



# **Red Hat Subscription Management All Subscription Docs**

## **Using the Customer Portal to Manage Subscriptions**

for managing subscriptions and systems through the Customer Portal

Edition 1



# Red Hat Subscription Management All Subscription Docs Using the Customer Portal to Manage Subscriptions

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Edition 1

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## Abstract

This guide provides a quick-start look into subscriptions and system management in the Red Hat Customer Portal.

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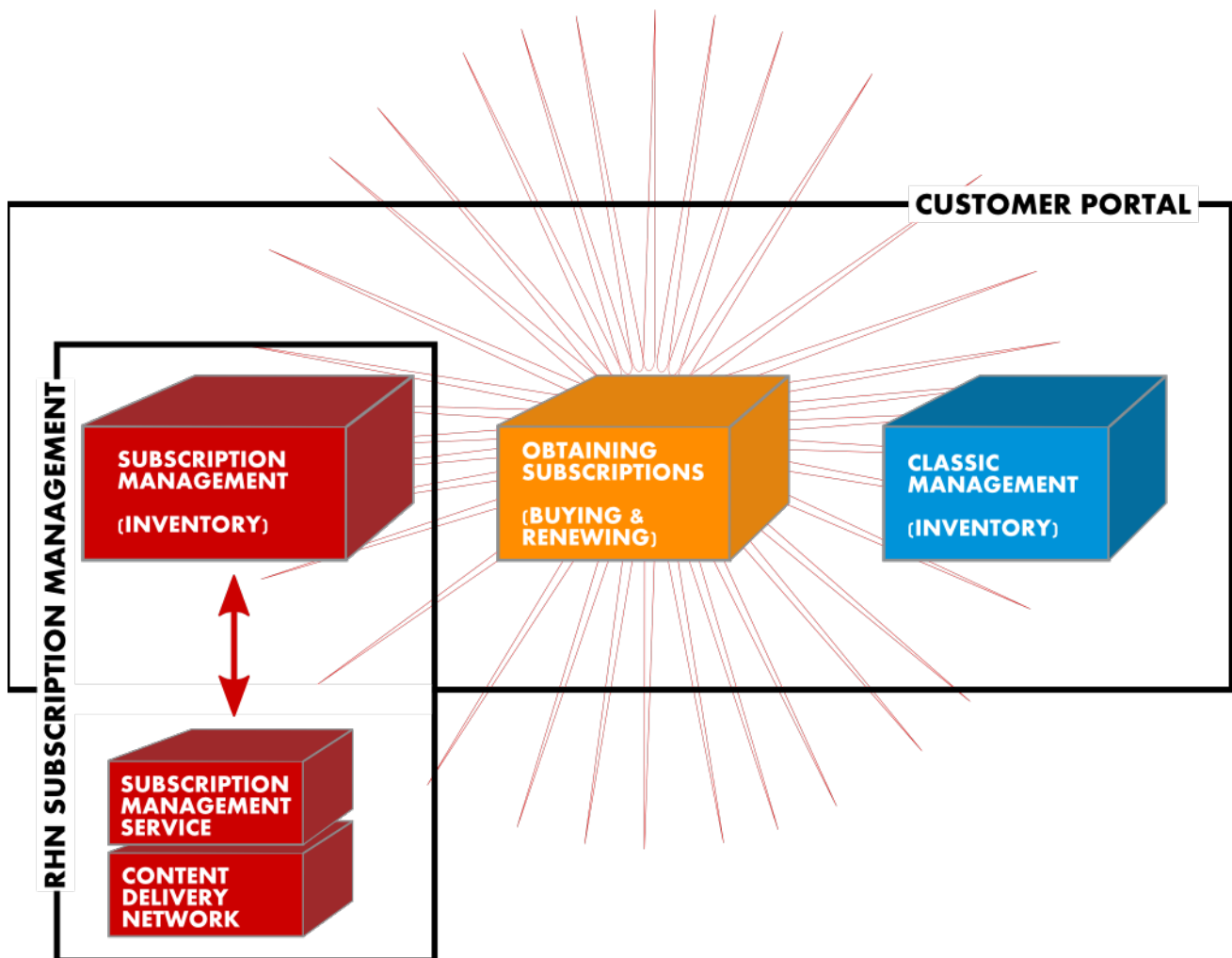
Effective asset management requires a mechanism to handle the software inventory — both the type of products and the number of systems that the software is installed on. The subscription management service of Customer Portal Subscription Management provides that mechanism and gives transparency into both global allocations of subscriptions for an entire account and specific subscriptions assigned to a single system.

This guide gives a quick view into using Customer Portal Subscription Management to manage your subscriptions and systems. For more information on the Red Hat Subscription Manager local tools and subscription concepts in general, see the *Subscription Management Guide*.

## 1. WHAT WE MEAN BY "MANAGING SUBSCRIPTIONS"

Many software companies base access to their products on licenses that are sold. At Red Hat, our software is already available under a GNU Public License v2, which allows general access to our source. Our products are available through *subscriptions*, which define services that we deliver (such as content delivery, updates, knowledgebase, and support levels) for these products. Our subscriptions are granted to individual servers and this entitles the server to receive support.

Customer Portal Subscription Management Subscription Management establishes the relationship between the product subscriptions that you have available and the elements of your IT infrastructure where those subscriptions are allocated. Customer Portal Subscription Management is one means to manage systems in connection with subscriptions.



**Figure 1. Customer Portal Subscription Management**

An IT administrator has to know what products he has available, where these product subscriptions are assigned, and what systems are being managed. For this, Red Hat has a subscription management service through Customer Portal Subscription Management Subscription Management, which is managed locally (an individual system) or globally (all servers in the environment) through *Red Hat Subscription Manager*. The ultimate goal of subscription management is *to allow administrators to see where their products are allocated within their infrastructure*. There are several reasons for this:

- First, to make sure that all of the products on your systems have valid and active subscriptions, so administrators can maintain compliance with any regulatory requirements (like PCI-DSS or SAS-70) and internal mandates.
- Next, to help with procuring the right number and type of software products for the infrastructure. *Over-subscribing* a system or purchasing too many subscriptions for what your environment actually uses can cost your business money. Tracking used and available subscriptions and managing expirations and renewals more effectively can possibly lower your IT budget.
- Last, subscription management makes it easier for you to know what products your systems need to access and to make sure they are assigned the right subscriptions.

Customer Portal Subscription Management is the web version of Red Hat Subscription Manager. It provides an organization-wide method to track the software products and subscriptions deployed across an account, such as what systems are being managed, the effective contract dates for subscriptions, and where subscriptions are attached. Customer Portal Subscription Management helps give a view into subscriptions and products in the infrastructure — it does *not* limit installations or provide proactive enforcement of installations.



## 1.1. The Subscription Process

Subscription management is a way of identifying and creating relationships between the systems in your IT environment and the software products that you have available through Red Hat.

Subscription management is the way of defining a relationship between the subscriptions that a company has, its local machines, and the products installed on those machines:

1. An account buys a *subscription* to a *product*, which gives them access to Red Hat's Content Delivery Network, errata and patches, upgrades, and support.

A subscription defines a *quantity*, meaning the number of systems that are allowed to have access to the product and all its support services because of that subscription.

2. A server is added, or *registered*, to the *inventory* for the subscription management service. This means that the subscription service can manage the server and attach it subscriptions.
3. A subscription is *attached* to a system, so that the system is entitled to support services and content for that product.

Customer Portal Subscription Management allows administrators to add and remove units (managed systems, domains, and other entities) to the inventory, and to attach subscriptions to those units. Local Red Hat Subscription Manager tools are available on Red Hat Enterprise Linux systems to manage that specific system by registering it and attaching or removing subscriptions. (Since the GUI and **subscription-manager** are limited to the local machine, they cannot be used to manage other systems in the inventory.)

## 1.2. Hosted Services and On-Premise Subscription Management Applications

The simplest way to attach subscriptions and deliver content is for local systems to connect directly to Red Hat's hosted network.

However, for large environments, highly-secure environments, and many other situations, that hosted arrangement is not feasible. Companies need a way to attach subscriptions and deliver software content locally.

In that case, an organization entry with an on-premise *subscription management application organization* is added to the inventory in Customer Portal Subscription Management. A block of subscriptions attached to that organization. The list of attached subscriptions is defined in a *manifest* which outlines all of the subscriptions, products, and content repositories for that organization (and, therefore, for all of the systems it manages). The subscription management application then directly manages all of the systems and units at its local site.

This has performance benefits by lowering bandwidth, and it offers significant management benefits to administrators by allowing local and flexible control over subscription management.

## 1.3. Customer Portal Subscription Management and RHN Classic

Some of the processes with subscription management may sound familiar, and there is a reason — subscriptions could be assigned to systems in previous releases of Red Hat Network. In RHN Classic, access to subscriptions was based on access to *channels*, or content delivery streams. Customer Portal Subscription Management manages subscriptions by looking at the *available and installed products* for a system. This treats both subscriptions and systems as individual entities, rather than opaque blocks defined by access to channels.

Customer Portal Subscription Management provides transparency both into what products are installed

on a system (when using local Red Hat Subscription Manager tools) and what subscriptions are available to a system. This helps IT administrators to maintain software inventories and to plan their infrastructures in a way that wasn't possible under the traditional channel-based system.



## NOTE

Customer Portal Subscription Management is *certificate-based* because each system is issued a public-key infrastructure (PKI) certificate which identifies it to the subscription service and to the CDN (an *identity certificate*). When a new subscription is attached to a system, Customer Portal Subscription Management issues a *entitlement certificate* which contains the subscription information. When a product is installed, then Customer Portal Subscription Management issues a *product certificate* which identifies that unique product installation on that system.

Using certificates simplifies the process for managing individual subscriptions and products for a system while making the process more secure.

Customer Portal Subscription Management and RHN Classic are mutually exclusive. A system is either managed under one subscription management service or the other, not both, but these systems do "work together." If a system is registered with Customer Portal Subscription Management, then there won't be any errors registered in the legacy RHN Classic tools, and vice versa. Both services will recognize the subscriptions granted to the system.

## 1.4. A Quick Reference of Subscription-Related Terms

### system

Any entity — a physical or virtual machine — which is in the subscription service inventory and which can have subscriptions attached to it.

### subscriptions

A subscription defines the products that are available, the support levels, the quantities (or number) of servers that the product can be installed on, architectures that the product is available for, content repositories which supply the product, and other information related to the products.

### attach

Assigning a subscription to a system.

### utilization

A summary of the total number of subscriptions available to an organization, and the total number of subscriptions that are attached to Customer Portal Subscription Management, RHN Classic, and different subscription management applications.

### overusage

A state for an organization when they have more subscriptions attached than they have purchased. This can occur when infrastructures are using both Customer Portal Subscription Management and RHN Classic to register systems, since they draw from the same subscription pools but use separate tallies.

### service level preference

A preference based on what service level to use for installed products.

**release preference**

A preference that restricts products and updates to a specific operating system minor release.

**organization or subscription management application organization**

A local subdivision that contains a subset of subscriptions. This is a way to define a subscription structure that reflects the IT environment. An organization can be aligned with a physical location or an organizational division in a company.

**hosted**

Subscription and content services provided by Red Hat, rather than an on-premise application.

**available**

A subscription which has quantities that have not been attached to a system yet.

**Customer Portal Subscription Management**

The hosted subscription management service. In this service, subscriptions are managed based on the product (and verified through issued certificates), rather than access to channels.

**CDN**

The Content Delivery Network.

**channel**

A collection of packages based around a software product, a group of related products, or a version of product. The channel-based way of defining subscriptions is used only by RHN Classic.

**compatible**

Available and active subscriptions which match the architecture of the system.

**unit**

Any entity — a physical or virtual machine, a domain, or a person — which is in the subscription management service inventory and which can have subscriptions attached to it.

**content**

Software downloads and updates.

**Content Delivery Network (CDN)**

The Red Hat-hosted content repositories and technology to deliver software, updates, and packages.

**entitlement certificate**

A certificate that contains a list of subscriptions for a system, including information about the products and quantities, content repositories, roles, and different namespaces.

**identity certificate**

A certificate which is 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.

**inventory**

A list of units (systems, domains, people, or applications) which have been registered to the subscription management service and a list of all subscriptions (current, expired, and future) which have been purchased by an organization.

### **license**

A legal statement that defines how software can be used. Red Hat products are licensed under GPLv2. A subscription determines how many instances (quantities) or a product can be updated through Red Hat content streams and will be provided support but they do not restrict the ability to install or use software products.

### **product**

The individual software product, like Red Hat Enterprise Linux or Directory Server.

### **product certificate**

A certificate that is generated and installed on a system once a product is installed. This 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. This identifies that specific product installation to the subscription management service and CDN.

### **register (verb)**

To add a system (physical or virtual) to the subscription management service inventory.

### **RHN Classic**

The traditional RHN system. This will be available for a few years but is being phased out.

### **status**

Whether all of the products installed on a system are fully covered with active subscriptions.

### **Subscription Manager**

A set of tools used to view and attach subscriptions and to manage systems in the inventory. There are two Subscription Manager tools:

- Subscription Manager GUI which is installed on the local system and manages that local system. It can be opened by running **subscription-manager-gui** or in the **System => Administration** menu.
- Subscription Manager CLI which is also installed on the local system and manages that local system. Different operations can be invoked by running **subscription-manager** command. This tool can also be used to script interactions for subscriptions, such as for kickstart installations.

### **subscription management service**

The backend server which interacts with the individual systems by creating an inventory of systems. It also keeps the inventory of subscriptions, including contracts, quantities, and expiration dates. When a new system is registered, when subscriptions are attached, and when products are installed. The subscription management service manages the changes and issues a corresponding certificate to the system to mark the change. The subscription management service also defines rules for products, such as hardware/architecture restrictions, to help with attaching subscriptions.

### **X.509 certificate**

A specific certificate standard that is used to determine the format of certificates used for SSL

communication and within a public key infrastructure. This is used to delineate the certificates used by the new subscription management service from the Satellite certificates used in the RHN Classic system.

## 2. USER PERMISSIONS FOR CUSTOMER PORTAL SUBSCRIPTION MANAGEMENT

Customer Portal Subscription Management is only available if a user has the appropriate user permissions on the Red Hat login. Otherwise, access to the Customer Portal Subscription Management area is restricted.

The user account must have the **Customer Portal: Manage subscriptions** permission. By default, all users are granted this permission, but it can be changed by administrators in the **User Management** area.

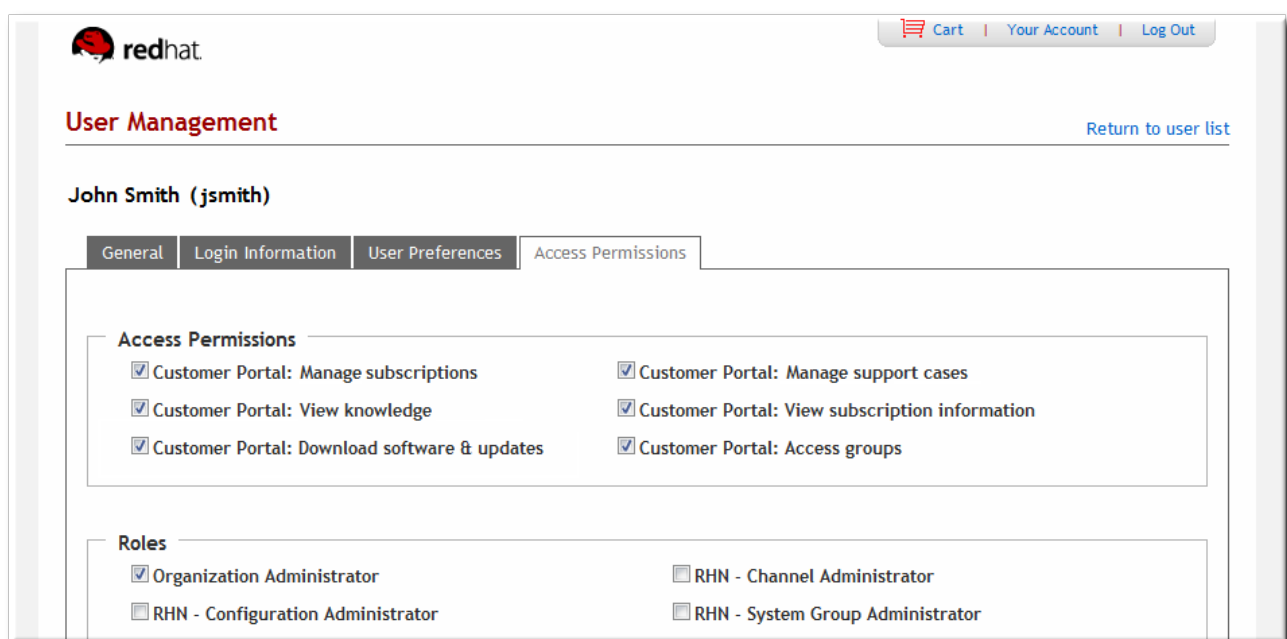


Figure 2. Subscription Management Permission

## 3. VIEWING HIGH-LEVEL SUBSCRIPTION AND SYSTEM INFORMATION

### 3.1. The Overview Page

The ultimate goal of subscription management is *to allow administrators to identify the relationship between their systems and the subscriptions used by those systems*. This can be done from two different perspectives: from the perspective of the local system looking externally to potential subscriptions and from the perspective of the primary account, looking down at the total infrastructure of systems and all subscriptions.

The Red Hat Subscription Manager GUI and CLI are both local clients which manage only the local machine. These tools are somewhat limited in their view; they only disclose information (such as available subscriptions) from the perspective of that one system, so expired and depleted subscriptions or subscriptions for other architectures are not displayed.

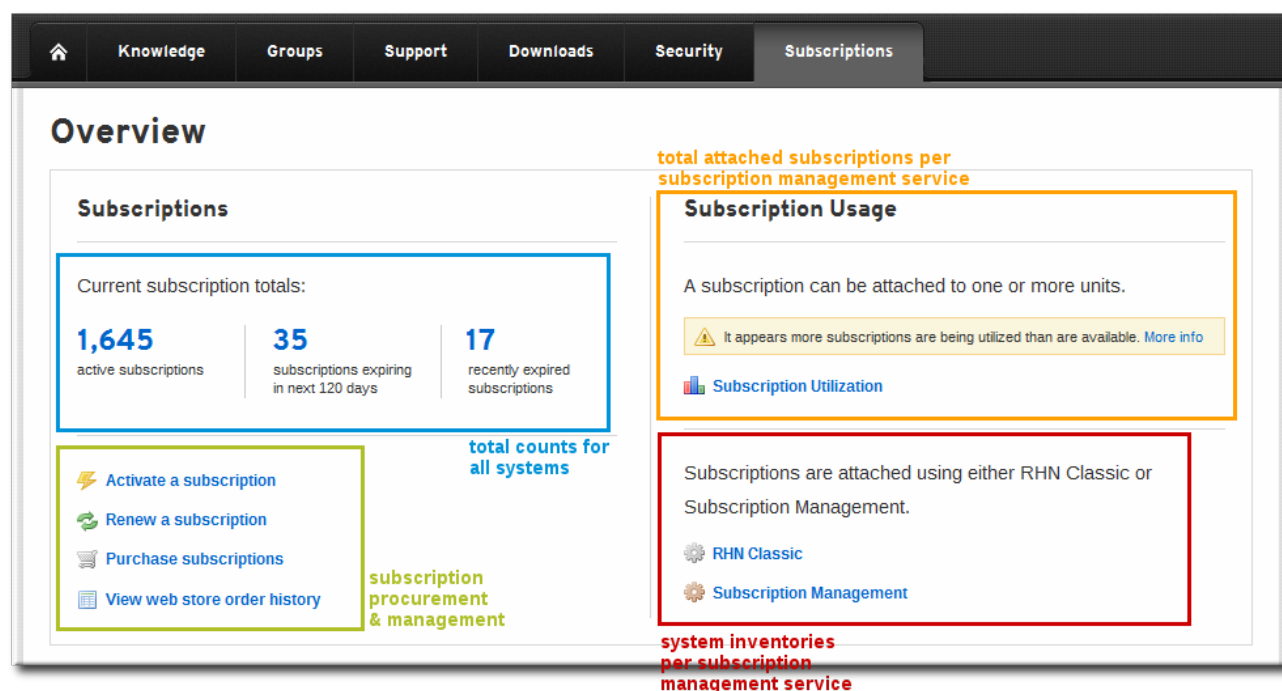
Customer Portal Subscription Management is a *global* tool which is intended to give complete, account-wide views into subscriptions and systems. It shows all subscriptions and all systems for the entire

account. Customer Portal Subscription Management can perform many of the tasks of the on-premise tools, like registering systems, attaching subscriptions, and viewing system facts and UUID. It can also manage the subscriptions themselves, such as viewing contract information and renewing subscriptions — a task not possible in the local clients.

