Hewlett Packard Enterprise

Server Automation

Using the Server Automation Red Hat Importer

Software version: 10.21[1]

Document release date: March 2016

Software release date: March 2016

[1] This functionality is introduced for SA 10.22 and above. It is also available for SA 10.21 in a Rollup Hot Fix. Contact SA Support team for further details.

Contents

Introduction

This document is intended for customer use.

It outlines the changes that have been implemented in the HPE Server Automation (SA) RHN import tool to support content download from Red Hat Content Delivery Network (CDN) using Red Hat Subscription Management (RHSM). This allows you to download content for Red Hat Enterprise Linux 7 (RHEL).

This document also describes how to set up and use the HPE SA Red Hat Importer tool.

Note: For SA platform version support, see the *SA Support and Compatibility Matrix*.

Note: The Additional Information section at the end of the document provides information on how to access SA documentation, HPE Software Support, documentation change notes, and legal notices.

RHSM Overview

RHSM is the primary subscription management service provided by Red Hat and is the replacement for Red Hat Network Classic (RHN). RHSM is an end-to-end solution with status, inventory, organization, and reporting for Red Hat subscriptions through a hosted web-interface accessed from the Red Hat Customer Portal.

Although subscription management was primarily established on Red Hat Enterprise Linux, all Red Hat products are expected to be integrated with RHSM. Red Hat Subscription Services are available for systems running Red Hat Enterprise Linux 5 (5.7 or later), 6 (6.1 or later), and 7.

Systems running RHEL 5 (5.7+) and 6 (6.1+) can subscribe to both RHN and RHSM. However, systems running RHEL 7 can only subscribe to RHSM, unless using Red Hat Satellite 5.6 or above. A direct consequence of this is that RHEL 7 channels are not available in RHN, which means that the old `rhn_import` cannot be used to import RHEL 7 content into the SA Library. The RHEL 7 channels are available only when using Satellite 5.6 or above. The old `rhn_import` tool can only be used to import RHEL 7 content when used with versions prior to Satellite 5.6 or Satellite 5.7.

Note: The *SA Support and Compatibility Matrix* associated with your SA version provides details about the specific supported versions.

The following table shows the mapping between the subscription tools provided by Red Hat and the content they provide.

Subscription Type	Content Provided	HPSA Import Tool
Red Hat Network Classic (RHN)	Includes all contents except channels for Red Hat Linux Enterprise 7	rhn_import redhat_import
Red Hat Subscription Management (RHSM)	All contents and the channels for Red Hat Linux Enterprise 7 and above	redhat_import
Red Hat Satellite 4.x and 5.x (up to and including version 5.5)	Includes all contents except channels for Red Hat Linux Enterprise 7	rhn_import redhat_import
Red Hat Satellite 5.6 and 5.7	All contents and the channels for Red Hat Linux Enterprise 7	rhn_import redhat_import

Subscription Type	Content Provided	HPSA Import Tool
Red Hat Satellite 6.x	All contents and the channels for Red Hat Linux Enterprise 7 and above	redhat_import

The new `redhat_import` tool is the preferred method to import Red Hat content and is described in the following sections.

RHN Classic, RHSM, and Satellite

There are some conceptual differences between RHSM and RHN Classic. Therefore, there is a difference in the manner the subscriptions are defined. In older subscription models, the model used by RHN Classic and Satellite 5 are a system required channel entitlements that granted access to sets of content and software – well known as channels.

RHSM and Satellite 6 use public-key infrastructure (PKI) certificates to uniquely identify the system, the products on the system, and its attached subscriptions.

The old and new subscription models are fundamentally different. The old `rhn_import` tool is associated with the old subscription model and thus is only capable of importing content from RHN Classic, and Satellite 5. To support Red Hat Customer Portal and Satellite 6 with the new subscription model, that is, RHSM, a new tool has been added.

Content import using RHSM

The SA RHN import has been enhanced to support content import from both RHN and RHSM. This allows for content import for RHEL 7 and other Red Hat products using RHSM.

New redhat_import binary

To support content import from RHSM, a new binary has been added: `redhat_import`. This binary is capable of importing from both RHN and RHSM and uses an updated configuration file format (see New Configuration File). The behavior of the old `rhn_import` binary has not been changed and it uses the old configuration file format. If you are not importing content from RHSM, you can still use the `rhn_import` binary without making any changes to the configuration file. However you are suggested to migrate to the new `redhat_import` binary.

New configuration file

The new `redhat_import` binary uses a new configuration file format. Users using the new binary file will have to migrate the existing configuration files to the new format. The new `redhat_import` binary does not work with old configuration files.

