Red Hat Satellite 5.7

Client Configuration Guide

Configuring, registering, and updating your Red Hat Enterprise Linux clients with Red Hat Satellite

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Red Hat Satellite Documentation Team

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Abstract

This guide covers how to properly configure Red Hat Enterprise Linux systems to register with and download updates from Red Hat Satellite. It covers how to register systems, how to deploy the latest packages, and other topics related to server and client synchronization. For further information, see the Red Hat Satellite Getting Started Guide and the Red Hat Satellite Installation Guide.

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CHAPTER 1. INTRODUCTION

This guide is designed to help users of Red Hat Satellite and Red Hat Satellite Proxy to configure their client systems.

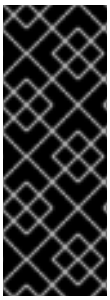
By default, all Red Hat Network client applications are configured to communicate with central Red Hat Network servers. When clients connect to a Red Hat Satellite or Red Hat Satellite Proxy instead, the default settings change. This document is intended to assist by offering mass reconfiguration steps which will help large enterprise environments, containing hundreds or thousands of systems, address the default setting changes.

Due to the complexity of this undertaking, customers can use a pre-populated script that automates many of the tasks necessary to access their Satellite or Satellite Proxy server; see the *Getting Started Guide* for details. Red Hat believes that understanding the implications of these changes is helpful and therefore describes the manual steps for reconfiguration in the opening chapters. Use your best judgement in determining the ideal solution for your organization.

Although many of the commands provided within this guide can be applied as they appear, it is impossible to predict all potential network configurations adopted by customers. Therefore, Red Hat encourages you to use these commands as references that must take into account your organization's individual settings.

CHAPTER 2. CONFIGURING CLIENT APPLICATIONS

In order to use most enterprise-class features of Red Hat Network, such as registering with Red Hat Satellite, configuration of the latest client applications is required. Obtaining these applications before the client has registered with Red Hat Network can be difficult. This paradox is especially problematic for customers migrating large numbers of older systems to Red Hat Network. This chapter identifies techniques to resolve this dilemma.



IMPORTANT

Red Hat strongly recommends that clients connected to a Red Hat Proxy Server or Red Hat Satellite Server be running the latest update of Red Hat Enterprise Linux to ensure proper connectivity.

Additionally, if client firewalls are configured, ports 80 and 443 should be open for proper functionality with Red Hat Network.

Not every customer must connect securely to a Red Hat Satellite or Red Hat Proxy within their organization, nor build and deploy a GPG key for custom packages, but every customer who uses these products must reconfigure the following:

- **Red Hat Update Agent** - This is the update mechanism for Red Hat channels. Use of the Update Agent differs for certain operating systems:
  - On Red Hat Enterprise Linux 5, 6, and 7 - As a **yum** plugin (**yum-rhn-plugin**)
  - On Red Hat Enterprise Linux 3 and 4 - As a standalone application (**up2date**)
- **Red Hat Network Registration Client (rhn_register)** - This is the mechanism to register clients. By default, **rhn_register** registers to the main Red Hat Network servers. You need to reconfigure client systems to register to Red Hat Satellite or Red Hat Proxy.

IMPORTANT

By default, the **yum** command on Red Hat Enterprise Linux 5, 6, and 7 uses SSL for communication with remote repositories. Consequently, you should ensure that firewalls allow connections over port 443.

To bypass SSL, change the value of **serverURL** from **https** to **http** in the **/etc/sysconfig/rhn/up2date** file. Similarly, to use Red Hat Network's Monitoring feature and probes requiring the Red Hat Network Monitoring Daemon, client systems must allow connections on port 4545 (or port 22, if it is using **sshd** instead).

The latest versions of **Red Hat Update Agent** can be configured to accommodate several Red Hat Satellite servers, which provides failover protection in case the primary server is inaccessible. See Section 2.4, “Implementing Server Failover” for instructions on enabling this feature.

The following sections describe different methods of configuring the client systems to access your Red Hat Satellite or Proxy. See the Red Hat Satellite *Getting Started Guide* for information about scripting configuration commands.

2.1. REGISTERING CLIENTS WITH RED HAT SATELLITE SERVER

The following procedure describes how to use the **rhn_register** command to register a system with Red Hat Satellite. Ensure you replace the example host names and domain names with those that apply to your configuration.

Procedure 2.1. To Use rhn_register to Register a System with Red Hat Satellite:

1. Change into the **/usr/share/rhn/** directory and download the SSL certificate to the client:

```
# cd /usr/share/rhn/
# wget http://satellite.example.com/pub/RHN-ORG-TRUSTED-SSL-CERT
```

2. Edit the **/etc/sysconfig/rhn/up2date** file and ensure that it contains the following entries:

```
serverURL=https://satellite.example.com/XMLRPC
noSSLServerURL=http://satellite.example.com/XMLRPC
sslCACert=/usr/share/rhn/RHN-ORG-TRUSTED-SSL-CERT
```

3. Use the **rhn_register** command to register the machine:

```
# rhn_register
```

2.2. USING ACTIVATION KEYS TO REGISTER CLIENTS WITH RED HAT SATELLITE

Red Hat recommends using activation keys for registering and configuring client systems that access Red Hat Proxy or Red Hat Satellite. You can use activation keys to register, entitle, and subscribe multiple systems in a single operation. See the relevant section in the Red Hat Satellite *Getting Started Guide* for more information about activation keys.

Procedure 2.2. To Use Activation Keys to Register a System with Red Hat Satellite:

1. Generate an activation key. See "Using Activation Keys" in the Red Hat Satellite *Getting Started Guide*.)

2. Import custom GPG keys.

3. Download and install the SSL Certificate RPM from the **/pub/** directory of the Red Hat Proxy or Red Hat Satellite. For example (update the URL to suit your environment):

```
# rpm -Uvh http://satellite.example.com/pub/rhn-org-trusted-ssl-
cert-1.0-1.noarch.rpm
```

4. Register the system with the Red Hat Proxy or Red Hat Satellite:

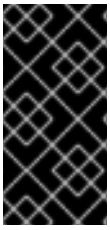
```
# rhnreg_ks --activationkey mykey --serverUrl
https://satellite.example.com/XMLRPC --sslCACert=/usr/share/rhn/RHN-
ORG-TRUSTED-SSL-CERT
```

Alternatively, use the bootstrap script (**bootstrap.sh**) that Satellite generates. The bootstrap script, available for both Red Hat Satellite Server and Red Hat Proxy Server, is such a script. Script generation is discussed more in detail in *4.1.1. Using Red Hat Network Bootstrap to Register a System*of the *Getting*

Started Guide.

To obtain the bootstrap script, run the following command:

```
wget http://satellite.example.com/pub/bootstrap/bootstrap.sh
```



IMPORTANT

The bootstrap script requires some manual editing after its generation on the Satellite server. An initial running of an unedited bootstrap script displays a message regarding manual edits required. Follow these instructions and edit the bootstrap script on the Satellite server prior to downloading the script on the client.

2.3. UPDATING THE CONFIGURATION FILES MANUALLY

As an alternative to the GUI interface described in the previous section, users may also reconfigure the **Red Hat Update Agent** by editing the application's configuration file.

