

Red Hat Storage 2.1

Console Installation Guide

Installing Red Hat Storage Console



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Red Hat Storage 2.1 Console Installation Guide

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Edition 1

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Preface

1. Document Conventions

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

In PDF and paper editions, this manual uses typefaces drawn from the *Liberation Fonts*¹ set. The Liberation Fonts set is also used in HTML editions if the set is installed on your system. If not, alternative but equivalent typefaces are displayed. Note: Red Hat Enterprise Linux 5 and later includes the Liberation Fonts set by default.

1.1. Typographic Conventions

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

Mono-spaced Bold

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

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

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

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

Press **Enter** to execute the command.

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

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

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

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

Proportional Bold

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

Choose **System** → **Preferences** → **Mouse** from the main menu bar to launch **Mouse Preferences**. In the **Buttons** tab, click the **Left-handed mouse** check box and click

¹ <https://fedorahosted.org/liberation-fonts/>

Close to switch the primary mouse button from the left to the right (making the mouse suitable for use in the left hand).

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

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

Mono-spaced Bold Italic or ***Proportional Bold Italic***

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

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

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

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

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

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

Publican is a *DocBook* publishing system.

1.2. Pull-quote Conventions

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

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

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

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

```
package org.jboss.book.jca.ex1;

import javax.naming.InitialContext;
```

```
public class ExClient
{
    public static void main(String args[])
        throws Exception
    {
        InitialContext iniCtx = new InitialContext();
        Object          ref    = iniCtx.lookup("EchoBean");
        EchoHome        home   = (EchoHome) ref;
        Echo             echo   = home.create();

        System.out.println("Created Echo");

        System.out.println("Echo.echo('Hello') = " + echo.echo("Hello"));
    }
}
```

1.3. Notes and Warnings

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



Note

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



Important

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



Warning

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

2. Getting Help and Giving Feedback

2.1. Do You Need Help?

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

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

- access other product documentation.

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

2.2. We Need Feedback!

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

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

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



Part I. Before you Begin



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Overview

Red Hat Storage Console provides IT departments with the tools to meet the challenges of managing complex environments. Red Hat's state-of-the-art storage platform enables administrators to reduce the cost and complexity of large deployments. Red Hat Storage Console platform provides:

- High availability to quickly create and manage storage clusters and volumes .
- Multi-level administration to enable administration of physical infrastructure as well as administration of virtual objects.

1.1. Technology Preview



Important

Red Hat Storage 2.1 Console is under Technology Preview. Hence, its features are not fully supported under Red Hat subscription level agreements (SLAs), may not be functionally complete, and are not intended for production use. However, these features provide early access to upcoming product innovations, enabling customers to test functionality and provide feedback during the development process.

As Red Hat considers making future iterations of Technology Preview features generally available, we will provide commercially reasonable efforts to resolve any reported issues that customers experience when using these features.

1.2. System Components

Red Hat Storage platform consists of one or more servers (either Red Hat Storage Servers or Red Hat Enterprise Linux 6.2, or higher, systems). The hosts are grouped into Red Hat Storage clusters. Volumes are created on these clusters. The system and all its components are managed through a centralized management system.

Red Hat Storage Console

The Red Hat Storage Console acts as a centralized management system that allows system administrators to view and manage storage servers. It provides a comprehensive range of features including search capabilities, resource management, and provisioning. The Red Hat Storage Console itself also runs on Red Hat Enterprise Linux 6.

The console provides a graphical user interface to administer the physical and logical resources within the storage environment infrastructure. It can be used to manage provisioning, user sessions, and high availability/clustering. The Red Hat Storage Console exposes an Administration Portal, and an Application Programming Interface (API).

- The Administration Portal is used to perform setup, configuration, and management of the Red Hat Storage environment.
- The REST API provides an interface for automation of tasks normally accomplished manually by users. Scripts that make use of the REST API are able to be written in any language which supports accessing HTTP and HTTPS resources.

Red Hat Storage 2.1 Servers

Red Hat Storage Console can be used to create and manage storage clusters comprising of Red Hat Storage 2.1 servers.

1.3. Installation Workflow

Red Hat Storage Console requires installation and configuration of several components to create a functioning storage environment. You must install and configure each component in the order shown in the checklist that follows:

