



# Red Hat Subscription Management All Subscription Docs

## Quick Registration for RHEL

quickly register and subscribe Red Hat Enterprise Linux systems

Edition 1.0



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Edition 1.0

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## Abstract

This guide covers basic information to register a Red Hat Enterprise Linux system quickly and to attach and manage subscriptions effectively. Advanced Subscription Manager configuration is covered in [Using and Configuring Red Hat Subscription Manager](#).

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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.

Red Hat Subscription Manager is installed on a local system and it tracks what products are installed, what subscriptions are available for the system, and what subscriptions are actually used by the system. It also tracks subscription expirations and automatically attaches new subscriptions based on the products and hardware.

Red Hat Subscription Manager works with content management tools (**yum**) to help install and update content on the local system.

Most systems require simple registration. The default configuration registers the system with the main account for the company, hosted on the Red Hat Customer Portal. It is also possible to register a system with Subscription Asset Manager or with another subscription service, with some modification to the Subscription Manager configuration. More advanced Subscription Manager configuration and usage is covered in *Using and Configuring Red Hat Subscription Manager* in the subscription management documentation set.

## 1. USING RED HAT SUBSCRIPTION MANAGER TOOLS

Both registration and subscriptions are managed on the local system through UI and CLI tools called *Red Hat Subscription Manager*.



### NOTE

The Red Hat Subscription Manager tools are always run as **root** because of the nature of the changes to the system. However, Red Hat Subscription Manager connects to the subscription service as a user account for the subscription service.

### 1.1. Launching the Red Hat Subscription Manager UI

Red Hat Subscription Manager is listed as one of the administrative tools in the **System > Administration** menu in the top management bar.

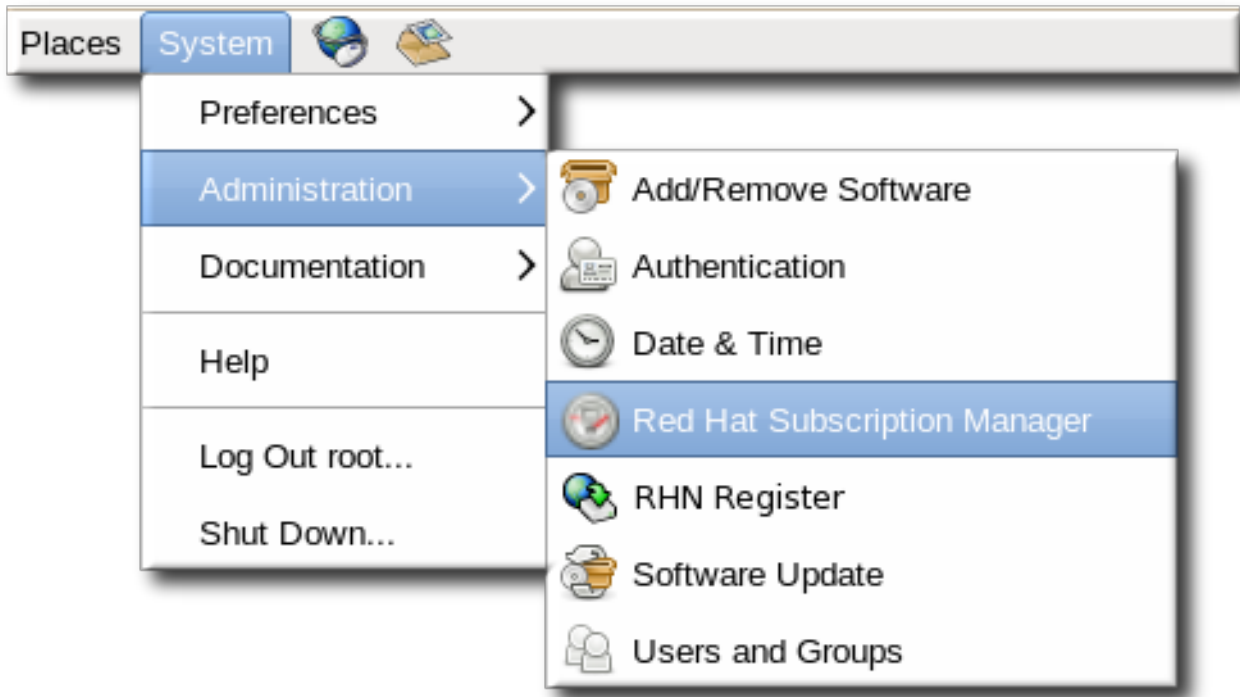


Figure 1. Red Hat Subscription Manager Menu Option

Alternatively, the Red Hat Subscription Manager UI can be opened from the command line with a single command:

```
[root@server1 ~]# subscription-manager-gui
```

## 1.2. Running the subscription-manager Command-Line Tool

Any of the operations that can be performed through the Red Hat Subscription Manager UI can also be performed by running the **subscription-manager** tool. This tool has the following format:

```
[root@server1 ~]# subscription-manager command [options]
```

Each command has its own set of *options* that are used with it. The **subscription-manager** help and manpage have more information.

Table 1. Common subscription-manager Commands

Command	Description
register	Registers or identifies a new system to the subscription service.
unregister	Unregisters a machine, which strips its subscriptions and removes the machine from the subscription service.
attach	Attaches a specific subscription to the machine.

Command	Description
redeem	Auto-attaches a machine to a pre-specified subscription that was purchased from a vendor, based on its hardware and BIOS information.
remove	Removes a specific subscription or all subscriptions from the machine.
list	Lists all of the subscriptions that are compatible with a machine, either subscriptions that are actually attached to the machine or unused subscriptions that are available to the machine.

## 2. REGISTERING AND UNREGISTERING A SYSTEM

Systems can be registered with a subscription service during the firstboot process or as part of the kickstart setup (both described in the *Installation Guide*). Systems can also be registered after they have been configured or removed from the subscription service inventory (unregistered) if they will no longer be managed within that subscription service.

### 2.1. Registering from the UI

1. Open **All Applications > Red Hat Subscription Manager**.
2. If the system is not already registered, then there will be a **Register** button at the top of the window.