The new configuration file adds two new sections `[RHN]` and `[RHSM]` controlling the import from RHN and RHSM respectively. For more details on the format of the new configuration file, see the manual page of redhat_import:

```
/opt/opsware/rhn_import/bin/redhat_import --manual
```

A sample configuration file is available at:

```
/etc/opt/opsware/rhn_import/redhat_import.conf-sample
```

Entitlement certificates

Red Hat subscriptions provide software entitlements. The actual content is delivered through the Red Hat CDN or through Red Hat Satellite 6.

Note: In the following sections, Red Hat CDN is used to denote content imported from either Red Hat CDN or Satellite 6. When there are specifics to the online portal, Red Hat CDN will be used to denote the difference.

RHSM uses the following X.509 certificates for managing subscriptions:

- **Identity certificate** - Issued to a system when the system is registered with the subscription management service. This certificate is used to authenticate and identify the system to the subscription management service.
- **Product certificate** - Generated and installed on a system once a product is installed. This certificate contains information about the specific system that the product is installed on (such as its hardware and architecture) and the product name, version, and namespace.
- **Entitlement certificate** - Contains a list of subscriptions for a system, including information about the products and quantities, content repositories, roles, and different namespaces.

To connect to Red Hat CDN or Satellite 6 and to download content, `redhat_import` requires an entitlement certificate from RHSM. This must be available on the SA core where `redhat_import` is run. `redhat_import` does not use the identity and product certificates.

The entitlement certificate can be generated on the Red Hat Customer Portal or, when using Red Hat Satellite 6 and above, from a server registered to the Red Hat Satellite. In the latter case, you can retrieve the entitlement certificate directly from the registered server. Next, you will need to download the certificate and place it on the SA core.

To generate an entitlement certificate:

1. Register a system (unit).
    - For Red Hat Customer Portal the easiest way to achieve this is to register an offline system by providing the system details on the Red Hat Customer Portal. However, if you already have a suitable system that is registered on the Red Hat Customer Portal you can reuse it.
    - For Red Hat Satellite 6, currently there is no method to register offline systems. In order to proceed to the next step you need to have a suitable system that can be registered to the Satellite server using the `subscription-manager` tool provided by Red Hat.

    Note: In this context, a system or a unit represents a physical or virtual Red Hat Linux System.

    Client registration to either Red Hat Customer Portal or Red Hat Satellite 6 is done with `subscription-manager` tool provided by Red Hat on the client system. To register a server, you need to run the command such as:

    ```
    subscription-manager register --username <username> --password <password>
    ```

    For Red Hat Satellite, you need to have the Certificate Authority (CA) for the Satellite installed on the client server prior to running the registration command. Otherwise the subscription manager tool from the client server will fail to register with the satellite. An example of a command to install the Red Hat Satellite CA certificate on the client system is provided as follows:

    ```
    yum –y –nogpgcheck install http://sat6.hostanme.com/pub/katello-ca-consumer-sat6.hostname.com-1.0-1.noarch.rpm
    ```

As it was mentioned above, for Red Hat Customer Portal you also have the option to register an offline server.

2. Attach a subscription to the registered system.
    - The attached subscription is required to cover the Red Hat product(s) that you need to download using `redhat_import`. For example, if you need to download content for RHEL 7, x86_64, the subscription needs to cover Red Hat Enterprise Linux product.
    - For Red Hat Customer Portal, the entitlement certificate is available on the portal.
    - For Satellite 6, you will find the entitlement certificate on the server registered in the previous step. The default path for the entitlement certificate is /`etc/pki/entitlement.` You will find two `.pem` files (a public and a private key) that you should concatenate into a single `.pem` file. This will be the entitlement certificate that must be copied from the registered server to the SA core.

Note: The HPSA Red Hat Importer can make use of all subscriptions that the registered client system was limited to. In other words, if a client system was limited to five subscriptions but only one was assigned – HPSA Red Hat Importer can use all five subscriptions. To limit the access, you have to change the subscription limit from Red Hat Satellite or from Red Hat Customer Portal.

Multiple entitlement certificates

`redhat_import` supports multiple entitlement certificates. If at some point, you need to import content that is not covered by any of the existing entitlement certificates you can generate a new entitlement certificate, covering the required CDN content and add it to the `redhat_import` configuration file.

No entitlement certificate is required for `rhn_import` binary or when `redhat_import` binary is only used to download content from RHN.

Note: As best practice do not mix entitlements for Red Hat Customer Portal with entitlements for Red Hat Satellite 6.

Installing Red Hat Certification Authority (CA) certificates

Note: This section applies only to SA versions10.22 and above.