Check System Requirements

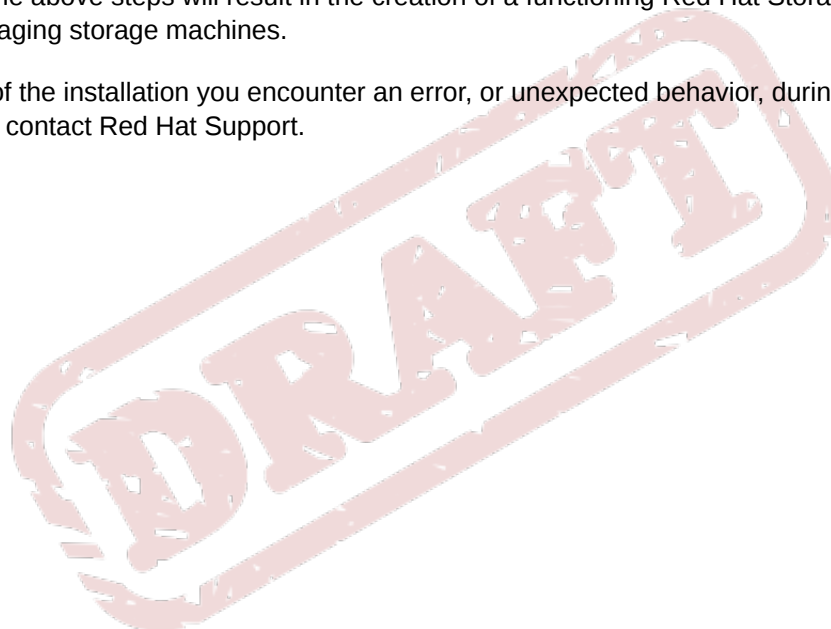
- Check hardware requirements, as seen in [Section 2.1, “Hardware Requirements”](#).
- Check software requirements, as seen in [Section 2.2, “Software Requirements”](#).

Red Hat Storage Console Installation

- Install Red Hat Storage Console, as seen in [Chapter 3, Red Hat Storage Console Installation](#).

Completion of the above steps will result in the creation of a functioning Red Hat Storage environment capable of managing storage machines.

If at any stage of the installation you encounter an error, or unexpected behavior, during the installation process review, contact Red Hat Support.



System Requirements

This chapter outlines the hardware and software requirements for installing the Red Hat Storage Console. The requirements outlined herein are based on the minimum requirements for successful installation, configuration, and operation of a Red Hat Storage cluster environment.



Important — Listed Requirements are Mandatory

All listed requirements must be met *before* installation commences. Without the listed requirements installation of a fully functional Red Hat Storage Console environment as described in this guide will *not* be possible.

2.1. Hardware Requirements

This section outlines the minimum hardware required to install, configure, and operate a Red Hat Storage Console environment. To setup a Red Hat Storage Console environment it is necessary to have, at least:

- one machine to act as the management server,
- one or more machines to act as storage servers - at least two are required to support replicated volumes,
- one or more machines to use as clients for accessing the Administration Portal.

The hardware required for each of these systems is further outlined in the following sections.

2.1.1. Management Server Requirements

The minimum and recommended hardware requirements outlined here are based on a typical small to medium sized installation. The exact requirements vary between deployments based on sizing and load. Please use these recommendations as a guide only.

Minimum

- A dual core CPU.
- 4 GB of available system RAM that is not being consumed by existing processes.
- 25 GB of locally accessible, writeable, disk space.
- 1 Network Interface Card (NIC) with bandwidth of at least 1 Gbps.

Recommended

- A quad core CPU or multiple dual core CPUs.
- 16 GB of system RAM.
- 50 GB of locally accessible, writeable, disk space.
- 1 Network Interface Card (NIC) with bandwidth of at least 1 Gbps.

2.1.2. Storage Server Requirements

For more information on the storage server requirements, refer to *Red Hat Storage 2.1 Administration Guide*.

2.2. Software Requirements



Important — Supported Locales

The Red Hat Storage Console setup script, **rhsc-setup**, supports the **en_US.UTF-8**, **en_US.utf8**, and **en_US.utf-8** locales. Attempts at installation on systems where the locale in use is not one of these supported values will fail.

2.2.1. Operating System Requirements

The operating system on which the Red Hat Storage Console Management Server needs to be installed is Red Hat Enterprise Linux 6.4 64-bit version.

2.2.2. Client Requirements

To access the Administration Portal, you need a client with a supported web browser. The Administration Portal supports Mozilla Firefox 17, Internet Explorer 9 or higher.

2.2.2.1. Registering to Red Hat Network (RHN)

Installation of the Red Hat Storage Console requires that the system be subscribed to a number of additional Red Hat Network channels. These channels are used to retrieve both the initial installation packages and later updates as they become available.

- The *Red Hat Storage Console (v.2 x86_64)* channel, also referred to as `rhel-x86_64-server-6-rhsc-2.1`, provides Red Hat Storage Console.
- The *JBoss Application Platform (x86_64-server-6-rpm)* channel, also referred to as `jbappplatform-6-x86_64-server-6-rpm`, provides the supported release of the application platform on which the manager runs.

Use the `rhn-channel --list` command to confirm the list of channels to which the server is subscribed.

To subscribe to the Red Hat Storage Channels using RHN Classic:

1. Run the **rhn_register** command to register the system with Red Hat Network. To complete registration successfully you will need to supply your Red Hat Network username and password. Follow the on screen prompts to complete registration of the system.

```
# rhn_register
```

2. Subscribe to the required channels.

You must subscribe the system to the required channels using either the web interface to Red Hat Network or the command line **rhn-channel** command.