To configure the **Update Agent** on client systems that connect to Red Hat Proxy or Satellite, edit the values of the **serverURL** and **noSSLServerURL** settings in the **/etc/sysconfig/rhn/up2date** configuration file (as root). Replace the default Red Hat Network URL with the fully qualified domain name (FQDN) of the Proxy or Satellite. For example:

```
serverURL[comment]=Remote server URL
serverURL=https://your_primary.your_domain.com/XMLRPC

noSSLServerURL[comment]=Remote server URL without SSL
noSSLServerURL=http://your_primary.your_domain.com/XMLRPC
```

WARNING

The **httpProxy** setting in **/etc/sysconfig/rhn/up2date** does *not* refer to the Red Hat Proxy. It is used to configure an optional HTTP proxy for the client. With a Red Hat Proxy in place, the **httpProxy** setting must be blank (not set to any value).

2.4. IMPLEMENTING SERVER FAILOVER

Procedure 2.3. To Implement Server Failover:

1. Ensure that you are running Red Hat Enterprise Linux 5, 6, or 7. For Red Hat Enterprise Linux 3 or 4, use the latest version of **up2date**.

2. Manually add the secondary servers to the **serverURL** and **noSSLServerURL** settings in the **/etc/sysconfig/rhn/up2date** configuration file (as root).

3. Add the fully qualified domain names (FQDN) of Red Hat Proxy or Red Hat Satellite immediately after the primary server, separated by a semicolon (;). Your client will attempt to

connect to these servers in the order provided here. Include as many servers as necessary. For example:

```
serverURL[comment]=Remote server URL
serverURL=https://satellite.example.com/XMLRPC;
https://your_secondary.your_domain.com/XMLRPC;

noSSLServerURL[comment]=Remote server URL without SSL
noSSLServerURL=http://satellite.example.com/XMLRPC;
http://your_secondary.your_domain.com/XMLRPC;
```

2.5. ENABLING STAGING CONTENT

Staging content is a feature that stages package or errata deployment on the client system before a scheduled installation. Within the 24 hours before scheduled deployment, the client pre-downloads the RPM content onto the local disk of the system. Then when executing the scheduled action, the specific packages and errata are already cached on client. This results in:

- A faster installation than without staging content.
- The ability to spread out client requests to the Satellite server.
- Less time needed for the installation and upgrade of client packages.

Prerequisite

Red Hat Enterprise Linux 5.6 or later, or Red Hat Enterprise Linux 6.1 or later, is required on the client.

This feature is disabled by default on the Satellite. The client default configuration file is enabled. To use staging content you have to enable it on both client systems and within the Satellite server for each Organization using it.

To enable staging content on the Satellite server, navigate to **Admin** → **Organization** → **Your Organization** → **Configuration** and select the **`Enable Staging Contents`** option.

To enable staging content on a client, open the file **`/etc/sysconfig/rhn/up2date`** in your text editor. Make the file includes the following lines:

```
stagingContent[comment]=Retrieve content of future actions in advance
stagingContent=1

...

stagingContentWindow[comment]=How much forward we should look for future
actions. In hours
stagingContentWindow=24
```

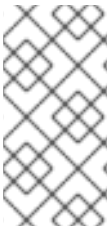
Without these entries, staging content within on the client defaults to disabled and window of time would be 24 hours in advance:

```
stagingContent=0
stagingContentWindow=24
```

CHAPTER 3. SSL INFRASTRUCTURE

For Red Hat Satellite customers, security concerns are of the utmost importance. One of the strengths of Red Hat Satellite is its ability to process every single request using the Secure Sockets Layer (SSL) protocol. To maintain this level of security, customers installing Red Hat Satellite within their infrastructures must generate custom SSL keys and certificates.

Manual creation and deployment of SSL keys and certificates can be quite involved. Both the Red Hat Proxy Server and the Red Hat Satellite Server allow users to build their own SSL keys and certificates based on their own private Certificate Authority (CA) during installation. In addition, a separate command line utility, the **Red Hat Satellite SSL Maintenance Tool** , exists for this purpose. Even so, these keys and certificates must then be deployed to all systems within the managed infrastructure. In many cases, deployment of these SSL keys and certificates is automated. This chapter describes efficient methods for conducting all of these tasks.

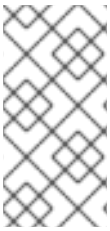


NOTE

This chapter does not explain SSL in depth. The Red Hat Satellite **SSL Maintenance Tool** was designed to hide much of the complexity involved in setting up and maintaining the public-key infrastructure (PKI). For more information, see the relevant sections of the Red Hat Enterprise Linux *Deployment Guide*.

3.1. A BRIEF INTRODUCTION TO SSL

Secure Sockets Layer (SSL) is a protocol that enables client-server applications to pass information securely. SSL uses a system of public and private key pairs to encrypt communication passed between clients and servers. Public certificates can be left accessible, while private keys must be secured. It is the mathematical relationship (a digital signature) between a private key and its paired public certificate that makes this system work. Through this relationship, a connection of trust is established.



NOTE

SSL private keys and public certificates are discussed throughout this document. Both can be referred to as keys, one public and one private. However, when discussing SSL, it is the convention to refer to the public half of an SSL key pair (or key set) as the SSL public certificate.

An organization's SSL infrastructure is generally made up of the following SSL keys and certificates:

- Certificate Authority (CA) SSL private key and public certificate: only one set per organization generally generated. The public certificate is digitally signed by its private key. The public certificate is distributed to every system.

- Web server SSL private key and public certificate: one set per application server. The public certificate is digitally signed by both its private key and the CA SSL private key. It is often referred to as a Web server's key *set*; this is because there is an intermediary SSL certificate request that is generated. The details of what this is used for are not important to this discussion. All three are deployed to a Red Hat Satellite Server.

The following is a scenario to help visualize the concept: An organization with one Red Hat Satellite Server and five Red Hat Proxy Servers will need to generate one CA SSL key pair and six Web server SSL key sets. A CA SSL public certificate is distributed to all systems and used by all clients to establish a connection to their respective upstream servers. Each server has its own SSL key set that is specifically tied to that server's host name and generated using its own SSL private key and the CA

SSL private key in combination. This establishes a digitally verifiable association between the Web server's SSL public certificate and the CA SSL key pair and server's private key. The Web server's key set cannot be shared with other web servers.

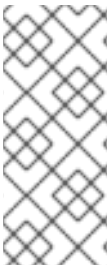
IMPORTANT

The most critical portion of this system is the CA SSL key pair. From that private key and public certificate an administrator can regenerate any Web server's SSL key set. This CA SSL key pair must be secured. It is highly recommended that once the entire Red Hat Satellite infrastructure of servers is set up and running, archive the SSL build directory generated by this tool and/or the installers onto separate media, write down the CA password, and secure the media and password in a safe place.

3.2. THE RED HAT SATELLITE SSL MAINTENANCE TOOL

Red Hat Satellite provides a command line tool to ease the management of the organization's secure infrastructure: the **Red Hat Satellite SSL Tool** , commonly known by its command **`rhn-ssl-tool`**. This tool is available as part of the **`spacewalk-certs-tools`** package. This package can be found within the software channels for the latest Red Hat Proxy Server and Red Hat Satellite Server (as well as the Red Hat Satellite Server ISO). The **Red Hat Satellite SSL Tool** enables organizations to generate their own Certificate Authority SSL key pair, as well as Web server SSL key sets (sometimes called *key pairs*).