HPSA Red Hat importer validates the server certificates for RHN, RHSM and Red Hat Satellite. By default HPSA comes bundled with CA certificates only for RHN. Out of the three content providers, only Red Hat Network Classic is signed by a certificate authority trusted by both HPSA and Red Hat.

RHSM and Red Hat Satellite servers have self-signed certificates. Therefore, by default there is no CA certificate bundled for these two content providers with HPSA OPSWrhn_import component. To enable access to RHSM and/or Red Hat Satellite you need to install the self-signed server certificate in the OSPWopenssl trust store.

Note: Note the following difference between entitlement certificates and Certification Authority (CA) certificates:

- Entitlement certificates: used to provide the content that can be imported and to provide authentication to Red Hat Satellite Server or to Red Hat CDN.
- Certification Authority (CA) certificates: used by HPSA Red Hat Importer during communication with Red Hat Satellite or Red Hat CDN to verify and validate whether the server to which it is communicating, is secure and valid.

Depending on your use cases, you need to install only the RHSM server certificate if you are using the new RHSM content provider, or the satellite server certificate in case you have a Red Hat Satellite and want to import from it. If you are using only RHN as a content provider you can skip this section.

Installing a certificate in the trust store

To install a certificate in the trust store:

1. Download the self-signed certificate from RHSM/Red Hat Satellite.
2. Install the self-signed certificate in HPSA trust store.
3. Verify that OPSWopenssl is validating the server certificate.

The first step is different on RHSM and Red Hat Satellite server while the last two steps are the same for both content providers.

1. Downloading the self-signed certificate

   - **Download RHSM self-signed certificate**

     The RSHM server certificate is not signed by a public certificate authority. You have to use the `openssl` tool to download the certificate chain for `cdn.redhat.com`. After download, extract the last certificate issued by `Entitlement Master CA` and copy it into a .pem file:

     A command example to download the certificate chain for RHSM:

     ```
     openssl s_client –connect cdn.redhat.com:443 –prexit -showcerts
     ```

     Currently, the latest released version of openssl (that is, openssl-1.0.2d) does not work with HTTP proxies. The easiest option is to use a browser to download the certificate.

   - **Download Red Hat Satellite self-signed certificate**

     The self-signed certificate is made public by Red Hat Satellite server at `/pub/RHN-ORG-TRUSTED-SSL-CERT`. Run the following command to download the certificate file:

     ```
     wget -O /tmp/RHN-ORG-TRUSTED-SSL-CERT
     http://redhat.satellite.hostname/pub/RHN-ORG-TRUSTED-SSL-CERT
     ```

     If you need proxy access to Red Hat Satellite server, you can export the `http_proxy` environment variable and `wget` will use the value exported.

2. Installing the self-signed certificate in HPSA trust store

   At the end of the downloaded certificate you should see a block as follows:

```
-----BEGIN CERTIFICATE-----
MIIE4TCCA8mgAwIBAgIJANwa5OFPkBHHMA0GCSqGSIb3DQEBCwUAMIGGMQswCQYD
haXhmbq+5pEkpxGAactW+tORsJmpgTdAXeq2rreYtgZ2/vCwdM0iwSVakGNFAvni
T9lnSVrADcO/S8V/DzcH30RzSpIS44beE23zag82019fCrsZg9VkYJER4Fn0tRq4
6U9I4OgBSPSU34MXclGld0BAN+mANWHQYacZ7hHQJtMRP+mc8ZgHIvsKNnKRoHOd
```

```
Rhla7cP7GYrXn/piQAxRW66fOYJOeVIsAWJvgUb+A8ecwb+s6k56cQdLKkm0wKD0
2zUFMAg=
-----END CERTIFICATE-----
```

Append the block to the end of file `/opt/opsware/openssl/cert.pem`. At this point, the certificate is installed in the HPSA trust store. Ensure that `openssl` tool can verify the RHSM and/or Red Hat Satellite server certificate.

Verifying if OPSWopenssl is validating the server certificate

After the CA certificate is installed in HPSA trust store, you must verify if openssl validates the installed certificates before running the importer. To do so, run the following command:

```
/opt/opsware/bin/openssl s_client -connect rhsm.or.satellite.hostname:443 -verify 3
```

If the verification succeeds at the end of the output you will see the following message:

```
Verify return code: 0 (ok)
```

If the verification is not successful, you will see a return code with value other than 0, for example:

```
Verify return code: 21 (unable to verify the first certificate)
```

Note: Since openssl cannot work behind a proxy, the above command might not work if there is an HTTP proxy in your local network.