**Subscriptions**

## Subscriptions

**Status:** This system is currently not registered. Register

## System Purpose

**Status:** Unknown

## Installed products

---

>
⊗
**Red Hat Enterprise Linux for x86\_64**

---

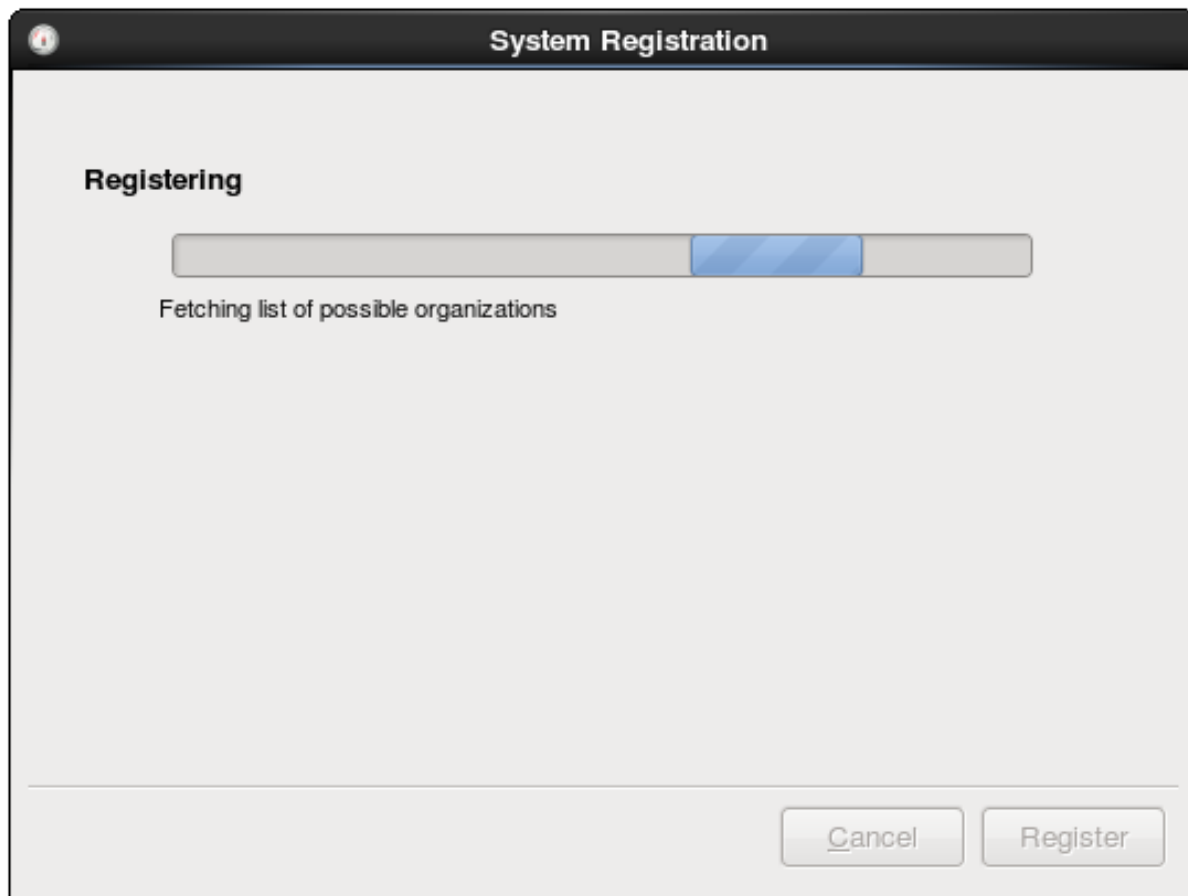
3. Enter your Customer Portal username and password, and click **Register**. If you need to enter a custom host name, you can do so here.

### Register System

URL	<input style="width: 95%;" type="text" value="Default"/>
Proxy	<input type="checkbox"/> I would like to connect via an HTTP proxy.
Login	<input style="width: 95%;" type="text"/>
Password	<input style="width: 95%;" type="password"/>
Activation Key	<input style="width: 95%;" type="text" value="key_one,key_two"/>
Organization	<input style="width: 95%;" type="text"/>

There are two different subscription services which use and recognize certificate-based subscriptions, and a system can be registered with either of them in firstboot:

- Customer Portal Subscription Management, hosted services from Red Hat (the default)
  - Satellite 6, an on-premise service which handles both subscription services and content delivery
4. When registration begins, Subscription Manager scans for organizations and environments (sub-domains within the organization) to which to register the system.



IT environments that use Customer Portal Subscription Management have only a single organization, so no further configuration is necessary. IT infrastructures that use a local subscription service like Subscription Asset Manager might have multiple organizations configured, and those organizations may have multiple environments configured within them.

If multiple organizations are detected, Subscription Manager prompts to select the one to join.

5. With the default setting, subscriptions are automatically selected and attached to the system. Review and confirm the subscriptions to attach to the system.
1. If prompted, select the service level to use for the discovered subscriptions.
  2. If prompted, enter the root password.
  3. Subscription Manager lists the selected subscription. This subscription selection must be confirmed by clicking the **Subscribe** button for the wizard to complete.

## Subscriptions

Status: Current

[Unregister](#)
Insights: [Not connected](#)

## System Purpose

Status: Mismatched

## Installed products

<span>✓</span> <span>🟢</span> Red Hat Enterprise Linux for x86_64 Beta	
<b>Product Name</b>	Red Hat Enterprise Linux for x86_64 Beta
<b>Product ID</b>	486
<b>Version</b>	8.2 Beta
<b>Arch</b>	x86_64
<b>Status</b>	Subscribed
<b>Starts</b>	11/19/2019
<b>Ends</b>	11/18/2020



### NOTE

If you unregister a system from Subscription Manager and then re-register it, the display make look differently. However, the steps are the same.

## 2.2. Registering from the Command Line

The simplest way to register a machine is to pass the **register** command with the user account information required to authenticate to Customer Portal Subscription Management. When the system is successfully authenticated, it echoes back the newly-assigned system inventory ID and the user account name which registered it.

The **register** options are listed in [Table 2, "register Options"](#).

### Example 1. Registering a System to the Customer Portal

```
[root@server1 ~]# subscription-manager register --username admin-example --password secret
```

```
The system has been registered with id: 7d133d55-876f-4f47-83eb-0ee931cb0a97
```

## Example 2. Automatically Subscribing While Registering

The **register** command has an option, **--auto-attach**, which allows the system to be registered to the subscription service and immediately attaches the subscription which best matches the system's architecture, in a single step.

```
[root@server1 ~]# subscription-manager register --username admin-example --password secret -
-auto-attach
```

This is the same behavior as when registering with the default settings in the Subscription Manager UI.