This tool is only a build tool. It generates all of the SSL keys and certificates that are required. It also packages the files in RPM format for quick distribution and installation on all client machines. It does not deploy them. That is left to the administrator, or in many cases, automated by the Red Hat Satellite Server.



NOTE

The **`spacewalk-certs-tools`**, which contains **`rhn-ssl-tool`**, can be installed and run on any current Red Hat Enterprise Linux system with minimal requirements. This is offered as a convenience for administrators who want to manage their SSL infrastructure from their workstation or another system other than their Satellite or Proxy servers.

The **Red Hat Satellite SSL Tool** is required in the following situations:

- When updating the Certificate Authority (CA) public certificate.
- When installing a Red Hat Proxy Server 3.6 or later that connects to the central Red Hat Satellite Servers as its top-level service. The hosted service, for security reasons, cannot be a repository for the CA SSL key and certificate, which is private to the organization.
- When reconfiguring the Satellite or Proxy infrastructure to use SSL where it previously did not.
- When adding multiple Red Hat Satellite Servers to the Red Hat Satellite infrastructure. Consult with a Red Hat representative for instructions regarding this.

The **Red Hat Satellite SSL Tool** is *not* required in the following situations:

- During installation of a Red Hat Satellite Server. All SSL settings are configured during the installation process. The SSL keys and certificate are built and deployed automatically.
- During installation of a Red Hat Proxy Server 3.6 or later if connected to a Red Hat

Satellite Server 3.6 or later as its top-level service. The Red Hat Satellite Server contains all of the SSL information needed to configure, build and deploy the Red Hat Proxy Server's SSL keys and certificates.

The installation procedures for both the Red Hat Satellite Server and the Red Hat Proxy Server ensure the CA SSL public certificate is deployed to the **/pub** directory of each server. This public certificate is used by the client systems to connect to the Red Hat Satellite Server. See Section 3.3, "Deploying the CA SSL Public Certificate to Clients" for more information.

In summary, if the organization's Satellite or Proxy infrastructure deploys the latest version of Red Hat Satellite Server as its top-level service, there should be little need to use the **Red Hat Satellite SSL Tool**.

3.2.1. Generating SSL Certificates

The primary benefits of using the **Red Hat Satellite SSL Maintenance Tool** are security, flexibility, and portability. Security is achieved through the creation of distinct Web server SSL keys and certificates for each Red Hat Satellite server, all signed by a single Certificate Authority SSL key pair created by the organization. Flexibility is supplied by the tool's ability to work on any machine that has the spacewalk-certs-tools package installed. Portability exists in a build structure that can be stored anywhere for safe keeping and then installed whenever the need arises.

If the organization infrastructure's top-level Server is the most current Red Hat Satellite Server, the most that may be required is to restore the **ssl-build** tree from an archive to the **/root** directory and utilize the configuration tools provided within the Red Hat Satellite Server's website.

To make the best use of the **Red Hat Satellite SSL Maintenance Tool** , complete the following high-level tasks in the following order. See the remaining sections for the required details:

1. Install the spacewalk-certs-tools package on a system within the organization, perhaps but not necessarily the Red Hat Satellite Server or Red Hat Proxy Server.

2. Create a single Certificate Authority SSL key pair for the organization and install the resulting RPM or public certificate on all client systems. See Section 3.2.3, "Generating the Certificate Authority SSL Key Pair" for more information.

3. Create a Web server SSL key set for each of the Proxy and Satellite servers to be deployed and install the resulting RPM files on the Red Hat Satellite servers.

4. Restart the **httpd** service:

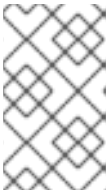
```
# service httpd restart
```

5. Back up the SSL *build tree* - consisting of the primary build directory and all subdirectories and files - to removable media, such as a CD or DVD. (Disk space requirements are insignificant.)

6. Verify and then store that archive in a safe location, such as the one described for backups in the *Additional Requirements* sections of either the Proxy or Satellite installation guide.

7. Record and secure the CA password for future use.

8. Delete the build tree from the build system for security purposes, but only after the entire Satellite infrastructure is in place and configured.



NOTE

When additional Web server SSL key sets are needed, restore the build tree on a system running the **Red Hat Satellite SSL Maintenance Tool** and repeat steps 3 through 7.

3.2.2. Red Hat Satellite SSL Maintenance Tool Options

The **Red Hat Satellite SSL Maintenance Tool** offers numerous command line options for generating Certificate Authority SSL key pair and managing your server SSL certificates and keys. The following command-line help options are available:

- **`rhn-ssl-tool --help`:** for general help.
- **`rhn-ssl-tool --gen-ca --help`:** for Certificate Authority help.
- **`rhn-ssl-tool --gen-server --help`:** for Web server help.

See the manual page (**`man rhn-ssl-tool`**) for more information.

3.2.3. Generating the Certificate Authority SSL Key Pair

Before creating the SSL key set required by the Web server, generate a Certificate Authority (CA) SSL key pair. A CA SSL public certificate is distributed to client systems of the Satellite or Proxy. The **Red Hat Satellite SSL Maintenance Tool** allows you to generate a CA SSL key pair if needed and reuse it for all subsequent Red Hat Satellite server deployments.

The build process automatically creates the key pair and public RPM for distribution to clients. All CA components are created in the build directory specified at the command line, typically **`/root/ssl-build`** (or **`/etc/sysconfig/rhn/ssl`** for older Satellite and Proxy servers). To generate a CA SSL key pair, run the following command.

IMPORTANT

Replace the example values with those appropriate for your organization.

```
# rhn-ssl-tool --gen-ca \
  --password=MY_CA_PASSWORD \
  --dir="/root/ssl-build" \
  --set-state="North Carolina" \
  --set-city="Raleigh" \
  --set-org="Example Inc." \
  --set-org-unit="SSL CA Unit"
```

This command generates the following relevant files in the specified build directory:

- **`RHN-ORG-PRIVATE-SSL-KEY`:** the CA SSL private key.
- **`RHN-ORG-TRUSTED-SSL-CERT`:** the CA SSL public certificate.
- **`rhn-org-trusted-ssl-cert-`*`VER-REL`*`.noarch.rpm`:** the RPM prepared for distribution to client systems.

This file contains the CA SSL public certificate (above) and installs it as **/usr/share/rhn/RHN-ORG-TRUSTED-SSL-CERT**

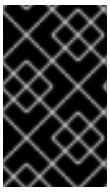
- **rhn-ca-openssl.cnf:** the SSL CA configuration file.
- **latest.txt:** lists the latest versions of the relevant files.

When this process is complete, distribute the RPM file to the client systems. See Section 3.3, "Deploying the CA SSL Public Certificate to Clients" for more information.

3.2.4. Generating Web Server SSL Key Sets

At this point, a CA SSL key pair should already be generated. However there is a likelihood of generating web server SSL key sets more frequently, especially if more than one Proxy or Satellite is deployed. A distinct set of SSL keys and certificates must be generated and installed for every distinct Satellite or Proxy server host name. The value for **--set-hostname** is therefore different for each server.

The server certificate build process works in a similar fashion to CA SSL key pair generation, with one exception: All server components are saved in subdirectories of the build directory. These subdirectories reflect the build system's machine name, such as **/root/ssl-build/MACHINE_NAME**. To generate a server certificate, run the following command.



