IBM Endpoint Manager
Version 9.1

Patch Management for Red Hat Enterprise Linux User's Guide

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Enterprise Linux
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Contents

Chapter 1. Overview

IBM® Endpoint Manager Patch Management for Red Hat Enterprise Linux keeps your Linux clients current with the latest updates and service packs.

Patch management is available through the *Patches for RHEL* Fixlet® sites from Endpoint Manager. For each new patch or update that becomes available, Endpoint Manager releases a Fixlet that can identify and remediate all the computers in your enterprise that need it. With a few keystrokes, the Endpoint Manager Console Operator can apply the patch to all the relevant computers and visualize its progress as it deploys throughout the network.

The Endpoint Manager agent checks the operating system version, file versions, the language of the system and other relevant factors to determine when and if a patch is necessary.

Endpoint Manager tests each Fixlet in its lab before it is released. Testing often finds issues that are handled by attaching extra notes to the Fixlet. These notes typically allow the Console Operator to work around the problem, adding extra value to the patching process. Endpoint Manager also incorporates user feedback into notes, ensuring that you receive the latest information.

Fixlets allow you to manage large numbers of updates and patches with comparative ease, enabling automated, highly targeted deployment on any schedule that you want. Large downloads can be phased to optimize network bandwidth and the entire deployment process can be monitored, graphed, and recorded for inventory or audit control.

New Features

IBM Endpoint Manager for Patch Management for Red Hat Enterprise Linux added the Red Hat Linux Enterprise versions 5 and 6 patch sites, which use the Yellow dog Updated, Modified (YUM) native tool. YUM is the default patch manager for Red Hat Enterprise Linux and in the Patches for RHEL Native tools sites, YUM replaces the Endpoint Dependency Resolver (EDR) utilities. It is highly suggested that users subscribe and use the RHEL Native tools sites.

Supported platforms

Endpoint Manager for Patch Management Red Hat Enterprise Linux supports Red Hat Enterprise Linux versions 3, 4, 5, and 6.

Endpoint Manager for Patch Management Red Hat Enterprise Linux provides Red Hat Security Advisories, Fix Advisories, and Bug Fix Advisories on the following platforms:

- Red Hat Enterprise Linux 3
- Red Hat Enterprise Linux 4
- Red Hat Enterprise Linux 5
- Red Hat Enterprise Linux 6

Table 1. Red Hat Enterprise Linux platforms that IBM Endpoint Manager supports

Red Hat Enterprise Linux version	Supported architecture	
	Intel	System z
Red Hat Enterprise Linux 3	✔	✔
Red Hat Enterprise Linux 4	✔	✔
Red Hat Enterprise Linux 5	✔	✔
Red Hat Enterprise Linux 6	✔	-

Note: Patch Management for Red Hat Enterprise Linux supports only audit Fixlets on System z architecture.

Site applicability matrix

The various features of Patch Management for Red Hat apply differently for each Red Hat site.

The following matrix shows the Patch Management for Red Hat features that apply for each Red Hat site.

Table 2. Applicability matrix of features in each Patch Management for Red Hat Enterprise Linux site

Feature	Patches for RHEL 5 site	Patches for RHEL 6 site	Patches for RHEL 5 - Native Tools site	Patches for RHEL 6 - Native Tools site
Download Plug-ins	Applicable	Applicable	Applicable	Applicable
RPM Deployment	Applicable	Applicable	Not applicable	Not applicable
Custom Repository Management dashboard	Not applicable	Not applicable	Applicable	Applicable
Preference List	Applicable	Applicable	Not applicable	Not applicable
Uninstall Red Hat	Applicable	Applicable	Applicable	Applicable

Note: RHEL 5.x requires the use of Yum utility version 3.2.19-18 or later.

Chapter 2. Setup

Setting up your environment for patch management.

Site subscription

Sites are collections of Fixlet messages that are created internally by you, by IBM, or by vendors.

Subscribe to a site to access the Fixlet messages to patch systems in your deployment.

You can add a site subscription by acquiring a Masthead file from a vendor or from IBM or by using the Licensing Dashboard. For more information about subscribing to Fixlet sites, see the *IBM Endpoint Manager Installation Guide*.

For more information about sites, see the *IBM Endpoint Manager Console Operator's Guide*.

Subscribing to the Patches for RHEL sites

Subscribe to the Patches for RHEL sites through the License Overview dashboard.

RHEL 5.x requires the use of YUM utility version 3.2.19-18 or later.

1. From the **BigFix Management** domain, click **License Overview** dashboard.
2. Scroll down to view the available content sites.
3. Click **Enable** to select the version of Patches for RHEL site to which you want to subscribe.
4. Open the **Manage Sites** node and select your newly subscribed site.
5. From the site dialog, click the **Computer Subscriptions** tab to assign the site to the appropriate computers.
6. From the **Operator Permissions** tab, select the operators that you want to associate with this site and their level of permission.
7. Click **Save Changes**.

You are now subscribed to a Patches for RHEL site.

Download plug-ins

Download plug-ins are executable programs that download a specified patch from the website of the patch vendor. To ease the process of caching, Fixlets have an incorporated protocol that uses download plug-ins.

For the Fixlet to recognize the protocol, the related download plug-in must be registered. You must use the Manage Download Plug-ins dashboard to register the download plug-in. After you register the plug-in, you can run the Fixlets to download, cache, and deploy patches from the IBM Endpoint Manager console.

If you already registered the plug-in, you can use the Manage Download Plug-ins dashboard to run the update. You must use the dashboard also to unregister and configure the download plug-in. For more information about the dashboard, see the following topics.

Note: Use the official mirror server configuration when you plan to download large amounts of packages. Specify the mirror server URL and credentials during the download plug-in registration or configuration to avoid being locked out of your account.

Note: If you install the download plug-in on relays, it is suggested that you also install it on the server.

Manage Download Plug-ins dashboard

Use the Manage Download Plug-ins dashboard to oversee and manage download plug-ins in your deployment.

You can use the Manage Download Plug-ins dashboard to register, unregister, configure, and upgrade the download plug-ins for different patch vendors. For more information about these features, see the following topics.