Content labels

When importing from RHSM, `redhat_import` uses content labels to identify the CDN content to import. The format of the content label is as follows:

`<entitlement_content_label>{<releasever>-<basearch>}`

where:

- `<entitlement_content_label>` is the content label as specified in the entitlement certificate
- `<releasever>` is the release version of Red Hat Enterprise Linux. This has the same value as the `$releasever` yum variable
- `<basearch>` is the base architecture of the system. This has the same value as the `$basearch` yum variable

`<releasever>` is not required for all contents; when it is not used, the format of the content label becomes `<entitlement_content_label>{<basearch>}`

To determine the label of the CDN content to import:

1. If the content to import belongs to one of the SA-supported platforms, then the content label to use can be found by running the command `./redhat_import --show_labels`
2. If the content to import belongs to any other Red Hat product that is not listed by `--show_labels`, the content label to use can be determined as follows:
    - Locate the content section for the product in the entitlement certificate. The content of the entitlement certificate can be visualized using the `rct` tool. For more details on the `rct` tool see

https://access.redhat.com/documentation/en-US/Red_Hat_Subscription_Management/1/html/RHSM/rct-tool.html

- Extract the content label from the entitlement certificate and construct the `redhat_import` content label by appending the `<releasever>` and <basearch> between curly braces

For example, to import content for RHEL Server 6.4 from Red Hat Extended Update Support, the content section in the example below, Content for RHEL Server 6.4 from Red Hat Extended Update Support, needs to be located in the entitlement certificate.

Content for RHEL Server 6.4 from Red Hat Extended Update Support

```
Content:
   Type: yum
   Name: Red Hat Enterprise Linux 6 Server - Extended Update Support (RPMs)
   Label: rhel-6-server-eus-rpms
   Vendor: Red Hat
   URL: /content/eus/rhel/server/6/$releasever/$basearch/os
   GPG: file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
   Enabled: True
   Expires: 86400
   Required Tags: rhel-6-server
   Arches: x86_64, x86
```

The entitlement content label is “rhel-6-server-eus-rpms”. To import version 6.4 for x86_64 the content label needs to be specified as:

`rhel-6-server-eus-rpms{6.4-x86_64}`

As another example, to import content from RHEL 7 Server Extras repository, the content section in the example below, Content for RHEL 7 Server Extras Repository, needs to be located in the entitlement certificate.

Content for RHEL 7 Server Extras Repository

```
Content:
   Type: yum
   Name: Red Hat Enterprise Linux 7 Server - Extras (RPMs)
   Label: rhel-7-server-extras-rpms
   Vendor: Red Hat
   URL: /content/dist/rhel/server/7/7Server/$basearch/extras/os
   GPG: file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
   Enabled: False
   Expires: 86400
   Required Tags: rhel-7-server
   Arches: x86_64
```

The entitlement content label is "`rhel-7-server-extras-rpms`". In this case the content URL does not contain the `<releasever>` variable so this should not be included in the `redhat_import` content label. To import the packages for x86_64 architecture, the content label needs to be specified as:

`rhel-7-server-extras-rpms{x86_64}`

Sample use cases

Importing from RHN only

To import content only from RHN, the `[RHSM]` section should not be present in the configuration file.

Sample RHN configuration file

```
# main section
[main]


package_search_path=
    /Package Repository/OS Media/$opsware_platform
    /Package Repository/All Red Hat Linux/$opsware_platform
    /Migrated/Package Repository/Customer Independent/$opsware_platform


# RHN section. Contains options specific to import from RHN that apply to all
channel labels
[RHN]


# Required options to login to Red Hat Network
rhn_user=USERNAME
rhn_pass=PASSWORD


channels: rhel-x86_64-server-5 rhel-x86_64-server-6


# HPSA recommendations:
package_path=/RHN/Packages/$channel_name
channel_path=/RHN/Channels/$parent_channel_name/$channel_name Policy
erratum_path=/RHN/Errata/$erratum_type Policies/$erratum_name
errata_path =/RHN/Errata/$parent_channel_name/$channel_name Advisory Roll-Up Policy
```

Provided that this configuration file is available at the default location (`/etc/opt/opsware/rhn_import/redhat_import.conf`), `redhat_import` can be run without any command line options to import content for the channels with the following labels as specified by the “channels” option in the above, Sample RHN configuration file.

- `rhel-x86_64-server-5`
- `rhel-x86_64-server-6`

Importing from RHSM only

To import content only from RHSM, the `[RHN]` section should not be present in the configuration file.