IMPORTANT

Replace the example values with those appropriate for your organization.

The following is a single command. Ensure you enter it all on one line.

```
# rhn-ssl-tool --gen-server \
  --password=MY_CA_PASSWORD \
  --dir="/root/ssl-build" \
  --set-state="MY_STATE" \
  --set-city="MY_CITY"
  --set-org="Example Inc." \
  --set-org-unit="MY_ORG_UNIT" \
  --set-email="admin@example.com" \
  --set-hostname="machinename.example.com"
```

This command generates the following relevant files in a machine-specific subdirectory of the build directory:

- **server.key:** the Web server's SSL private server key.
- **server.csr:** the Web server's SSL certificate request.
- **server.crt:** the web server's SSL public certificate.
- **rhn-org-httpd-ssl-key-pair-*MACHINE_NAME-VER-REL*.noarch.rpm:** the RPM prepared for distribution to Satellite and Proxy Servers. Its associated **src.rpm** file is also generated.

  This RPM file contains the **server.key, server.csr,** and **server.crt** files. These files are installed in the following directories:

    - **/etc/httpd/conf/ssl.key/server.key**
    - **/etc/httpd/conf/ssl.csr/server.csr**
    - **/etc/httpd/conf/ssl.crt/server.crt**
- **rhn-server-openssl.cnf**: the Web server's SSL configuration file.
- **latest.txt**: lists the latest versions of the relevant files.

When this process is complete, distribute and install the RPM file on its respective Satellite or Proxy Server, and then restart the **httpd** service.

```
# service httpd restart
```

3.3. DEPLOYING THE CA SSL PUBLIC CERTIFICATE TO CLIENTS

The Red Hat Satellite Proxy Server and Red Hat Satellite Server installation processes generate a CA SSL public certificate and package it in an RPM file. These installation processes make the certificate and RPM file publicly available by placing a copy of one or both into the **/var/www/html/pub/** directory of the Satellite or Proxy Server.

You can use your web browser to inspect the contents of this directory: http://proxy-or-sat.example.com/pub/. You can use the **wget** or **curl** commands to download the CA SSL public certificate to a client system.

IMPORTANT

Confirm the name of the certificate or RPM file before running any of these commands.

```
# curl -O http://proxy-or-sat.example.com/pub/RHN-ORG-TRUSTED-SSL-CERT
# wget http://proxy-or-sat.example.com/pub/RHN-ORG-TRUSTED-SSL-CERT
```

Alternatively, if the CA SSL public certificate RPM file exists in the **/pub** directory, you can use the **rpm** command to install the package. For example:

```
# rpm -Uvh http://proxy-or-sat.example.com/pub/rhn-org-trusted-ssl-
cert-VER-REL.noarch.rpm
```

3.4. CONFIGURING CLIENT SYSTEMS TO USE CERTIFICATES

After you have deployed the RPM file or the certificate to a client system, you need to edit the configuration files of the **Red Hat Update Agent** and the **Red Hat Satellite Registration Client** (if necessary) to use the new CA SSL public certificate file. You also need to update the configuration so that it connects to the appropriate Red Hat Proxy Server or Red Hat Satellite Server. The generally accepted location for that CA SSL public certificate is in the **/usr/share/rhn** directory.

The Red Hat Proxy Server and Red Hat Satellite Server both have **Red Hat Satellite Bootstrap** installed by default, which can greatly reduce these repetitive steps and simplify the process of registering and configuring client systems. See the *Red Hat Satellite Getting Started Guide* for details.

CHAPTER 4. RED HAT SATELLITE AND SOLARIS-SPECIFIC INFORMATION

This is a section on using Red Hat Satellite with Solaris systems.

4.1. UNIX SUPPORT GUIDE

This chapter documents the installation procedure for, and identifies differences in, Red Hat Network functionality when used to manage UNIX-based client systems. Red Hat Network offers UNIX support to help customers migrate from UNIX to Linux. Because of the limited scope of this task, the features offered for UNIX client management are not as comprehensive as those available for managing Red Hat Enterprise Linux systems.

Subsequent sections specify supported UNIX variants, Red Hat Network features supported by the UNIX management system, the prerequisites for managing a UNIX system with Red Hat Network, as well as the installation procedure for UNIX clients.

4.1.1. Supported UNIX Variants

The following UNIX variants, versions, and architectures are supported by Red Hat Satellite:

Table 4.1. Supported Solaris Architectures and Versions

Solaris Version	sun4m	sun4d	sun4u	sun4v	sun4us	x86
Solaris 8	yes	no	yes	n/a	no	no
Solaris 9	yes	n/a	yes	n/a	no	yes
Solaris 10	n/a	n/a	yes	yes	no	yes

4.1.2. Prerequisites

These items are needed to obtain UNIX support:

- Red Hat Satellite 5.0 or later
- A Satellite certificate with Management entitlements
- Management entitlements for each UNIX client
- Red Hat Network packages for UNIX including python, pyOpenSSL, and the Red Hat Network Client packages
- Sunfreeware packages that provide supporting libraries

NOTE

Some of these packages are available via the Red Hat Satellite. See Section 4.1.7.1, “Downloading and Installing Additional Packages” for the complete list.

4.1.3. Included Features

The following features are included in the UNIX support service level agreement as they exist within Red Hat Network:

- The **Red Hat Network Service Daemon** (`rhnsd`), which triggers `rhn_check` according to a configurable interval
- The **Red Hat Network Configuration Client** (`rhncfg-client`), which executes all configuration actions scheduled from the Satellite
- The **Red Hat Network Configuration Manager** (`rhncfg-manager`), which allows command line administration of Red Hat Network configuration channels
- The `rhn_check` program, which checks in with the Satellite and performs any actions scheduled from the server
- All Management-level functionality, such as system grouping, package profile comparison, and use of the System Set Manager to administer multiple systems at once
- A Provisioning feature called *Remote Command* which enables users to schedule root-level commands on any managed client through the Satellite's website, if the client allows this action

4.1.4. Differences in Functionality

The following Red Hat Network features work differently in a UNIX environment:

- The **Red Hat Update Agent for UNIX** offers a much smaller set of options than its Linux counterpart and relies upon the operating system's native toolset for package installation, rather than `rpm` - See Section 4.1.8.2.4, “Updating From the Command Line” for the precise list of options.
- The **Red Hat Network Push** application has been similarly modified to upload native UNIX file types, including packages, patches, and patch clusters.

  Since Solaris package, patch and patch cluster files are different from RPM files, the channel upload mechanism is somewhat different.There are two applications in the `rhnpush` package for Solaris:

  - The first, `solaris2mpm`, is an Red Hat Network utility that creates an MPM file for each Solaris package or patch. The neutral format of the MPM file allows the Satellite to understand and manage the uploaded files.
  - The second, `rhnpush`, has been extended so that it can handle MPM as well as RPM files. Otherwise, it operates identically to the Linux version of `rhnpush`.
- The `Channels` tab of the Red Hat Network website has been augmented to accommodate the storage and installation of native UNIX file types.

4.1.5. Excluded Features

The following Red Hat Network features are not available with the UNIX support system:

- All Provisioning-level functionality, such as kickstarting and package rollback, with the exception of configuration file management

- All Errata-related options, since the concept of Errata Updates is not understood in UNIX
- Source files for packages

Answer files are not supported. Support for such files is planned for a future release.