You must subscribe to the Patching Support site to gain access to this dashboard. To view the Manage Download Plug-ins dashboard, go to **Patch Management domain** > **All Patch Management** > **Dashboards** > **Manage Download Plug-ins**.
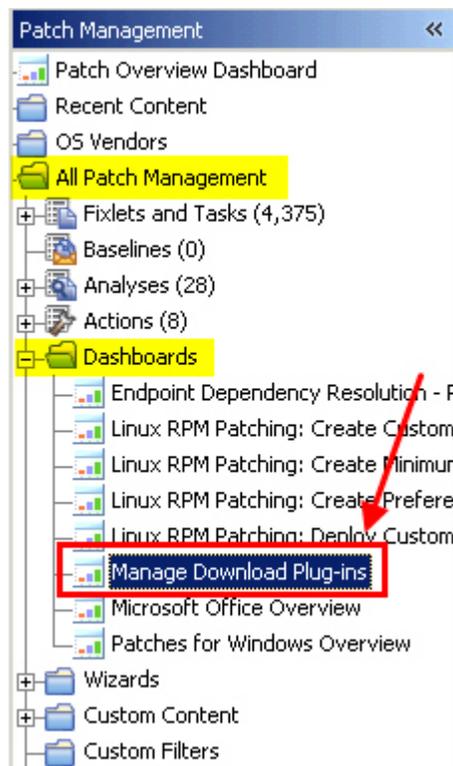

Figure 1. Patch Management navigation tree

The dashboard displays all the servers and windows-only relays in your deployment. Select a server or relay to view all the plug-ins for that computer. The dashboard shows you also the version and status for each plug-in in one

consolidated view.

Figure 2. Manage Download Plug-ins dashboard

A plug-in can be in one of the following states:
- Not Installed
- New Version Available
- Up-To-Date
- Not Supported

Note: CentOS and SUSE Linux download plug-ins are not supported in relays.

The dashboard has a live keyword search capability. You can search based on the naming convention of the servers, relays, and plug-ins.

Registering the RedHat download plug-in

Use the Manage Download Plug-ins dashboard to register the download plug-in for RedHat.

You must complete the following tasks:
- Subscribe to the **Patching Support** site to gain access to the Manage Download Plug-ins dashboard.
- Enable the **Encryption for Clients** Fixlet on servers and relays for which you want to register the download plug-in.

- Activate the **Encryption Analysis for Clients** analysis and **Download Plug-in Versions** analysis.

When you register the download plug-in on a computer without the plug-in, the plug-in is automatically installed and the configuration file is created.

If the download plug-in is already installed on the computer, the configuration file is overwritten.

1. From the Patch Management domain, click **All Patch Management** > **Dashboards** > **Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server or relay on which the download plug-in is to be registered.
3. From the Plug-ins table, select **RedHat Plug-in**.
4. Click **Register**. The Register RedHat Plug-in wizard displays.

Figure 3. Register RedHat download plug-in wizard

5. Enter the RedHat credentials that you use to log on to the RedHat Support site.

RedHat Username
Your RedHat account user name to the RedHat Support site. It must have a valid support identifier to download patches.

RedHat Password
Your RedHat account password to the RedHat Support site.

Confirm RedHat Password
Your RedHat account password for confirmation.

6. Optional: Enter the proxy parameters if the downloads must go through a proxy server.

Proxy URL
The URL of your proxy server. It must be a well-formed URL, which contains a protocol and a host name. The URL is usually the IP address or DNS name of your proxy server and its port, which is separated by a colon. For example: `http://192.168.100.10:8080`.

Proxy Username
Your proxy user name if your proxy server requires authentication. It is usually in the form of `domain\username`.

Proxy Password
Your proxy password if your proxy server requires authentication.

Confirm Proxy Password
Your proxy password for confirmation.

7. Click **OK**. The Take Action dialog displays.
8. Select the target computer.
9. Click **OK**.

You successfully registered the RedHat download plug-in.

Unregistering the RedHat download plug-in

Use the Manage Download Plug-ins dashboard to unregister the download plug-in for RedHat.

1. From the Patch Management domain, click **All Patch Management** > **Dashboards** > **Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server or relay on which the download plug-in is to be unregistered.
3. From the Plug-ins table, select **RedHat Plug-in**.
4. Click **Unregister**.

Figure 4. Unregister the RedHat download plug-in

The Take Action dialog displays.
5. Select the target computer.
6. Click **OK**.

You successfully unregistered the RedHat download plug-in.

Configuring the RedHat download plug-in

Use the Manage Download Plug-ins dashboard to configure the download plug-in for RedHat.

You might want to take note of your existing configuration for the download plug-in. Existing configurations are overwritten when you configure the download plug-in.

1. From the Patch Management domain, click **All Patch Management** > **Dashboards** > **Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server or relay on which the download plug-in is to be configured.
3. From the Plug-ins table, select **RedHat Plug-in**.
4. Click **Configure**. The Configure RedHat Plug-in wizard displays.

Figure 5. Configure RedHat download plug-in wizard

5. Enter the RedHat credentials that you use to log on to the RedHat Support site.

   RedHat Username
   > Your RedHat account user name to the RedHat Support site. It must have a valid support identifier to download patches.

   Red Hat Password
   > Your RedHat account password to the RedHat Support site.

   Confirm Red Hat Password
   > Your Red Hat account password for confirmation.

6. Optional: Enter the proxy parameters if the downloads must go through a proxy server.

Proxy URL
> The URL of your proxy server. It must be a well-formed URL, which contains a protocol and a host name. The URL is usually the IP address or DNS name of your proxy server and its port, which is separated by a colon. For example, `http://192.168.100.10:8080`.

Proxy Username
> Your proxy user name if your proxy server requires authentication. It is usually in the form `domain\username`.

Proxy Password
> Your proxy password if your proxy server requires authentication.

Confirm Proxy Password
> Your proxy password for confirmation.

7. Click **OK**. The Take Action dialog displays.
8. Select the target computer.
9. Click **OK**.

You successfully configured the RedHat download plug-in.

Migrating the RedHat download plug-in

You must migrate the download plug-in if the plug-in version is earlier than 2.0.0.0. You need to do this only once. The download plug-in is upgraded to the latest version after migration.

You might want to take note of your existing configuration for the download plug-in. Existing configurations are overwritten when you migrate the download plug-in.

1. From the Patch Management domain, click **All Patch Management** > **Dashboards** > **Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server or relay on which the download plug-in is to be migrated.
3. From the Plug-ins table, select **RedHat Plug-in**.
4. Click **Migrate**. The Migrate RedHat Plug-in wizard displays.