A. *Using the rhn-channel Command*

Run the **rhn-channel** command to subscribe the system to each of the required channels. The commands which need to be run are:

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhs-rhsc-2.1
# rhn-channel --add --channel=jbappplatform-6-x86_64-server-6-rpm
```

Run the following command to ensure the system is registered successfully.

```
# rhn-channel -l
jbappplatform-6-x86_64-server-6-rpm
rhel-x86_64-server-6
rhel-x86_64-server-6-rhs-rhsc-2.1
```

B. Using the Web Interface to Red Hat Network

To add a channel subscription to a system from the web interface:

1. Log on to Red Hat Network (<http://rhn.redhat.com>).
2. Move the mouse cursor over the **Subscriptions** link at the top of the screen, and then click the **Registered Systems** link in the menu that appears.
3. Log into your account and select the system to which you are adding channels from the list presented on the screen, by clicking the name of the system.
4. Click **Alter Channel Subscriptions** in the **Subscribed Channels** section of the screen.
5. Ensure that the Base Channel is selected appropriately as follows:
 - **Red Hat Enterprise Linux Server (v.6 for 64-bit x86_64)**
 - On the same page, expand the node for **Additional Services Channels for Red Hat Enterprise Linux 6 for x86_64**.
6. Select the channels:
 - **Red Hat Storage 2.1 Management Console (x86_64)**
 - **JBoss Application Platform (v6) for 6Server x86_64**
7. Click the **Change Subscription** to finalize the change.

After the page refreshes, select **Details** to verify if your system is subscribed to the appropriate channels.

2.2.2.2. Directory Services

The term directory service refers to the collection of software, hardware, and processes that store information about an enterprise, subscribers, or both, and make that information available to users. A directory service consists of at least one instance of Directory Server and at least one directory client program. Client programs can access names, phone numbers, addresses, and other data stored in the directory service.

The Red Hat Storage platform provides its own internal `admin` user. Authentication for other users is supported by attaching directory services domains using the provided domain management tool, **rhsc-manage-domains**.

For more information on configuring directory services see [Section 2.1.1, “Management Server Requirements”](#).

2.2.2.3. Firewall Configuration

This section documents the firewall requirements of the Red Hat Storage environment. The ports that need to be opened, the type of traffic the port is used for, and the source of traffic which will be received on the port will be covered for the:

- Red Hat Storage Console,
- storage servers, and
- directory server.

While specific configuration instructions for additional network infrastructure which may exist between these systems will not be covered it is intended that the information provided will assist with this task.

2.2.2.3.1. Red Hat Storage Console Firewall Requirements

The Red Hat Storage Console requires that a number of ports be opened to allow network traffic through the system's firewall. The `rhsc-setup` script is able to set the required firewall rules automatically. Where an existing firewall configuration exists this step is able to be skipped. This allows the required changes to be manually integrated with the existing firewall script(s).

The firewall configuration documented within this chapter assumes a default configuration. Where you choose alternative values during installation, such as specifying a different HTTP, or HTTPS, port adjust the firewall rules to allow the selected port - not the default listed here.

Table 2.1. Red Hat Storage Console Firewall Requirements

Port(s)	Protocol	Source	Destination	Purpose
22	TCP	<ul style="list-style-type: none"> • System(s) used for maintenance of the console including backend configuration, and software upgrades. 	<ul style="list-style-type: none"> • Red Hat Storage Console 	SSH (optional)
8080, 8443	TCP	<ul style="list-style-type: none"> • Administration Portal clients • Red Hat Enterprise Linux host(s) • REST API clients 	<ul style="list-style-type: none"> • Red Hat Storage Console 	Provides HTTP and HTTPS access to the console.
8006 - 8009	TCP	<ul style="list-style-type: none"> • Administration Portal clients 	<ul style="list-style-type: none"> • Red Hat Storage Console 	WPF communication between the Administration Portal ActiveX applet and the backend.

2.2.2.3.2. Directory Firewall Requirements

Red Hat Storage requires a directory server to support user authentication. Currently the supported directory servers are IPA and Active Directory. Both require a number of ports to be opened in the directory server's firewall to support GSS-API authentication as used by the Red Hat Storage Console.

Table 2.2. Directory Firewall Requirements

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

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Part II. Installing Red Hat Storage Console



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Red Hat Storage Console Installation

Before proceeding with Red Hat Storage Console installation you must ensure that all prerequisites, as listed in [Chapter 2, System Requirements](#), are met. Once you have confirmed that all prerequisites are met you are ready to proceed with installation.

To perform initial installation and configuration of the Red Hat Storage Console follow the steps in [Section 3.1, "Installation"](#). Once you have followed this procedure the Red Hat Storage Console and dependencies, including JBoss (<http://www.jboss.com>), will be installed and configured ready for your first login. Further action must be undertaken to complete configuration of the environment to the point that you can create virtual machines. These tasks will be described in the following chapters.

To complete installation of the Red Hat Storage Console successfully you must be able to determine:

1. The ports to be used for HTTP, and HTTPS, communication. The defaults are **80** and **443** respectively.
2. The Fully Qualified Domain Name (FQDN) of the system the manager is to be installed on.
3. The password you will use to secure the Red Hat Storage administration account.
4. The password you will use to secure the database.
5. The Organization Name to use when creating the manager's security certificates.
6. The firewall rules, if any, present on the system that need to be integrated with the rules required for the manager to function.

Before installation is completed the values selected are displayed for confirmation. Once the values have been confirmed they are applied and the Red Hat Storage Console is ready for use.

Example 3.1. Completed Installation