Customer Portal Subscription Management provides two different perspectives on subscriptions:

- A view of all *subscriptions in use* for an account
- A view of all *systems* within the inventory

Customer Portal Subscription Management establishes the relationship between the infrastructure (servers) and the subscriptions; Customer Portal Subscription Management is an *inventory* tool that manages systems and attaches existing subscriptions. Customer Portal Subscription Management also intuitively connects with subscription procurement, which allows administrators to buy and renew subscriptions for the account.



**Figure 3. Customer Portal Subscription Management Menu**

The overview page in Subscription Management summarizes the total number of systems and other units, by type, in the inventory. It also shows the numbers of systems that are managed under Subscription Management and the number managed under RHN Classic.



## NOTE

Customer Portal Subscription Management gives a global view of all systems and units, of all types, for an account, which is crucial for planning and effectively attaching subscriptions. However, it does **not** provide any insight into what products are installed on a system and whether subscriptions are attached for those products. To track subscriptions for *installed* software, you must use the local Red Hat Subscription Manager tools.

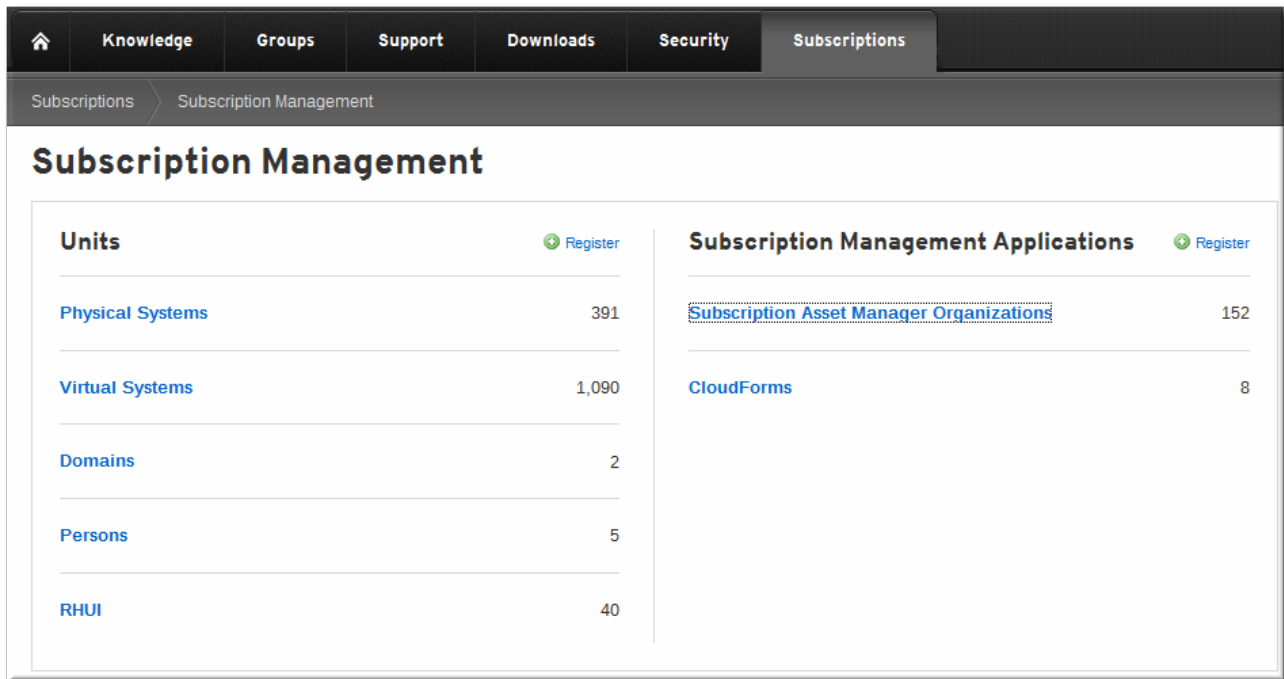


Figure 4. Customer Portal Subscription Management Overview Page

### 3.2. Subscription Utilization

Administrators need to have a sense of all of the subscriptions, altogether, regardless of whether they match the architecture or installed products on any of the systems in inventory. The Customer Portal provides three ways of looking at subscriptions, with slightly different perspectives:

- All subscriptions that are active and attached (total counts)
- All available subscriptions that can be used by systems in Customer Portal Subscription Management
- Subscriptions in Customer Portal Subscription Management that match a specific system's architecture, socket count, installed products, or other characteristics

In the **Subscriptions Overview** page has a link to the utilization summary. The **Subscription Utilization** page gives the current count for *every* active subscription for the entire account, and a total count of every used subscription, regardless of whether it is used in RHN Classic or Customer Portal Subscription Management. These numbers are updated whenever the subscription count changes in the subscription management service.

The total counts are broken down by type first, and then the number of subscriptions of that type per subscription management service.

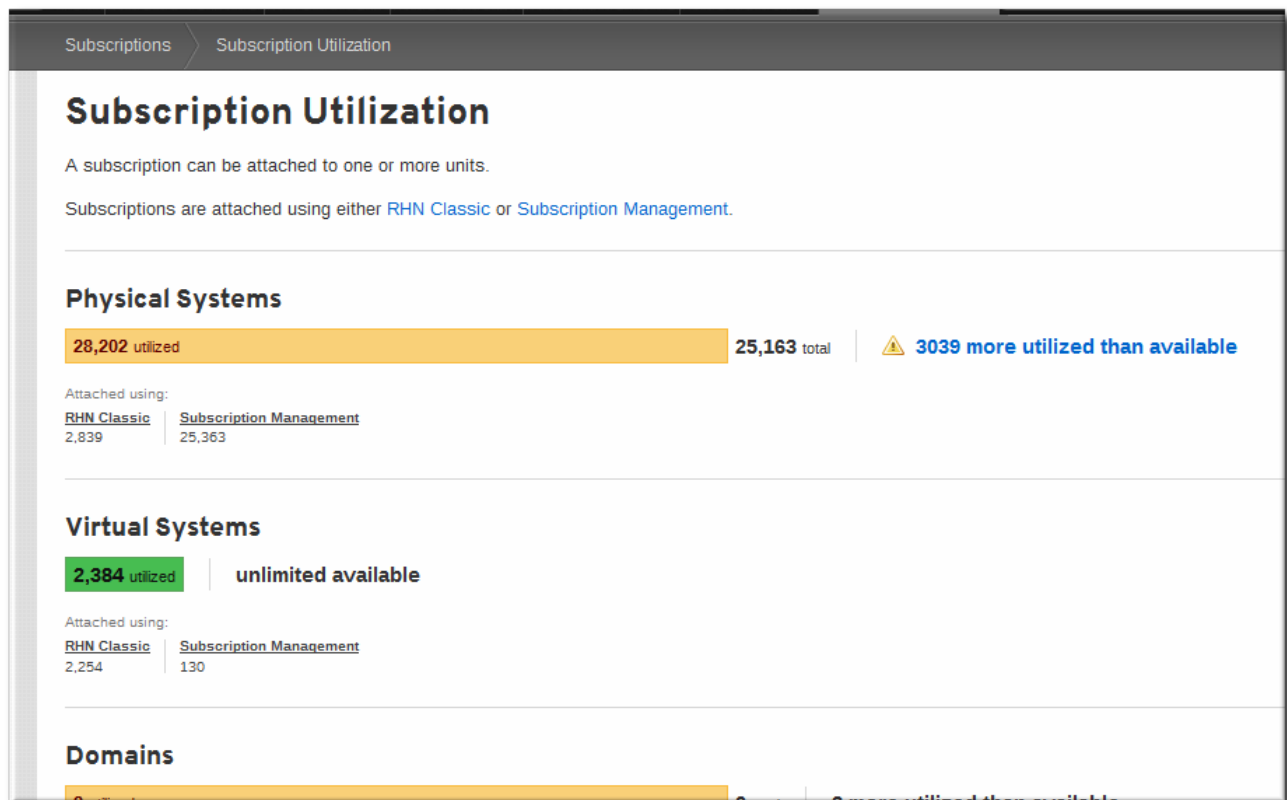


Figure 5. Total Counts of Subscriptions for All Subscription Services

## 4. MANAGING SYSTEMS

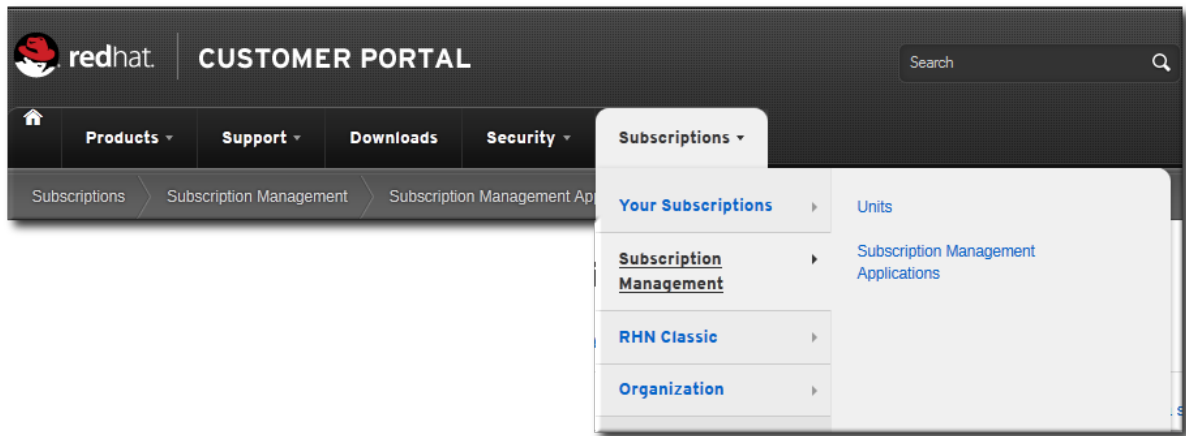
### 4.1. Registering a New System

Before a system can have any subscriptions attached to it, it has to be added into the *inventory* in the Customer Portal Subscription Management. This process is called *registering*. While registering is frequently a local operation as part of setting up or administering a machine, registering and unregistering through Customer Portal Subscription Management can be very useful when you are managing the entire infrastructure and need a more global perspective or when you need to manage systems that are not connected to an external network.

Some systems may not have internet connectivity, but administrators still want to attach and track the subscriptions for that system. This can be done by manually registering the system, rather than depending on Subscription Manager to perform the registration. This has two major steps, first to create an entry on the subscriptions service and then to configure the system.

1. Expand the **Subscriptions** tab, open the **Subscription Management** item, and select the **Units** item.





- Click the **Register** link at the top of the table.

Subscriptions > Subscription Management > Units

## Units

[Register a system](#)

Display  systems Filter:

	Name	Subscriptions Attached	UUID
<input type="checkbox"/>	prod.example.com	2	60e25f36-c09d-41be-bc89-b67513684ddd
<input type="checkbox"/>	qa-west	7	97bcc900-76ae-4054-8049-c75ca541147b
<input type="checkbox"/>	qa-central	1	28468d92-f5fb-47c8-bcc8-5e9780b0decb
<input type="checkbox"/>	server.dev.example.com	0	33916af4-cf64-4364-aebb-362d37d24c39
<input type="checkbox"/>	server.qa.example.com	0	b0b55d9b-ca0b-43d6-9c89-a28923716beb
<input type="checkbox"/>	255.255.255.255	1	3be54232-f376-4366-a4a3-2762f164a7f9
<input type="checkbox"/>	desktop2	0	cff1e698-9059-4b2d-9a54-0533dade57bf
<input type="checkbox"/>	desktop1	0	21cf5ad4-106f-470a-a0c5-fe601291f2b8
<input type="checkbox"/>	staging.prod.example.com	0	231520c1-ac12-4bec-b182-8ee8f1750c3a
<input type="checkbox"/>	resources.example.com	0	7f5c4309-921c-4bae-9adc-c18021b797e3

Displaying systems 1-10 of 1,481

Note: You may only delete up to 5 systems at a time.

- Fill in the information for the new system.

[Subscriptions](#) > [Subscription Management](#) > [Register a New System](#)

## Register a New System

Name:

System type: ☒ Physical ☐ Virtual

Architecture:

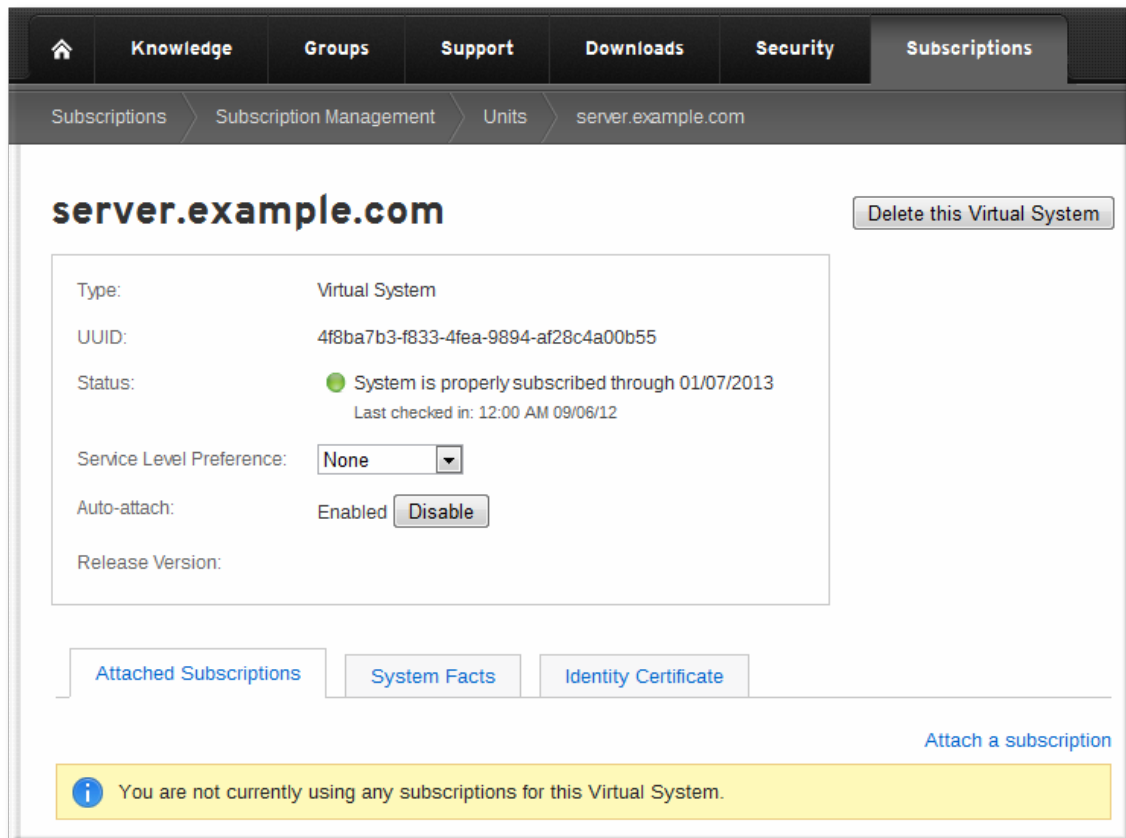
Number of Sockets or LPARs:

Red Hat Enterprise Linux Version:

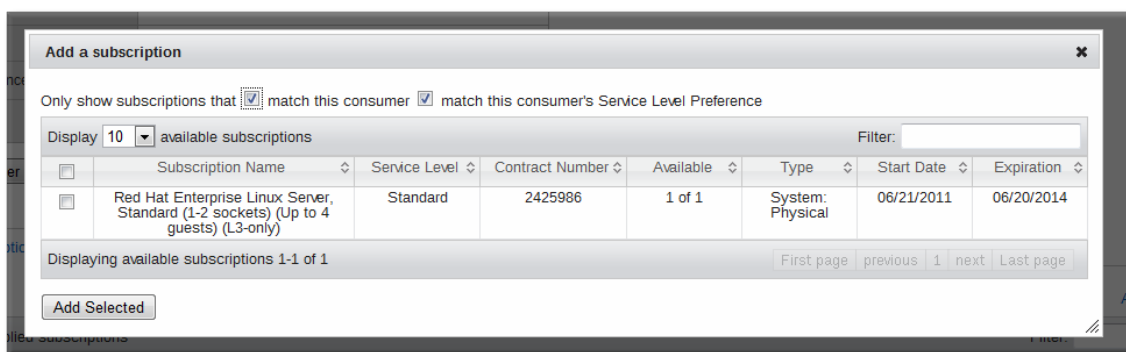
or [Cancel](#)

A system requires information about the architecture and hardware in order to ascertain what subscriptions are available to that system.

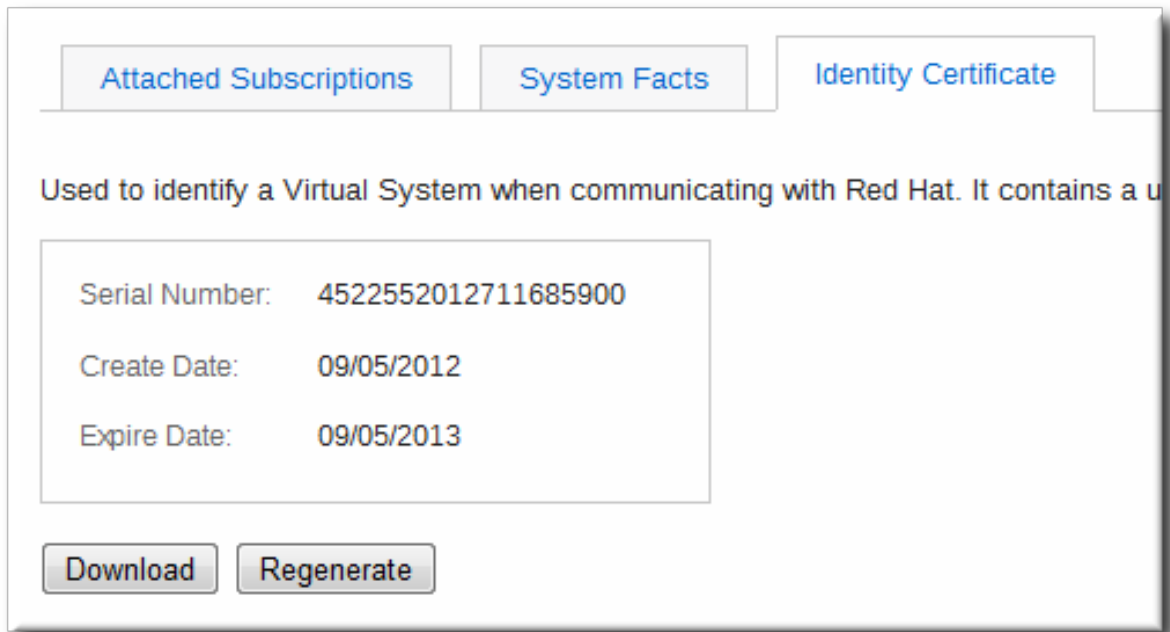
- The name for the entry, which is normally the hostname.
  - The system type, physical or virtual.
  - The architecture, which is used to determine compatible subscriptions.
  - The number of sockets, either the number of physical sockets or, for virtual machines, the number of CPUs. Some subscriptions cover to a certain number of sockets, and multiple subscriptions may be required to cover larger systems.
4. Once the system is created, attach the appropriate subscriptions to that system.
1. Open the **Attached Subscriptions** tab.