Figure 6. Migrate RedHat download plug-in wizard

5. Enter the RedHat credentials that you use to log on to the RedHat Support site.

   RedHat Username
   > Your RedHat account user name to the RedHat Support site. It must have a valid support identifier to download patches.

   RedHat Password
   > Your RedHat account password to the RedHat Support site.

   Confirm RedHat Password
   > Your RedHat account password for confirmation.

6. Optional: Enter the proxy parameters if the downloads must go through a proxy server.

   Proxy URL
   > The URL of your proxy server. It must be a well-formed URL, which contains a protocol and a host name. The URL is usually the IP address or DNS name of your proxy server and its port, which is separated by a colon. For example, `http://192.168.100.10:8080`.

   Proxy Username
   > Your proxy user name if your proxy server requires authentication. It is usually in the form of `domain\username`.

   Proxy Password
   > Your proxy password if your proxy server requires authentication.

Confirm Proxy Password
Your proxy password for confirmation.
7. Click **OK**. The Take Action dialog displays.
8. Select the target computer on which the download plug-in is to be upgraded.
9. Click **OK**.

You successfully migrated and upgraded the RedHat download plug-in.

Upgrading the RedHat download plug-in

Use the Manage Download Plug-ins dashboard to upgrade the download plug-in for RedHat.
1. From the Patch Management domain, click **All Patch Management** > **Dashboards** > **Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server or relay on which the download plug-in is to be upgraded.
3. From the Plug-ins table, select **RedHat Plug-in**.
4. Click **Upgrade**. The Take Action dialog displays.
5. Select the target computer.
6. Click **OK**.

You now have the latest version of the RedHat download plug-in installed.

Chapter 3. Using Patch Management for Red Hat Enterprise Linux

You can deploy patches from the IBM Endpoint Manager console and view the Red Hat bulletin for a specific Fixlet. Activate an analysis to view the results of an action that is found in a log file on the endpoint.

Patch using Fixlets

You can deploy patches from the Endpoint Manager Console.

In the *Patch Management domain* in the console navigation tree, click *OS Vendors* and click Red Hat Enterprise Linux.
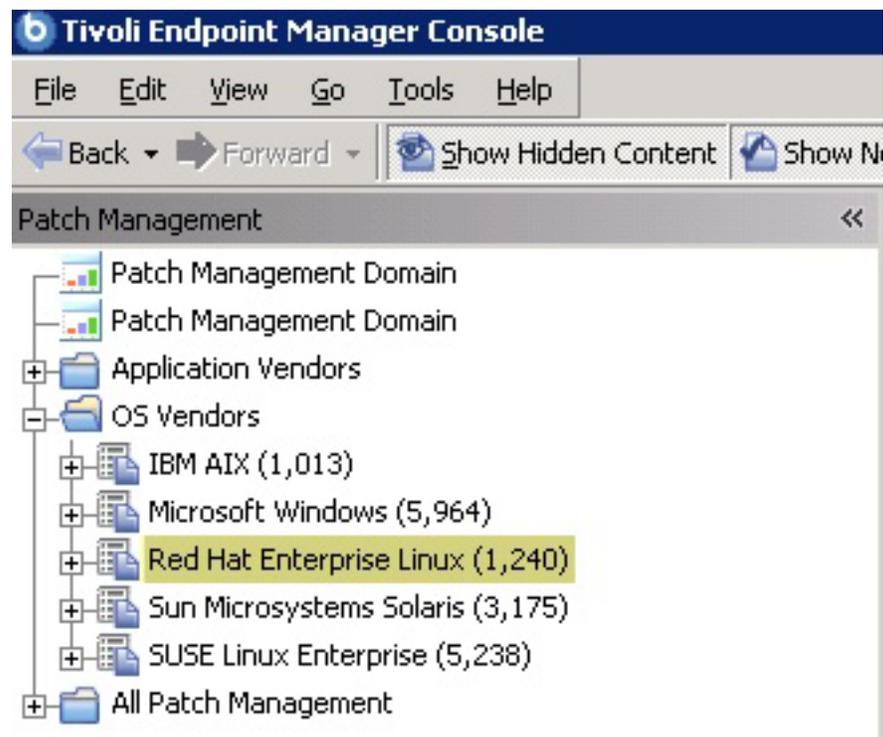
Double-click the Fixlet that you want to deploy. Click the tabs at the top of the Fixlet window to review additional details, and then click the appropriate link in the Actions box to start deployment. Click *OK*.
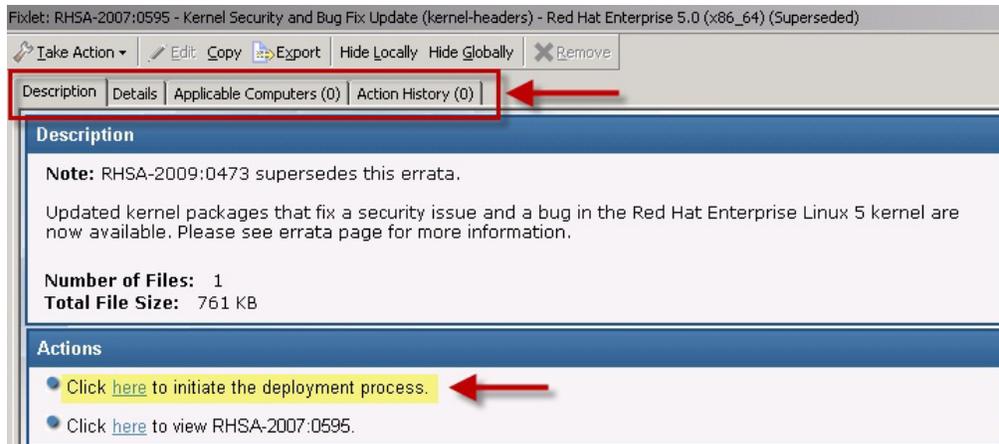
To view the Red Hat bulletin for a particular Fixlet, select the *Click here to view the patch page* action to view the patch page.