```
Red Hat Storage Console will be installed using the following configuration:
=====
override-httpd-config:      yes
http-port:                  80
https-port:                 443
host-fqdn:                  hostname.redhat.com
auth-pass:                  *****
org-name:                   RedHat
default-dc-type:            NFS
db-remote-install:         local
db-local-pass:              *****
config-nfs:                 no
override-iptables:         yes
Proceed with the configuration listed above? (yes|no):
```



Note — Automated Installation

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

- To create an answer file, use the `--gen-answer-file` parameter to set the location to which the answer file must be saved. The **rhsc-setup** command will record your answers to the file.

```
# rhsc-setup --gen-answer-file=ANSWER_FILE
```

- To use an answer file for a new installation, use the `--answer-file` parameter to set the location of the answer file that must be used. The command **rhsc-setup** command will use the answers stored in the file to complete installation.

```
# rhsc-setup --answer-file=ANSWER_FILE
```

Run **rhsc-setup --help** for further information.

3.1. Installation

The Red Hat Storage Console and all of its dependencies are available via Red Hat Network. To install the manager you must ensure connectivity with either the Red Hat Network or a Red Hat Network Satellite Server is available. You must also ensure that you have access to all required Red Hat Network channels.

1. If installed, the `classpathx-jaf` package must be removed. It conflicts with some of the components installed to support JBoss.

```
# yum remove classpathx-jaf
```

2. Use **yum** to ensure that the most up to date versions of all installed packages are in use.

```
# yum upgrade
```

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

```
# yum install rhsc
```

Result:

All required packages and dependencies are installed. You must now configure the system.

3.2. Configuration

Once package installation is complete the Red Hat Storage Console must be configured. The **rhsc-setup** command is provided to assist with this task. The script asks you a series of questions,

the answers to which form the basis for system configuration. Once all required values have been provided the updated configuration is applied and the Red Hat Storage Console services are started.

1. Start Setup Script

To begin configuring the system run **rhsc-setup** as the root user.

```
# rhsc-setup
```

2. Set Port for HTTP

The script prompts for entry of the port to use for HTTP communication. To use the default value, **80**, press **Enter**. To use an alternative value enter it in the field, and then press **Enter**.

```
HTTP Port [80] :
```

The port you select also appears in the URL that must be used to access the Red Hat Storage Console over HTTP.

Example 3.2. Access Using HTTP

For a machine with hostname **rhsc.demo.redhat.com** using the default HTTP port value, **80**, the URL to access the entry page over HTTP is **http://rhsc.demo.redhat.com/**.

3. Set Port for HTTPS

The script prompts for entry of the port to use for HTTPS communication. To use the default value, **443**, press **Enter**. To use an alternative value enter it in the field, and then press **Enter**.

```
HTTPS Port [443] :
```

Where a port other than **443** is selected it changes the URL that must be used to access the Red Hat Storage Console over HTTPS.

Example 3.3. Access Using HTTPS

For a machine with hostname **rhsc.demo.redhat.com** using the default HTTPS port value, **443**, the URL to access the entry page over HTTPS is **https://rhsc.demo.redhat.com/**.

4. Set Fully Qualified Domain Name (FQDN)

The script prompts for entry of the system's fully qualified domain name. This name should be resolvable via both forward and reverse DNS lookup. The script attempts to determine the fully qualified domain name automatically. The value identified is listed in square brackets as the default setting for the fully qualified domain name, based on your setup.

```
Host fully qualified domain name, note that this name should be fully resolvable  
[rhsc.demo.redhat.com] :
```

Where the automatically determined fully qualified domain name is correct, press **Enter** to use the value and continue. Where the automatically determined fully qualified domain name is not correct, enter the correct value and press **Enter** to use the new value and continue.

5. Set Administrator Password

The script creates an authentication domain internal to the Red Hat Storage Console for the default administrative account. The domain is named `internal`, the administrative user is called `admin`. External authentication domains are added as a post-installation step using the **rhsc-manage-domains** command.

You must choose a password for the admin user. You will be asked to enter it a second time to confirm your selection.

```
Password for Administrator (admin@internal) :
```

6. Set Database Password

The script prompts for entry of a password to use for the Red Hat Storage Console database. You must enter a strong password. Strong passwords consist of a mix of uppercase, lowercase, numeric, and punctuation characters. They are six or more characters long and do not contain dictionary words. Enter the desired password and press **Enter**. You will be asked to enter the password again to confirm it.