Table 2. register Options

Options	Description	Required
<code>--username=<i>name</i></code>	Gives the content server user account name.	Required
<code>--password=<i>password</i></code>	Gives the password for the user account.	Required
<code>--serverurl=<i>hostname</i></code>	Gives the hostname of the subscription service to use. The default is for Customer Portal Subscription Management, <code>subscription.rhn.redhat.com</code> . If this option is not used, the system is registered with Customer Portal Subscription Management.	Required for Subscription Asset Manager or Satellite 6
<code>--baseurl=<i>URL</i></code>	Gives the hostname of the content delivery server to use to receive updates. Both Customer Portal Subscription Management and Subscription Asset Manager use Red Hat's hosted content delivery services, with the URL <code>https://cdn.redhat.com</code> . Since Satellite 6 hosts its own content, the URL must be used for systems registered with Satellite 6.	Required for Satellite 6
<code>--org=<i>name</i></code>	Gives the organization to which to join the system.	Required, except for hosted environments
<code>--environment=<i>name</i></code>	Registers the system to an environment within an organization.	Optional

Options	Description	Required
<code>--name=<i>machine_name</i></code>	Sets the name of the system to register. This defaults to be the same as the hostname.	Optional
<code>--auto-attach</code>	Automatically attaches the best-matched compatible subscription. This is good for automated setup operations, since the system can be configured in a single step.	Optional
<code>--activationkey=<i>key</i></code>	Attaches existing subscriptions as part of the registration process. The subscriptions are pre-assigned by a vendor or by a systems administrator using Subscription Asset Manager.	Optional
<code>--servicelevel=None Standard Premium</code>	Sets the service level to use for subscriptions on that machine. This is only used with the <b>--auto-attach</b> option.	Optional
<code>--release=NUMBER</code>	Sets the operating system minor release to use for subscriptions for the system. Products and updates are limited to that specific minor release version. This is used only used with the <b>--auto-attach</b> option.	Optional
<code>--force</code>	Registers the system even if it is already registered. Normally, any register operations will fail if the machine is already registered.	Optional

### 2.3. Unregistering

The only thing required to unregister a machine is to run the **unregister** command. This removes the system's entry from the subscription service, removes any subscriptions, and, locally, deletes its identity and subscription certificates.

From the command line, this requires only the **unregister** command.

#### Example 3. Unregistering a System

```
[root@server1 ~]# subscription-manager unregister
```

To unregister from the Subscription Manager UI:

1. Open **All Applications > Red Hat Subscription Manager**.
2. Click **Unregister**.

## Subscriptions



Status: Current

[Unregister](#)Insights: [Not connected](#)

## System Purpose

Status: Mismatched

## Installed products

 	<b>Red Hat Enterprise Linux for x86_64 Beta</b>
<b>Product Name</b>	Red Hat Enterprise Linux for x86_64 Beta
<b>Product ID</b>	486
<b>Version</b>	8.2 Beta
<b>Arch</b>	x86_64
<b>Status</b>	Subscribed
<b>Starts</b>	11/19/2019
<b>Ends</b>	11/18/2020

3. Confirm that the system should be unregistered.

## 3. ATTACHING AND REMOVING 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.

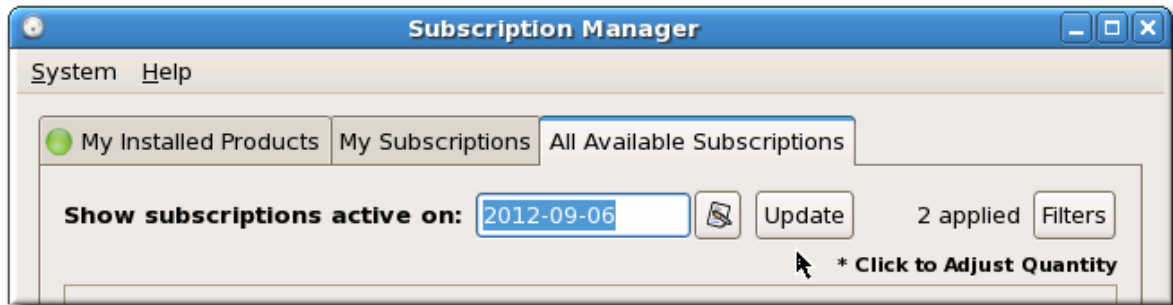
### 3.1. Attaching and Removing Subscriptions through the UI

#### 3.1.1. Attaching a Subscription

1. Launch Subscription Manager. For example:

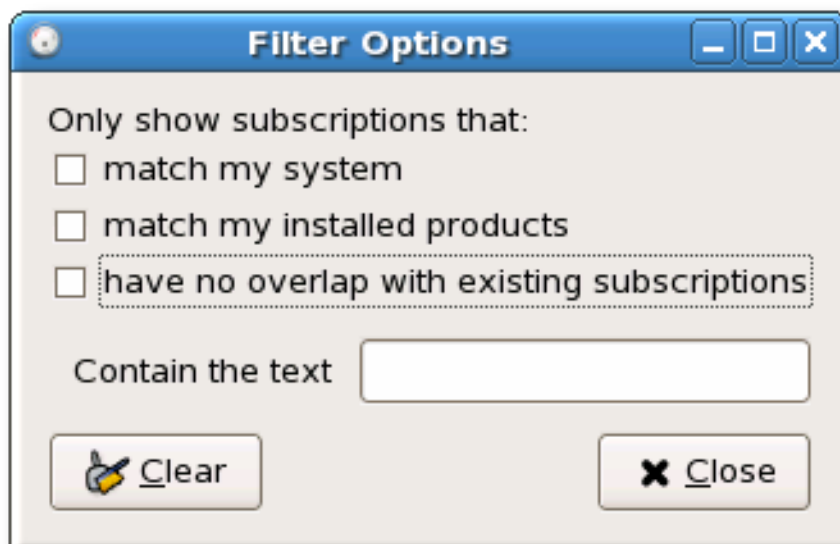
```
[root@server ~]# subscription-manager-gui
```

- Open the **All Available Subscriptions** tab.
- Optionally, set the date range and click the **Filters** button to set the filters to use to search for available subscriptions.