Patch Using Fixlets with Red Hat Enterprise Linux 5 and 6

If an action is successful, the results are saved in a log file on the endpoint. You can activate an analysis to view the results. You can navigate to the analysis by clicking Analyses in the navigation tree and selecting "Endpoint Dependency Resolution - Deployment Results".
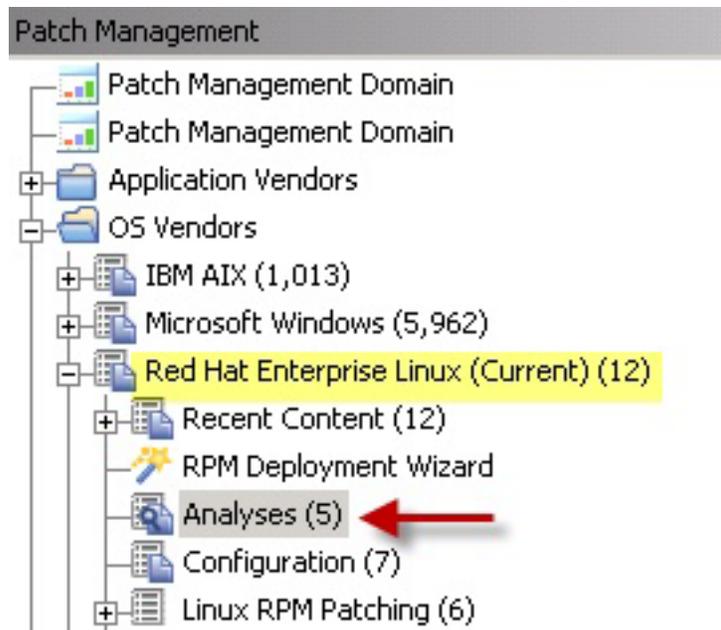
Click *Activate*.
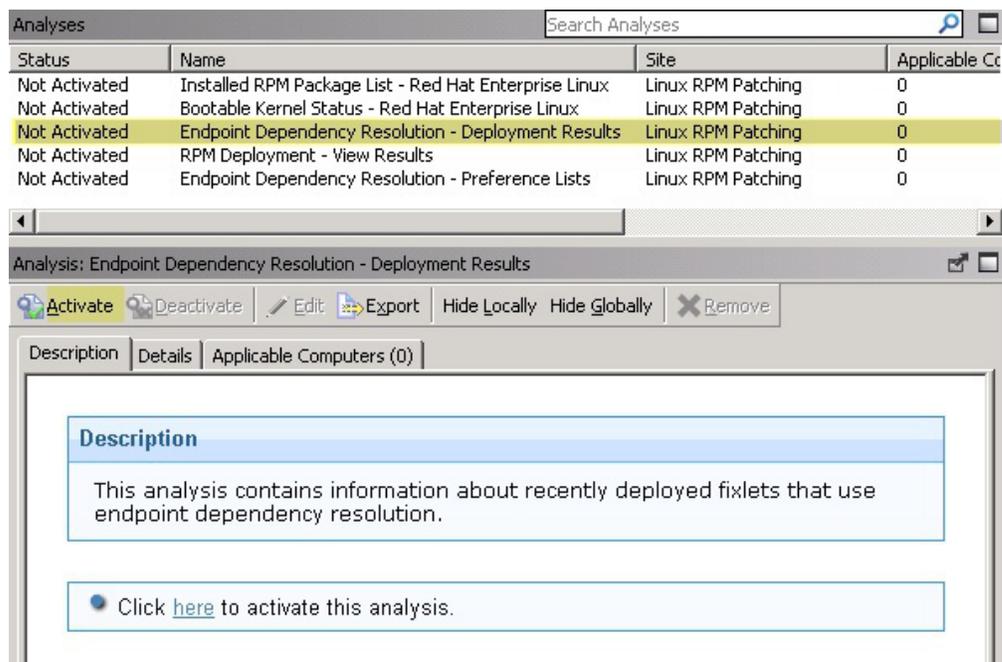
Click the Results tab in the Analysis window that is displayed after you activate the analysis.
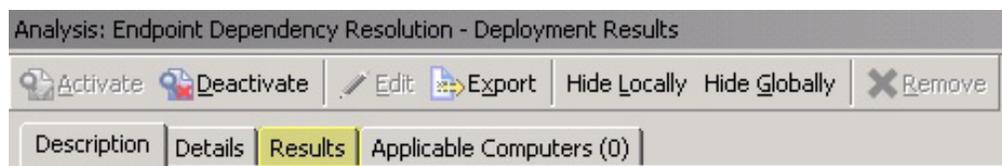
When you review the properties of an endpoint, you can view the current deployment information on that system. To view this data, navigate in the *All Content* domain and select the *Computers* node. Select the computer that you want to inspect in the work area. Scroll down to Deployment Results.

You can limit the length of the output by running the *Endpoint Dependency Resolution – Set deployment results analysis report length* task. To access this task, click OS Vendors from the navigation tree, and then click the Red Hat Enterprise Linux and Configuration subnodes.
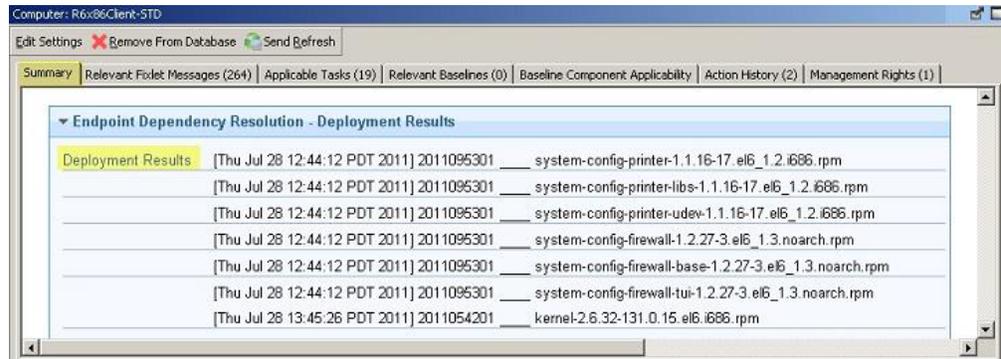
The default analysis length is 100 entries.

When running a Red Hat Enterprise Linux patch Fixlet, you can also deploy a test run prior to applying the patch. You can view the Deployment Results analysis to determine if the dependencies have been successfully resolved and if an installation is successful.