```
Database password (required for secure authentication with the locally created database) :
```

7. Set Organization Name

The script prompts for entry of the Organization Name. The Organization Name appears in the **Subject** field of the certificate used to secure communications with the Red Hat Storage Console.

```
Organization Name for the Certificate :
```

8. Configure Default Storage Type

The script prompts for selection of the default storage type. This is the storage type that is used for the **Default** server. You are able to add further servers that use different storage types from the Administration Portal at any time.

```
The default storage type you will be using ['NFS' | 'FC' | 'ISCSI'] [NFS] :
```

For Red Hat Storage Console you must use the default selection, **NFS**, press **Enter**.

9. Configure NFS ISO Domain

The script asks whether or not an NFS share should be configured on the server and used as an ISO storage domain.

```
Should the installer configure NFS share on this server to be used as an ISO Domain?  
['yes' | 'no'] [yes] :
```

For Red Hat Storage Console, skip this step type **no** and press **Enter**.

10. Configure Firewall

The Red Hat Storage Console requires that network traffic on a number of ports be allowed through the system's firewall. The **rhsc-setup** script is able to configure this automatically, but selecting this option overrides any existing firewall configuration. Where there is an existing firewall configuration that needs to be maintained you must manually configure the firewall to include the additional rules required by the Red Hat Storage Console.

```
Firewall ports need to be opened.  
You can let the installer configure iptables automatically overriding the current  
configuration. The old configuration will be backed up.  
Alternately you can configure the firewall later using an example file selecting none  
which firewall manager do you wish to use? ['None' | 'iptables']: iptables
```


To proceed with automatic firewall configuration type **yes** and then press **Enter**.

To skip automatic firewall configuration type **no** and then press **Enter**. You will need to add rules equivalent to those found in `/usr/share/ovirt-engine/conf/iptables.example` to your `iptables` configuration.

11. Confirm Configuration

You have now provided the script with all the information required to complete configuration of the Red Hat Storage Console. The values which you entered are displayed for confirmation.

Example 3.4. Configuration Confirmation Screen

```
Red Hat Storage Console will be installed using the following configuration:
=====
override-httpd-config:      yes
http-port:                  80
https-port:                 443
host-fqdn:                  hostname.redhat.com
auth-pass:                  *****
org-name:                   RedHat
default-dc-type:           NFS
db-remote-install:         local
db-local-pass:             *****
firewall-manager:          iptables
Proceed with the configuration listed above? (yes|no): yes
```

To permanently apply the configuration values listed type **yes** and then press **Enter** to apply the configuration.

If one or more of the configuration values listed is incorrect type **no** and then **Enter** to revisit the configuration.

The configuration values are applied. A number of services need to be started and as a result this step takes some time. Do not terminate the installation once application of the configuration values has commenced.

Once the script has completed successfully take note of the additional information it provides. In particular note down the **SSH Certificate fingerprint**, **SSH Public key fingerprint**, and Red Hat Storage Console URL for your records.

Example 3.5. Successful Configuration

```
Installing:
Configuring RHS Console... [ DONE ]
Configuring JVM... [ DONE ]
Creating CA... [ DONE ]
Updating ovirt-engine service... [ DONE ]
Setting Database Configuration... [ DONE ]
Setting Database Security... [ DONE ]
Creating Database... [ DONE ]
Updating the Default Data Center Storage Type... [ DONE ]
Editing RHS Console Configuration... [ DONE ]
Editing Postgresql Configuration... [ DONE ]
Configuring Firewall... [ DONE ]
Starting ovirt-engine Service... [ DONE ]
Configuring HTTPD... [ DONE ]

**** Installation completed successfully ****
```

```
(Please allow RHS Console a few moments to start up....)

**** To access RHS Console browse to http://hostname.redhat.com:80 ****

Additional information:
* RHS Console CA SSL Certificate SHA1 fingerprint:
BB:F1:FE:A3:00:DE:17:07:FB:57:28:E2:4B:73:61:A8:C4:20:92:7D
* SSH Public key fingerprint: a7:a5:7c:75:ba:42:fd:d4:f9:be:1d:69:9d:e8:0a:e0
* The firewall has been updated, the old iptables configuration file was saved to /
var/lib/ovirt-engine/backups/iptables.backup.235537-06032013_32517
* The installation log file is available at: /var/log/ovirt-engine/engine-
setup_2013_06_03_23_50_59.log
* Please use the user "admin" and password specified in order to login into RHS
Console
* To configure additional users, first configure authentication domains using the
'rhsc-manage-domains' utility
```

Result:

The Red Hat Storage Console has been installed and configured successfully. You are now able to connect to the Administration Portal for the first time, see [Section 3.4, “Connect to the Administration Portal”](#) for further information.

**Note — Periodic Updates**

Red Hat periodically provides updates to the Red Hat Storage Console.

3.3. Removing Red Hat Storage Console

The Red Hat Storage Console provides the **rhsc-cleanup** utility to allow quick and easy removal of the data files associated with the installation. Once this has been run you are able to remove the Red Hat Storage Console packages using yum.

**Potential Data Loss**

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

1. Run the **rhsc-cleanup** command on the system that Red Hat Storage Console is installed on. You must be logged in as the root user to run **rhsc-cleanup**.
2. The script prompts you to confirm that you wish to remove Red Hat Storage Console.