2. Click the **Attach a subscription** link.
3. Click the check boxes by all of the subscriptions to attach, and then click the **Attach Selected** button.



5. Click the **Download** link to download the entitlement certificate for each subscription. Save the file to some kind of portable media, like a flash drive.
6. Optionally, open the **Identity Certificate** tab and click the **Download** button. The identity certificate for the registered system could be used by the system to connect to the subscription management service. If the system will permanently be offline, then this is not necessary, but if the system could ever be brought onto the network, then this is useful.



7. Copy the entitlement certificates from the media device over to the system.
8. Import the entitlement certificates. This can be done by using the **Import Certificates** item in the **System** menu in the Subscription Manager UI or by using the **import** command. For example:

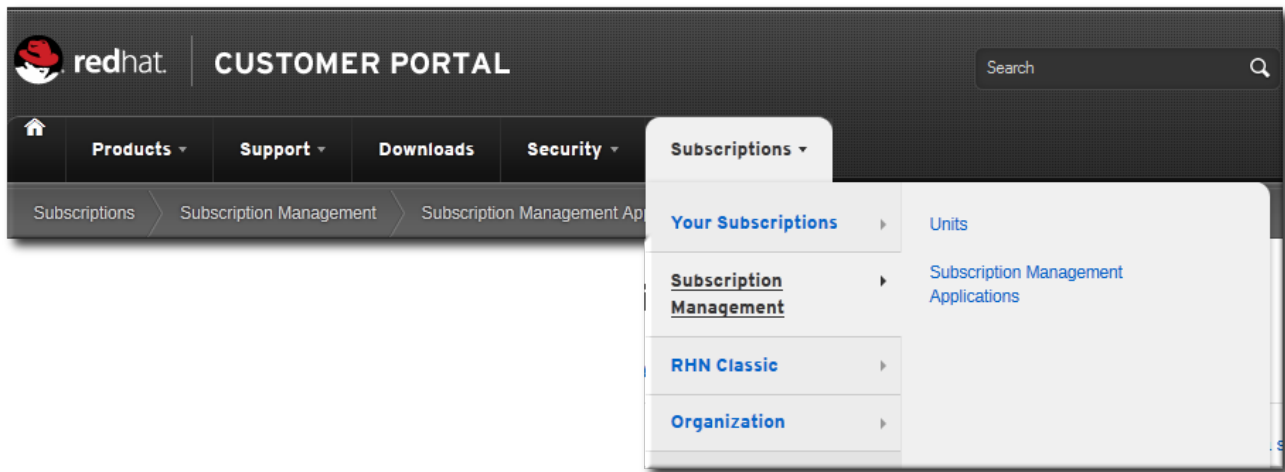
```
[root@server ~]# subscription-manager import /
--
certificate=/tmp/export/entitlement_certificates/596576341785244687.
pem /
--
certificate=/tmp/export/entitlement_certificates/3195996649750311162
.pem
Successfully imported certificate 596576341785244687.pem
Successfully imported certificate 3195996649750311162.pem
```

9. If you downloaded an identity certificate, copy the **cert.pem** file directly into the **/etc/pki/consumer** directory. For example:

```
[root@server ~]# cp /tmp/downloads/cert.pem /etc/pki/consumer
```

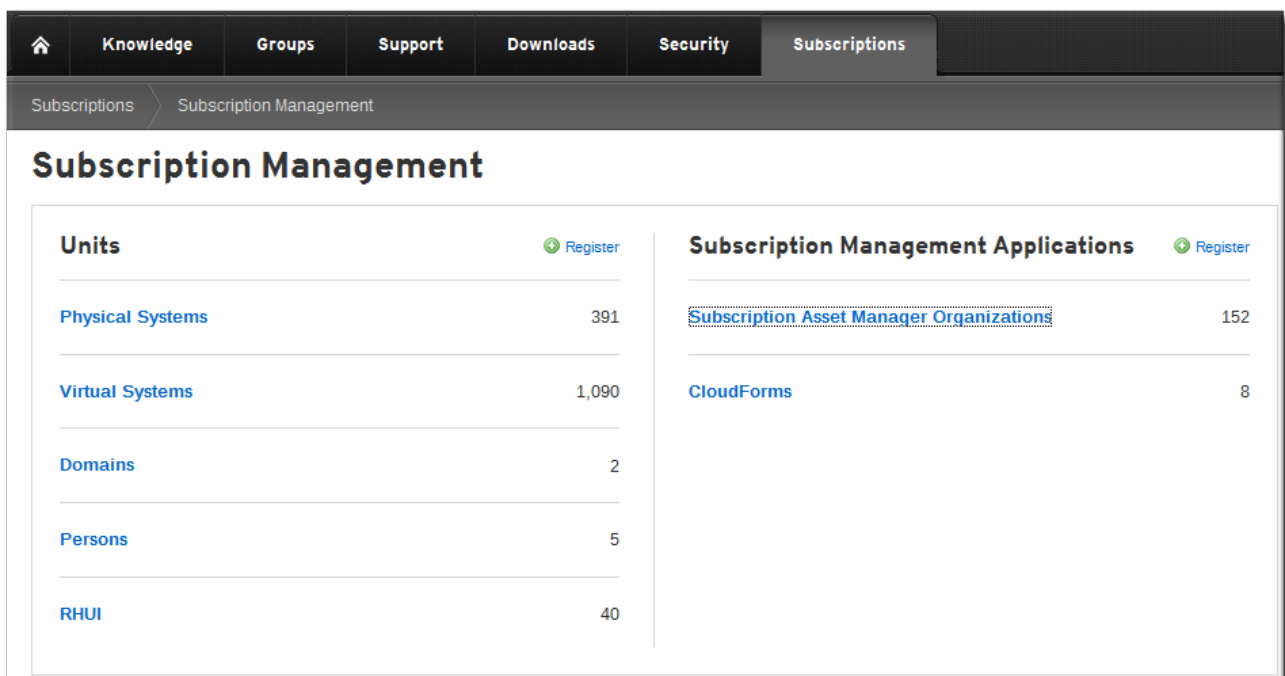
## 4.2. The System List: Viewing the Inventory

Every system which is registered with Customer Portal Subscription Management is listed in the *inventory*. That system inventory for Customer Portal Subscription Management, which covers the entire account, can be viewed in Customer Portal Subscription Management. There are several ways to navigate to the system list. The simplest is by selecting the **Consumers** item from the **Subscriptions** menu.



**Figure 6. Main Menu Link**

Alternatively, click the unit type in the **Subscription Management** page.



**Figure 7. Subscription Management Page**

The system table shows the system name (usually the fully-qualified domain name or system name) and the type of system. By default, all systems and units are listed. Filters can be set to narrow the results by type or system name.

**Units**

[All Units](#) [RHUI](#) [Systems](#) [Hypervisors](#)

[Register a system](#)

Display **10** systems Filter:

	Name	Subscriptions Attached	UUID
<input type="checkbox"/>	prod.example.com	2	60e25f36-c09d-41be-bc89-b67513684ddd
<input type="checkbox"/>	qa-west	7	97bcc900-76ae-4054-8049-c75ca541147b
<input type="checkbox"/>	qa-central	1	28468d92-f5fb-47c8-bcc8-5e9780b0decb
<input type="checkbox"/>	server.dev.example.com	0	33916af4-cf64-4364-aebb-362d37d24c39
<input type="checkbox"/>	server.qa.example.com	0	b0b55d9b-ca0b-43d6-9c89-a28923716beb
<input type="checkbox"/>	255.255.255.255	1	3be54232-f376-4366-a4a3-2762f164a7f9
<input type="checkbox"/>	desktop2	0	cff1e698-9059-4b2d-9a54-0533dade57bf
<input type="checkbox"/>	desktop1	0	21cf5ad4-106f-470a-a0c5-fe601291f2b8
<input type="checkbox"/>	staging.prod.example.com	0	231520c1-ac12-4bec-b182-8ee8f1750c3a
<input type="checkbox"/>	resources.example.com	0	7f5c4309-921c-4bae-9adc-c18021b797e3

Displaying systems 1-10 of 1,481

Note: You may only delete up to 5 systems at a time.

**Figure 8. The System List**

### 4.3. System Details: Viewing System Information

Clicking the system name in the **Units** > *Type* list opens the details page for that system. The details shows a list of subscriptions, system facts, and other subscription settings.

Subscriptions Subscription Management Units server.example.com

## server.example.com

Type: Virtual System  
UUID: 4f8ba7b3-f833-4fea-9894-af28c4a00b55  
Status: ● System is properly subscribed through 08/12/2013  
Last checked in: 12:00 AM 09/06/12  
Service Level Preference: None  
Auto-attach: Enabled Disable  
Release Version:

system settings & preferences

Delete this Virtual System  
remove the system from inventory (unregister)

Attached Subscriptions  
System Facts  
Identity Certificate

system subscriptions

Attach a subscription

Display 10 attached subscriptions Filter:

<input type="checkbox"/>	Subscription Name	Service Level	Contract Number	Quantity Attached	Type	End Date	Entitlement Certificate
<input type="checkbox"/>	Red Hat OpenStack Tech Preview	None	3169469	1	System: Virtual	08/12/2013	<a href="#">View</a>   <a href="#">Download</a>

Displaying attached subscriptions 1-1 of 1

[Remove Selected](#)

**Figure 9. The System Details**

The **System Facts** tab shows system information that has been gathered about the system. This information can be about the hardware, the architecture, system settings, and operating system information. The type of information varies depending on the platform, whether it is a virtual or physical machine, operating system version, and system settings. The system facts are used to determine the *compatible subscriptions* which are available to the system, meaning subscriptions for that architecture, hardware, and operating system version.

Attached Subscriptions System Facts Identity Certificate

These facts are based on your last system check in on 09/06/2012

Display 10 system facts Filter:

Attribute	Value
cpu.core(s)_per_socket	1
cpu.cpu(s)	1
cpu.cpu_socket(s)	1
distribution.id	Santiago
distribution.name	Red Hat Enterprise Linux Workstation
distribution.version	6.3
dmi.bios.address	0xe8000
dmi.bios.bios_revision	1.0
dmi.bios.release_date	01/01/2007
dmi.bios.rom_size	64 KB

Displaying system facts 1-10 of 106

**Figure 10. The System Facts**



## NOTE

If a system is manually added to the inventory through the Customer Portal Subscription Management, then only a limited set of system facts are displayed, dependent on what was entered about the system when it was registered.

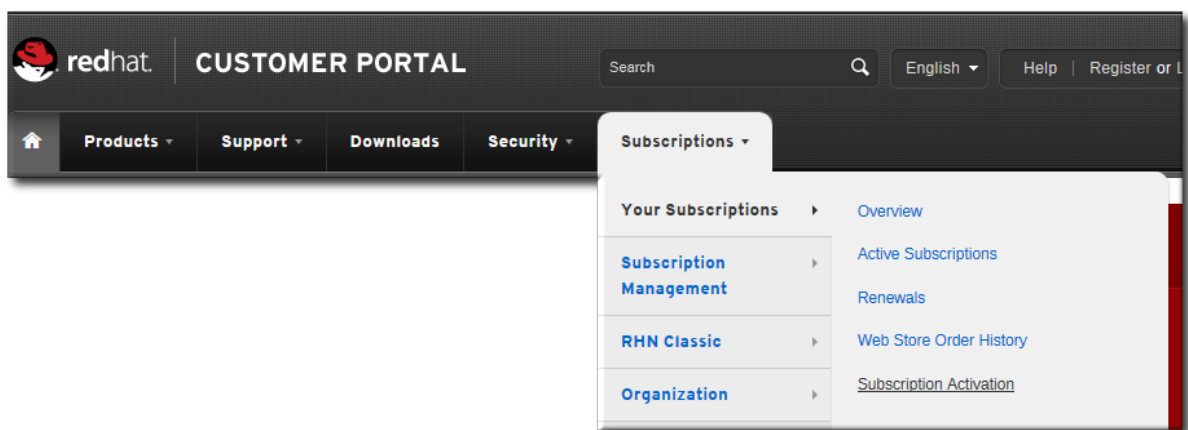
Systems which are registered using the local Red Hat Subscription Manager tools can have a great many system facts listed, dependent on the result of system scans performed by the on-premise Red Hat Subscription Manager system service.

## 4.4. Activating a System and Subscriptions

Systems or packages can be purchased from third-party vendors that come with their own set of predefined subscriptions.

Rather than attaching new subscriptions to a system, these existing subscriptions can be *redeemed* or *activated*. A 16-digit number called an *subscription number* is generated when these subscriptions are created, and that key is then submitted to redeem those subscriptions.

1. Expand the **Subscriptions** tab, open the **Your Subscriptions** area, and select the **Overview** item.



2. Click the **Activate a subscription** link in the upper right of the **Summary** area.



## Overview

### Subscriptions

Current subscription totals:

**1,645**


active subscriptions

**35**


subscriptions expiring  
in next 120 days

**17**

recently expired  
subscriptions

 [Activate a subscription](#)

 [Renew a subscription](#)

 [Purchase subscriptions](#)

 [View web store order history](#)

3. In the **Subscription Activation** page, enter the 16-digit subscription number.

Knowledge Groups Support Downloads Security Subscriptions

## Subscription Activation

In order to gain access to updates and support you will need to activate your subscription. Follow the steps below to activate your subscription.

1. Enter Your Subscription Number 2. Terms and Conditions 3. New or Renew? 4. Confirm

### Step 1 of 4 : Enter Your Subscription Number

Subscription Number\* :  example: XXXX-XXXX-XXXX-XXXX (dashes optional)

\*Your subscription number can be found on the Red Hat Subscription Information Card (or Red Hat Service Activation Card) accompanying your software.

Note: All customers with valid, registered Red Hat Enterprise Linux subscriptions are covered under the Intellectual Property Warranty. To register your Enterprise Linux subscription, please follow the steps below. If you purchased your subscription directly from Red Hat in North America or via redhat.com, your subscription was activated for you. Learn more about [Red Hat's Intellectual Property Warranty](#).

Next

Help:

- [Learn more about Red Hat subscriptions and renewal options](#)
- [Contact Red Hat Support](#)
- [Contact Red Hat customer service](#)
- You may also contact your reseller if you have questions regarding continued service or new purchase

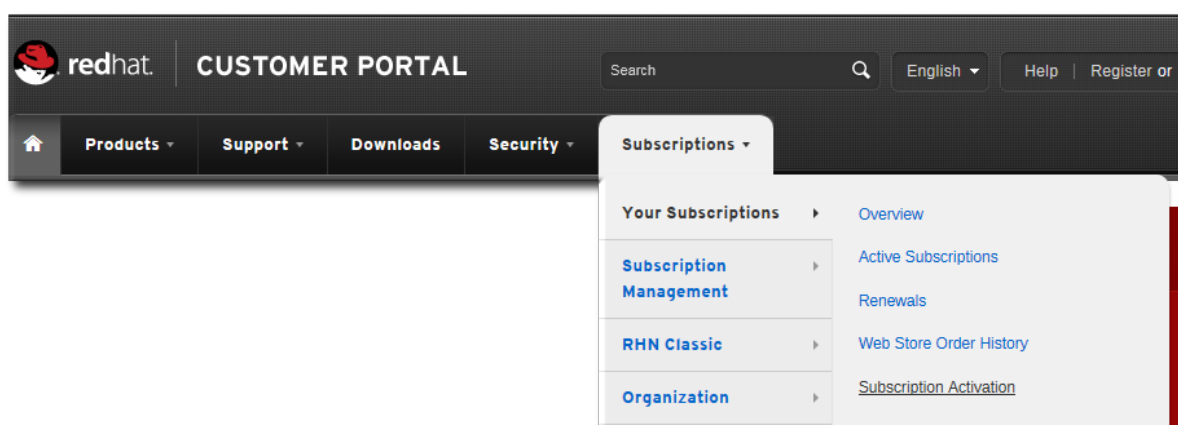
4. Continue through the activation wizard.

## 4.5. Removing a System

A system can be removed or *unregistered* from the subscription management service through Customer Portal Subscription Management. This is equivalent to running the **unregister** command with Red Hat Subscription Manager.

For an offline system, it may not be possible to use the local tools to unregister the system. Removing the system manually though the Portal will remove the system and free any attached subscriptions.

1. Expand the **Subscriptions** tab, open the **Your Subscriptions** area, and select the **Overview** item.



- In the **Usage** area on the right, click the **Subscription Management** link.

The screenshot shows the 'Subscriptions' tab in the top navigation bar. The main heading is 'Overview'. On the left, under 'Subscriptions', it shows 'Current subscription totals': 1,645 active subscriptions, 35 subscriptions expiring in the next 120 days, and 17 recently expired subscriptions. Below this are links to 'Activate a subscription', 'Renew a subscription', 'Purchase subscriptions', and 'View web store order history'. On the right, under 'Subscription Usage', it states 'A subscription can be attached to one or more units.' and includes a warning: 'It appears more subscriptions are being utilized than are available. More info'. Below this is a 'Subscription Utilization' chart and text explaining that subscriptions are attached using either RHN Classic or Subscription Management, with links to 'RHN Classic' and 'Subscription Management'.

- Click the link for the system type in the **Subscription Management** page.

The screenshot shows the 'Subscription Management' page. The top navigation bar includes 'Subscriptions' and 'Subscription Management'. The main heading is 'Subscription Management'. On the left, under 'Units', there is a table with the following data:

Units	Count
Physical Systems	391
Virtual Systems	1,090
Domains	2
Persons	5
RHUI	40

On the right, under 'Subscription Management Applications', there is a table with the following data:

Subscription Management Applications	Count
Subscription Asset Manager Organizations	152
CloudForms	8

- Select the checkboxes by the systems to delete.

Subscriptions > Subscription Management > Units

## Units

All Units RHUI Systems Hypervisors

[Register a system](#)

Display  systems Filter:

	Name	Subscriptions Attached	UUID
<input type="checkbox"/>	<a href="#">prod.example.com</a>	2	60e25f36-c09d-41be-bc89-b67513684ddd
<input type="checkbox"/>	<a href="#">qa-west</a>	7	97bcc900-76ae-4054-8049-c75ca541147b
<input type="checkbox"/>	<a href="#">qa-central</a>	1	28468d92-f5fb-47c8-bcc8-5e9780b0decb
<input type="checkbox"/>	<a href="#">server.dev.example.com</a>	0	33916af4-cf64-4364-aebb-362d37d24c39
<input type="checkbox"/>	<a href="#">server.qa.example.com</a>	0	b0b55d9b-ca0b-43d6-9c89-a28923716beb
<input type="checkbox"/>	<a href="#">255.255.255.255</a>	1	3be54232-f376-4366-a4a3-2762f164a7f9
<input type="checkbox"/>	<a href="#">desktop2</a>	0	cff1e698-9059-4b2d-9a54-0533dade57bf
<input type="checkbox"/>	<a href="#">desktop1</a>	0	21cf5ad4-106f-470a-a0c5-fe601291f2b8
<input type="checkbox"/>	<a href="#">staging.prod.example.com</a>	0	231520c1-ac12-4bec-b182-8ee8f1750c3a
<input type="checkbox"/>	<a href="#">resources.example.com</a>	0	7f5c4309-921c-4bae-9adc-c18021b797e3

Displaying systems 1-10 of 1,481

Note: You may only delete up to 5 systems at a time.



### NOTE

You cannot delete more than five (5) systems at a time.



### NOTE

You can also remove a single system by clicking the **Delete this system** button in its details page.

## 4.6. Viewing and Regenerating Identity Certificates for a System

Customer Portal Subscription Management is *certificate based*. Standard SSL certificates are used to authenticate systems and application organizations to the subscription management service. These are called *identity certificates*.

The identity certificate contains the UUID for the system or application organization in the inventory (in the CN of the certificate), a serial number for the certificate, and the creation and expiration dates for the identity certificate (with creation being the day the system was registered).