Note: When using the test run feature, the action reports back as Fixed, even if the test fails.
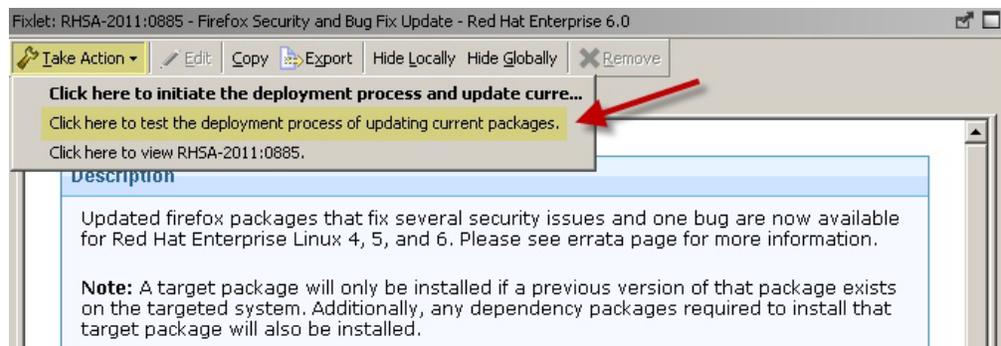
Kernel Fixlets provide the option to upgrade or install all kernel packages. The upgrade option replaces existing kernel packages with later versions. The install option installs the later kernel packages next to the previous versions. The default behavior for kernel updates is to install packages side by side. Additionally, each kernel update Fixlet provides the ability to test each of these options.

Patch by using the YUM utility

Yellow dog Updater, Modified (YUM), the default patch manager for Red Hat Enterprise Linux, replaces the Endpoint Dependency Resolver (EDR) utilities that

Patch Management for Enterprise Linux previously used. Patch Management for Red Hat Enterprise Linux that uses YUM applies to both Red Hat Linux Enterprise versions 5 and 6.

Previously, the Patch Management for Red Hat Enterprise Linux sites used a set of utilities that are called Endpoint Dependency Resolver utilities to handle package dependencies on the endpoint. YUM replaces these EDR utilities and gives you more flexibility in terms of patch deployment and providing results that are in parallel with Red Hat solutions.

YUM is a package management tool that updates, installs, and removes Red Hat Package Manager (RPM) packages. YUM uses a command-line interface and simplifies the process of installing, uninstalling, and updating packages, provided that there is access to the YUM repository.

It is highly suggested that users start to use the RHEL Native tools sites because YUM reduces dependency issues and improves performance. There is no marked difference in how the EDR and YUM native tools sites are used when deploying patches. To use YUM, users must subscribe to the Patches for RHEL Natives tool sites. To learn about subscribing to the Patches for RHEL Native tools sites, see Subscribing to the Patches for RHEL sites.

Note: The Patch Management for Red Hat Enterprise Linux sites for RHEL 5 and RHEL 6 continue to use the EDR utilities, which use RPM.

YUM utility configuration settings

The Patch Management for Red Hat sites that apply the YUM utility use Fixlet settings in /etc/yum.conf. except for the following YUM configuration settings:

- `cachedir`
- `keepcache`
- `plugins`
- `reposdir`
- `pluginpath`
- `pluginconfpath`
- `metadata_expire`
- `installonlypkgs`

Identifying file relevance with Native tools content

Native tools content capture file relevance differently from EDR. EDR checks for packages that are earlier than a certain version, by using the relevance `clause not exist lower version of file`. Native tools content is more restrictive and checks for packages that are earlier than a specific version, as well as not later than a specific version. Native tools content uses the relevance clause checks for `exist lower version of file, but not exist higher version of file`.

If both tools are applied to the same deployment, the difference of the EDR and Native tools methods might lead to a difference in relevance results. It is highly suggested that users use the Native tools sites.

Dependency Issues

Note: This section only applies to Red Hat Enterprise Linux 3 and 4.

For some updates, audit Fixlets with the title "Dependencies Needed" or "Dependency Conflicts" become relevant. In this case, you must resolve any dependency issues manually or use the RPM Deployment Wizard before applying remediation Fixlets. There are three types of dependency issues:

Missing RPM or RPMs
Users must install any version of the required packages, otherwise the update does not install.

Required RPM or RPMs out of date
Users must update the RPMs to the required version to install the update.

Conflict between installed RPMs and RPMs to be installed
Users must either remove conflicting RPMs or upgrade them to specific versions.

For more information about dependency issues, click **here** for the relevant Knowledge Base article.