```
Would you like to proceed? (yes|no): yes
```

Type **yes** and then press **Enter** to proceed with removal of Red Hat Storage Console.

3. The **rhsc-cleanup** command displays a message confirming that the Red Hat Storage Console data files have been removed successfully.

```
Red Hat Storage Console cleanup finished successfully!
```

To complete removal of the Red Hat Storage Console you must also use yum to remove the relevant packages. While still logged in as the root user run:

```
# yum remove rhsc*
```

Red Hat Storage Console has been removed from the system successfully.

Example 3.6. RHSC cleanup

```
# rhsc-cleanup
WARNING: Executing oVirt Engine cleanup utility.
This utility will wipe all existing data including configuration settings,
certificates and database.
In addition, all existing DB connections will be closed.
Would you like to proceed? (yes|no): yes

Stopping ovirt-engine service... [ DONE ]
Removing Database... [ DONE ]
Removing CA... [ DONE ]
Cleaning apache proxy configuration... [ DONE ]
Stopping engine-notifird service... [ DONE ]
Cleaning NFS Exports...Would you like to remove RHS Console configuration from /etc/
exports? (yes|no): yes [ DONE ]

Cleanup finished successfully!

Cleanup log available at /var/log/ovirt-engine/engine-cleanup_2013_06_07_15_54_44.log

DB Backup available at /var/lib/ovirt-engine/backups/tmpEHBTwe.sql
```

3.4. Connect to the Administration Portal

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

1. Return to the browser and navigate to <https://rhsc.demo.redhat.com/webadmin>. Substitute `rhsc.demo.redhat.com` with the URL provided during installation.
2. If this is your first time connecting to the Administration Portal, you will be prompted to trust the **ca.cer** certificate. Follow the prompts, then click the new link that appears on the page to reload the Administration Portal.
3. The portal login screen displays. Enter `admin` as your **User Name**. Enter the password that was set during installation in the Password field. Select the `internal` domain from the **Domain** list.

Click Login to log in.

Result:

You have now successfully logged into the Red Hat Storage Console web Administration Portal. You can now begin creating clusters and adding servers to them.

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Part III. Installing Storage Servers



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Introduction to Storage Servers

Prior to installing storage servers you should ensure that:

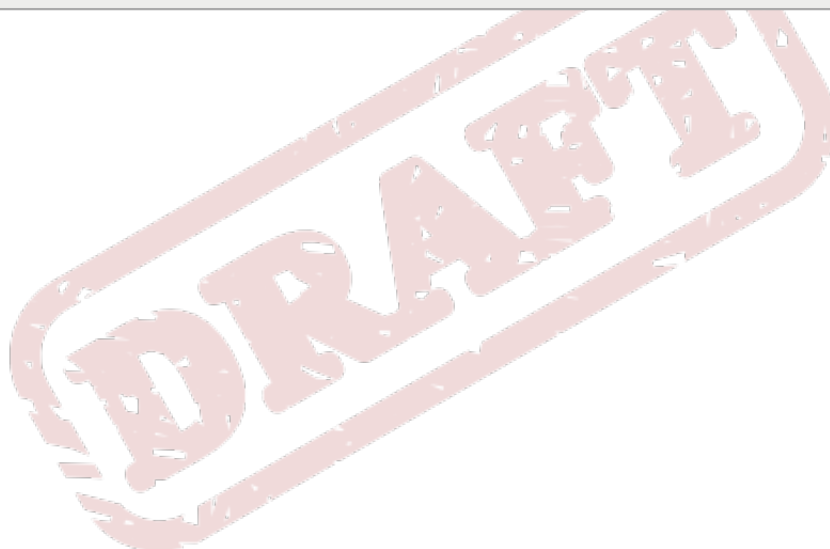
- all storage servers meet the hardware requirements outlined in [Section 2.1, “Hardware Requirements”](#), and
- you have successfully completed installation of the Red Hat Storage Console as outlined in [Chapter 3, Red Hat Storage Console Installation](#).
- you have successfully installed Red Hat Storage on all the servers.

For more information on installing Red Hat Storage, refer to the *Red Hat Storage 2.0 Installation Guide*.



Important — Attach at Least Two Storage Servers

It is recommended that you install at least two storage servers and attach them to the Red Hat Storage environment. If you attach only one storage server you will be unable to access features such as replication and stripe.



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Part IV. Appendices



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Appendix A. Directory Services

Red Hat Storage Console is able to use IPA Server for user authentication. This appendix documents the basic requirements for directory servers of either type to be added to the environment.

A.1. IPA Server

IPA is an integrated security information management solution which combines Red Hat Enterprise Linux, Red Hat Directory Server, MIT Kerberos, and NTP. It provides web browser and command-line interfaces, and its numerous administration tools allow an administrator to quickly install, set up, and administer one or more servers for centralized authentication and identity management.

The latest version of IPA extends the integration of DNS, includes a Certificate System Server, an enhanced administrative framework, support for host identities, netgroups, automount by location and other features.

Installation

IPA focuses on making centralized identity and policy easy to manage in Linux and Unix environments, and includes compatibility with Windows environments. If you need assistance installing or configuring IPA, see the *Red Hat Enterprise Linux — Enterprise Identity Management Guide*.

A.1.1. Adding New Users

As this section is devoted to getting you started with IPA quickly and easily, we have included only a limited number of examples. In this case, we have used the example of adding a new user to the system as an introduction to administering your IPA system. The methods and general approach, however, apply to nearly all IPA objects (users, groups, hosts, etc.), upon which you would perform some operation, such as add, show, find, or delete. The general syntax involved follows the same pattern: **ipa object-operation**

Use the # **ipa user-add** command to create IPA users. Numerous options are available to customize the way your IPA users are created. Use the **ipa help user** command to access the available help on operations regarding user creation. Password management can be performed as a separate operation or as part of the initial user creation process. This, and other aspects of creating IPA users, are discussed below.

Interactive Mode

In interactive mode, the user is first created and their password created separately so that they can authenticate and log in. Use the # **ipa user-add** command to create an IPA user. You can run this command with or without additional parameters. If you omit any of the required parameters, the interface will prompt you for the information

The following example demonstrates adding a new user to IPA. In this example, the **ipa user-add** command was executed without any additional parameters; all required information was entered in interactive mode.