Sample RHSM configuration file

```
# main section
[main]

package_search_path=
    /Package Repository/OS Media/$opsware_platform
    /Package Repository/All Red Hat Linux/$opsware_platform
    /Migrated/Package Repository/Customer Independent/$opsware_platform

# RHSM section. Contains options specific to import from CDN that apply to all
content labels
[RHSM]
# To sync from Red Hat Network Satellite 6.1 or later:
; satellite_host=HOSTNAME

# Specify one or more paths to entitlement certificates. To specify multiple paths,
# place each path on its own line, indenting any additional lines.
certificate_paths=/etc/opt/opsware/rhn_import/8a85f981478d1fa601478e12507f36e8.pem

content_labels=rhel-7-server-rpms{7Server-x86_64} rhel-6-server-rpms{6Server-
x86_64}

# HPSA recommendations:
package_path=/RHSM/Packages/$content_name
content_policy_path=/RHSM/Content/$content_name Policy
erratum_policy_path=/RHSM/Errata/$erratum_type Policies/$erratum_name
errata_policy_path =/RHSM/Errata/$content_name Advisory Roll-Up Policy
```

Provided that this configuration file is available at the default location, (`/etc/opt/opsware/rhn_import/redhat_import.conf`), `redhat_import` can be run without any command line options to import the CDN contents with the following labels:

- `rhel-7-server-rpms{7Server-x86_64}`
- `rhel-6-server-rpms{6Server-x86_64}`

RHSM options

The following table describes the options presented in the Sample RHSM configuration file:

Option	Description
satellite_host	This option defines whether or not to import from Satellite 6. When this option is enabled and a valid hostname is provided, the importer will connect to the Satellite 6 and import from there. If this option is not enabled, then the importer will connect to Red Hat CDN and import content from there.
certificate_paths	This option defines the path to the entitlement certificate. The certificate must provide entitlement to content you wish to download. You can download the certificate from the Red Hat Customer Portal after a subscription is attached to a system that is registered with Red Hat Customer Portal. For more information about the subscription and entitlement certification process, see Entitlement Certificates.
content_labels	This option defines the labels of the CDN contents that need to be imported into the SA Library. See Content Labels for more details on the format of the content labels.

Importing content from both RHN and RHSM

To import content from both RHN and RHSM, both sections should be present in the configuration file.

Sample RHN and RHSM configuration file

```
# main section
[main]


package_search_path=
    /Package Repository/OS Media/$opsware_platform
    /Package Repository/All Red Hat Linux/$opsware_platform
    /Migrated/Package Repository/Customer Independent/$opsware_platform


# RHN section. Contains options specific to import from RHN that apply to all
channel labels
[RHN]
rhn_user=USERNAME
rhn_pass=PASSWORD


channels: rhel-x86_64-server-6
```

```
# HPSA recommendations:
package_path=/RHN/Packages/$channel_name
channel_path=/RHN/Channels/$parent_channel_name/$channel_name Policy
erratum_path=/RHN/Errata/$erratum_type Policies/$erratum_name
errata_path =/RHN/Errata/$parent_channel_name/$channel_name Advisory Roll-Up Policy

[rhel-x86_64-server-extras-6]
enabled=1
; platform = Red Hat Enterprise Linux Server 6 X86_64
# RHSM section. Contains options specific to import from CDN that apply to all
content labels
[RHSM]
# To sync from Red Hat Network Satellite 6.1 or later:
; satellite_host=HOSTNAME

# Specify one or more paths to entitlement certificates. To specify multiple paths,
# place each path on its own line, indenting any additional lines.
certificate_paths=/etc/opt/opsware/rhn_import/8a85f981478d1fa601478e12507f36e8.pem

content_labels=rhel-7-server-rpms{7Server-x86_64}

# HPSA recommendations:
package_path=/RHSM/Packages/$content_name
content_policy_path=/RHSM/Content/$content_name Policy
erratum_policy_path=/RHSM/Errata/$erratum_type Policies/$erratum_name
errata_policy_path =/RHSM/Errata/$content_name Advisory Roll-Up Policy

[rhel-7-server-extras-rpms{x86_64}]
enabled=1
platform=Red Hat Enterprise Linux Server 7 X86_64
```

Provided that this configuration file is available at the default location, (`/etc/opt/opsware/rhn_import/redhat_import.conf`), `redhat_import` can be run without any command line options to import content for the following RHN channels and RHSM contents:

RHN

- `rhel-x86_64-server-6`

- `rhel-x86_64-server-extras-6`

RHSM

- `rhel-7-server-rpms{7Server-x86_64}`
- `rhel-7-server-extras-rpms{x86_64}`

The RHN channels have a parent-child relationship. In this example "`rhel-x86_64-server-extras-6`" is a child of "`rhel-x86_64-server-6`". By default, child channels are imported under the platform of the parent channel in the SA Library. This is why the "`platform`" option is commented out under "`rhel-x86_64-server-extras-6`" section and the import still works fine.