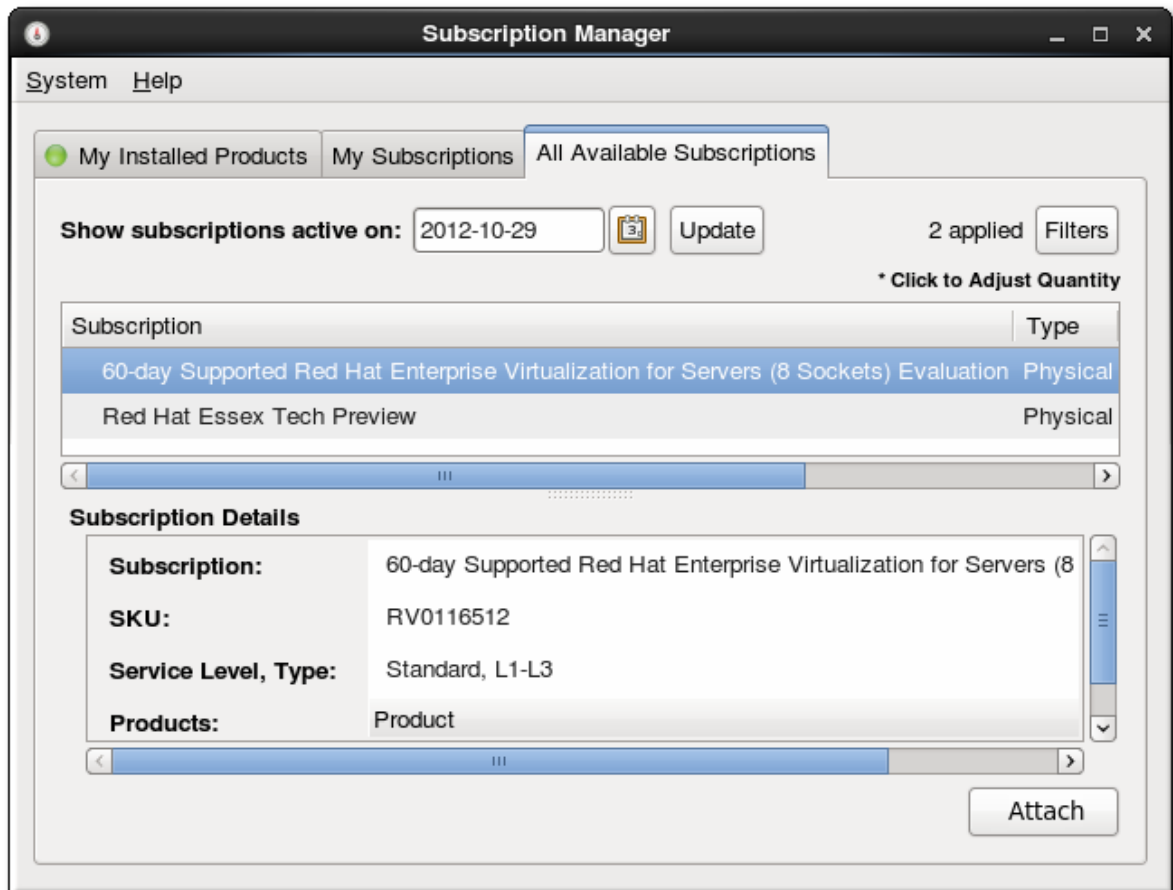
Subscriptions can be filtered by their active date and by their name. The checkboxes provide more fine-grained filtering:

- *match my system* shows only subscriptions which match the system architecture.
- *match my installed products* shows subscriptions which work with currently installed products on the system.
- *have no overlap with existing subscriptions* excludes subscriptions with duplicate products. If a subscription is already attached to the system for a specific product or if multiple subscriptions supply the same product, then the subscription service filters those subscriptions and shows only the best fit.
- *contain the text* searches for strings, such as the product name, within the subscription or pool.



After setting the date and filters, click the **Update** button to apply them.

- Select one of the available subscriptions.



5. Click the **Subscribe** button.

### 3.1.2. Removing Subscriptions

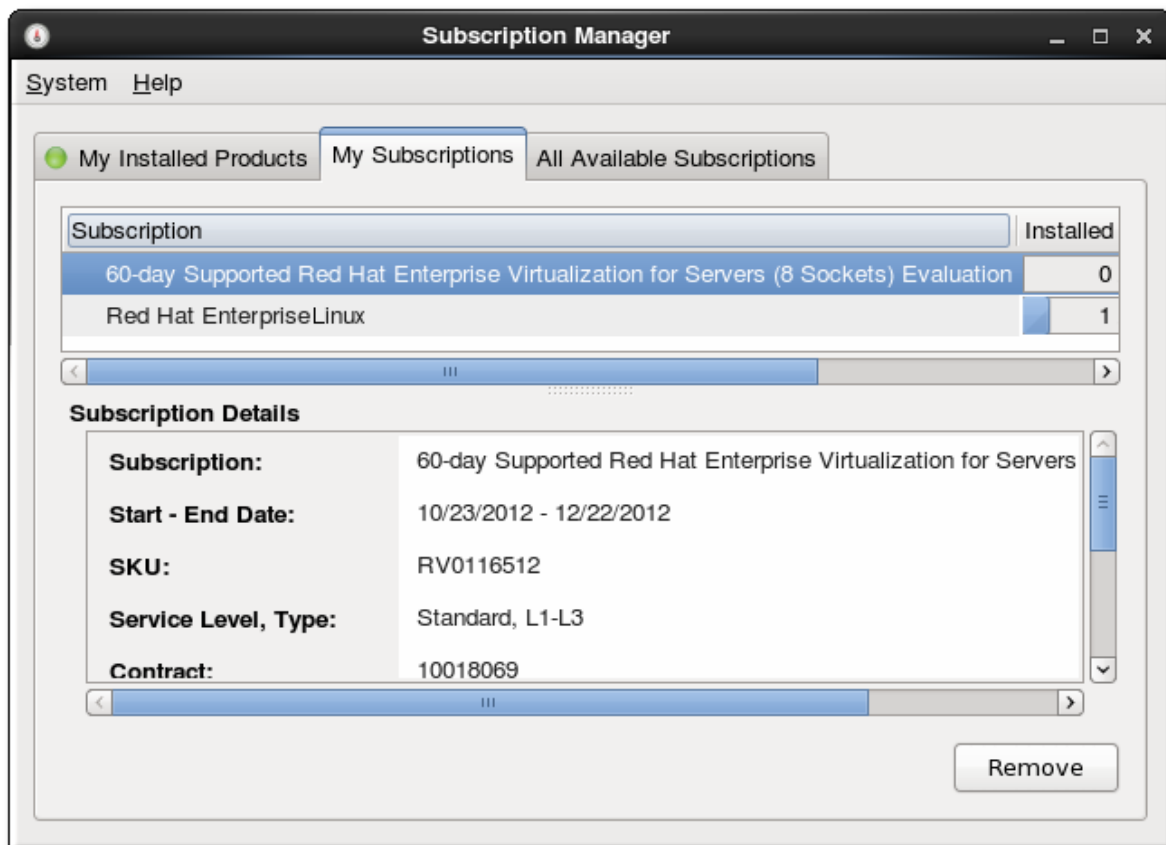
1. Launch Subscription Manager. For example:

```
[root@server ~]# subscription-manager-gui
```

2. Open the **My Subscriptions** tab.

All of the active subscriptions to which the system is currently attached are listed. (The products available through the subscription may or may not be installed.)





