup` utility to allow quick and easy removal of the data files associated with the installation. After `rhsc-cleanup` is run, you can remove the Red Hat Gluster Storage Console packages using **yum**.

1. Execute `rhsc-cleanup` on the system that Red Hat Gluster Storage Console is installed on. You must be logged in as the root user to run `rhsc-cleanup`.

   ```
   # rhsc-cleanup
   ```

2. Confirm that you want to remove all of the Red Hat Gluster Storage Console components. These include PKI Keys, the locally hosted ISO domain file system layout, PKI Configuration, the local NFS exports configuration, and the engine database content.

   ```
   Do you want to remove all components? (Yes, No) [Yes]: yes
   ```

   > **NOTE**
   >
   > A backup of the Engine database and a compressed archive of the PKI keys and configuration are always automatically created. These are saved under **/var/lib/ovirt-engine/backups/**, and their filenames include the date and engine- and engine-pki-, respectively.

3. You will be prompted to confirm the action to remove Red Hat Gluster Storage Console. If you choose to proceed, the `ovirt-engine` service is stopped, and the configuration is removed according to the options you select.

   ```
   During execution engine service will be stopped (OK, Cancel) [OK]:
   OK
   ovirt-engine is about to be removed, data will be lost (OK, Cancel)
   [Cancel]: OK
   ```

   The configuration files of the environment are removed.

4. You can safely uninstall the Red Hat Gluster Storage Console packages using **yum**.

```
# yum remove rhsc*
```

NOTE

A backup of the database is made available, the engine setup is cleaned-up, a backup of the PKI configuration and keys are made available, and the log file and answer files are generated.

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PART III. APPENDICES

APPENDIX A. ADDITIONAL UTILITIES

A.1. THE DOMAIN MANAGEMENT TOOL

Red Hat Gluster Storage Console authenticates users using Active Directory services. To add users to Red Hat Gluster Storage Console, use the internal administrator user to add the Active Directory service against which the users must be authenticated. You can add and remove directory service domains using the domain management tool, **rhsc-manage-domains**. This command is only accessible from the machine on which Red Hat Gluster Storage Console is installed, and must be run as the root user.

A.1.1. Syntax of the Domain Management Tool

The syntax is:

```
rhsc-manage-domains -action=ACTION [options]
```

For full information on usage, see the **rhsc-manage-domains** command's help output:

```
# rhsc-manage-domains --help
```

A.1.2. Adding Domains to a Configuration

In this example, the **rhsc-manage-domains** command is used to add the ActiveDirectory domain **test.redhat.com** to the Red Hat Gluster Storage Console configuration. The configuration is set to use the administrator user when querying the domain; the password is provided interactively.

Example A.1. rhsc-manage-domains Add Action

```
# rhsc-manage-domains -action=add -domain='test.redhat.com' -
provider=ActiveDirectory -user='admin' -interactive
Enter password:

The domain test.redhat.com has been added to the engine as an
authentication source but no users from that domain have been granted
permissions within the oVirt Manager.
Users from this domain can be granted permissions from the Web
administration interface or by editing the domain using -action=edit and
specifying -addPermissions.
oVirt Engine restart is required in order for the changes to take place
(service ovirt-engine restart).
Manage Domains completed successfully
```

A.1.3. Editing a Domain in the Configuration

In this example, the **rhsc-manage-domains** command is used to edit the **directory.test.redhat.com** domain in the Red Hat Gluster Storage Console configuration. The configuration is updated to use the administrator user when querying this domain; the password is provided interactively.

Example A.2. rhsc-manage-domains Edit Action

```
# rhsc-manage-domains -action=edit -domain='test.redhat.com' -
provider=ActiveDirectory -interactive
Enter password:

oVirt Engine restart is required in order for the changes to take place
(service ovirt-engine restart).
Manage Domains completed successfully
```

A.1.4. Deleting a Domain from the Configuration

In this example, the **rhsc-manage-domains** command is used to remove the
directory.test.redhat.com domain from the Red Hat Gluster Storage Console configuration.
Users defined in the removed domain will no longer be able to authenticate with the Red Hat Gluster
Storage Console. The entries for the affected users will remain defined in the Red Hat Gluster Storage
Console until they are explicitly removed.

The domain being removed in this example is the last one listed in the Red Hat Gluster Storage
Console configuration. A warning is displayed highlighting this fact, and that only the administrator
user from the internal domain will be able to log in until another domain is added.

Example A.3. rhsc-manage-domains Delete Action

```
# rhsc-manage-domains -action=delete -domain='test.redhat.com'
WARNING: Domain test.redhat.com is the last domain in the configuration.
After deleting it you will have to either add another domain, or to use
the internal administrator user in order to login.
Are you sure you like to delete domain test.redhat.com (yes/no) :
yes
Successfully deleted domain test.redhat.com. Please remove all users and
groups of this domain using the Administration portal or the API. oVirt
Engine restart is required in order for the changes to take place
(service ovirt-engine restart).
Manage Domains completed successfully
```

A.1.5. Validating a Domain Configuration

In this example, the **rhsc-manage-domains** command is used to validate the Red Hat Gluster Storage
Console configuration. The command attempts to log into each listed domain with the credentials
provided in the configuration. The domain is reported as valid if the attempt is successful.

Example A.4. rhsc-manage-domains Validate Action

```
#  rhsc-manage-domains -action=validate
Domain test.redhat.com is valid.
The configured user for domain test.redhat.com is admin@TEST.REDHAT.COM
Manage Domains completed successfully
```

A.1.6. Listing the Domains in a Configuration

In this example, the `rhsc-manage-domains` command is used to list the domains defined in the Red Hat Gluster Storage Console configuration. For each configuration entry, the command displays the domain, the user name - in User Principle Name (UPN) format - and whether the domain is local or remote.

Example A.5. rhsc-manage-domains List Action

```
# rhsc-manage-domains -action=list
Domain: test.redhat.com
        User name: admin@TEST.REDHAT.COM
Manage Domains completed successfully
```

APPENDIX B. REVISION HISTORY

Revision 3.3-01   **Wed Sep 13 2017**   **Laura Bailey**
    Minor edits for RHGS 3.3 publication.