The identity certificate tab has all of the relevant information in the identity certificate (the serial number and creation/expiration dates). The UUID for the system or application organization is used to identify it in the certificate.

Attached Subscriptions   System Facts   Identity Certificate

Used to identify a Virtual System when communicating with Red Hat. It contains a

Serial Number: 4522552012711685900

Create Date: 09/05/2012 the date the system was reigstered

Expire Date: 09/05/2013

Download Regenerate request a new certificate

save the <UUID>.pem certificate file

**Figure 11. Identity Certificate Details**

There can be times when the identity certificate for a system is lost, perhaps because it was deleted or corrupted or because the system was changed. The identity certificate can be downloaded directly through Customer Portal Subscription Management, in a base 64-encoded PEM file like the one that was initially generated on the system.

```
-----BEGIN CERTIFICATE-----
MIIDdzCCAUcGAWIBAgIIASDVoX2P1a8wDQYJKoZIhvcNAQEFBQAwSzEqMCgGA1UE
AxMhY2FuZGxlclGluMS5kZXZsYWlucGh4MS5yZWRoYXQuY29tMQswCQYDVQQGEwJV
UzEQMA4GA1UEBxMHUmfSZWlnaDAeFw0xMTAzMDkxNTAxMDVaFw0xMjAzMDkxNTAx
MDVaMC8xLTArBgNVBAMMJDDmY2Y2NjYwLTdkZDYtNDdjZi04ZjJjLTQ0NmJiMWE1
YWQyZjCCASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAJA0wmfB9znYeZu2
1OCga8ERkKPHDZtBKJknT/L74U4+ZQb7wFfRhhqeAv38erEyH40o79iVZJAc0cnT
pBdUYVN9ronv8v0FgdkqBdrjy4t7qq8ofI6dpj0U8fTaisU82WXBq1t41dn70rJT
vbRca4ZCt3FMzTkthd1ZKniLgfvokeGr6gVnh4jEgoFuMPHxigXKPDBvn7R5mf0w
vNM1m2/10KMPI4u5ZLSN/XTyd4t3MSX25SFqobtkVABW7jVlRvyWuR7V6PxpzmTZ
7CjodUY+CVZrFIiL8s2pMkX38KCEXlUuH8DXymDxj4IAMSyc2SW7F7z2YQNTbAvK
kcklWHECAwEAAaOB+zCB+DARBgglghkgBhvhCAQEEBAMCBaAwCwYDVR0PBAQDAgSw
MHsGA1UdIwR0MHKAfGiY1N2Utu1xcMFy0j6gQGLTy06CoU+kTTBLMSowKAYDVQQD
EyFjYW5kbGVwaW4xLmRldmxhYi5waHgxLnJlZGhhdC5jb20xCzAJBgNVBAYTA1VT
MRAwDgYDVQQHEwdSYWxlaWdoggkA1s54sVacN0EwHQYDVR00BBYEFOP0p6JiVnQ2
SBmscyhvB1It2bjmMBMGA1UdJQMMAoGCCsGAQUFBwMCMCUGA1UdEQQeMBykGjAY
MRYwFAYDVQQDDA10ZXN0LXN5c3RlbS0xMA0GCSqGSIb3DQEBAQUAA4GBAD0oBuca
Jg244L6LLMw8ov32VK/kRck9z8qcMA6y8+jL1yrfw//9Ig1BJiWKnqrln3eSNvf+
zouqNgaS4kvQeQf51lPVws++q3J9/q1i4WvJ4kDRN7H0tasf6KmSBpVM6dSDLrX3
nEZbvD0hT+2YVj/DJ7IXvQ9F3KXDkcwb4Lrh
-----END CERTIFICATE-----
```

Alternatively, the original identity certificate can be revoked and a new identity certificate generated in its place; this is called *regenerating* the certificate. The regenerated identity certificate will have the same UUID as the original (so its place in the inventory and all its subscriptions are preserved) but with a different serial number and new creation/expiration dates.

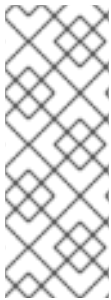
## 4.7. Managing Errata Notifications for Registered Systems

Part of subscription management is tracking updates and new releases of software. Whenever an update is available — from a bug fix to a new release — a notification email can be sent to an administrator.

The notifications are smart, so they are only sent for 1) registered systems which 2) have subscriptions for that product attached to them. If there are no systems with attached subscriptions for that product, even if the account does have subscriptions for it, then no notification is sent.

Errata notifications are set as a preference for the user account, not for an individual system. So, when checking for potential errata updates, Subscription Management checks the entire inventory, not specific systems.

An errata notification is sent if *any* registered system is affected, but the email does not list what systems are actually affected.

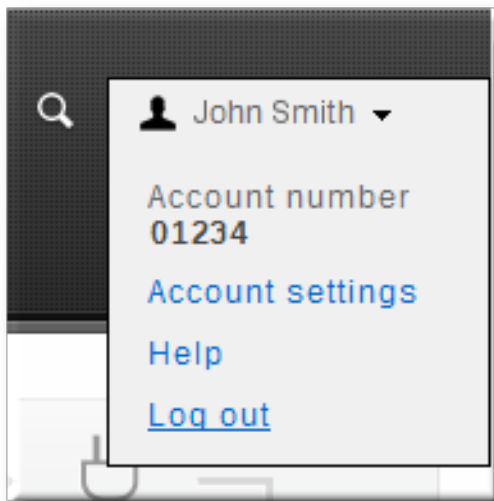


### NOTE

Because Customer Portal Subscription Management Subscription Management and RHN Classic have separate inventories, they each have their own errata notification setting. Even if errata notifications are already enabled for RHN Classic, they must still be enabled for Customer Portal Subscription Management Subscription Management, or no errata notifications will be sent for systems managed in the Customer Portal Subscription Management Subscription Management inventory.

To configure errata notifications for a user account:

1. In the upper right corner of the Customer Portal, expand the details for the logged in user.



2. Click the **Account settings** link.
3. In the settings main page, click the **Account Details** link in the middle of the **Your Red Hat Account** box.



4. In the **Your Preferences** menu on the left, click the **Errata Notifications** link.
5. Select the checkboxes for each type of errata for which to receive an update. Security errata relate to critical security issues. Bug fixes and enhancement notifications relate to incremental updates to the product.

redhat.com • Customer Portal • Account Details • User Management • Certifications Navigate

**Your Information**

[Personal](#)

[Login & Password](#)

[Postal Address](#)

**Your Preferences**

[Language & Location](#)

[Email Preferences](#)

[Errata Notifications](#)

### Errata Notifications

Red Hat customers can receive notifications of security and enhancement updates. Please select in which cases you'd like to be notified.

After making your choices, you must select the "Save" button to complete your action(s).

**SUBSCRIPTION MANAGEMENT:**

Errata notifications: Receive an email for each erratum that affects a subscription assigned to a registered consumer. ([More Info](#))

- Choose advisory type(s) to receive notifications: (select any or all)

☒ Security

☒ Bug Fix

☒ Enhancement

- Choose frequency to receive notifications: (select one)

☐ Instant

☐ Daily

☐ Weekly

**CLASSIC MANAGEMENT:**

To opt-in to errata and system notifications, visit [Classic Management notifications](#).

6. Set the frequency to receive errata notifications. This applies to all selected types of errata notifications.

7. Click the **Save** button.

## 5. MANAGING SUBSCRIPTIONS

Assigning a subscription to a system gives the system the ability to install and update any Red Hat product in that subscription. A subscription is a list of all of the products, in all variations, that were purchased at one time, and it defines both the products and the number of times that subscription can be used. When one of those licenses is associated with a system, that subscription is *attached* to the system.

### 5.1. About Relationships Between Subscriptions and Systems

#### 5.1.1. Interactions with Subscriptions, Products, and Systems

Products on a system have relationships, dependencies, and conflicts between each other. Likewise, subscriptions have relationships that parallel the relationships of the software it represents. Some subscriptions allow virtual guests, some require other subscriptions, some conflict with other subscriptions.

Subscription define the relationships between installed products and each other and the systems on which those products are installed. Likewise, subscriptions can also define relationships between systems and how they interact within an environment. This is particularly apparent with virtual environments, where subscriptions can define different relationships for physical hosts and virtual guests, but there are other ways that systems can interact, such as data centers and cloud infrastructures. Subscriptions are a part of those meta relationships.

Using subscriptions to define these relationships introduces a lot of flexibility in how products and systems interact:



- Associate a single quantity of a product with a single system (which is the most common relationship).
- Restrict one product so that it cannot be installed on the same system as a specific, different product.
- Keep a system on a consistent service level. Each subscription includes a definition for what service level (e.g., standard or premium) the product has. Subscription clients first try to assign subscriptions of the same service level (and this can be enforced) so that the system has consistent support levels.
- Allow virtual guests to inherit some subscriptions from their host.
- Allow some hosts to have unlimited guests for a data center deployment.
- Allow a single “subscription” to be broken across multiple systems. This works in something like Red Hat Cloud Infrastructure, where a single purchase actually covers four products — Red Hat Enterprise Linux, Red Hat OpenStack, Red Hat Virtualization, and Satellite 6 — and those products each have their own subscription which can be used on different systems to create the stack.
- Stack or combine subscriptions of the same type to cover a system.

### 5.1.2. Counting Subscriptions

Part of the subscription service inventory is keeping track of subscriptions – not just what subscriptions are purchased but how many of those subscriptions are available.

When a subscription is first purchased, it defines the quantity of times that the subscription can be used. The subscription count is based on a certain element of the underlying system, most commonly its socket count (but it can be something else, such as the number of cores, depending on the specific subscription). The element of a system or software which is directly covered by a subscription is called an instance.

For example, for the subscription for Red Hat Enterprise Linux for 2 sockets, the product is Red Hat Enterprise Linux and the attribute is a physical socket pair. The socket pair is the instance.

A single subscription quantity is usually tied to a single socket pair (or other attribute). A system with eight sockets, then, requires more subscription quantities to cover its socket count than a four socket system. (This is called stacking.)

This simplistic arrangement, however, does not apply to all subscriptions.

Starting in October 2013, Red Hat began introducing other types of subscription relationships, such as:

- Multiple products with a single subscription (Red Hat Cloud Infrastructure)
- Inheritable subscriptions
- Data center subscriptions, which allow unlimited virtual guests (and only the host requires a specific subscription)

Additionally, the 2013 subscription changes altered how virtual guests are handled in subscriptions. There used to be subscriptions for physical systems and then different subscriptions for virtual guests. In the current subscription model, the same subscription is used for both physical and virtual systems – but the quantity used is different, depending on whether it is a physical system or a virtual one.

As stated previously, a single subscription quantity is used per socket pair on a physical system. A virtual guest counts as a single socket, not a socket pair – so it is essentially half of a subscription quantity. When virtual guests are added to the inventory, the total number of available subscriptions is multiplied by two (the instance multiplier). This allows the subscription count to stay in whole numbers, even with virtual guests taking only a “half” quantity.

However, with some subscriptions counts multiplied by two; data center virtual guests not consuming any individual subscriptions; some subscriptions (Cloud Infrastructure) relating to multiple products installed on different systems; *and* older, pre-2013-style subscriptions all in the same environment — the actual counts listed in the subscription utilization pages or subscription management tools may not appear to reflect the quantities purchased in the contract. The fundamental counts are the same; most of the differences reflect changes to keep the count whole or new, more flexible subscription types.

## 5.2. Attaching Subscriptions to a System

Basically, a subscription grants access to software downloads and updates, along with defining support levels. For a system to be able to use software, it must have a subscription which grants it that access. The **Attached Subscriptions** tab controls what subscriptions are attached to a system.

The **Attached Subscriptions** tab shows what subscriptions are currently attached to a system. Clicking the **Attach a subscription** link shows all of the subscriptions that are available to the system, based on what subscriptions are compatible with the hardware.

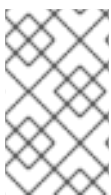


### NOTE

Available subscriptions can also be determined by subscriptions which are compatible with currently installed products. This view of subscriptions is only available in the Red Hat Subscription Manager local clients, since Customer Portal Subscription Management has no perspective into what products are currently installed on the system. It only knows what its subscriptions are based on the subscription service inventory.

The list of available subscriptions provides three important pieces of information for the product (aside from its name):

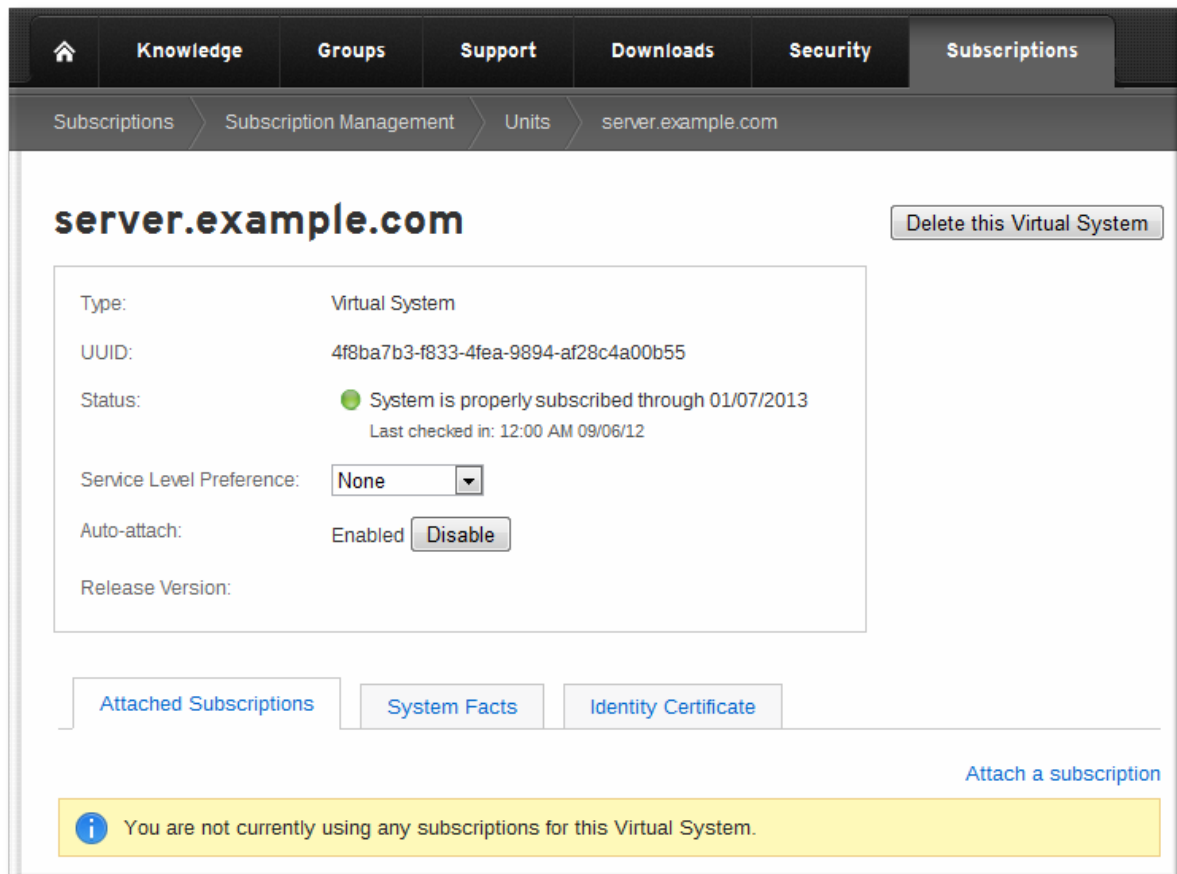
- The service level for the subscription.
- The contract number for the purchase of the subscription, which is important for record keeping and tracking.
- The quantity still available for that subscription. Subscriptions are purchased in quantities; this number tells how many are still left of the total quantity purchased.
- The start and end dates of the subscription. This keeps you from attaching a subscription that may only be valid a few days before it expires or which are not yet active.



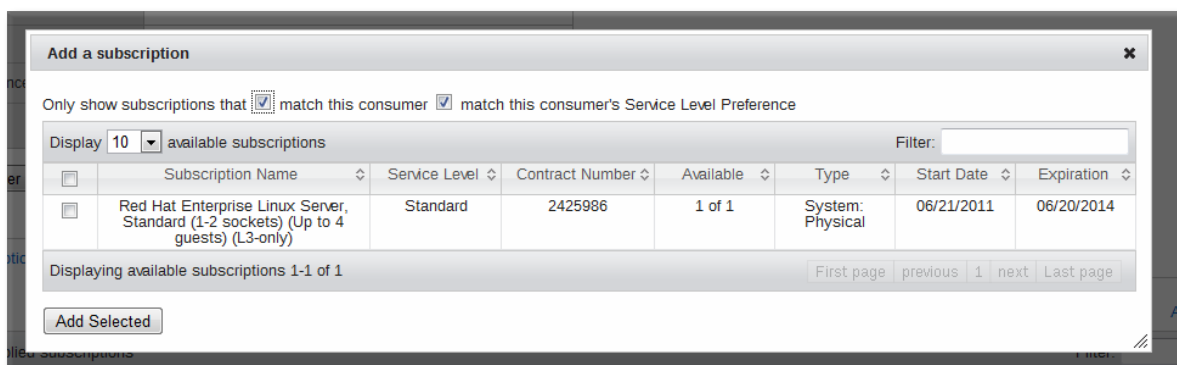
### NOTE

Using the **Filter** box can help narrow down the list of subscriptions, which is useful if the account has many subscriptions, which can require navigating through pages of results.

1. Open the system entry, as in [Section 4.2, “The System List: Viewing the Inventory”](#).
2. Open the **Attached Subscriptions** tab.



3. Click the **Attach a subscription** link.
4. Click the checkboxes by all of the subscriptions to attach.



Normally, subscriptions are listed only if they are *compatible* with the system, meaning they match the system's recognized hardware, architecture, and preferences (service level or release version). To list all subscriptions, even those that aren't compatible with the system's hardware or service level preference, then deselect the appropriate **Only Show . . .** checkbox.

5. Click the **Attach Selected** button.

### 5.3. Autoattaching Subscriptions

The subscription service can monitor the subscriptions that are attached to a system and track when they near their expiration dates. Within 24 hours of when the subscription expires, the Subscription Manager automatically re-attaches the system to a matching new subscription so that the subscription status remains green.

Autoattaching prevents a system from having uncovered products as long as any active, compatible subscription is available for it.

### 5.3.1. Enabling Autoattach on a System

Autoattaching is enabled by default on systems to ensure that they maintain their subscription status. Autoattaching can be disabled and re-enabled by toggling the **Disable/Enable** buttons on the system's details page.