3. Select the subscription to remove.
4. Click the **Remove** button in the bottom right of the window.

## 3.2. Attaching and Removing Subscriptions through the Command Line

### 3.2.1. Attaching Subscriptions

Attaching subscriptions to a system requires specifying the individual product or subscription to attach, using the **--pool** option.

```
[root@server1 ~]# subscription-manager attach --pool=XYZ01234567
```

The options for the **attach** command are listed in [Table 3, "attach Options"](#).

The ID of the subscription pool for the purchased product must be specified. The pool ID is listed with the product subscription information, which is available from running the **list** command:

```
[root@server1 ~]# subscription-manager list --available
```

```
+-----+
Available Subscriptions
+-----+
ProductName:      RHEL for Physical Servers
ProductId:       MKT-rhel-server
PoolId:       ff8080812bc382e3012bc3845ca000cb
Quantity:        10
Expires:         2011-09-20
```

Alternatively, the best-fitting subscriptions, as identified by the subscription service, can be attached to the system by using the **--auto** option (which is analogous to the **--auto-attach** option with the **register** command).

```
[root@server1 ~]# subscription-manager attach --auto
```

**Table 3. attach Options**

Options	Description	Required
<code>--pool=<i>pool-id</i></code>	Gives the ID for the subscription to attach to the system.	Required, unless <b>--auto</b> is used
<code>--auto</code>	Automatically attaches the system to the best-match subscription or subscriptions.	Optional
<code>--quantity=<i>number</i></code>	Attaches multiple counts of a subscription to the system. This is used to cover subscriptions that define a count limit, like using two 2-socket server subscriptions to cover a 4-socket machine.	Optional
<code>--servicelevel=None Standard Premium</code>	Sets the service level to use for subscriptions on that machine. This is only used with the <b>--auto</b> option.	Optional

### 3.2.2. Removing Subscriptions from the Command Line

A system can be attached to multiple subscriptions and products. Similarly, a single subscription or all subscriptions can be removed from the system.

Running the **remove** command with the **--all** option removes every product subscription and subscription pool that is currently attached to the system.

```
[root@server1 ~]# subscription-manager remove --all
```

It is also possible to remove a single product subscription. Each product has an identifying X.509 certificate installed with it. The product subscription to remove is identified in the **remove** command by referencing the ID number of that X.509 certificate.

1. Get the serial number for the product certificate, if you are removing a single product subscription. The serial number can be obtained from the *subscription#.pem* file (for example, **392729555585697907.pem**) or by using the **list** command. For example:

```
[root@server1 ~]# subscription-manager list --consumed
```

```
+-----+
Consumed Product Subscriptions
+-----+
```

```
ProductName:   High availability (cluster suite)
ContractNumber: 0
SerialNumber:  11287514358600162
Active:        True
Begins:        2010-09-18
Expires:       2011-11-18
```

2. Run the subscription-manager tool with the **--serial** option to specify the certificate.

```
[root@server1 ~]# subscription-manager remove --serial=11287514358600162
```

## 4. REDEEMING VENDOR SUBSCRIPTIONS

Systems can be set up with pre-existing subscriptions already available to that system. For some systems which were purchased through third-party vendors, a subscription to Red Hat products is included with the purchase of the machine.

Red Hat Subscription Manager pulls information about the system hardware and the BIOS into the system facts to recognize the hardware vendor. If the vendor and BIOS information matches a certain configuration, then the subscription can be *redeemed*, which will allow subscriptions to be automatically attached to the system.

### 4.1. Redeeming Subscriptions through the UI



#### NOTE

If the machine does not have any subscriptions to be redeemed, then the **Redeem** menu item is not there.

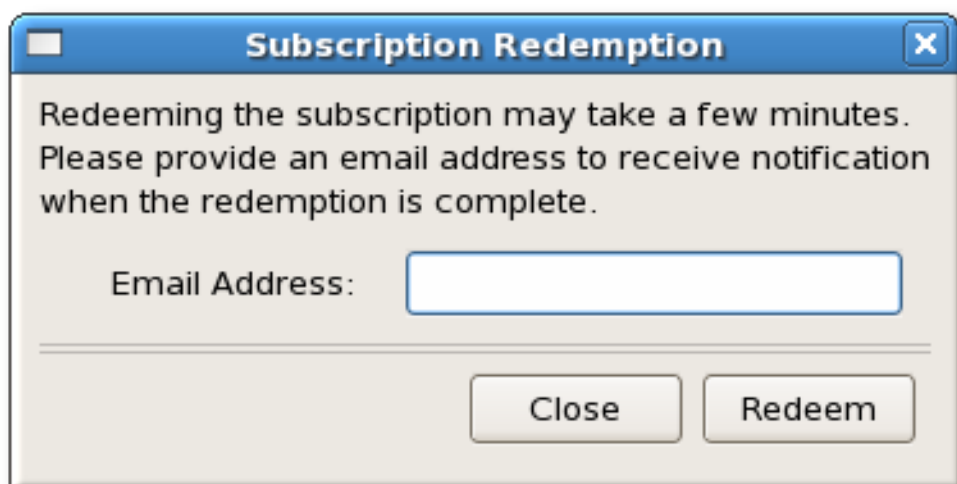
1. Launch Subscription Manager. For example:

```
[root@server ~]# subscription-manager-gui
```

2. If necessary, register the system, as described in [Section 2.1, "Registering from the UI"](#).
3. Open the **System** menu in the top left of the window, and click the **Redeem** item.



- In the dialog window, enter the email address to send the notification to when the redemption is complete. Because the redemption process can take several minutes to contact the vendor and receive information about the pre-configured subscriptions, the notification message is sent through email rather than through the Subscription Manager dialog window.



- Click the **Redeem** button.

It can take up to ten minutes for the confirmation email to arrive.

## 4.2. Redeeming Subscriptions through the Command Line



### NOTE

The machine must be registered *first* so that the subscription service can properly identify the system and its subscriptions.

The machine subscriptions are redeemed by running the **redeem** command, with an email address to send the redemption email to when the process is complete.

```
# subscription-manager redeem --email=jsmith@example.com
```

## 5. ATTACHING SUBSCRIPTIONS FROM A SUBSCRIPTION ASSET MANAGER ACTIVATION KEY

A local Subscription Asset Manager can pre-configure subscriptions to use for a system, and that pre-configured set of subscriptions is identified by an activation key. That key can then be used to attach those subscriptions on a local system.