Use the RPM Deployment Wizard

The RPM Deployment Wizard facilitates deployment of RPM packages. This wizard does not resolve dependencies and handles only simple deployment cases. In the Content Filters part of the navigation tree, click *OS Vendors, Red Hat Enterprise Linux,* and then *RPM Deployment Wizard.*
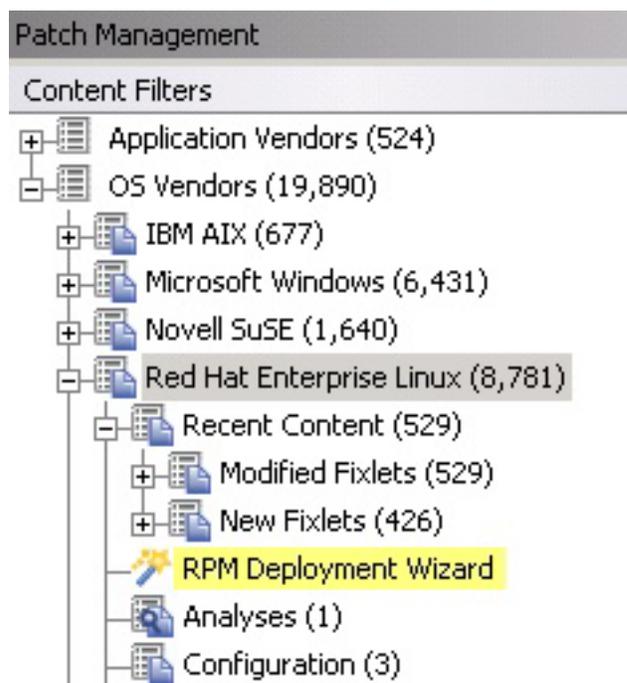
When the Wizard opens, enter the RPM package that you want to deploy.
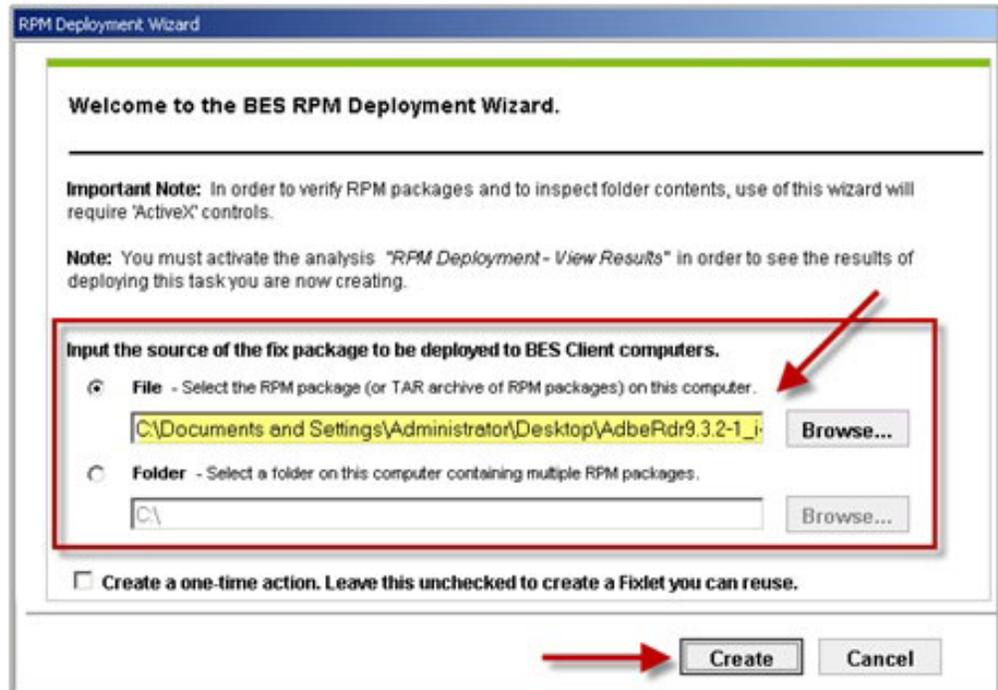
Click the checkbox if you want to create a one-time action, or leave blank to create a Fixlet you can reuse. When complete, click *Create.* You see the following progress screen:
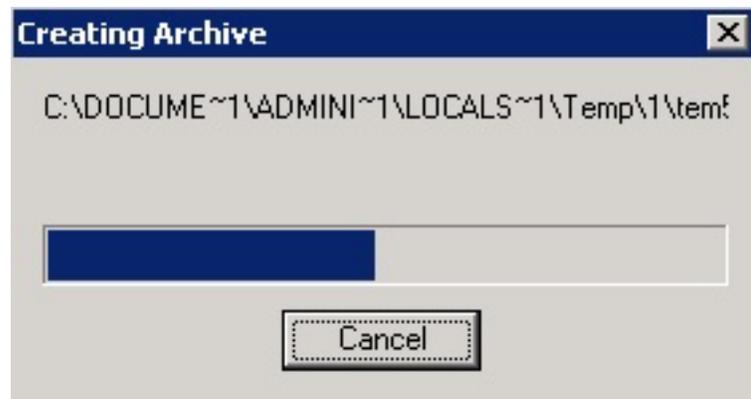
When the first Task window opens, click *OK* and enter your Private Key Password. Then click in the Actions box to initiate deployment.
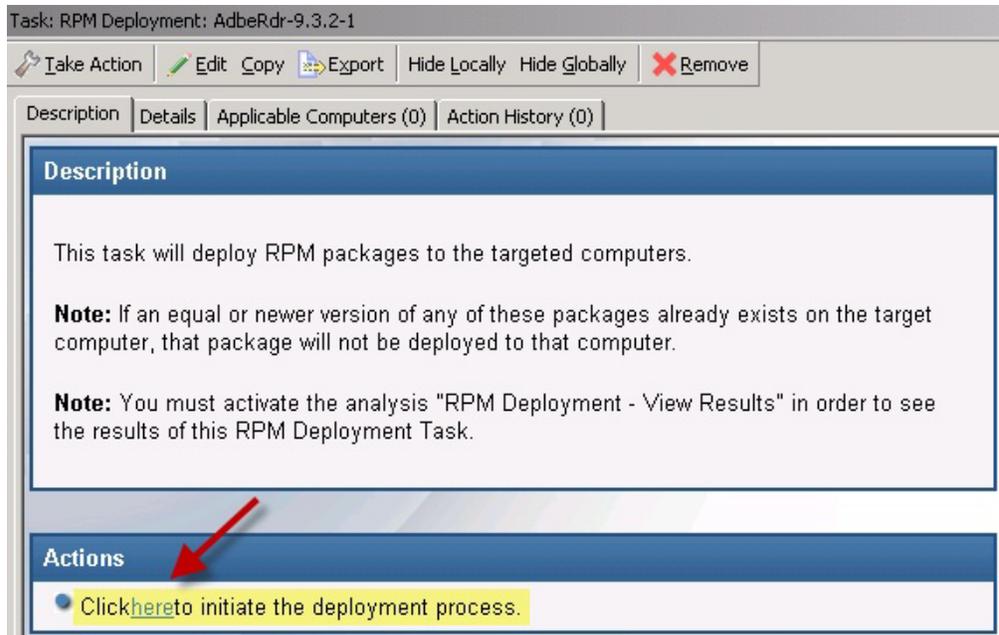
When the Take Action dialog opens, use the tabs across the top of the window to set parameters for this Action. Click *OK* and enter your Private Key Password. The Wizard deploys this action to your clients.

Manage Preference Lists

Use the Preference Lists Dashboard to manage preference lists for Red Hat Enterprise Linux 5 and 6.

Note: This section only applies to Red Hat Enterprise Linux 5 and 6.

Preference lists are lists of packages that affect the dependencies that are installed for systems patched by content with endpoint dependency resolution.

- Packages included in *forbidden* preference lists are forbidden when dependencies are resolved.
- Packages included in *preferred* preference lists are preferred over packages not in the list when dependencies are resolved.
- Packages included higher in the preference lists are preferred over packages lower in the lists. You can manage these preference lists by using the Preference Lists Dashboard.