The CDN contents do not have any parent-child relationship. As a result of this any content that is not mapped by default to one of the SA-supported platforms needs to have its own content section and define the "`platform`" option. This is the case for "`rhel-7-server-extras-rpms{x86_64}`" above. Failure to define the "`platform`" option for such contents will result in the content label being ignored during import with a warning message being displayed, similar to the following:

```
Unable to process content label rhel-7-server-extras-rpms{x86_64}. No
platform could be associated with this label. This content label will be
dropped. If you need to import this content, add the 'platform' option to
the configuration file.

Ignoring unknown content label rhel-7-server-extras-rpms{x86_64}
```

Performance

Users of `redhat_import` should notice improved performance when importing from RHSM compared to importing the same content from RHN.

Migration

Users of the old `rhn_import` binary are encouraged to migrate to the new `redhat_import` binary. Multiple migration paths are available as described in the following sections.

Continue usage of RHN

You can migrate from `rhn_import` to `redhat_import` and continue to use RHN to import content. In this case the only requirement is to migrate the configuration file from the old format to the new format. For more details on the new configuration file format, see New Configuration File.

Once the configuration is migrated to the new format, while preserving the existing SA Library paths, `redhat_import` will update the existing packages and software policies, making the migration transparent. Moreover, new products that have not been imported in the SA Library can be imported from RHSM while the old products continue to be imported from RHN. For example, a user who is already importing RHEL 5 and 6 content from RHN can start importing RHEL 7 content from RHSM while still using RHN for the older RHEL 5 and 6. For a sample configuration that allows import from both RHN and RHSM, see Import from both RHN and RHSM.

Partial migration to RHSM

This section only applies to users who are using the SA-recommended library paths. Users using custom SA library paths should derive their own migration procedure based on the instructions in this section. The SA-recommended library paths are as follows:

RHN

- package_path=`/RHN/Packages/$channel_name`
- channel_path=`/RHN/Channels/$parent_channel_name/$channel_name Policy`
- erratum_path=`/RHN/Errata/$erratum_type Policies/$erratum_name`
- errata_path =`/RHN/Errata/$parent_channel_name/$channel_name Advisory Roll-Up Policy`

RHSM

- package_path=`/RHSM/Packages/$content_name`
- content_policy_path=`/RHSM/Content/$content_name Policy`
- erratum_policy_path=`/RHSM/Errata/$erratum_type Policies/$erratum_name`
- errata_policy_path =`/RHSM/Errata/$content_name Advisory Roll-Up Policy`

This section describes the scenario where a user is currently using RHN to import some channels and would like to start using RHSM to import a subset of these channels while still using RHN for the other channels.

To achieve partial migration to RHSM, perform the following steps:

1. Migrate from `rhn_import` to `redhat_import` and convert the configuration file to the new format
2. In the SA Library, move the channel policies of the channels that need to be migrated to the RHSM "`content_policy_path`" folder (`/RHSM/Content`). Rename these channel policies to content policies "`$content_name Policy`". The value of the "`$content_name`" variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will update these content policies instead of creating new ones.
3. Move the errata policies of the channels that need to be migrated to the RHSM `errata_policy_path` folder (`/RHSM/Errata`). Rename these errata policies to be compliant with RHSM format `$content_name Advisory Roll-Up Policy`. The value of the `$content_name` variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will update these errata policies instead of creating new ones.
4. Move the package folders of the channels that need to be migrated to the RHSM `package_path` folder (`/RHSM/Packages`). Rename these package folders to be compliant with RHSM format `$content_name`. The value of the `$content_name` variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will import packages into these folders instead of creating new folders.
5. Ensure that `redhat_import` will use the same erratum library path for both RHN and RHSM. An erratum can be available in multiple RHN channels. When using the SA-recommended library paths a single erratum policy is created even for an erratum available in multiple channels and this policy is updated with content from all channels. As not all channels are migrated to RHSM the erratum policies cannot be moved to the RHSM folders. Instead, the RHSM `erratum_policy_path` is updated to point to the path used by RHN (`/RHN/Errata/$erratum_type Policies/$erratum_name`). The `erratum_policy_path` should be updated as

described above only for the contents migrated from RHN. For each such content a new content section needs to be defined in the configuration file and the `erratum_policy_path` option should be defined as `/RHN/Errata/$erratum_type Policies/$erratum_name`.

6. The configuration file should be updated to ensure that the migrated channels are no longer imported from RHN and that the new CDN contents are imported from RHSM (example, by updating the `content_labels` option).

Review your `repo.restrict.` custom attributes. If any of them refer to package folders that were moved and renamed, you need to edit the attributes to make them refer to the new package folder locations.