The Subscription Asset Manager activation key can be used as part of the registration process for the new system:

```
# subscription-manager register --username=jsmith --password=secret --org="IT Dept" --  
activationkey=abcd1234
```

If there are multiple organizations, it is still necessary to specify the organization for the system. That information is not defined in the activation key.

## 6. SETTING PREFERENCES FOR SYSTEMS

Auto-attaching subscriptions selects what subscriptions to attach to a system based on a variety of criteria, including current installed products, hardware, and architecture. It is possible to set two additional preferences for Subscription Manager to use:

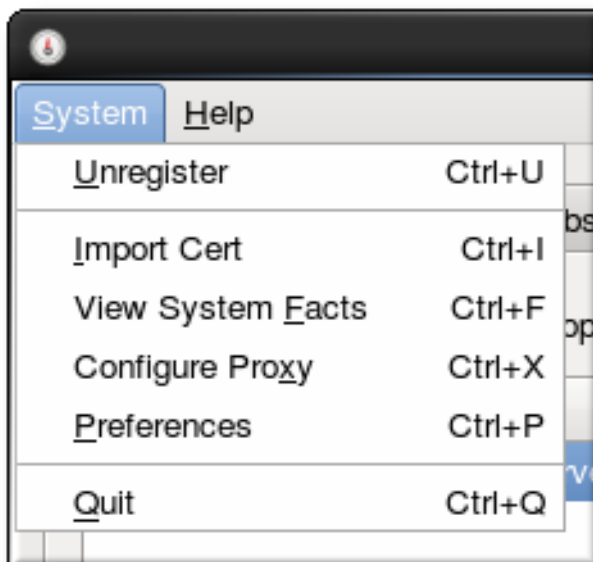
- Service levels for subscriptions
- The operating system minor version (X.Y) to use

This is especially useful when autoattach is scheduled as a job, which runs daily to ensure that all installed products and current subscriptions remain active.

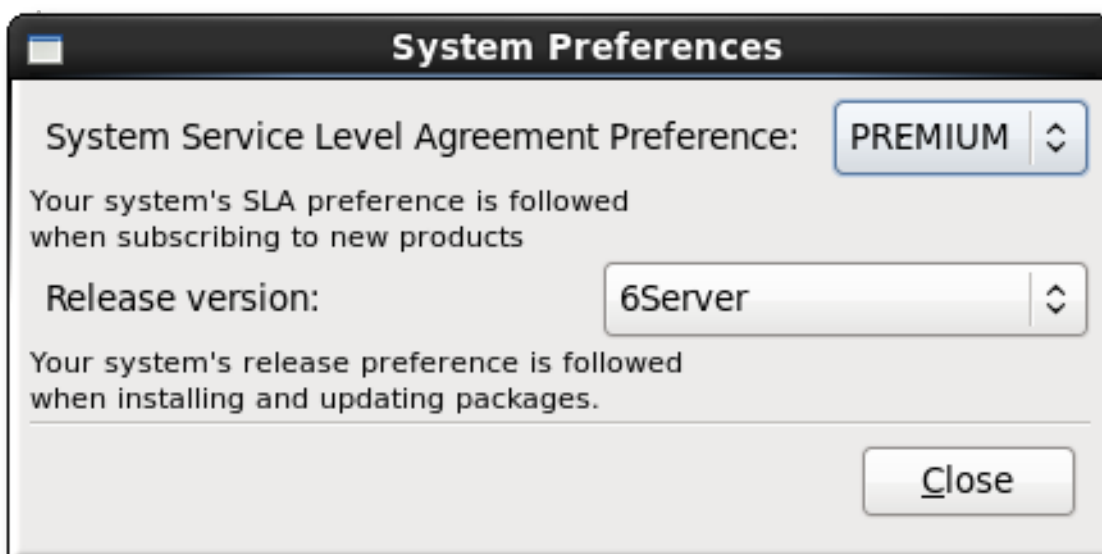
### 6.1. Setting Preferences in the UI

Both a service level preference and an operating system release version preference are set in the **System Preferences** dialog box in Subscription Manager.

1. Open the Subscription Manager.
2. Open the **System** menu.
3. Select the **System Preferences** menu item.



4. Select the desired service level agreement preference from the drop-down menu. Only service levels available to the Red Hat account, based on all of its active subscriptions, are listed.
5. Select the operating system release preference in the **Release version** drop-down menu. The only versions listed are Red Hat Enterprise Linux versions for which the account has an active subscription.



6. The preferences are saved and applied to future subscription operations when they are set. To close the dialog, click **Close**.

## 6.2. Setting Service Levels Through the Command Line

A general service level preference can be set using the **service-level --set** command.

### Example 4. Setting a Service Level Preference

First, list the available service levels for the system, using the **--list** option with the **service-level** command.

```
[root@server ~]# subscription-manager service-level --list
```

```
+-----+
|         |
| Available Service Levels |
|         |
+-----+
Standard
None
Premium
Self-Support
```

Then, set the desired level for the system.

```
[root@server ~]# subscription-manager service-level --set=self-support
Service level set to: self-support
```

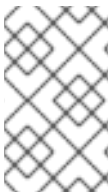
The current setting for the local system is shown with the **--show** option:

```
[root@server ~]# subscription-manager service-level --show
Current service level: self-support
```

A service level preference can be defined when a subscription operation is being run (such as registering a system or attaching subscriptions after registration). This can be used to override a system preference. Both the **register** and **attach** commands have the **--servicelevel** option to set a preference for that action.

#### Example 5. Autoattaching Subscriptions with a Premium Service Level

```
[root@server ~]# subscription-manager attach --auto --servicelevel Premium
Service level set to: Premium
Installed Product Current Status:
ProductName:      RHEL 6 for Workstations
Status:          Subscribed
```



#### NOTE

The **--servicelevel** option requires the **--auto-attach** option (for register) or **--auto** option (for attach). It cannot be used when attaching a specified pool or when importing a subscription.

### 6.3. Setting a Preferred Operating System Release Version in the Command Line

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.

#### Example 6. Setting an Operating System Release During Registration

A preference for a release version can be set when the system is registered by using **--release** option with the **register**. This applies the release preference to any subscriptions selected and auto-attached to the system at registration time.