There is also no support for IPv6 for Solaris systems.

Additionally, relocating **RHAT* . pkg** files during installation is not supported.

4.1.6. Satellite Server Preparation and Configuration

Configure the Satellite to support UNIX clients before the required files are available for deployment to the client systems. This can be accomplished in one of two ways, depending on whether you have installed your Satellite server:

1. During the Satellite installation:

   Enable UNIX support on the Satellite by checking the "Enable Solaris Support" box on the Red Hat Satellite configuration screen during the installation process.

2. After the Satellite has been installed:

   Enable UNIX support by configuring the Satellite after it has been installed. To do so, select **Admin** in the top menu bar, then select **Satellite Configuration** in the left navigation bar. In the screen that follows, check the **Enable Solaris Support** box.

   Click the **Update** button to confirm the change.

3. Finally, create a base channel to which your client systems may subscribe. Red Hat Network does not provide UNIX content, **satellite-sync** cannot be used to create the channel.

   To create a Solaris channel, login to the web interface of the Satellite as either a Satellite Administrator or a certificate authority. Navigate to the **Channel** tab, followed by the **Manage Software Channels** from the left navigation bar. Click the **create new channel** link in the upper right of the resulting screen. Provide a name and label for your new channel, and select either **SPARC Solaris** or **i386 Solaris** as the architecture, depending on the architecture of the client.

4.1.7. UNIX Client System Preparation

Before your UNIX-based client systems benefit from Red Hat Network, they must be prepared for connection:

1. Download and install **gzip** and the required third-party libraries.
2. Download the Red Hat Network application tarball from the Satellite to the client and install the contents.
3. Next, deploy the SSL certificates required for a secure connection.
4. Configure the client applications to connect to the Red Hat Satellite.

Once finished, your systems will be ready to begin receiving Red Hat Network updates. The following sections explain these steps in detail.

4.1.7.1. Downloading and Installing Additional Packages

This section steps you through the process of downloading and installing third-party applications and the Red Hat Network applications from the Satellite onto the UNIX client.

Of primary importance is the **Red Hat Update Agent for UNIX** (`up2date`), which provides the link between your client systems and Red Hat Network. The UNIX-specific version of the **Red Hat Update Agent** is limited in functionality compared to its Linux counterpart but still enables system registration and facilitates package installs and patches. See Section 4.1.8, “UNIX Client Registration and Updates” for a full description of the tool's options.

NOTE

It may be useful to enter the command **bash** when first logging into the Solaris client. If the BASH shell is available, it will make the system's behavior as Linux-like as possible.

4.1.7.1.1. Installing Third-Party Packages

Installation of the Red Hat Network applications cannot proceed unless the following utilities and libraries are present:

- **`gzip`**
- **`libgcc`**
- **`openssl`**
- **`zlib`**

The **`gzip`** utility is provided by the SUNW gzip package and may be downloaded from http://www.sunfreeware.com.

On recent versions of Solaris, the necessary libraries are provided by the following natively installed packages:

- **`SUNWgccruntime`**
- **`SUNWopenssl*`**
- **`SUNWzlib`**

For older Solaris versions, the following required packages may be downloaded from http://www.sunfreeware.com:

- **`SMClibgcc`** or **`SMCgcc`**
- **`SMCossl`**
- **`SMCzlib`**

To verify if a package is installed on the client, use the **`pkginfo`** command. For example, to check for a package that contains "zlib" in the name, run the following command:

```
# pkginfo | grep zlib
```

NOTE

Solaris package archive names differ from the name of the installed package. For example, the package archive **libgcc<version>-sol<solaris-version>-sparc-local.gz** becomes SMClibgcc after installation

4.1.7.1.2. Configuring the Library Search Path

To allow the Solaris client to use the libraries installed in the previous step, you must add their location to the library search path. To do so, first check the current library search path:

```
# crle -c /var/ld/ld.config
```

Make a note of the current Default Library Path. Next, modify the path to also include the components shown below. Note that the **-l** option resets the value, rather than appending it, so if there already were values set on your system, prepend them to the -l parameter.

On sparc:

```
 # crle -c /var/ld/ld.config -l
/other/existing/path:/lib:/usr/lib:/usr/local/lib
```

On x86:

```
# crle -c /var/ld/ld.config -l
/other/existing/path:/lib:/usr/lib:/usr/local/lib:/usr/sfw/lib
```

4.1.7.1.3. Downloading Red Hat Network Client Packages

Download the appropriate tarball of packages from the **/var/www/html/pub/** directory of your Satellite. If you are able to use a GUI web browser like Mozilla, navigate to the **/pub** directory of the Satellite and save the appropriate tarball to your client:

```
http://your-satellite.example.com/pub/rhn-solaris-
bootstrap-<version>-<solaris-arch>-<solaris-version>.tar.gz
```

If you must download the tarball from the command line, it should be possible to use **ftp** to transfer the file from the Satellite to the client.

Using **gzip**, decompress the tarball. You should have the following packages:

- **RHATpossl**
- **RHATrhnrcfg**
- **RHATrhnrcfga**
- **RHATrhnrcfgc**
- **RHATrhnrcfgm**
- **RHATrhnc**

- **RHATrhnl**
- **RHATrpush**
- **RHATsmart**

SMClibgcc and **SMCosslg** may also be included in the tarball.

4.1.7.1.4. Installing the Red Hat Network Packages

Change to the uncompressed directory and use the UNIX variant's native installation tool to install each package. For example, on Solaris, use the **pkgadd** command. Answer "yes" to any prompts during package install.

Here is how a typical installation might proceed:

```
# pkgadd -d RHATpossl-0.6-1.p24.6.pkg all
# pkgadd -d RHATpythn-2.4.1-2.rhn.4.sol9.pkg all
# pkgadd -d RHATrhnl-1.8-7.p23.pkg all
...
```

NOTE

Use the **-n** option for **pkgadd** to run the command in non-interactive mode. However, this may cause the installation of some packages to fail silently on Solaris 10.

Continue until each package is installed in the Red Hat Network-specific path: **/opt/redhat/rhn/solaris/**.

4.1.7.1.5. Including Red Hat Network Packages in the PATH

In order to make the Red Hat Network packages available at each login, you may wish to add them to your PATH. To do so, add these commands to your login script:

```
# PATH=$PATH:/opt/redhat/rhn/solaris/bin
# PATH=$PATH:/opt/redhat/rhn/solaris/usr/bin
# PATH=$PATH:/opt/redhat/rhn/solaris/usr/sbin
# export PATH
```

To enable access to the Red Hat Network client command man pages, add them to your MANPATH. To do so, add the following commands to your login script:

```
# MANPATH=$MANPATH:/opt/redhat/rhn/solaris/man
# export MANPATH
```

Alternatively, you can also access the man pages from the command line, with the following command:

```
# man -M /opt/redhat/rhn/solaris/man <man page>
```

Finally, add the Red Hat Libraries to your PATH as you did with **libgcc**, **openssl** and **zlib**.

```
crle -c /var/ld/ld.config -l <current library
paths>:/opt/redhat/rhn/solaris/lib
```

4.1.7.2. Deploying Client SSL Certificates

To ensure secure data transfer, Red Hat strongly recommends the use of SSL. The Red Hat Satellite eases implementation of SSL by generating the necessary certificates during its installation. The server-side certificate is automatically installed on the Satellite itself, while the client certificate is placed in the **/pub/** directory of the Satellite's Web server.