Using the Preference Lists Dashboard

You can navigate to the dashboard by expanding the Linux RPM Patching node and selecting the *Endpoint Dependency Resolution - Preference Lists* dashboard.

To create new Forbidden package lists, click *New Forbidden Package List*.
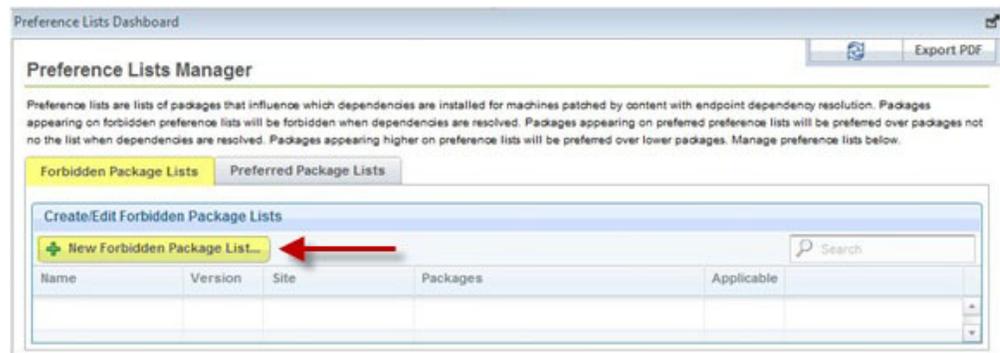
In the next dialog, you select a site for the preference lists. Endpoints subscribed to this site are relevant to this preference list. Choose a site and click next.
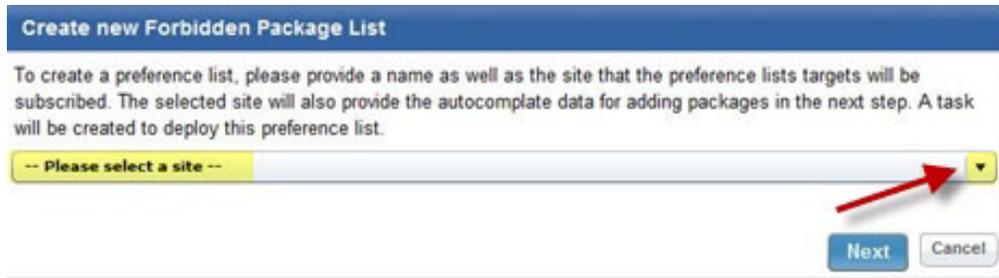
After entering a name for the list, you can begin populating your preference list with packages. Type the name in the *Package to Add* field and click *Add*. As you type, autocomplete suggestions are shown. These suggestions are populated using target packages from the selected site. After completing your list, click *Save,* click *OK,* and enter your Private Key Password. A task that deploys this preference list is displayed in the navigation tree.
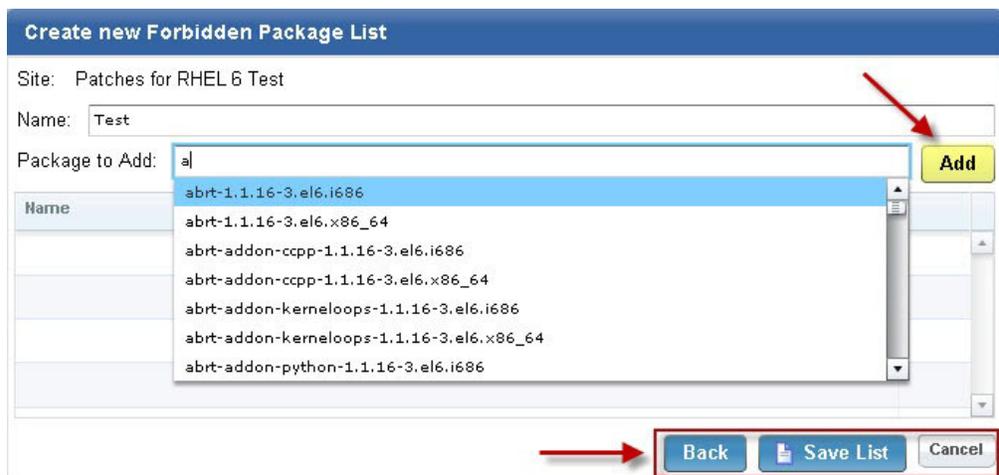
To edit a preference list, click *edit* for that particular list.
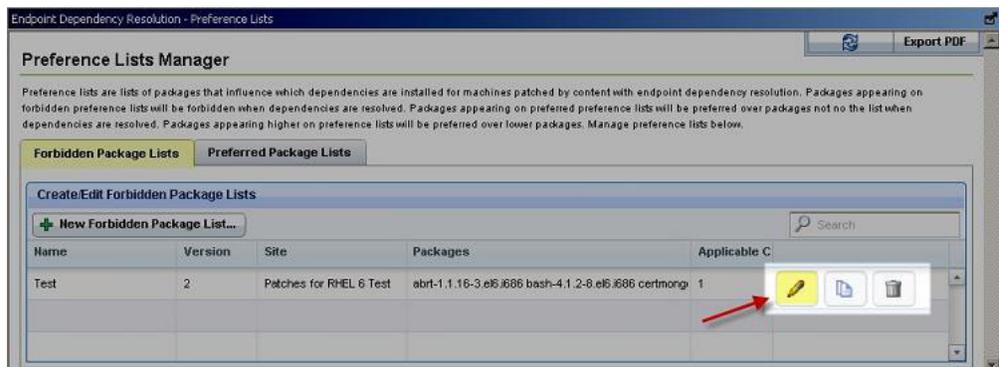
This opens the same dialog as before and allows you to edit the name and packages in the list. Click *Save.* To edit the task, click Edit. To redeploy the latest version of this list to all systems that already have the list, click *Edit and Redeploy*. Then click *OK* and enter your Private Key Password.