```
# ipa user-add
First name: Ryan
Last name: Andrews
User login [randrews]:
-----
Added user "randrews"
-----
```

```
User login: randrews
First name: Ryan
Last name: Andrews
Full name: Ryan Andrews
Display name: Ryan Andrews
Initials: RA
Home directory: /home/randrews
GECOS field: randrews
Login shell: /bin/sh
Kerberos principal: randrews@IPADOCS.ORG
UID: 1316000004
```

Type **ipa passwd <user login>** to create a password for the user. This is a temporary password, or one-time password (OTP), and the user is required to change it the first time they log in. This is done intentionally, so that an administrator can reset a password for a user but they are unable to take advantage of that knowledge, because the user must change the password when they first log in.

Unattended Mode

As an integrated (or unattended) operation, you can pass the `--password` option to the **ipa user-add** command. This will force the command to prompt for an initial password. As an alternative, echo the password directly into the command:

```
# echo "secret123" | ipa user-add asmart --first=Alex --last=Smart --password
-----
Added user "asmart"
-----
User login: asmart
First name: Alex
Last name: Smart
Full name: Alex Smart
Display name: Alex Smart
Initials: AS
Home directory: /home/asmart
GECOS field: asmart
Login shell: /bin/sh
Kerberos principal: asmart@IPADOCS.ORG
UID: 1315400003
```

Performing Initial Login

You can now authenticate using the newly-created user and temporary password. Type **kinit <user login>** to log in to IPA. This will prompt you for a password and then immediately request a password change.

You can browse the IPA man pages and help system to explore other IPA commands. Please take some time to become familiar with the ways other IPA objects can be created and modified.

Appendix B. Additional Utilities

B.1. Domain Management Tool

B.1.1. What is the Domain Management Tool?

Red Hat Storage Console authenticates users using directory services. To add users to Red Hat Storage Console you must first use the internal admin user to add the directory service that the users must be authenticated against. You add and remove directory services domains using the included domain management tool, `rhsc-manage-domains`.

The `rhsc-manage-domains` command is only accessible on the machine on which Red Hat Storage Console is installed. The `rhsc-manage-domains` command must be run as the root user.

B.1.2. Syntax for the Domain Management Tool

The usage syntax is:

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

Table B.1. List of available actions

Action	Description
add	Add a domain to Red Hat Storage Console's directory services configuration.
edit	Edit a domain in Red Hat Storage Console's directory services configuration.
delete	Delete a domain from Red Hat Storage Console's directory services configuration.
validate	Validate Red Hat Storage Console's directory services configuration. This command attempts to authenticate each domain in the configuration using the configured user name and password.
list	List Red Hat Storage Console's current directory services configuration.

Table B.2. Additional action options

Additional actions	Description
-domain=DOMAIN	Specifies the domain on which the action will be performed. The -domain parameter is mandatory for add , edit , and delete .
-provider=PROVIDER	Specifies the LDAP provider type of the directory server for the domain. Valid values are: <ul style="list-style-type: none"> <i>ActiveDirectory</i> - Active Directory. <i>IPA</i> - Identity Management (IdM). <i>RHDS</i> - Red Hat Directory Server. Red Hat Directory Server does not come with Kerberos. Red Hat Storage Console requires Kerberos authentication. RHDS must be made a service

Additional actions	Description
	<p>within a Kerberos domain to provide directory services to the Manager.</p> <p>If you want to use RHDS as your directory server, you must have the memberof plugin installed in RHDS. To use the memberof plugin, your users must be inetusers. For more information about using the memberof plugin, see the Red Hat Directory Server Plug-in Guide.</p>
-user=USER	Specifies the domain user to use. The -user parameter is mandatory for add , and optional for edit .
-passwordFile=FILE	Specifies that the domain user's password is on the first line of the provided file. This option, or the -interactive option, must be used to provide the password for use with the add action.
-addPermissions	Specifies that the domain user will be given the SuperUser role in Red Hat Storage Console. By default, if the -addPermissions parameter is not specified, the SuperUser role is not assigned to the domain user. The -addPermissions option is optional. It is only valid when used in combination with the add and edit actions.
-interactive	Specifies that the domain user's password is to be provided interactively. This option, or the -passwordFile option, must be used to provide the password for use with the add action.
-configFile=FILE	Specifies an alternate configuration file that the command must load. The -configFile parameter is always optional.
-report	In conjunction with the validate action results in the output of a report of all encountered validation errors.

For full usage information consult the `rhsc-manage-domains` command's help output:

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

B.1.3. Adding Domains to Configuration

In this example, the `rhsc-manage-domains` command is used to add the IdM domain `directory.demo.redhat.com` to the Red Hat Storage Console configuration. The configuration is set to use the `admin` user when querying the domain; the password is provided interactively.

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