To install the certificate, follow these steps for each client:

1. Download the SSL certificate from the **/var/www/html/pub/** directory of the Red Hat Satellite onto the client system. The certificate will be named something similar to **RHN-ORG-TRUSTED-SSL-CERT**. It is accessible via the web at the following URL: **https://your-satellite.example.com/pub/RHN-ORG-TRUSTED-SSL-CERT**.

2. Move the client SSL certificate to the Red Hat Network-specific directory for your UNIX variant. For Solaris, this can be accomplished with a command similar to:

```
 mv /path/to/RHN-ORG-TRUSTED-SSL-CERT
/opt/redhat/rhn/solaris/usr/share/rhn/
```

When finished, the new client certificate will be installed in the appropriate directory for your UNIX system. If you have a large number of systems to prepare for Red Hat Network management, you may script this entire process.

Now you must reconfigure the Red Hat Network client applications to refer to the newly installed SSL certificate. See Section 4.1.7.3, “Configuring the Clients” for instructions.

4.1.7.3. Configuring the Clients

The final step before registering your client systems with Red Hat Network is to reconfigure their Red Hat Network applications to use the new SSL certificate and obtain updates from the Red Hat Satellite. Both of these changes can be made by editing the configuration file of the **Red Hat Update Agent**, which provides registration and update functionality.

Follow these steps on each client system:

1. As root, change to the Red Hat Network configuration directory for the system. For Solaris, the full path is **/opt/redhat/rhn/solaris/etc/sysconfig/rhn/**.

2. Open the **up2date** configuration file in a text editor.

3. Find the ***serverURL*** entry and set its value to the fully qualified domain name (FQDN) of your Red Hat Satellite:

```
serverURL[comment]=Remote server URL
serverURL=https://your-satellite.example.com/XMLRPC
```

4. Ensure the application refers to the Red Hat Satellite even when SSL is turned off by also setting the ***noSSLServerURL*** value to the Satellite:

```
noSSLServerURL[comment]=Remote server URL without SSL
```

```
noSSLServerURL=http://your-satellite.example.com/XMLRPC
```

5. With the **up2date** configuration file still open, find the ***sslCACert*** entry and set its value to the name and location of the SSL certificate described in Section 4.1.7.2, "Deploying Client SSL Certificates", for example:

```
sslCACert[comment]=The CA cert used to verify the ssl server
sslCACert=/opt/redhat/rhn/solaris/usr/share/rhn/RHN-ORG-TRUSTED-SSL-
CERT
```

Your client systems are now ready for registration with Red Hat Network and management by your Satellite.

4.1.8. UNIX Client Registration and Updates

Now that you have installed Red Hat Network-specific packages, implemented SSL, and reconfigured your client systems to connect to the Red Hat Satellite, you are ready to begin registering systems and obtaining updates.

4.1.8.1. Registering UNIX Systems

This section describes the Red Hat Network registration process for UNIX systems. You must use the **rhnreg_ks** command to accomplish this; the use of activation keys for registering your systems is optional. These keys allow you to predetermine settings within Red Hat Network, such as base channels and system groups, and to apply those automatically to systems during their registration.

Since activation key generation and use is covered extensively in other chapters, this section focuses on differences when applying them to UNIX variants.

To register UNIX systems with your Red Hat Satellite, accomplish the following tasks in this order:

1. Log into the Satellite's web interface and click the **Systems** tab in the top navigation bar followed by **Activation Keys** in the left navigation bar. Then click the **create new key** link at the top-right corner of the page.

2. On the following page, select the base channel you created at the end of Section 4.1.6, "Satellite Server Preparation and Configuration".

3. After creating the key, click its name in the **Activation Keys** list to enhance its Red Hat Network settings by associating software and configuration channels and system groups.

4. Open a terminal on the client system to be registered and switch user to root.

5. Use **rhnreg_ks** along with the **--activationkey** option to register the client with the Satellite. The string of characters that make up the key may be copied directly from the **Activation Keys** list on the website. The resulting command will look something like the following:

```
rhnreg_ks --activationkey=b25fef0966659314ef9156786bd9f3af
```

6. Go back to the website, click the name of the activation key, and ensure the new system appears within the **Activated Systems** tab.

4.1.8.2. Obtaining Updates

Package updates in UNIX are handled differently compared to Linux. For instance, Solaris relies on Patch Clusters to update multiple packages at once, while Red Hat operating systems use Errata Updates to associate upgrades with specific packages. In addition, Solaris uses answer files to automate interactive package installations, something Linux doesn't understand, while Red Hat offers the concept of source packages. For this reason, this section seeks to highlight differences in using Red Hat Network tools on UNIX systems. (Note: Red Hat Network does not support Solaris answer files in the current release; such support is planned for future releases.)

Despite inherent differences, such as the lack of Errata, the channel and package management interfaces within the Red Hat Network website on the Satellite work largely the same for UNIX systems. All software channels designed to serve UNIX variants can be constructed almost exactly as the custom channels described in the *Red Hat Satellite Getting Started Guide* The most significant difference is the architecture. When creating a UNIX software channel, ensure you select the base channel architecture appropriate for the systems to be served.

Break down your packages into base and child channels depending on their nature. For example, on Solaris, installation packages should go in the Solaris base channel, while patches and Patch Clusters should go in a child channel of the Solaris base channel. Extra installation packages can go in a separate Extras child channel.

Red Hat Network treats patches similarly to packages; they are listed and installed in the same way and with the same interface as normal packages. Patches are 'numbered' by Solaris, and will have names like "patch-solaris-108434". The version of a Solaris patch is extracted from the original Solaris metadata, and the release is always 1.

Patch Clusters are bundles of patches that are installed as a unit. Red Hat Network keeps track of the last time that a Patch Cluster was installed successfully on a system. However, Patch Clusters are not tracked on the client as installed entities so they do not appear in the installed packages or patches list. Patch Cluster names look like "patch-cluster-solaris-7_Recommended". The version is a datestring, such as "20040206", the release is always 1 and the epoch is always 0.

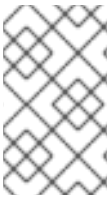
4.1.8.2.1. Uploading Packages to the Satellite

Red Hat Network does not provide UNIX content; any Solaris packages, patches or Patch Clusters must be uploaded to the Satellite in a format that it understands from a client system. That package can then be managed and distributed to other systems. Red Hat Network created **`solaris2mpm`** to translate Solaris packages, patches, and patch clusters to a format that the Satellite can understand.

4.1.8.2.1.1. solaris2mpm

As mentioned briefly in Section 4.1.4, “Differences in Functionality”, **`solaris2mpm`** is part of Red Hat Network Push for Solaris. The content that is pushed to a Solaris channel on the Satellite must first be in .mpm format.

A .mpm file is an archive containing a description of the package data and the package or patch itself. The solaris2mpm command must be run on the client, never the Satellite.



NOTE

solaris2mpm requires free space equal to three times the size of any package, patch, or patch cluster it is converting. Normally, space in **`/tmp/`** will be used for this purpose. However, the **`--tempdir`** option allows you to specify another directory if necessary.