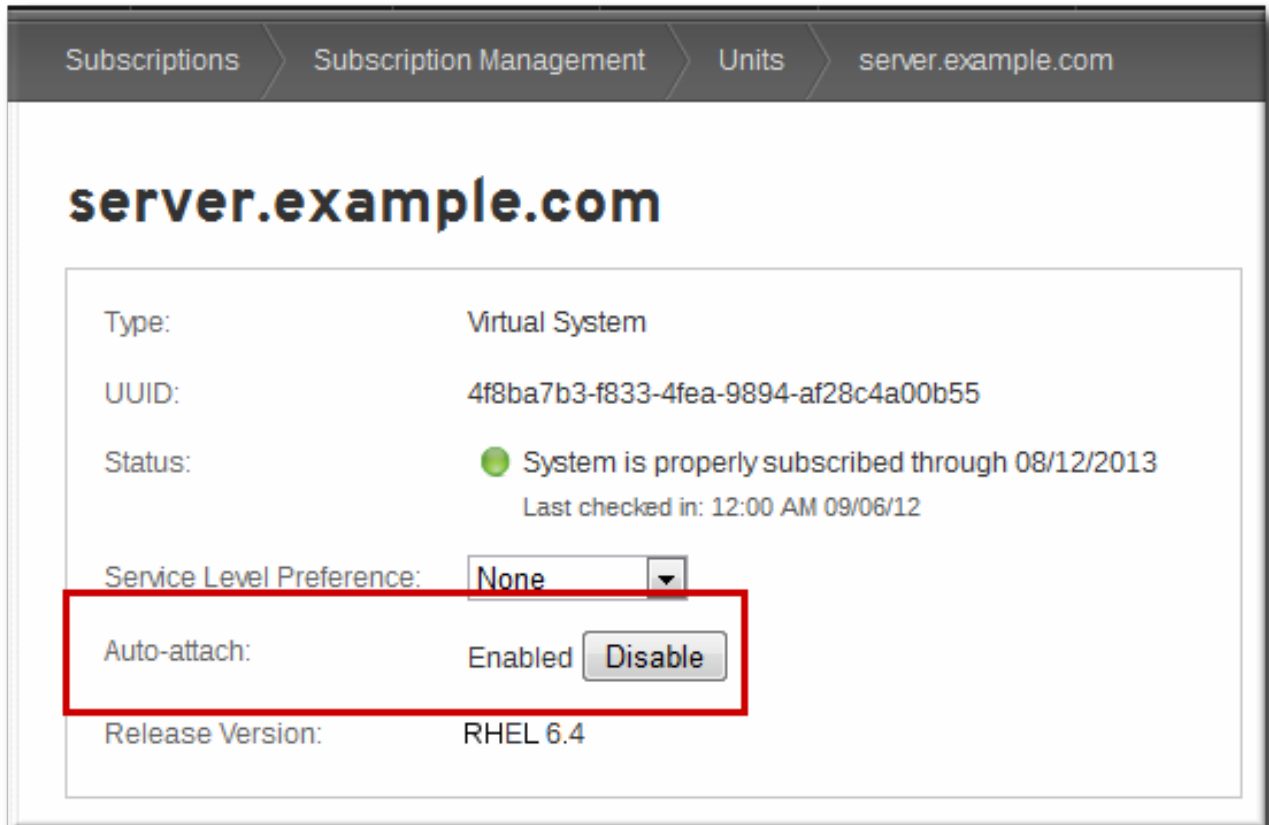


Figure 12. Toggling Autoattaching

### 5.3.2. Initiating an Autoattach Operation on All Systems

Autoattach is configured on individual systems and is generally a local operation. However, there can be times when it is easier or more beneficial to initiate an asynchronous, mass-update of systems, such as when a new set of subscriptions are purchased or a large number of new systems are provisioned.

At the bottom of the **Units** area is a button to run an autoattach operation on all registered systems. This applies any available subscriptions to any system as required to bring them all into a proper (green) status.

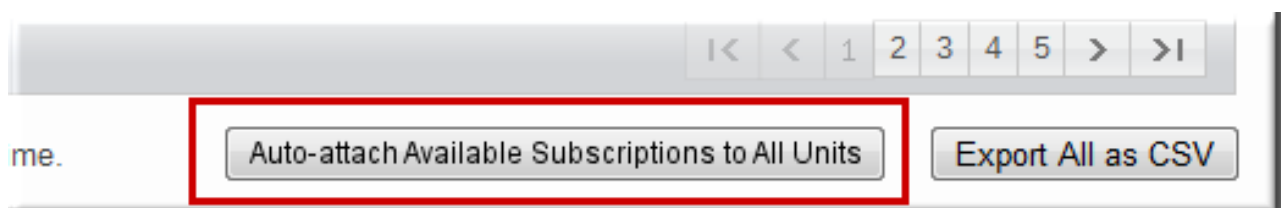


Figure 13. Attaching to All Systems

## 5.4. Setting Preferences for Autoattaching Subscriptions

When the subscription process automatically updates and attaches subscriptions (as new products are installed or older subscriptions expire), the subscription service selects the best-fitting subscriptions based on the attributes of the system. Attributes include hardware characteristics — such as socket count and architecture — and operating system and product characteristics.

There are times when there are multiple available options for a particular attribute. In that case, administrators can define a *preference* for that attribute to help determine what subscription the autoattach process selects. For example, each subscription has a service-level preference defined in it. There can be multiple available subscriptions with different service levels. Setting the service level preference means that subscriptions are auto-selected with a preference for ones that match the desired service level.

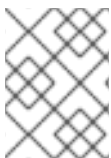
### 5.4.1. Setting a Preferred Service Level

Part of a subscription is a defined service level for that product on a given system. Red Hat service levels are defined in the contract; a summary of production support levels is available at <https://access.redhat.com/support/offerings/production/sla.html>.

There are three basic support levels:

- Premium
- Standard
- None (self-supported)

An account can have multiple levels of support available, even for the same product, and, obviously, not every system within an IT environment demands the same response times and support as other systems. For example, a production system usually has a premium support level since it is a business critical system, while a development system may have standard support or be self-supported.



#### NOTE

By default, the highest available level of support is selected for the subscription and system.

When a system is configured, it can be assigned a preferred service level. When subscriptions are autoattached to the system and the preferred service level is available, then the subscription matching that preference is used. (Service-level preferences are not evaluated or enforced for manually selecting and attaching subscriptions.)



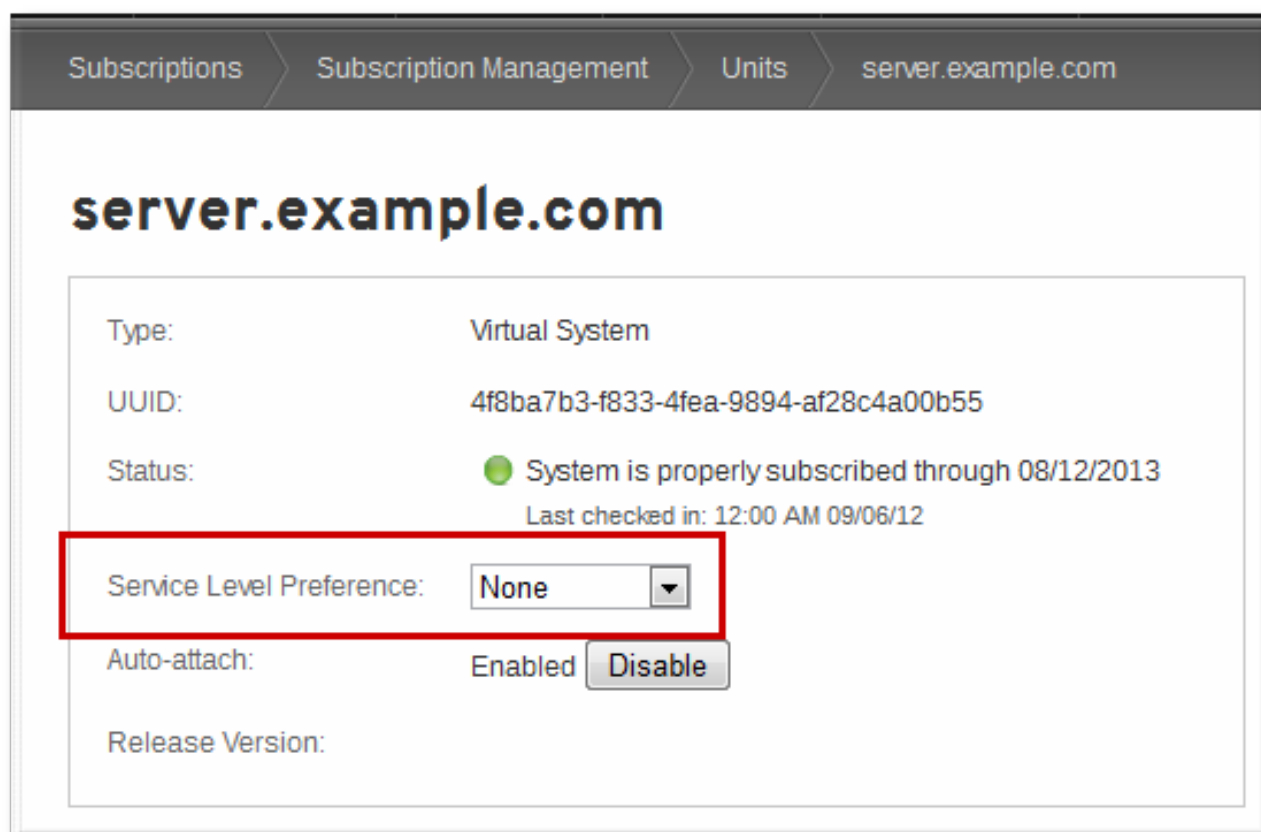
#### NOTE

Service-level preferences must first be set locally on the client when it is registered, by autoattaching, or when editing the configuration later. For example:

```
[root#server ~]# subscription-manager attach --auto --
servicelevel Premium
```

After the service-level preference is set for the system, then that preference can be viewed and edited through the Portal.

The service-level preference is set in the system details page.



The screenshot shows the 'server.example.com' system details page. The breadcrumb navigation at the top includes 'Subscriptions', 'Subscription Management', 'Units', and 'server.example.com'. The system details are as follows:

Type:	Virtual System
UUID:	4f8ba7b3-f833-4fea-9894-af28c4a00b55
Status:	<span style="color: green;">●</span> System is properly subscribed through 08/12/2013 Last checked in: 12:00 AM 09/06/12
Service Level Preference:	None ▼
Auto-attach:	Enabled <span>Disable</span>
Release Version:	

Figure 14. Service-Level Preference

#### 5.4.2. Viewing the Operating System Release Release Preference

Many IT environments have to be certified to meet a certain level of security or other criteria. In that case, major upgrades must be carefully planned and controlled — so administrators cannot simply run **yum update** and move from version to version.

Setting a release version preference limits the system access to content repositories associated with that operating system version instead of automatically using the newest or latest version repositories.

For example, if the preferred operating system version is 6.3, then 6.3 content repositories will be preferred for all installed products and attached subscriptions for the system, even as other repositories become available.

Only packages, updates, and errata for that specific version will be used for the system.

A release version preference can only be set using the local Red Hat Subscription Manager tools. However, if a release preference is set for the local system, that preference is viewable for that system in the portal.

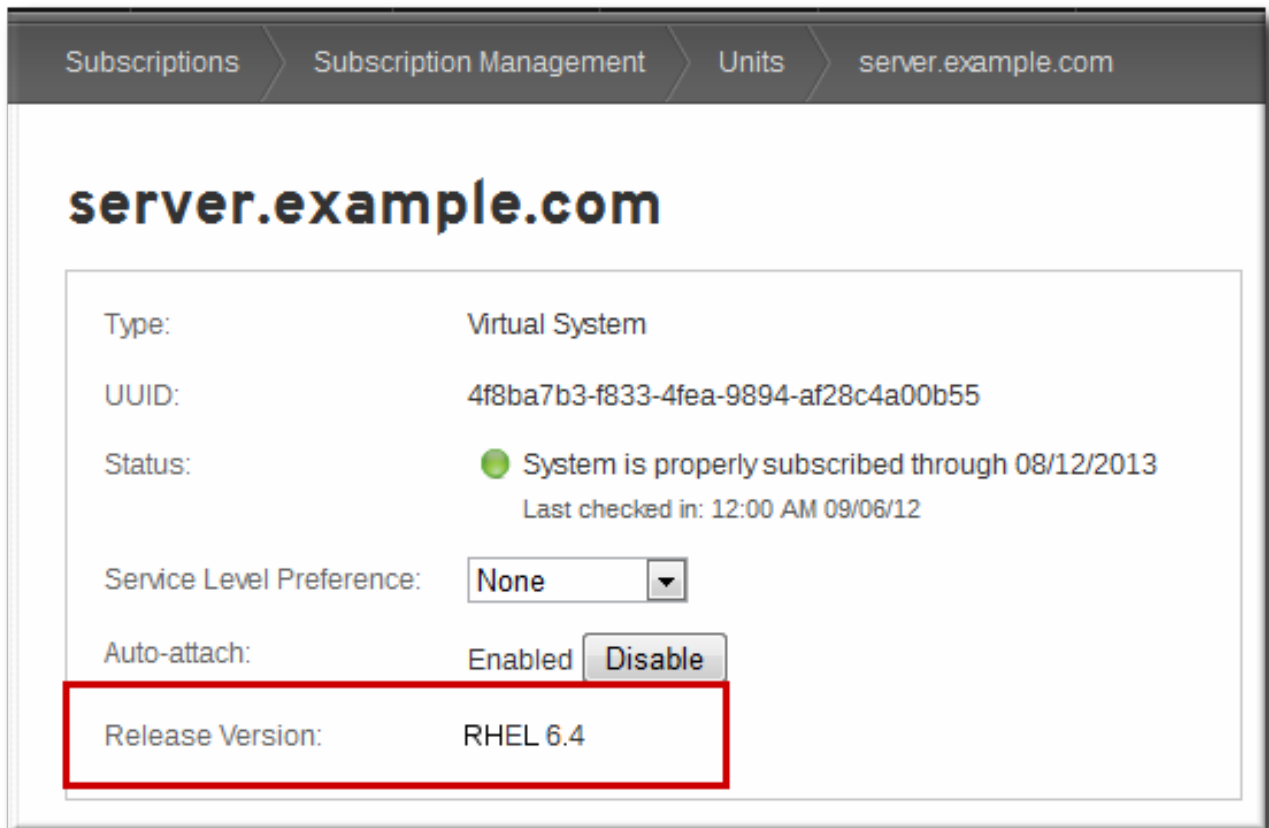


Figure 15. Operating System Release Version Preference Setting

## 5.5. Viewing Subscriptions for a System

When a subscription is attached to a system, then it is listed on the **Attached Subscriptions** tab with its contract number and expiration date.

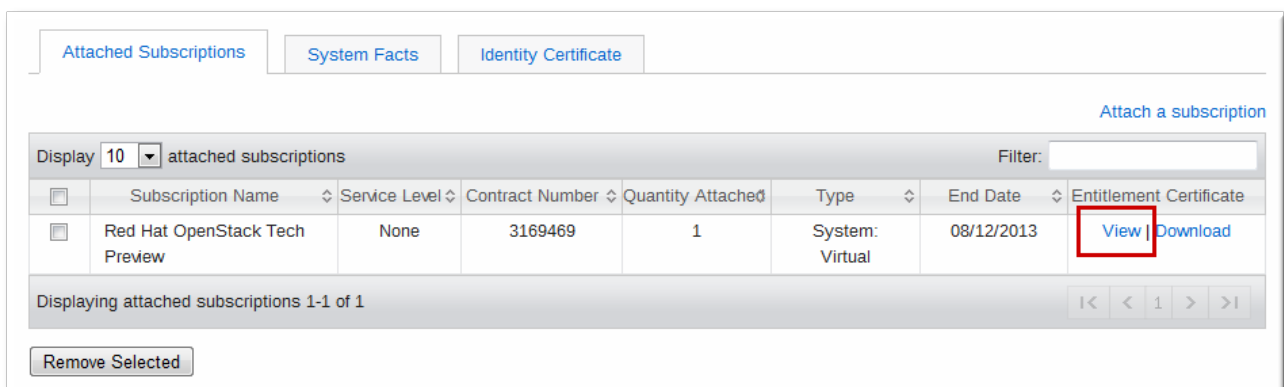


Figure 16. Subscription Details Link

Clicking the **View** link for that subscription opens up much more detail about the subscription, including a list of products that the subscription provides, its order information, the quantity and type of subscriptions available in that one subscription, and its certificate (which can be regenerated on the system or downloaded for view).

[Subscriptions](#) > [Subscription Management](#) > [Units](#) > [server.example.com](#) > [Entitlement Certificate](#)

**Entitlement Certificate: 8a85f9843c01d7fa013c179c39c745c5**

[Download](#) [Regenerate](#)

**Details**

Name: [server.example.com](#)

Type: Virtual System

UUID: 4f8ba7b3-f833-4fea-9894-af28c4a00b55

[Products](#) [Order Info](#) [Content Sets](#)

Contract Number : 3169469

Order Number : 2607527

Account Number : 1460290

Start Date : 08/12/2012

End Date : 08/12/2013

SKU : SER0406

Quantity : 1

Quantity Used : 1

Warning Period : 0

Provides Management : 0

Figure 17. Subscription Details

## 5.6. Checking Status

The portal provides a way to make sure that a system has all of its subscriptions up-to-date. The system's details page has a **Certificate Status** summary that shows whether all of the installed products on that system have the appropriate subscriptions attached.



Subscriptions > Subscription Management > Units > server.example.com

## server.example.com

Type:	Virtual System
UUID:	4f8ba7b3-f833-4fea-9894-af28c4a00b55
Status:	<span style="color: green;">●</span> System is properly subscribed through 08/12/2013 Last checked in: 12:00 AM 09/06/12
Service Level Preference:	None <input type="button" value="v"/>
Auto-attach:	Enabled <input type="button" value="Disable"/>
Release Version:	

**Figure 18. Subscription Status**

The status shows how long the current subscriptions are valid and the last time that the subscription certificates were updated.

The status of the system subscriptions is color-coded:

- *Green* means all products have a valid subscription.
- *Yellow* means that some products may not have active subscriptions but updates are still in effect.
- *Red* means that updates are disabled.

The system status is determined by the local system itself, based on its system facts, installed products, and local subscription certificates. This information is synced with the subscription service every 24 hours (by default). The Customer Portal does not store the information about installed products; it relies on the information from the system itself. If a system is offline and cannot send its information, then the Customer Portal reflects an unknown status.

Subscriptions > Subscription Management > Units > server.example.com

## server.example.com

Type: Virtual System

UUID: 4f8ba7b3-f833-4fea-9894-af28c4a00b55

**Status: Unknown**

Service Level Preference: None ▼

Auto-attach: Enabled Disable

Release Version: —

Figure 19. Unknown Subscription Status

## 5.7. Removing Subscriptions for a System

A subscription can be removed from a system to free up that quantity for another system. To remove a subscription from a system, click the **Remove** link by the subscription on the **Attached Subscriptions** tab.

Attached Subscriptions | System Facts | Identity Certificate

[Attach a subscription](#)

Display 10 ▼ attached subscriptions Filter:

<input type="checkbox"/>	Subscription Name	Service Level	Contract Number	Quantity Attached	Type	End Date	Entitlement Certificate
<input type="checkbox"/>	Red Hat OpenStack Tech Preview	None	3169469	1	System: Virtual	08/12/2013	<a href="#">View</a>   <a href="#">Download</a>

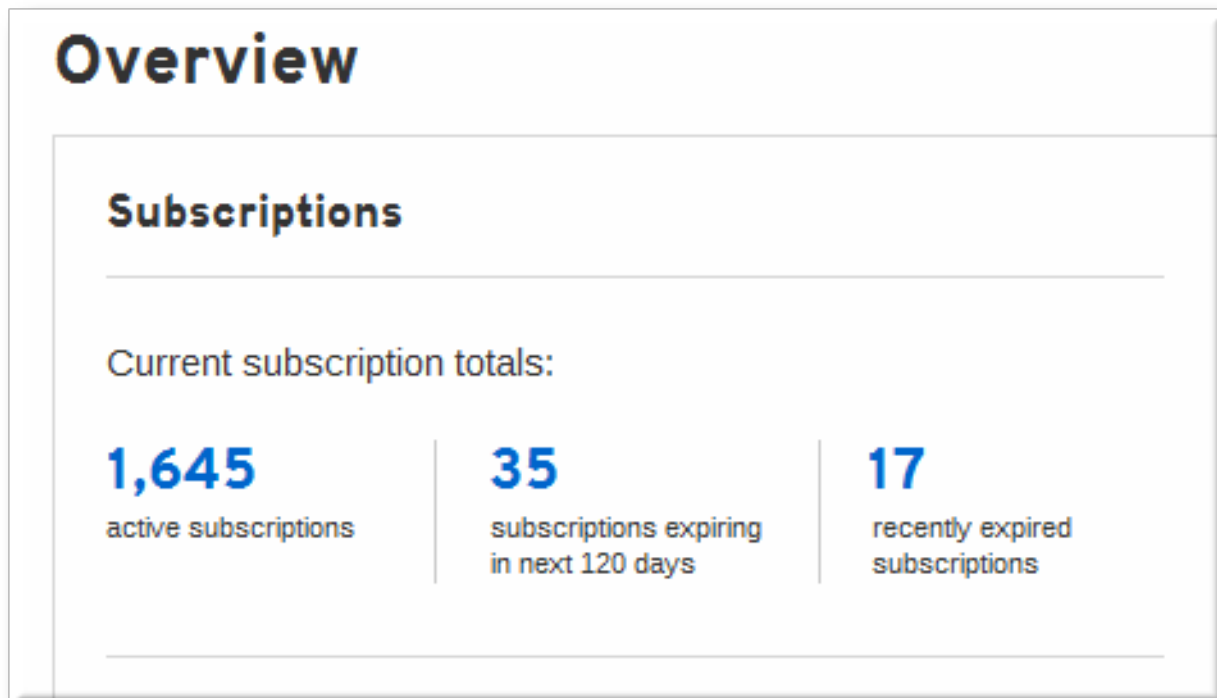
Displaying attached subscriptions 1-1 of 1

Remove Selected

## 5.8. Managing Expired and Expiring Subscriptions

The top of the subscription overview page gives three simple, clear numbers related to subscriptions: how many are active, how many will expire within 120 days, and how many have expired in the past 30 days (and are eligible for renewal).