Sample scenario: Partial migration to RHSM

As an example, consider the case where the following channels are imported from RHN:

- `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)`
- `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)`

The SA Library structure concerning RHN and RHSM import will initially look as shown in Example: SA Library structure for RHN and RHSM import—before migration, below.

Example: SA Library structure for RHN and RHSM import—before partial migration

```
- RHN
| - Channels
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Policy
| |   Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Policy
| - Errata
| | + Bug Fix Advisory Policies
| | + Product Enhancement Advisory Policies
| | + Security Advisory Policies
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Advisory Roll-Up Policy
| |   Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Advisory Roll-Up Policy
| - Packages
| | + Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)
| | + Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)
- RHSM
| - Content
| - Errata
| - Packages
```

If `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)` needs to be migrated to RHSM while `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)` continues to be imported from RHN, the partial migration steps would be as follows:

Steps for Sample Scenario—partial migration to RHSM:

1. Migrate the existing configuration file to the new format required by redhat_import. For details on the new configuration file format, see New Configuration File. The precise details on how to migrate the configuration file depend on the actual content of the existing configuration file. However the resulted migrated configuration is expected to allow `redhat_import` to import the same RHN channels into the SA Library. In other words, running `redhat_import` with the migrated configuration file should yield the same result as running `rhn_import` with the old configuration file.
2. Move `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Policy` policy to `/RHSM/Content` folder. Rename the policy to `Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Policy`.
3. Move `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Advisory Roll-Up Policy` policy to `/RHSM/Errata` folder. Rename the policy to `Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Advisory Roll-Up Policy`.
4. Move the package folder `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)` to `/RHSM/Packages` folder. Rename the package folder to `Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64)`.
5. Create a new content section in the configuration file: `[rhel-6-server-rpms{6Server-x86_64}]`. Define the `erratum_policy_path` as follows under the above section:
   `erratum_policy_path=/RHN/Errata/$erratum_type Policies/$erratum_name`
6. Update the configuration file to ensure that RHN channel `rhel-x86_64-server-6` is no longer imported from RHN and the equivalent CDN content `rhel-6-server-rpms{6Server-x86_64}` is imported from RHSM.

After the above steps are completed, the SA Library folders concerning RHN and RHSM import should look as shown in Example: SA Library folders for RHN and RHSM import—after migration, below.

Example: SA Library folders for RHN and RHSM import—after partial migration

```
- RHN
| - Channels
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Policy
| - Errata
| | + Bug Fix Advisory Policies
| | + Product Enhancement Advisory Policies
| | + Security Advisory Policies
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Advisory Roll-Up Policy
| - Packages
| | + Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)
- RHSM
| - Content
| |   Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Policy
| - Errata
| |   Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Advisory Roll-Up Policy
| - Packages
| | + Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64)
```

Full migration to RHSM

This section applies to only users who are using the SA-recommended library paths. Users using custom SA library paths should derive their own migration procedure based on the instructions in this section. Also this section only applies if there are no errata imported from RHSM for any CDN content. If errata are already imported from RHSM under the SA-recommended library path (`/RHSM/Errata`) and you would like to migrate some or all RHN channels to RHSM please use the instructions in Partial migration to RHSM. This is because moving erratum policies from RHN folder structure to RHSM might conflict with existing erratum policies under the RHSM folder structure.

For a list of SA-recommended library paths see Partial migration to RHSM.

This section describes the scenario where a user is currently using RHN to import some channels and would like to start using RHSM to import all of these channels. Basically, after migration, no channels will be imported from RHN. To migrate only some RHN channels to RHSM, see Partial migration to RHSM.

To achieve full migration to RHSM:

1. In the SA Library, move the channel policies of the channels that need to be migrated to the RHSM `content_policy_path` folder (`/RHSM/Content`). Rename these channel policies to content policies `$content_name Policy`. The value of the `$content_name` variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will update these content policies instead of creating new ones.

2. Move the errata policies of the channels that need to be migrated to the RHSM `errata_policy_path` folder (`/RHSM/Errata`). Rename these errata policies to be compliant with RHSM format `$content_name Advisory Roll-Up Policy`. The value of the `$content_name` variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will update these errata policies instead of creating new ones.
3. Move the package folders of the channels that need to be migrated to the RHSM `package_path` folder (`/RHSM/Packages`). Rename these package folders to be compliant with RHSM format `$content_name`. The value of the `$content_name` variable can be found in the entitlement certificate or by using `--show_labels` for CDN contents mapped to SA-supported platforms. This ensures that `redhat_import` will import packages into these folders instead of creating new folders.
4. Move the erratum policies folders (`Bug Fix Advisory Policies`, `Product Enhancement Advisory Policies`, `Security Advisory Policies`) to the RHSM "erratum_policy_path" (`/RHSM/Errata`).
5. Migrate from `rhn_import` to `redhat_import` and convert the configuration file to the new format. During the migration process ensure that no channels are imported from RHN and that the new CDN contents are imported from RHSM (example, by updating the `content_labels` option). The `[RHN]` section should not be present in the new configuration file.