Setting a preference requires the **--auto-attach** option, because it is one of the criteria used to select subscriptions to auto-attach.

```
[root#server ~]# subscription-manager register --auto-attach --release=6.4 --
username=admin@example.com...
```



## NOTE

Unlike setting a service level preference, a release preference can only be used during registration or set as a preference. It cannot be specified with the **attach** command.

### Example 7. Setting an Operating System Release Preference

The **release** command can display the available operating system releases, based on the available, purchased (not only attached) subscriptions for the organization.

```
[root#server ~]# subscription-manager release --list
+-----+
| Available Releases |
+-----+
6.2
6.3
```

The **--set** then sets the preference to one of the available release versions:

```
[root#server ~]# subscription-manager release --set=6.3
Release version set to: 6.3
```

## 7. MANAGING SUBSCRIPTION EXPIRATION AND NOTIFICATIONS

Subscriptions are active for a certain period of time, called the *validity period*. When a subscription is purchased, the start and end dates for the contract are set.

On a system, there can be multiple subscriptions attached. Each product requires its own subscription. Additionally, some products may require multiple quantities for it to be fully subscribed. For example, a 16 socket machine may require four 4-socket operating system subscriptions to cover the socket count.

The **My Installed Software** tab shows the subscription status for the entire system. It also shows a date; that is the first date that a product subscription goes from valid to invalid (meaning it expires).



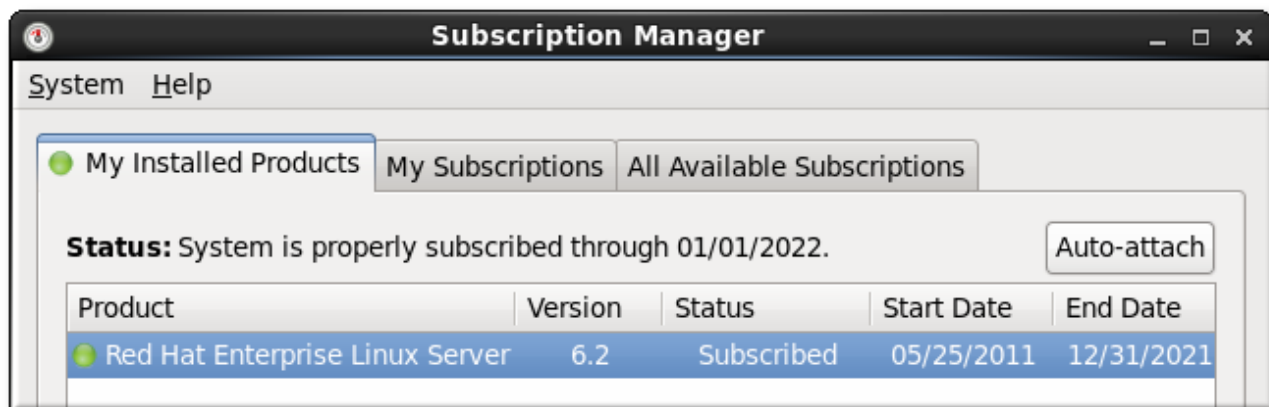


Figure 2. Valid Until...

The Red Hat Subscription Manager provides a series of log and UI messages that indicate any changes to the valid certificates of any installed products for a system. In the Subscription Manager UI, the status of the system subscriptions is color-coded, where *green* means all products are fully subscribed, *yellow* means that some products may not be subscribed but updates are still in effect, and *red* means that updates are disabled.

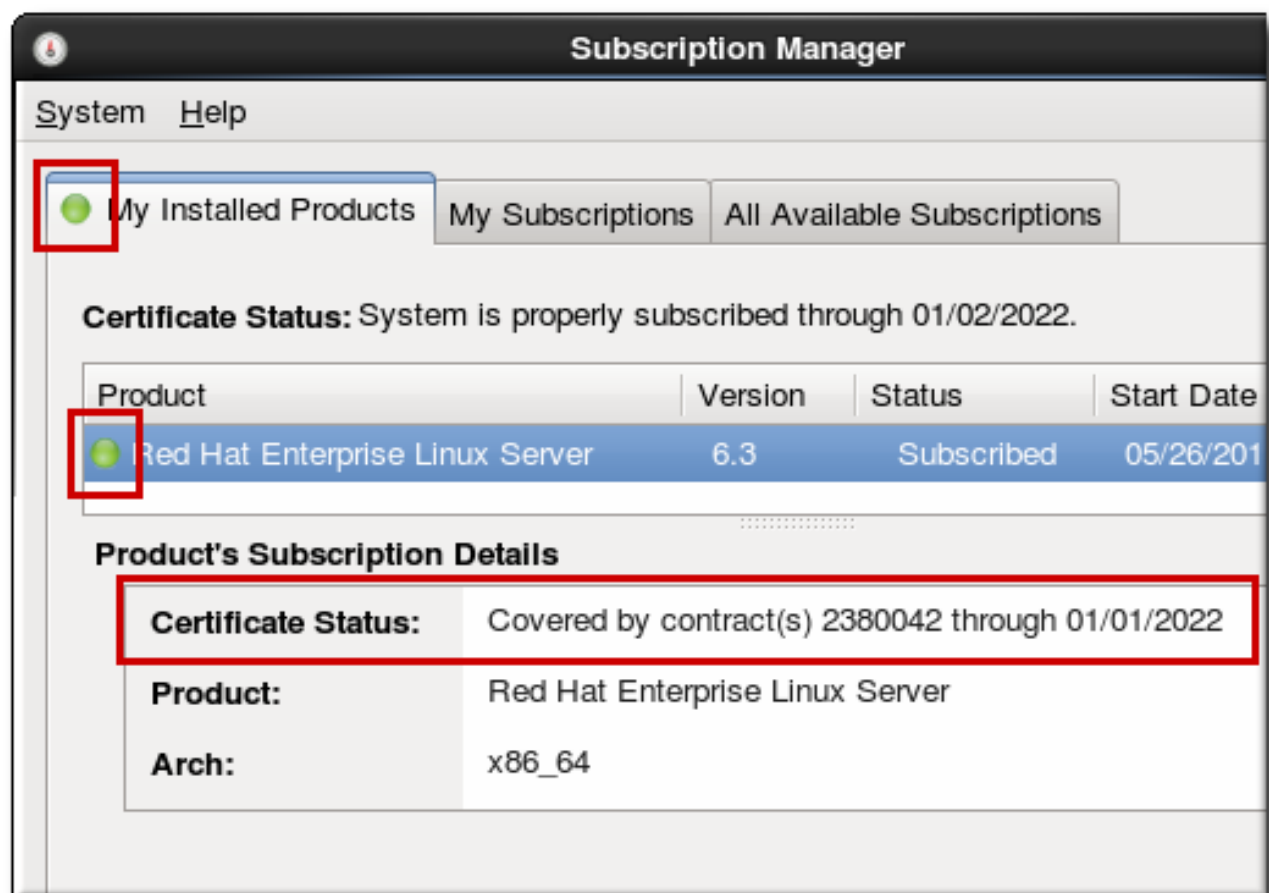


Figure 3. Color-Coded Status Views

The command-line tools also indicate that status of the machine. The green, yellow, and red codes translate to text status messages of *subscribed*, *partially subscribed*, and *expired/not subscribed*, respectively.

```
[root@server ~]# subscription-manager list
+-----+
```