These are total numbers for the entire account. It does not matter how many subscriptions are attached, how many systems there are, and whether the subscription is registered with Customer Portal Subscription Management, RHN Classic, or a subscription management application.



**Figure 20. Subscription Overview**

Clicking on any of the numbers opens the tab in the subscription inventory for that category of subscriptions.

- **active subscriptions** goes to the **Active** tab.
- **subscriptions expiring in the next 120 days** goes to the **Available for Renewal** tab.
- **recently expired subscriptions** goes to the **Recently Expired** tab.

The tab lists the subscription names, contract numbers, and start/end dates to make it easier to track and manage subscriptions.

Products ▾	Support ▾	Downloads	Security ▾	Subscriptions ▾
Subscriptions > Inventory				
<b>Subscriptions</b>				
<a href="#">Active</a> <a href="#">Expiring Soon</a> <a href="#">Recently Expired</a> <a href="#">All</a>				
The following is a list of subscriptions that have recently expired. Click on a subscription name for additional information or to learn more about your subscription renewal options. If you have any questions, please contact <a href="#">Customer Service</a> .				
Display <span>10 ▾</span> available subscriptions <span>Filter: <input type="text"/></span>				
Subscription Name ▲	Contract Number ⇅	Start Date ⇅	End Date ⇅	
<a href="#">Self-Supported Red Hat Enterprise Linux Server, (2 sockets) (Up to 1 guest)</a>	10241790	2013/07/29	2013/08/27	
<a href="#">OpenShift Enterprise, 2 Core, 8 GB</a>	10236688	2013/07/23	2013/08/21	
<a href="#">OpenShift Enterprise, 2 Core, 8 GB</a>	10237259	2013/07/23	2013/08/21	

**Figure 21. Recently Expired Tab**

Clicking the name of any subscription in the **Available for Renewal** or **Recently Expired** tabs opens the details page for that contract, with renewal information. If the subscription was purchased directly from Red Hat, then it can be renewed through that page; if it was purchased from a vendor, then there is contact and ordering information supplied.

The screenshot shows the 'Fuse' page for a subscription. The top navigation bar includes links for Home, Knowledge, Groups, Support, Downloads, Security, and Subscriptions. The main content area is divided into several sections:

- Status:** Contract Number: 3211498, Start Date: 2012-09-14, End Date: 2012-12-12, Subscription Status: **expired** (highlighted with a red box).
- Installation:** Installation Number: ac01747388b83574, Subscription Number: 2645507.
- Support:** Phone Support: None, Web Support: None, RHN Support: Yes.
- Paper Certificate:** English (dropdown menu) and Download button.
- Utilization:** Total Entitlements: 1.
- Renewal Information:** Information about renewing a product purchased through a partner or Sales Associate. For purchases made through a partner: To renew your Red Hat subscription(s), you can directly contact the Red Hat reseller from whom you originally purchased your subscription. [Find a reseller in EMEA](#).

Figure 22. (Expired) Product Renewal Information

## 5.9. Resolving Over-Utilizing Subscriptions

Red Hat does not restrict how you attach subscriptions — which means that you run the risk of attaching more subscriptions than you actually have purchased.

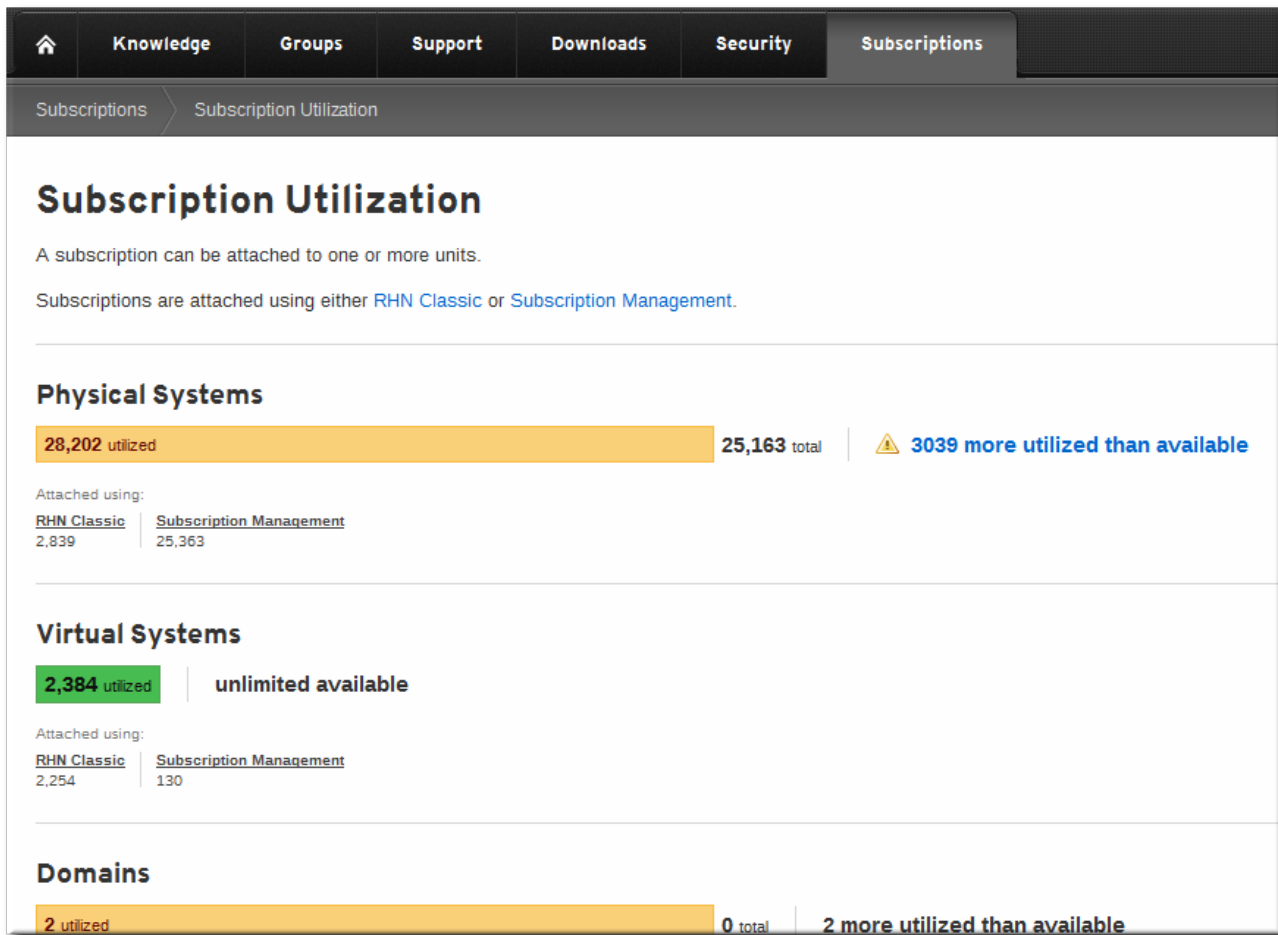


### WARNING

Attaching more subscriptions than you have is the same as running systems without subscriptions.

Along with potentially violating your service contract, this situation can also run afoul of regulations and industry standards — including Sarbanes-Oxley, PCI-DSS, and SAS-70 — that require appropriate licenses for all software in an IT infrastructure.

If you have over-used subscriptions, then the **Utilization** area in the **Overview** page shows a bright yellow warning. The **Utilization** page then shows the subscription counts per type, with a bright yellow bar and a negative number indicating how many subscriptions are over-used for any given type.



**Figure 23. Overutilizing Subscriptions**

There is no automatic remediation and Red Hat does not make assumptions or rules about what systems or subscriptions should be changed. That is entirely at the discretion of the administrator. Clicking the **Total** value opens up a list of registered systems or units. Administrators can then edit system entries and attach and remove subscriptions manually.

**Review Registrations**

It appears your account is consuming more subscription entitlements than are available. The following list of registered physical systems may help you identify systems that have been registered more than once. This list includes all systems you have permission to view. Please investigate possible duplicates and unregister systems as appropriate. If you do not have duplicate systems registered and/or have additional questions about your subscription entitlement usage, contact [Customer Service](#).

Display  systems Filter:

	Name	Subscription Management Service	UUID
<input type="checkbox"/>	<a href="#">prod.example.com</a>	Classic	60e25f36-c09d-41be-bc89-b67513684ddd
<input type="checkbox"/>	<a href="#">qa-west</a>	Cert-Based	97bcc900-76ae-4054-8049-c75ca541147b
<input type="checkbox"/>	<a href="#">qa-central</a>	Cert-Based	28468d92-f5fb-47c8-bcc8-5e9780b0decb
<input type="checkbox"/>	<a href="#">server.dev.example.com</a>	Cert-Based	33916af4-cf64-4364-aebb-362d37d24c39
<input type="checkbox"/>	<a href="#">server.qa.example.com</a>	Cert-Based	b0b55d9b-ca0b-43d6-9c89-a28923716beb
<input type="checkbox"/>	<a href="#">255.255.255.255</a>	Classic	3be54232-f376-4366-a4a3-2762f164a7f9
<input type="checkbox"/>	<a href="#">desktop2</a>	Cert-Based	cff1e698-9059-4b2d-9a54-0533dade57bf
<input type="checkbox"/>	<a href="#">desktop1</a>	Classic	21cf5ad4-106f-470a-a0c5-fe601291f2b8
<input type="checkbox"/>	<a href="#">staging.prod.example.com</a>	Classic	231520c1-ac12-4bec-b182-8ee8f1750c3a
<input type="checkbox"/>	<a href="#">resources.example.com</a>	Cert-Based	7f5c4309-921c-4bae-9adc-c18021b797e3

Displaying systems 1-10 of 1,481 1 < > 2 3 4 5 > > |

[Export All as CSV](#)

**Figure 24. Reviewing Systems**

Clicking the name of any system opens up its details page, so that you can change the subscriptions for it.



#### NOTE

You must have org admin permissions to be able to see the **Review Registrations** page. Even then, you will only be able to view systems to which you have access — not necessarily every system within the account.

## 6. MANAGING ON-PREMISE SUBSCRIPTION MANAGEMENT APPLICATIONS

A *subscription management application organization* is a special type of entity in Customer Portal Subscription Management — it is an on-premise entity that manages local systems. Customer Portal Subscription Management registers the subscription management application organization and attaches large blocs of subscriptions to it. The application organization itself then manages inventory, subscriptions, and systems locally.

Customer Portal Subscription Management transfers subscriptions from the company's global Red Hat account to the local application. The subscription management application organization entry is the method Customer Portal Subscription Management uses to transfer those subscriptions.

A subscription management application organization entry in Customer Portal Subscription Management has direct parity with an organization entry in the on-premise application. The organization structure can be flat, with a single local organization. Alternatively, it can be multi-tenant, with multiple organizations managed by the same application but independent from each other. Multi-tenancy within the on-premise application allows multiple, independent groups to be attached and to manage their own subscriptions

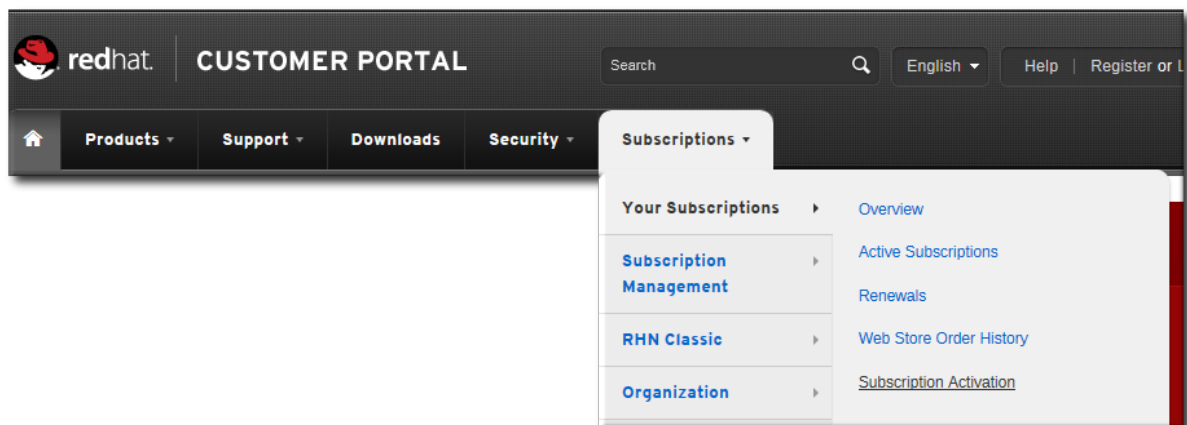
and systems through local services. (The organization structure in the on-premise application is transparent to Customer Portal Subscription Management. Customer Portal Subscription Management works with each subscription management application organization entry separately.)

The subscriptions attached to the application organization are the entirety of the subscriptions and products available to the systems within that organization. The subscriptions, products, and quantities are listed in the subscription management application organization's *manifest*.

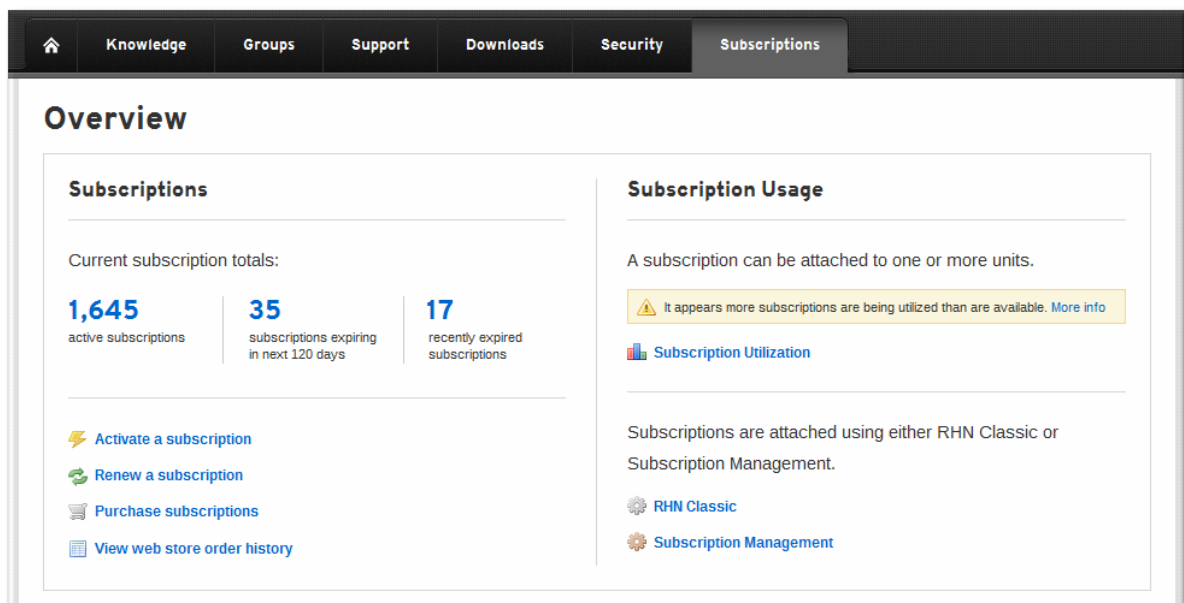
Local organizations and environments can be managed through a variety of different subscription management applications, such as Subscription Asset Manager and Satellite 6..

## 6.1. Registering Application Organizations

1. Expand the **Subscriptions** tab, open the **Your Subscriptions** area, and select the **Overview** item.



2. In the **Usage** area on the right, click the **Subscription Management** link.



3. In the **Subscription Management Applications** column, click the **Register** link.

**Subscription Management**

Units	Register
Physical Systems	391
Virtual Systems	1,090
Domains	2
Persons	5
RHUI	40

Subscription Management Applications	Register
Subscription Asset Manager Organizations	154
CloudForms	8

4. Fill in the required information for the new organization:

- The name for the organization
- The type of the organization; the options are supplied based on the available subscriptions for the account
- The version of the Subscription Asset Manager instance; the options are based on the available subscriptions for the account

**Register a Subscription Management Application**

Type:

Name:

Subscription asset manager organization version:

or



**NOTE**

This name should correspond to the organization name in the on-premise application.

- Click the **Register** button.

After the subscription management application organization is created, attach subscriptions to it, and download and install the manifest so that the organization can begin attaching subscriptions to its client systems.

## 6.2. The Subscription Management Application List and Details

The bottom of the **Subscription Management** page lists the applications, by type and number of registered organizations. Clicking the number in the count column opens up the list of organizations configured for that application type.

The screenshot displays the 'Subscription Management' page. At the top, there is a navigation bar with tabs: Knowledge, Groups, Support, Downloads, Security, and Subscriptions. The 'Subscriptions' tab is selected, and a breadcrumb trail shows 'Subscriptions' > 'Subscription Management'. Below this, the main heading is 'Subscription Management'. The content is divided into two panels. The left panel, titled 'Units', lists various system types with their respective counts: Physical Systems (391), Virtual Systems (1,090), Domains (2), Persons (5), and RHUI (40). The right panel, titled 'Subscription Management Applications', lists application types with their counts: Subscription Asset Manager Organizations (154) and CloudForms (8). Both panels include a 'Register' button with a green plus icon.

Units	Count
Physical Systems	391
Virtual Systems	1,090
Domains	2
Persons	5
RHUI	40

Subscription Management Applications	Count
Subscription Asset Manager Organizations	154
CloudForms	8

**Figure 25. Subscription Management Applications in the Overview**

The **Subscription Management Applications** inventory has tabs for each available and configured application type, and each organization for that type is listed.

The screenshot shows the 'Subscription Management Applications' page. The navigation bar includes 'Subscriptions', 'Subscription Management', and 'Subscription Management Applications'. The main heading is 'Subscription Management Applications'. Below it, there are tabs for 'All Subscription Management Applications', 'Subscription Asset Manager Organizations' (selected), and 'CloudForms'. A link 'Register a Subscription Asset Manager Organization' is visible. A table displays 'Subscription Asset Manager Organizations' with columns: Name, Subscriptions Attached, and UUID. The table shows two entries for 'ExampleOrg' with 0 and 98 subscriptions attached. A filter box contains 'Example'. At the bottom, there is a 'Delete Selected' button and a note: 'Note: You may only delete up to 5 Subscription Asset Manager Organizations at a time.' and an 'Export All as CSV' button.

Name	Subscriptions Attached	UUID
ExampleOrg	0	c3415e4d-2bb0-4f4b-bc32-a566af561934
ExampleOrg	98	43e1226e-fe3e-4414-8b97-cc64335229dd

**Figure 26. Viewing the Subscription Management Application Inventory**

The columns have three important pieces of information:

- The organization name, which links to the entry details page
- The total number of subscriptions (across products and contracts) attached to that organization
- The UUID for the organization, analogous to the UUID for a system

The organization details page is for managing the organization. Like the system details, has tabs for managing subscriptions for that organization and a tab for the identity certificate. It also has a button to download the manifest, which is the file imported into the on-premise application which informs the application what subscriptions it has.