Review your `repo.restrict.` custom attributes. If any of them refer to package folders that were moved and renamed, you need to edit the attributes to make them refer to the new package folder locations.

Sample scenario: Full migration to RHSM

As an example, consider the case where the following channels are imported from RHN:

- `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)`
- `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)`

The SA library structure concerning RHN and RHSM import would initially look as shown in Example: SA Library folders for RHN and RHSM import—before full migration, below.

Example: SA Library folders for RHN and RHSM import—before full migration

```
- RHN
| - Channels
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Policy
| |   Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Policy
| - Errata
| | + Bug Fix Advisory Policies
| | + Product Enhancement Advisory Policies
| | + Security Advisory Policies
| |   Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Advisory Roll-Up Policy
| |   Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Advisory Roll-Up Policy
| - Packages
| | + Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)
| | + Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)
- RHSM
| - Content
| - Errata
| - Packages
```

If both `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)` and `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)` channels need to be migrated to RHSM, the full migration steps would be as follows:

Steps for Sample Scenario—pull migration to RHSM:

1. Move the following software policies to `/RHSM/Content` folder:
    a. `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Policy`
    b. `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Policy`
    c. Rename the policies to:
        i. `Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64) Policy`
        ii. `Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Policy`
2. Move the following software policies to `/RHSM/Errata` folder:
    a. `Red Hat Enterprise Linux (v. 5 for 64-bit x86_64) Advisory Roll-Up Policy`
    b. `Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) Advisory Roll-Up Policy`
    c. Rename the policies to:
        i. `Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64) Advisory Roll-Up Policy`

ii. Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Advisory Roll-Up Policy

3. Move the following package folders to /RHSM/Packages folder:
    a. Red Hat Enterprise Linux (v. 5 for 64-bit x86_64)
    b. Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)
    c. Rename the folders to:
        i. Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64)
        ii. Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64)
4. Move the erratum policies folders (Bug Fix Advisory Policies, Product Enhancement Advisory Policies, Security Advisory Policies) to /RHSM/Errata.
5. Finally migrate the configuration file and ensure that the CDN contents rhel-5-server-rpms{5Server-x86_64} and rhel-6-server-rpms{6Server-x86_64} are imported from RHSM. There should be no [RHN] section in the new configuration file as no channels are imported from RHN.

After the above steps are completed, the SA library folders concerning RHN and RHSM import should look as shown in Example: SA Library folders for RHN and RHSM import—after full migration, below.

Example: SA Library folders for RHN and RHSM import—after full migration

```
- RHN
| - Channels
| - Errata
| - Packages
- RHSM
| - Content
| |   Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64) Policy
| |   Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Policy
| - Errata
| | + Bug Fix Advisory Policies
| | + Product Enhancement Advisory Policies
| | + Security Advisory Policies
| |   Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64) Advisory Roll-Up Policy
| |   Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64) Advisory Roll-Up Policy
| - Packages
| | + Red Hat Enterprise Linux 5 Server (RPMs) (5Server-x86_64)
| | + Red Hat Enterprise Linux 6 Server (RPMs) (6Server-x86_64)
```

Supported RHEL versions

When importing from RHSM, `redhat_import` supports the RHEL versions that can be managed by Red Hat Subscription Management: 5.7+, 6.1+ and 7+.

When importing from RHN, `redhat_import` supports the same channels as the old `rhn_import` binary.

Supported RHEL Satellite versions

Refer to the *SA Support and Compatibility Matrix* document to check the list of RHEL Satellite versions supported with your HPSA installation or contact SA Support team for further details.

References

https://access.redhat.com/articles/433903

https://access.redhat.com/articles/63269

https://access.redhat.com/articles/790533

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Document change notes

The following table provides details of any changes introduced in this version of this document.

Date	Change
March 1, 2016	• Added the section **Supported RHEL Satellite Versions** that provides reference to the supported RHEL Satellite versions. • Updated the Entitlement certificates section.
June 16, 2015	Renamed doc name 'Best Practices for using SA rhn_import to download Red Hat content for

Date	Change
	RHEL 7' with 'Server Automation: Best Practices for importing RHEL 7 content'
March 10, 2015	Original release of this document.

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The title page of this document contains the following identifying information:

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