Installed Product Status

+-----+

ProductName: Red Hat Enterprise Linux Server  
**Status: Not Subscribed**  
Expires:  
SerialNumber:  
ContractNumber:  
AccountNumber:

Whenever there is a warning about subscription changes, a small icon appears in the top menu bar, similar to a fuel gauge.

subscription notification icon

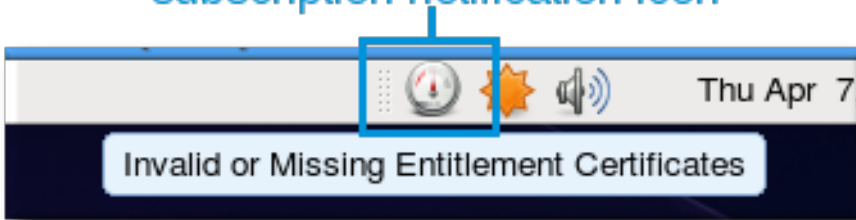
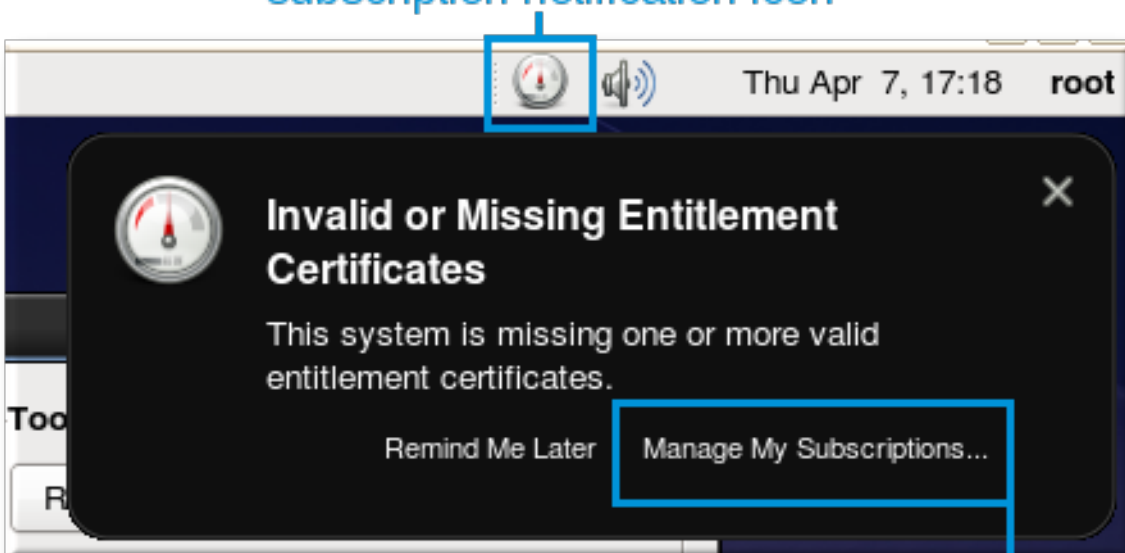


Figure 4. Subscription Notification Icon

As any installed product nears the expiration date of the subscription, the Subscription Manager daemon will issue a warning. A similar message is given when the system has products without a valid certificate, meaning either a subscription is not attached that covers that product or the product is installed past the expiration of the subscription. Clicking the **Manage My Subscriptions...** button in the subscription notification window opens the Red Hat Subscription Manager UI to view and update subscriptions.

subscription notification icon



launch subscription manager

Figure 5. Subscription Warning Message

When the Subscription Manager UI opens, whether it was opened through a notification or just opened normally, there is an icon in the upper left corner that shows whether products lack a valid certificate. The easiest way to attach subscriptions which match invalidated products is to click the **Autoattach**

button.

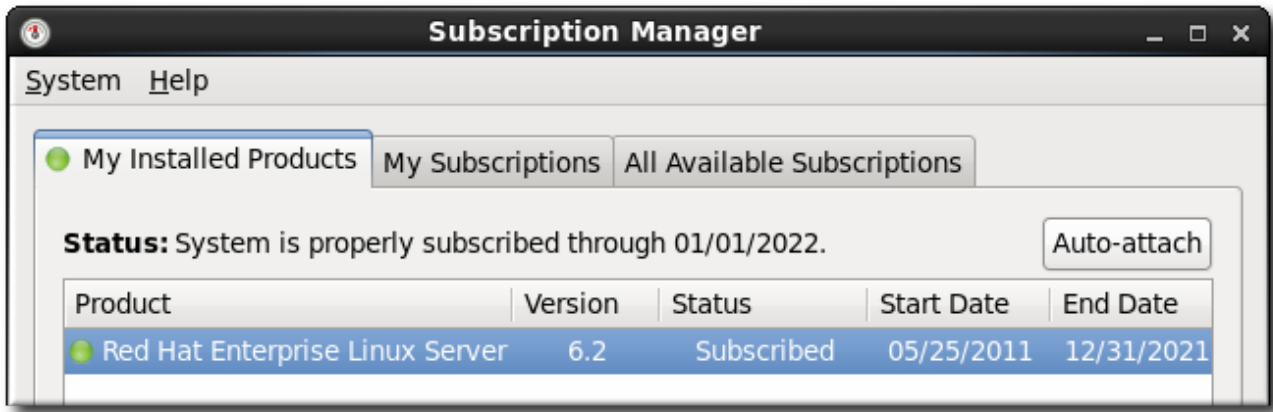


Figure 6. Autoattach Button

The **Subscribe System** dialog shows a targeted list of available subscriptions that apply to the specific products that do not have valid certificates (assuming subscriptions are available).

## 8. REVISION HISTORY

### Revision 2.0-1

February 7, 2020

Anni Bond

Updated processes for RHEL 8.

### Revision 1.3-5

September 18, 2013

Deon Ballard

New content and reorganization for the SAM 1.3 release.