The screenshot shows the 'ExampleOrg' details page. The navigation bar includes 'Subscriptions', 'Subscription Management', 'Subscription Management Applications', and 'ExampleOrg'. The main heading is 'ExampleOrg'. Below it, there are buttons for 'Download manifest' and 'Delete this subscription management application'. A box displays 'Type: Subscription Asset Manager Organization' and 'UUID: 43e1226e-fe3e-4414-8b97-cc64335229dd'. Below this, there are tabs for 'Attached Subscriptions' (selected) and 'Identity Certificate'. A link 'Attach a subscription' is visible. A table displays 'attached subscriptions' with columns: Subscription Name, Contract Number, Quantity Attached, and End Date. The table shows one entry for 'Red Hat Essex Tech Preview' with contract number 3171427, quantity 98, and end date 08/13/2013. A filter box is empty. At the bottom, there is a 'Remove Selected' button.

Subscription Name	Contract Number	Quantity Attached	End Date
Red Hat Essex Tech Preview	3171427	98	08/13/2013

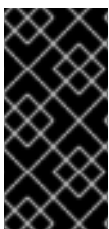
**Figure 27. Organization Details**

## 6.3. Attaching Subscriptions to Organizations

### 6.3.1. About Manifests

As the introduction to [Section 6, “Managing On-Premise Subscription Management Applications”](#) covers briefly, there is a direct relationship between the subscription management application organization in Customer Portal Subscription Management and the organization definition in an on-premise application like Subscription Asset Manager. This relationship is the method that Customer Portal Subscription Management uses to transfer subscriptions from Red Hat to the on-premise application to administer locally.

This transferred block of subscriptions is listed in the *subscription management application organization manifest*. This manifest is a ZIP archive which is downloaded directly from Customer Portal Subscription Management from the subscription management application organization entry and then is uploaded to the on-premise application.



#### IMPORTANT

Any changes to the subscriptions for the organization are made to the subscription attached to the subscription management application organization entry in Customer Portal Subscription Management. The manifest is then regenerated, downloaded, and re-uploaded to the application.

The manifest itself is a collection of directories and JSON files which contain the subscriptions, entitlement certificates, products, and list of rules for the subscription management application organization.

```
manifest.zip
|
|- consumer_export.zip
|
|- export/
|   |
|   |- consumer_types/
|   |
|   |- entitlements/
|   |
|   |- entitlement_certificates/
|   |
|   |- products/
|   |
|   |- rules/
|   |
|   |- consumer.json
|   |
|   |- meta.json
```

#### consumer.json and meta.json

These JSON files contain a little information about the application organization entry (the UUID) and the manifest itself (version and creation date).

#### consumer\_types/

**consumer\_types/** contains a list of JSON files, one for each supported application type. The JSON files indicate which type the subscriptions are attached to. For example, for Subscription Asset Manager, the **sam.json** has a **manifest** value of true.

```
{"id":"5","label":"sam","manifest":true}
```

### entitlements/

**entitlements/** contains a JSON file for each subscription attached to the application organization. Each file is named *UUID.json*.

The file contains the complete subscription information, including the contract number, pool ID, contract start/end dates, keys and certificates for the subscription, the product ID for each included product, quantities, and any other information associated with the subscriptions.

For example, this is the information for a single Red Hat Enterprise Linux product in a subscription JSON:

```
...
{"id":"8a878dcd3520d43501353f6f98f911e9","productName":"Red Hat Enterprise
Linux Server","productId":"69","updated":"2012-02-
02T18:59:32.000+0000","created":"2012-02-
02T18:59:32.000+0000"}], "endDate":"2012-10-
13T03:59:59.000+0000","quantity":50,"productName":"Red Hat Enterprise
Linux Server, Premium (4 sockets) (Up to 4
guests)","contractNumber":"2625891","accountNumber":"1506376","productId":
"RH0153936","subscriptionId":"2267347","consumed":31,"exported":30,"source
Entitlement":null,"activeSubscription":true,"restrictedToUsername":null,"p
roductAttributes":
[{"productId":"RH0153936","name":"support_type","value":"L1-
L3","id":"8a878dcd3520d43501353f6f98f811de","updated":"2012-02-
02T18:59:32.000+0000","created":"2012-02-02T18:59:32.000+0000"}
...

```

### entitlement\_certificates/

**entitlement\_certificates/** contain PEM files with the base 64-encoded blob of the entitlement certificate for each subscription.

### products/

**products/** contains JSON file for every product included with the subscriptions. This contains detailed information about supported versions and content sets, dependencies, repositories, and other product-specific (but not necessarily subscription-specific) information.

For example, for part of the JSON file for one version with a basic Red Hat Enterprise Linux product:

```
...
{"name":"Red Hat Enterprise Linux Server","id":"69","attributes":
[{"name":"type","value":"SVC"}, {"name":"arch","value":"i386,ia64,x86_64"},
{"name":"name","value":"Red Hat Enterprise Linux
Server"}], "multiplier":1, "href":"/products/69", "productContent":
[{"content":{"name":"Red Hat Enterprise Linux 5 Server Beta (Source
ISOs)","id":"861","type":"file","vendor":"Red Hat","modifiedProductIds":
[], "contentUrl":"/content/beta/rhel/server/5/$releasever/$basearch/source/
iso","label":"rhel-5-server-beta-source-

```

```
isos", "gpgUrl": "http://", "metadataExpire": 86400, "requiredTags": "rhel-5-  
server"}, "enabled": false}  
...
```

### rules/

**rules/** contains a single JavaScript file which sets the functions that the application uses to interact with the backend Red Hat subscription management service.

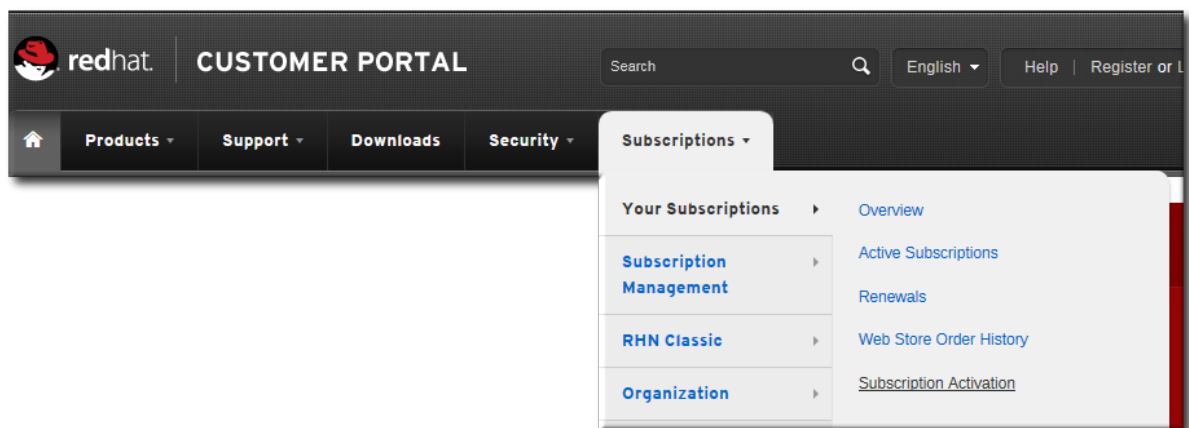
## 6.3.2. Attaching Subscriptions to Organizations

Attaching subscriptions to an organization sets the number of that type of subscription which the organization can attach to the systems it manages. (This is in contrast to a system, which attaches the subscription to itself for its own, local installed products.)

The **Attached Subscriptions** tab shows what subscriptions are currently attached to the organization. Clicking the **Attach a subscription** link shows all of the subscriptions that are available to the application organization, based on the overall account subscriptions.

To attach subscriptions to an organization:

1. Expand the **Subscriptions** tab, open the **Your Subscriptions** area, and select the **Overview** item.



2. In the **Usage** area on the right, click the **Subscription Management** link.

The screenshot shows the 'Subscriptions' tab in the Red Hat Network Subscription Management interface. The 'Overview' section is active, displaying subscription statistics and management links.

### Overview

#### Subscriptions

Current subscription totals:

<b>1,645</b> active subscriptions	<b>35</b> subscriptions expiring in next 120 days	<b>17</b> recently expired subscriptions
--------------------------------------	--	---

[Activate a subscription](#)  
[Renew a subscription](#)  
[Purchase subscriptions](#)  
[View web store order history](#)

#### Subscription Usage

A subscription can be attached to one or more units.

It appears more subscriptions are being utilized than are available. [More info](#)

[Subscription Utilization](#)

Subscriptions are attached using either RHN Classic or Subscription Management.

[RHN Classic](#)  
[Subscription Management](#)

3. In the **Subscription Management Applications** column, click the organization type.

4. Click the organization name in the application inventory.

The screenshot shows the 'Subscription Management Applications' page. The 'Subscription Management Applications' breadcrumb is active. The page displays a table of Subscription Asset Manager Organizations.

### Subscription Management Applications

[All Subscription Management Applications](#) | [Subscription Asset Manager Organizations](#) | [CloudForms](#)

[Register a Subscription Asset Manager Organization](#)

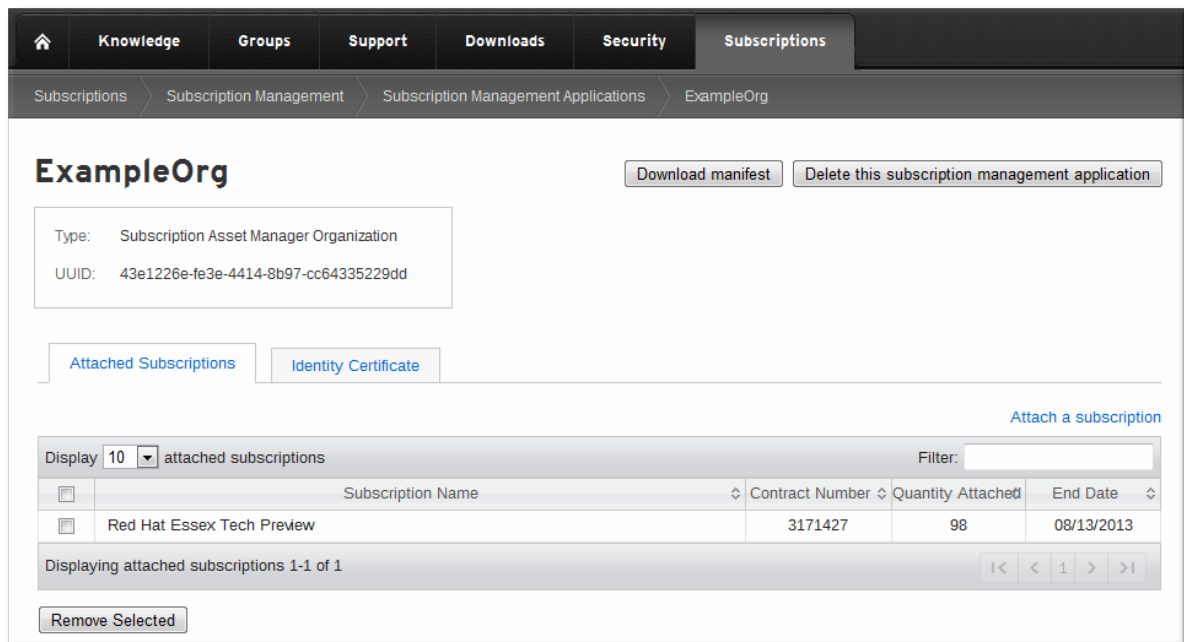
Display  Subscription Asset Manager Organizations Filter:

	Name	Subscriptions Attached	UUID
<input type="checkbox"/>	<a href="#">ExampleOrg</a>	0	c3415e4d-2bb0-4f4b-bc32-a566af561934
<input type="checkbox"/>	<a href="#">ExampleOrg</a>	98	43e1226e-fe3e-4414-8b97-cc64335229dd

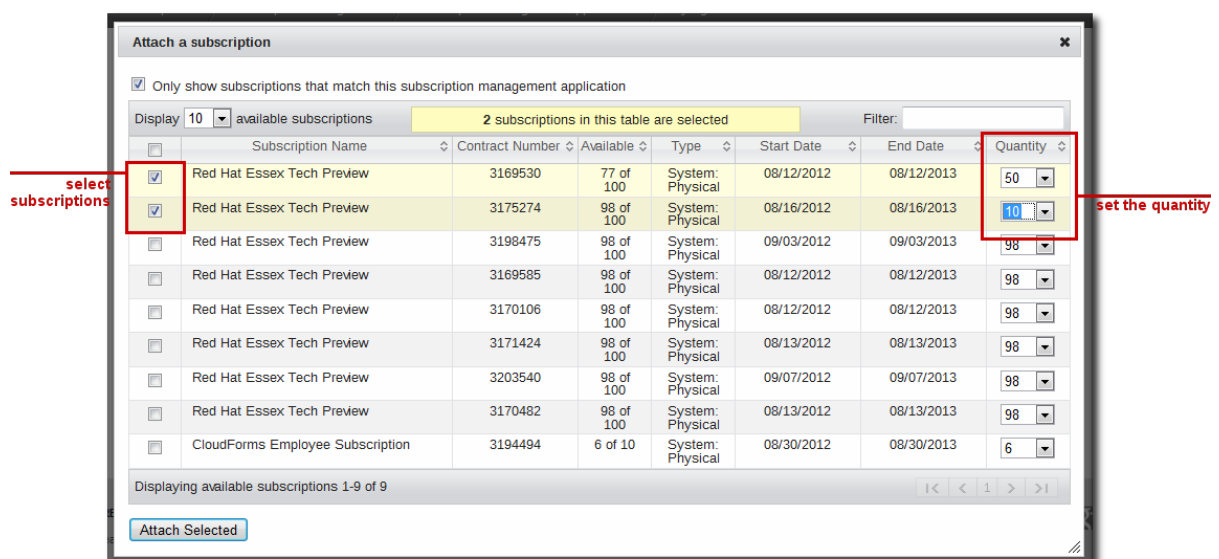
Displaying Subscription Asset Manager Organizations 1-2 of 2 (filtered from 154 total Subscription Asset Manager Organizations)

[Delete Selected](#) Note: You may only delete up to 5 Subscription Asset Manager Organizations at a time.
 [Export All as CSV](#)

5. Open the **Attached Subscriptions** tab.



6. Click the **Attach a subscription** link to open the subscription selection window.
7. Select the checkboxes by the subscriptions to attach and set the total quantity for the application organization in the **Quantity** column.



The list of available subscriptions provides three important pieces of information:

- The contract number for the purchase of the subscription, which is important for record keeping and tracking.
- The quantity still available for that subscription. Subscriptions are purchased in quantities; this number tells how many are still left of the total quantity purchased.
- The start and end dates of the subscription. This keeps you from attaching a subscription that may only be valid a few days before it expires or which are not yet active.

There should probably be a mix of subscriptions, with different end dates, attached to the organization to make it easier to renew subscriptions without having to update the manifest.

**NOTE**

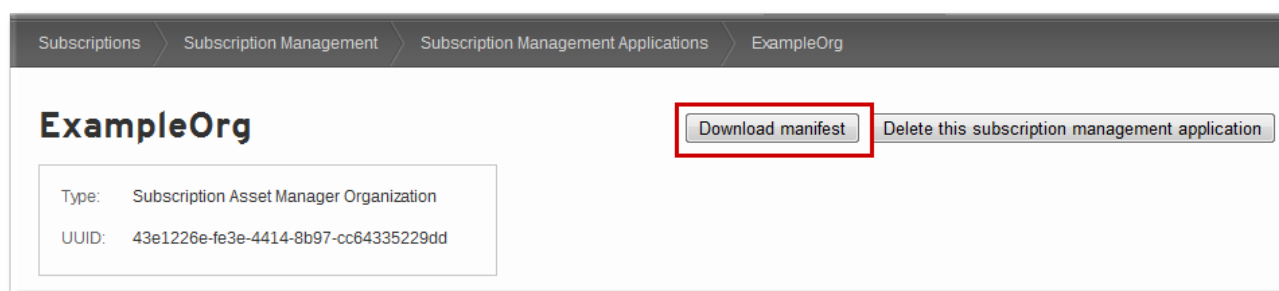
The quantity defaults to be the total number of subscriptions available for that contract. Be aware of how many subscriptions are being attached to a single application organization so that the subscriptions can be attached appropriately among other units and subscription management applications.

- Click the **Attach selected** button in the lower left corner.

### 6.3.3. Downloading the Manifest

Once subscriptions are attached to a application organization, the complete list of subscriptions and products, including product certificates and entitlement certificates, are bundled together in a single *manifest*. The manifest is essentially a master list of everything that the application organization requires to handle local subscription management services.

The manifest can be downloaded from the application organization's details page simply by clicking the **Download manifest** button. This saves the **manifest.zip** archive to the local filesystem, so it can then be uploaded to Subscription Asset Manager or Satellite 6.



**Figure 28. Downloading the Application Organization Manifest**

### 6.3.4. Updating the Manifest and Changing Subscriptions

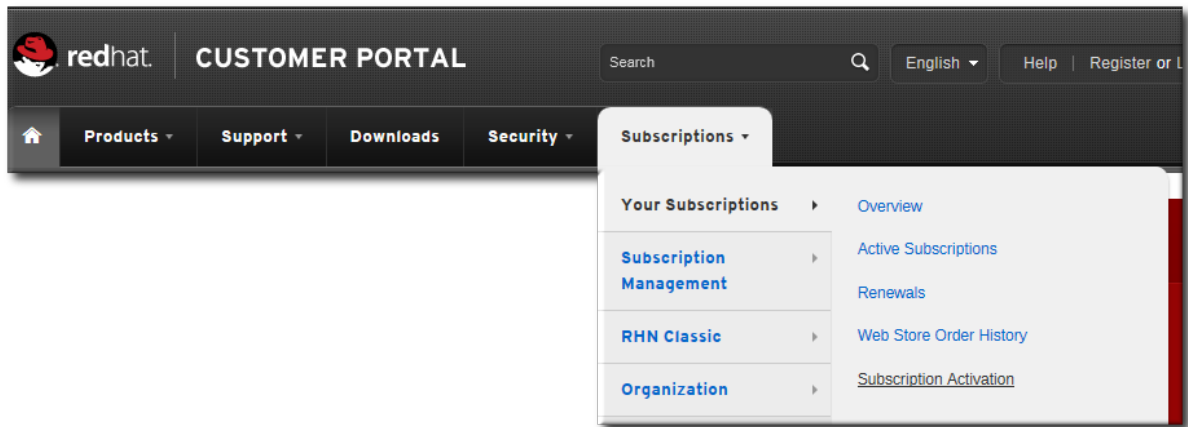
If the organization needs to change its subscriptions — by altering quantities, adding products, or renewing subscriptions — this is done by editing the subscriptions attached to the organization in Customer Portal Subscription Management.

**IMPORTANT**

**Do no attempt to update the on-premise organization entry by creating a new organization in Customer Portal Subscription Management.** Change the subscriptions attached to the existing organization in Customer Portal Subscription Management, and then have the on-premise organization entry use the updated manifest.

- Expand the **Subscriptions** tab, open the **Your Subscriptions** area, and select the **Overview** item.





2. In the **Usage** area on the right, click the **Subscription Management** link.
3. In the **Subscription Management Applications** column, click the organization type.
4. Click the organization name in the application inventory.
5. Open the **Attached Subscriptions** tab.
6. Delete any previous subscriptions which need to be updated. Select the checkbox by the subscription, and click the **Remove Selected** button.

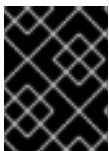
**A subscription quantity attached to a subscription management application organization cannot be changed directly.** If additional numbers need to be added or removed from an attached subscription, delete the original assignment and then attach the subscription with the new quantity.