```
# rhsc-manage-domains -action=add -domain=directory.demo.redhat.com -provider=IPA -
user=admin -interactive
```

```
loaded template kr5.conf file
setting default_tkt_enctypes
setting realms
setting domain realm
success
User guide is: 80b71bae-98a1-11e0-8f20-525400866c73
Successfully added domain directory.demo.redhat.com. oVirt Engine restart is required in
order for the changes to take place (service ovirt-engine restart).
```

B.1.4. Editing a Domain in the Configuration

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

Example B.2. `rhsc-manage-domains` Edit Action

```
# rhsc-manage-domains -action=edit -domain=directory.demo.redhat.com -user=admin -
interactive
loaded template kr5.conf file
setting default_tkt_enctypes
setting realms
setting domain realm
success
User guide is: 80b71bae-98a1-11e0-8f20-525400866c73
Successfully edited domain directory.demo.redhat.com. oVirt Engine restart is required in
order for the changes to take place (service ovirt-engine restart).
```

B.1.5. Deleting a Domain from the Configuration

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

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

Example B.3. `rhsc-manage-domains` Delete Action

```
# rhsc-manage-domains -action=delete -domain='directory.demo.redhat.com'
WARNING: Domain directory.demo.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 admin user
in order to login.
Successfully deleted domain directory.demo.redhat.com. Please remove all users and groups
of this domain using the Administration portal or the API.
```

B.1.6. Validating Domain Configuration

In this example, the `rhsc-manage-domains` command is used to validate the Red Hat 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 B.4. rhsc-manage-domains Validate Action

```
# rhsc-manage-domains -action=validate
User guide is: 80b71bae-98a1-11e0-8f20-525400866c73
Domain directory.demo.redhat.com is valid.
```

B.1.7. Listing Domains in Configuration

In this example, the `rhsc-manage-domains` command is used to list the domains defined in the Red Hat 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 B.5. rhsc-manage-domains List Action

```
# rhsc-manage-domains -action=list
Domain: directory.demo.redhat.com
  User name: admin@DIRECTORY.DEMO.REDHAT.COM
  This domain is a remote domain.
```

B.2. Configuration Tool

During installation, only a subset of Red Hat Storage Console's configuration settings are modified from their defaults. You make further changes with the included configuration tool, **rhsc-config**.

The configuration tool does not require JBoss or Red Hat Storage Console to be running to update the configuration. Configuration key values are stored in the database and as such it must be operational for configuration changes to be saved. Changes are only applied once JBoss is restarted.

The manager's configuration is stored as a series of key to value pair mappings. The configuration tool allows you to:

- list all available configuration keys,
- list all available configuration values,
- get the value of a specific configuration key, and
- set the value of a specific configuration key.

The configuration tool also allows you to maintain multiple versions of the manager's configuration. When getting or setting the value for a configuration key the `--cver` parameter is used to specify which configuration version is to be used. The default configuration version is `general`.

B.2.1. Syntax

You will find the configuration tool on the machine to which Red Hat Storage Console was installed. Common usage examples are discussed within this guide. For full usage information consult the **rhsc-config** command's help output:

```
# rhsc-config --help
```

Common Tasks

List Available Configuration Keys

Use the `--list` parameter to list available configuration keys.


```
# rhsc-config --list
```

The tool lists each available configuration key by name. It also returns a description of each key's purpose.

A large, red, tilted stamp with the word "DRAFT" in bold, capital letters. The stamp has a distressed, ink-like texture and is oriented diagonally across the page.

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Appendix C. Revision History

Revision 2.1-2 Wed June 10 2012

Pavithra Srinivasan psriniva@redhat.com

Updated revision numbering to track product version, initial staging in the lead up to 2.1



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