Multiple files may be specified on the command line of solaris2mpm. Below is a usage example:

```
# solaris2mpm RHATrpush-3.1.5-21.pkg RHATrpush-3.1.5-23.pkg
Opening archive, this may take a while
Writing out RHATrpush-3.1.5-21.sparc-solaris.mpm
Opening archive, this may take a while
Writing out RHATrpush-3.1.5-23.sparc-solaris.mpm
```

Because no other directory was specified, the resulting .mpm files are written to the /tmp/ directory. Note that the name of the resulting .mpm files includes the architecture of the client on which it was created. In this case, this was SPARC Solaris. The general format of mpm file names is:

```
name-version-release.arch.mpm
```

Patch clusters are "exploded" - .mpm files are generated for each patch in the cluster, as well as a top-level "meta" .mpm file containing information about the cluster as a whole.

Below are the options of solaris2mpm:

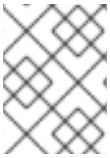
Table 4.2. solaris2mpm options

Option	Description
--version	Displays the program's version number and exits
-h, --help	Displays this information and exits
-?, --usage	Prints program usage information and exits
--tempdir=<tempdir>	Temporary directory to work from
--select-arch=<arch>	Selects the architecture (i386 or SPARC) for multi-arch packages.

4.1.8.2.1.2. rhnpush with .mpm Files

The Solaris version of **rhnpush** works like the standard utility, but with the added ability to handle .mpm files. Below is a usage example:

```
% rhnpush -v --server testbox.example.com --username myuser -c solaris-8 \
RHATrpush-3.1.5-*.mpm
 Red Hat Network password:
 Connecting to http://testbox.example.com/APP
 Uploading package RHATrpush-3.1.5-21.sparc-solaris.mpm
 Uploading package RHATrpush-3.1.5-23.sparc-solaris.mpm
```



NOTE

Patch cluster .mpm files must be pushed either concurrently with or after - never before - the .mpm files for the patches contained in that cluster.

Use solaris2mpm on each of the packages, patches, or patch clusters you wish to manage via the Satellite, then use Red Hat Network Push to upload them to the channel created for them.

4.1.8.2.2. Updating Through the Web Interface

To install packages or patches on an individual system, click the name of the system in the **Systems** category, select the packages from the Upgrade or Install lists of the **Packages** or **Patches** tab, and click **Install/Upgrade Selected Packages**.

To run a remote command while installing the package, click **Run Remote Command** rather than **Confirm**. See Section 4.1.9, "Using Remote Commands" for instructions.

To install packages or patches on multiple systems at once, select the systems and click **System Set Manager** in the left navigation bar. Then, in the **Packages** tab, select the packages from the Upgrade or Install lists and click **Install/Upgrade Packages**. To complete the action, schedule the updates.

4.1.8.2.3. rhnsd

On Red Hat Enterprise Linux systems, the **rhnsd** daemon, which instructs the client system to check in with Red Hat Network, automatically starts at boot time. On Solaris systems, **rhnsd** *does not* start at boot time by default. It can be started from the command line in this way:

```
rhnsd --foreground --interval=240
```

The default location for **rhnsd** is **/opt/redhat/rhn/solaris/usr/sbin/rhnsd**. Below are the available options for **rhnsd** on Solaris:

Table 4.3. rhnsd Options

Option	Description
-f, --foreground	Run in foreground
-i, --interval=MINS	Connect to Red Hat Network every MINS minutes
-v, --verbose	Log all actions to syslog
-h, --help	Give this help list
-u, --usage	Give this help list
-V, --version	Print program version

4.1.8.2.4. Updating From the Command Line

Like the website, command line use of the **Red Hat Update Agent** is affected by the limitations of UNIX package management. That said, most core functions can still be accomplished through the **up2date** command. The most significant difference is the absence of all options regarding source files. See Section 4.1.8.2.4, "Updating From the Command Line" for the precise list of options available for UNIX systems.

The command line version of the **Red Hat Update Agent** accepts the following arguments on UNIX systems:

Table 4.4. Update Agent Command Line Arguments

Argument	Description
`--version`	Show program version information.
`-h`, `--help`	Show this help message and exit.
`-v`, `--verbose`	Show additional output.
`-l`, `--list`	List the latest versions of all packages installed.
`-p`, `--packages`	Update packages associated with this System Profile.
`--hardware`	Update this system's hardware profile on Red Hat Network.
`--showall`	List all packages available for download.
`--show-available`	List all the packages available that are not currently installed.
`--show-orphans`	List all the packages currently installed that are not in channels the system is subscribed to.
`--show-channels`	Show the channel names along with the package names where appropriate.
`--installall`	Install all available packages. Use with `--channel`.
`--channel=`***`CHANNEL`***	Specify which channels to update from using channel labels.
`--get`	Fetch the package specified without resolving dependencies.

4.1.9. Using Remote Commands

With UNIX support, Red Hat Network offers the flexibility of issuing remote commands on client systems through the Satellite's website. This feature allows you to run virtually any (compatible) application or script on any system in your domain without ever having to open a terminal.

4.1.9.1. Enabling Commands

With the flexibility this tool offers comes great risk and the responsibility to mitigate that risk. For all practical purposes, this feature grants a root BASH prompt to anyone with administrative access to the system on the website.

This can be controlled, however, through the same config-enable mechanism used to determine which systems can have their configuration files managed by Red Hat Network.

In short, you must create a directory and file on the UNIX system that tells Red Hat Network it is acceptable to run remote commands on the machine. The directory must be named **script**, the file must be named **run**, and both must be located in the **/etc/sysconfig/rhn/allowed-actions/** directory specific to your UNIX variant.

For instance, in Solaris, issue this command to create the directory:

```
mkdir -p /opt/redhat/rhn/solaris/etc/sysconfig/rhn/allowed-actions/script
```

To create the requisite file in Solaris, issue this command:

```
touch /opt/redhat/rhn/solaris/etc/sysconfig/rhn/allowed-
actions/script/run
```

4.1.9.2. Issuing Commands

You may schedule a remote command in a variety of ways: on an individual system, on multiple systems at once, and to accompany a package action.

To run a remote command on an individual system by itself, open the **System Details** page and click the **Remote Command** subtab. (Note that this subtab only appears if the system has a Provisioning entitlement.) On this page, establish the settings for the command. You may identify a specific user, group, and timeout period, as well as the script itself. Select a date and time to begin attempting the command, and click the **Schedule Remote Command** link.

Similarly, you may issue a remote command on multiple systems at once through the **System Set Manager**. Select the systems, go to the **System Set Manager**, click the **Provisioning** tab, and scroll down to the **Remote Command** section. From there you may run a remote command on the selected systems at once.

To run a remote command with a package action, schedule the action through the **Packages** tab of the **System Details** page and click **Run Remote Command** while confirming the action. Use the radio buttons at the top to determine whether the command should run before or after the package action, establish the settings for the command, and click **Schedule Package Install/Upgrade**.

Note that installing multiple packages that have different remote commands requires scheduling the installs separately or combining the commands into a single script.

CHAPTER 5. REPORTING SOFTWARE FAILURES

You can take advantage of Red Hat Satellite's software failure reporting capabilities and the Automatic Bug Reporting Tool (ABRT) to extend the overall reporting functionality of your systems. This extended functionality allows your clients to automatically report software failures captured by ABRT to the Satellite server, and also to process the captured failures in a centralized fashion. You can use either the webUI or the API to process these failure reports.