For example, if your subscription bloc has a quantity of 30 and it should increase to 35, you can delete the old bloc and add a new one with a quantity of 35; that leaves you with one subscription and a quantity of 35. Alternatively, you can simply add a new bloc with a quantity of 5; that results in two separate subscription entries, one with a quantity of 30 and one with a quantity of 5.

7. Add any new subscriptions, as in [Section 6.3.2, “Attaching Subscriptions to Organizations”](#).
8. Click the **Download manifest** button and save the updated manifest, as in [Section 6.3.3, “Downloading the Manifest”](#).
9. Upload the updated manifest to the on-premise application.

## 7. MANAGING HYPERVISORS AND VIRTUAL HOSTS

Red Hat Enterprise Linux has an optional service available which can automatically detect guests on a virtual host system and register them as virtual systems. This allows subscriptions which are specific to virtual systems to be available to the guest and for subscriptions which are inherited from the host to be applied to the guest.



### IMPORTANT

In Customer Portal Subscription Management, there is no mapping or visual representation of the relationship between a hypervisor and its guests.

## 7.1. Supported Hypervisors

The **virt-who** process can detect and associate guests on several different types of hypervisors:

- Red Hat Enterprise Virtualization Manager (KVM)
- Xen
- HyperV
- VMware ESX

## 7.2. About Host/Guest Associations

Subscription relationships have a lot of potential flexibility. Some subscriptions can be applied to a physical machine *or* to a certain number of virtual machines, while others can be applied to a physical host and then inherited by guests.

For subscriptions to be managed effectively, there has to be an internal awareness in the subscription service of the relationships between hosts and guests. This way, a subscription service can properly attach a single physical subscription to a physical host and then apply an included virtual subscription to its guest (for example), rather than consuming two physical subscriptions for each instance.

This association is done by extracting a *universally unique identifier* for each guest and associating it with its hypervisor. These UUIDs are part of the system facts for each virtual system.

The hypervisor is registered first with the subscription service, and then a related process on the system scans for any guests and submits the discovered UUIDs to the subscription service. This is done through the **libvirt** process when the **virt-who** command is run.

There are three factors that must be true for the subscription service to recognize the host/guest association and properly attach subscriptions:

- The appropriate virtual detection process must be run periodically to detect new guest instances.
- The hypervisor and the guest systems must be registered to the same subscription service (meaning, they must all be registered to the Customer Portal Subscription Management).
- The hypervisor must have a subscription attached to it that includes virtual subscriptions or inheritable subscriptions.

## 7.3. Setting up a KVM or Xen Hypervisor

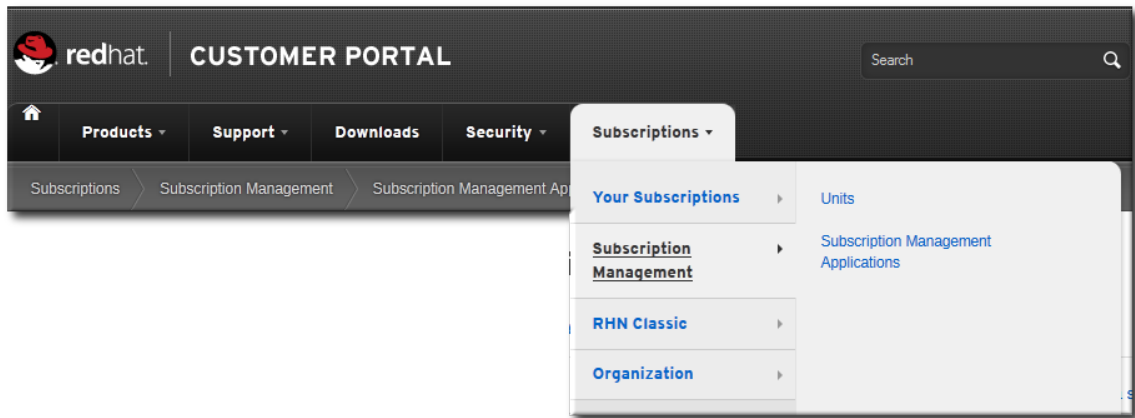
1. Install the **virt-who** packages.

```
[root@server ~]# yum install virt-who
```

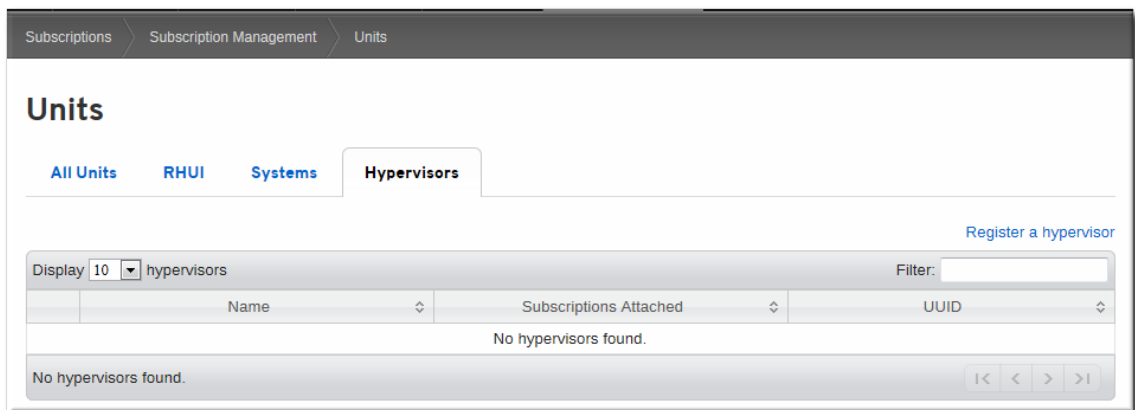
This creates a host list which establishes the guest/host mapping that Red Hat Subscription Manager and Subscription Asset Manager can use for subscription management.

2. Then, create the entry in the Portal.

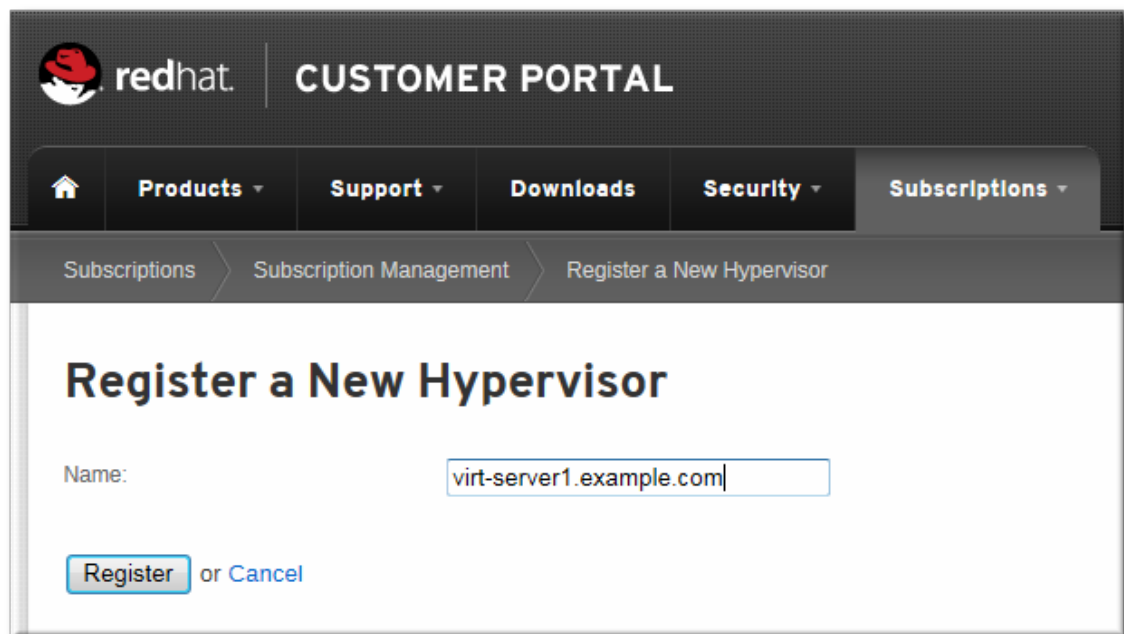
1. Expand the **Subscriptions** tab, open the **Subscription Management** item, and select the **Units** item.



2. Click the **Register** link at the top of the table.



3. Fill in the name of the new hypervisor.



4. Click the **Register** button.

## 7.4. Setting up a VMware Hypervisor

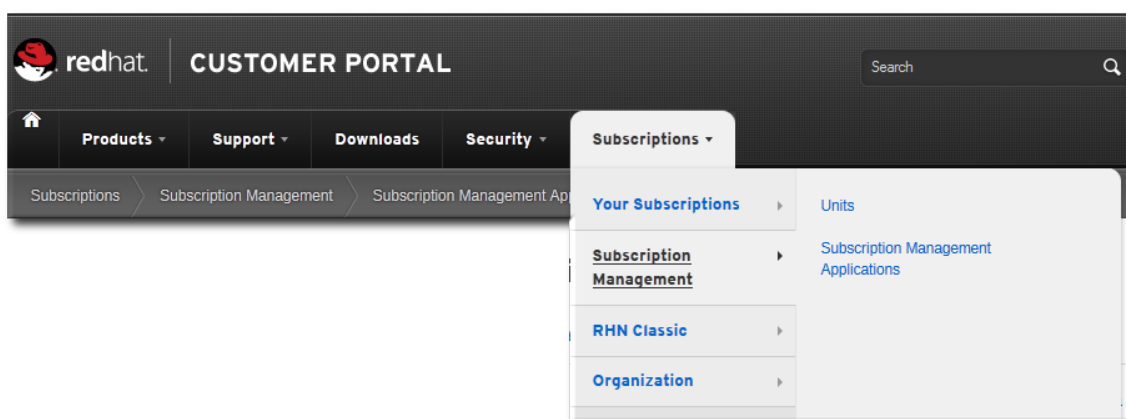


## NOTE

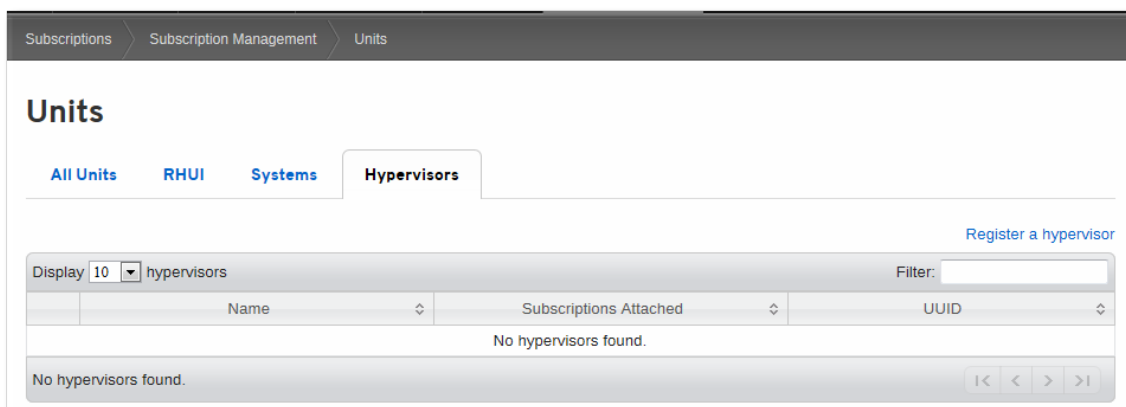
The **virt-who** packages that create the host/guest mapping are available for Red Hat Enterprise Linux. In a VMware environment, there must be a Red Hat Enterprise Linux system available to run the **virt-who** process which connects to the VMware hypervisor.

1. Create the hypervisor entry in the Portal.

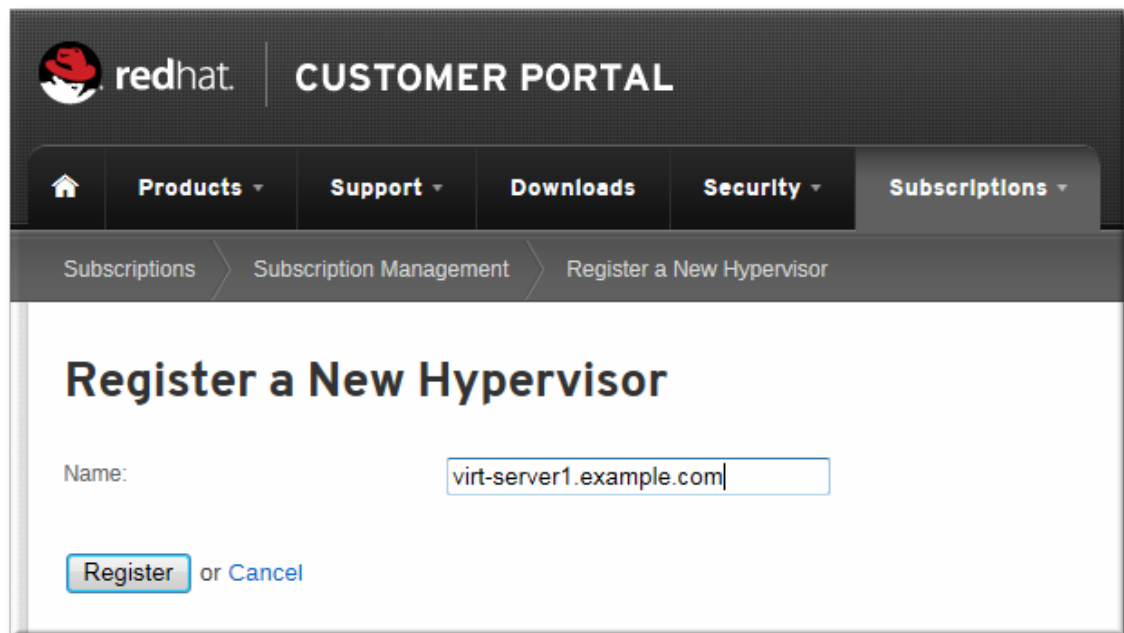
1. Expand the **Subscriptions** tab, open the **Subscription Management** item, and select the **Units** item.



2. Click the **Register** link at the top of the table.



3. Fill in the name of the new hypervisor.



4. Click the **Register** button.
2. Install the **virt-who** packages on the Red Hat Enterprise Linux system.

```
[root@server ~]# yum install virt-who
```

3. Open the **virt-who** configuration file (**/etc/sysconfig/virt-who**) and set up the required information for the subscription services.
  1. Enable ESX mode, and set the environment to **Library**:

```
VIRTWHO_ESX=1
VIRTWHO_ESX_ENV=Library
```

2. Specify the owner of the subscriptions. This must be the ID of an organization. For example:

```
VIRTWHO_ESX_OWNER=6340056
```

The organization ID should be available in the Portal entry for the organization if there are multiple organizations. If it was registered with the Portal (which has a single organization) or if another system is already registered to that organization, then the ID is available using the **subscription-manager orgs** command.

3. Set the hostname or IP address of the vCenter server:

```
VIRTWHO_ESX_SERVER=vcenter.example.com
```

4. Specify the username and password to use when connecting to the vCenter server:

```
VIRTWHO_ESX_USERNAME=admin
VIRTWHO_ESX_PASSWORD=secret
```

5. Save the changes to the configuration file.

6. Start the **virt-who** service; this begins gathering all of the host/guest data.

```
[root@vmware-server ~]# service virt-who start
```

The data are added to the **/var/lib/virt-who/hypervisor-systemid-UUID** file.

7. Use **chkconfig** to configure the **virt-who** service so that it starts automatically when the system starts.

```
[root@vmware-server ~]# chkconfig virt-who on
```

## 7.5. Registering Guest Instances

Register a virtual system the same as a physical system, as in [Section 4.1, “Registering a New System”](#).



### NOTE

The **virt-who** process must be running on the virtual host or on a hypervisor in the environment (for VMware) to ensure that **virt-who** process maps the guest to a physical host, so the system is properly registered as a virtual system. Otherwise, the virtual instance will be treated as a physical instance.

## 7.6. Attaching Subscriptions to Virtual Hosts and Guests

Subscriptions, preferences, and autoattach settings for both virtual hosts and virtual guests are configured the same as for physical systems and other types of consumers. This is covered in [Section 5, “Managing Subscriptions”](#).

There are two things to be aware of when using subscriptions in virtual environments.

First, as covered in [Section 7.2, “About Host/Guest Associations”](#), guests can inherit some subscriptions from their host. This means that it is not necessary to attach subscriptions to those systems for some products and that more products and content may be available to a system than what is directly attached to it.

Next, as covered in [Section 5.1, “About Relationships Between Subscriptions and Systems”](#), the quantity of subscriptions required for a virtual guest is lower than for a physical machine. For physical machines, subscriptions must cover the physical attributes of the machine, such as the number of sockets or cores. Subscriptions are always applied in sets of two to cover pairs of sockets or cores, and those subscription pairs must be attached to cover all sockets and cores. (For example, a four socket system requires two sets of two subscriptions).

However, for virtual guests, those physical attributes do not apply when counting subscriptions. Only a quantity of one is ever required to cover a virtual guest.

## 7.7. Creating a Data Center

There is a specific subscription available for data centers which registers a physical system as a hypervisor and then allows an unlimited number of virtual guests to be installed and registered on that system. That physical system can be a Red Hat Enterprise Linux system running RHEV or Xen, or it can be a non-Linux system, running VMware or HyperV. The configuration does not matter; as with running any virtualized environment, there simply must be one Red Hat Enterprise Linux system to run the **virt-who** process to create the host/guest mapping.

**For each physical host in the environment:**

1. Set up the host or hypervisor, as described in [Section 7.3, “Setting up a KVM or Xen Hypervisor”](#) or [Section 7.4, “Setting up a VMware Hypervisor”](#).
2. Attach the data center subscription to the hypervisor entry. The name of the subscription is *Red Hat Enterprise Linux for Virtual Datacenters ... System:Physical*.
3. Register all guests for that host/hypervisor, as described in [Section 7.5, “Registering Guest Instances”](#).

**NOTE**

If a virtual instance is migrated from one hypervisor to another, the Red Hat Enterprise Linux subscription is preserved, but any subscriptions for additional products, such as JBoss Enterprise Application Platform, must be released and then re-attached.

**8. DOCUMENT HISTORY**

<b>Revision 4-9</b>	<b>April 13, 2014</b>	<b>Ella Deon Ballard</b>
Updating instance-based and virtual setup sections.		
<b>Revision 4-5</b>	<b>October 1, 2013</b>	<b>Deon Ballard</b>
Adding subscription manager application option to select version.		
Adding information on hypervisor consumers.		
Adding information for instance-based subscriptions.		
Adding procedure to run autoattach on all consumers.		
<b>Revision 3-0</b>	<b>January 8, 2013</b>	<b>Ella Deon Lackey</b>
Updating errata notifications section for additional options.		
Updating all screenshots for modified UI.		
Updating terminology, UI elements, and commands.		
<b>Revision 2-2</b>	<b>July 12, 2012</b>	<b>Ella Deon Lackey</b>
Adding information on setting errata notifications.		
<b>Revision 2-0</b>	<b>June 13, 2012</b>	<b>Ella Deon Lackey</b>
Adding information on y-stream release preferences.		
<b>Revision 1-0</b>	<b>February 8, 2012</b>	<b>Ella Deon Lackey</b>
Updating all screenshots for UI changes.		
Updating the subscription overview.		
Adding information on distributors and manifests.		
<b>Revision 0-3</b>	<b>August 31, 2011</b>	<b>Ella Deon Lackey</b>
Fixing some typos.		
<b>Revision 0-2</b>	<b>July 1, 2011</b>	<b>Ella Deon Lackey</b>
Renaming and reversioning document. No content changes.		
<b>Revision 0-1</b>	<b>June 16, 2011</b>	<b>Ella Deon Lackey</b>
Added new cross-platform counts for entitlements management.		
<b>Revision 0-0</b>	<b>March 18, 2011</b>	<b>Ella Deon Lackey</b>
Initial draft for RHSM Web Client and portal subscriptions doc.		