5.1. INSTALLING SOFTWARE FAILURE REPORTING TOOLS

The following procedure describes how to install Red Hat Satellite tools for ABRT on clients.

Procedure 5.1. To Use the Software Failure Reporting Functionality:

1. Log into your client system as the **root** user.
2. Install the spacewalk-abrt package on your client systems. This package installs the abrt package as a dependency.

```
# yum install spacewalk-abrt
```

NOTE

Neither the abrt nor spacewalk-abrt packages are available for Red Hat Enterprise Linux 5.

5.2. USING SOFTWARE FAILURE REPORTING TOOLS

The spacewalk-abrt package has two important components:

- The configuration file for ABRT: **/etc/libreport/events.d/spacewalk.conf**
- The **spacewalk-abrt** utility: **/usr/bin/spacewalk-abrt**

The configuration file instructs the **abrt** daemon to use the **/usr/bin/spacewalk-abrt** utility to automatically report every software failure that occurs on the system to your Satellite server. This is a fully automated process and ordinarily does not require any human intervention.

Use the Red Hat Satellite Web UI to view software failure reports from clients. For more information, see the *Red Hat Satellite User Guide*

5.3. MANUALLY REPORTING SOFTWARE FAILURES

Use the **spacewalk-abrt** utility to manually report software failures to your Satellite server. The following procedure shows how to perform a manually send a software failure report.

Procedure 5.2. To manually report software failures

1. Use the ***abrt-cli list*** parameter to display a list of existing failure reports.

```
# abrt-cli list
```

```
@0
Directory: /var/tmp/abrt/ccpp-2013-02-28-15:48:50-8820
count: 2
executable: /usr/bin/python2.7
package: python-2.7.3-13.fc16
time: Thu 28 Feb 2013 03:48:50 PM CET
uid: 0


@1
Directory: /var/tmp/abrt/oops-2013-02-27-14:16:03-8107-1
count: 3
package: kernel
time: Wed 27 Feb 2013 02:16:03 PM CET
```

2. After you have identified the failure that you want to report, use the **--report** option to send the report to the Satellite server.

```
# spacewalk-abrt --report /var/tmp/abrt/ccpp-2013-02-28-15:48:50-
8820
```

3. To manually report all of the software failures that have occurred on your system, use the **--sync** option:

```
# spacewalk-abrt --sync
```

5.4. CREATING SOFTWARE FAILURES FOR TESTING

You can force a software failure in order to verify that your reporting configuration is working properly. The following example demonstrates using the **kill** command to send a signal **11** argument (segmentation fault) to an example process:

```
# abrt-cli list
# sleep 600 &
[1] 17564
# kill -11 17564
#
[1]+  Segmentation fault      (core dumped) sleep 600
#
# abrt-cli list
@0
Directory:      /var/spool/abrt/ccpp-2013-05-14-04:56:17-17564
count:          1
executable:     /bin/sleep
package:        coreutils-8.4-19.el6
time:           Tue 14 May 2013 04:56:17 EDT
uid:            0
#
```

APPENDIX A. REVISION HISTORY

Revision 3-32 **Wed Jul 26 2017** **Satellite Documentation Team**
BZ#1067124 - Added information on staging content.

Revision 3-31 **Thu Aug 20 2015** **Dan Macpherson**
Mass publication of all Satellite 5.7 books

Revision 3-30 **Tue Aug 11 2015** **Dan Macpherson**
Minor revisions

Revision 3-29 **Wed May 27 2015** **Dan Macpherson**
Minor Revisions

Revision 3-28 **Tue Feb 17 2015** **Dan Macpherson**
Minor maintenance updates

Revision 3-27 **Tue Feb 3 2015** **Dan Macpherson**
Pushing maintenance update for Satellite 5.7

Revision 3-26 **Wed Jan 7 2015** **Dan Macpherson**
Packaging snapshot versions

Revision 3-25 **Thu Jan 1 2015** **Dan Macpherson**
Release Candidate for Satellite 5.7

Revision 3-24 **Mon Dec 8 2014** **Dan Macpherson**
Preparing books for technical review

Revision 3-23 **Tues Nov 27 2014** **Megan Lewis**
BZ#1116664 Corrected the location of Bootstrap scripts.
Updated author group.
Updated headings to match standards.
Implemented brand changes.

Revision 3-22 **Wed Oct 8 2014** **Megan Lewis**
Moved in Red Hat Satellite and Solaris-specific Information chapter from the Reference Guide.

Revision 3-21 **Fri Sep 27 2013** **Dan Macpherson**
Final version of documentation suite

Revision 3-20 **Tue Sep 10 2013** **Dan Macpherson**
Revised Subtitle, Abstract and Preface for all Guides

Revision 3-19 **Mon Sep 2 2013** **Dan Macpherson**
Removing content relating to certain RPMs being located on /pub/ as per BZ#998336

Revision 3-18 **Thu Aug 29 2013** **Dan Macpherson**
First implementation of QE Review feedback

Revision 3-17 **Tue Aug 20 2013** **Athene Chan**
BZ#998333, 998336 Quality Assurance feedback incorporated into book.

Revision 3-16 **Mon Jul 29 2013** **Dan Macpherson**
Restructuring Software Failure chapter based upon tech review feedback

Revision 3-15 **Sun Jul 28 2013** **Dan Macpherson**

Second implementation of tech review feedback

Revision 3-14 **Wed Jul 24 2013** **Dan Macpherson**
Corrections for BZ#987245

Revision 3-13 **Tue Jul 23 2013** **Dan Macpherson**
First implementation of tech review feedback

Revision 3-12 **Fri Jul 19 2013** **Dan Macpherson**
Typo correction

Revision 3-11 **Fri Jul 12 2013** **Dan Macpherson**
Typo correction

Revision 3-10 **Fri Jul 12 2013** **Dan Macpherson**
Final beta updates

Revision 3-8 **Fri Jul 12 2013** **Dan Macpherson**
Update to Beta docs

Revision 3-6 **Fri Jul 12 2013** **David O'Brien**
Update section on CAs.
Add section on new reports.
Add section on using ABRT.
Update section about using rhn_register.
Remove chapter on Bootstraps and Scripting.
Remove redundant tables that reproduce man pages.

Revision 3-5 **Wed Sep 19 2012** **Dan Macpherson**
Final packaging for 5.5

Revision 3-4 **Fri Aug 10 2012** **Athene Chan**
Staging for review

Revision 3-0 **Thu Jun 28 2012** **Athene Chan**
Prepared for Red Hat Satellite Server 5.5 publication
Technical Review Edits
BZ#837703 Custom GPG Key note added

Revision 2-2 **Mon Aug 15 2011** **Lana Brindley**
Folded z-stream release into y-stream

Revision 2-1 **Wed Jun 15 2011** **Lana Brindley**
Prepared for publication

Revision 2-0 **Sat May 7 2011** **Lana Brindley**
Prepared for translation

Revision 1-8 **Mon Feb 7 2011** **Lana Brindley**
BZ#662876 - Certificates

Revision 1-7 **Tue Feb 1 2011** **Lana Brindley**
BZ#636703 - Latest Clients