To create a copy of a preference list, click copy for that particular list.
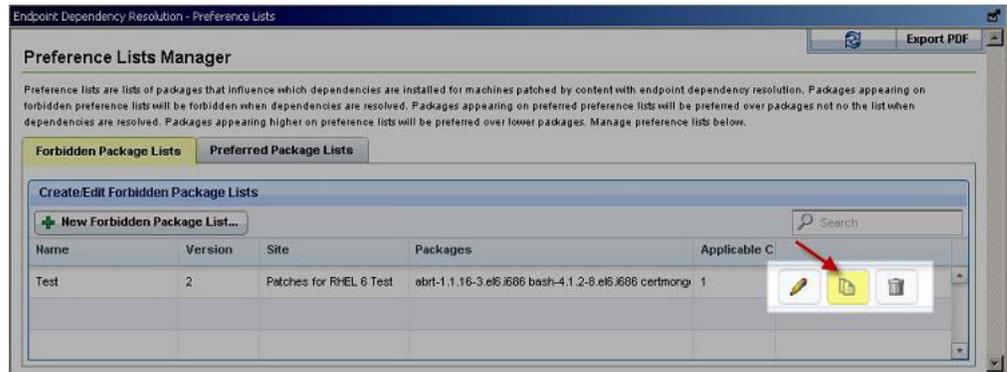
A dialog is created with a nearly identical set of data populated throughout the fields. The *Name* field has the word *copy* at the end. Click *Save* to create the new task. To delete a preference list, click *delete* for that particular list.
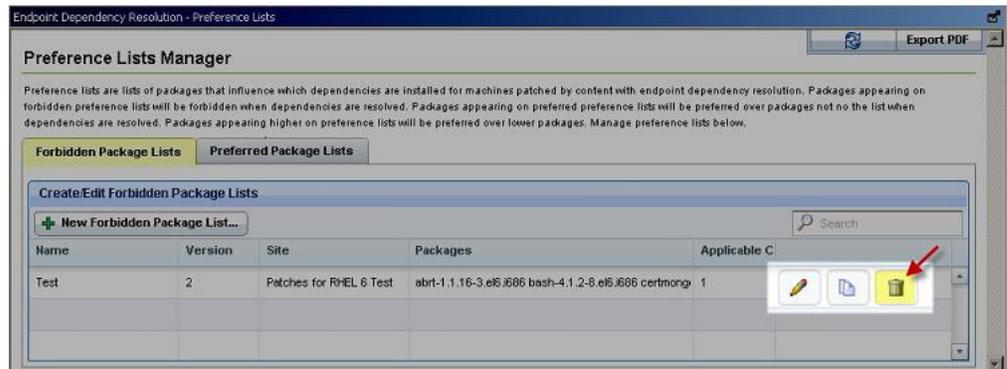
To delete the task, click *Delete.* To delete the task and issue an action to remove the preference list from all endpoints that have the list, click *Delete and Update*.
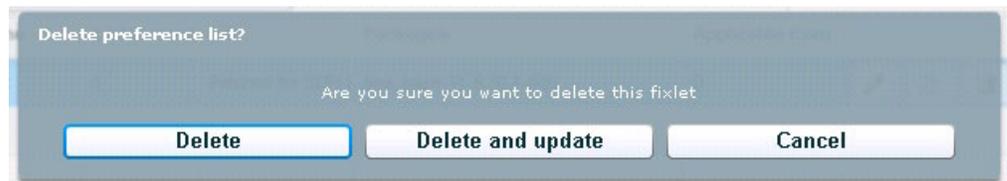
Preferred package lists can be created and managed in the same way as forbidden packages lists. The controls are listed under the Preferred Package Lists tab of the Preference Lists Dashboard.
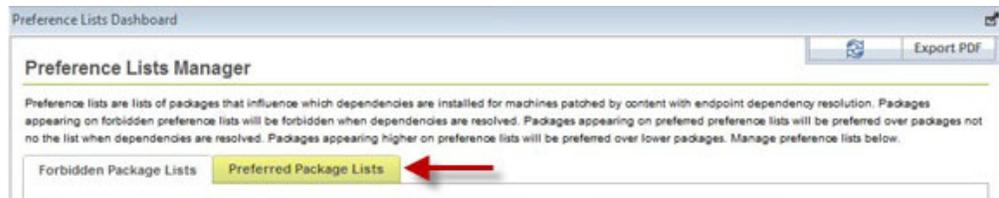
Packages are ordered from top to bottom in preference lists. Drag and drop packages to specify priority.
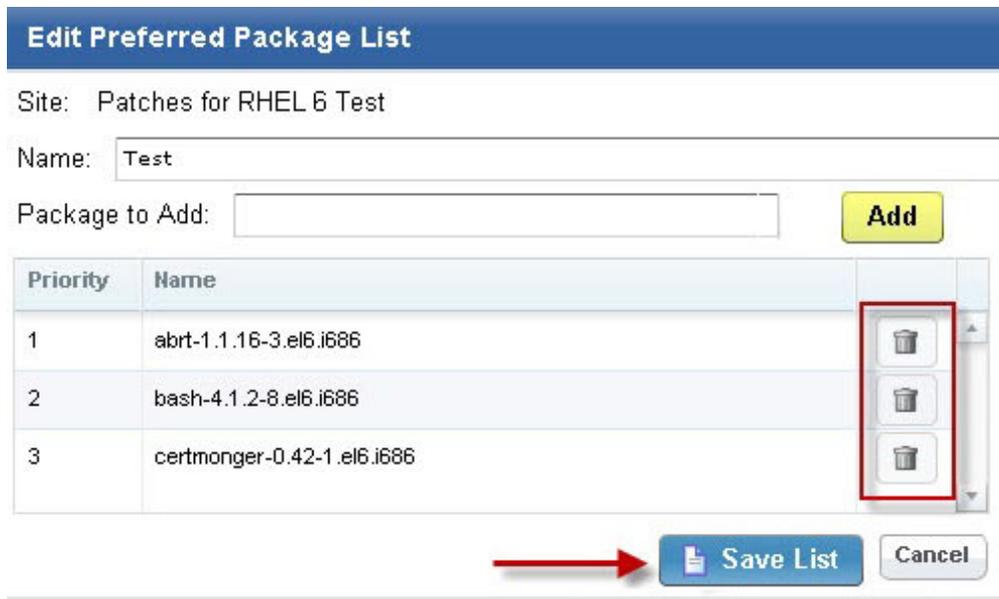
You can view deployed preference lists and their associated metadata by activating an analysis. Navigate to the analysis by clicking the Analyses node and selecting *Endpoint Dependency Resolution - Preference Lists*. Click the analysis and select *Activate* from the right-click menu.
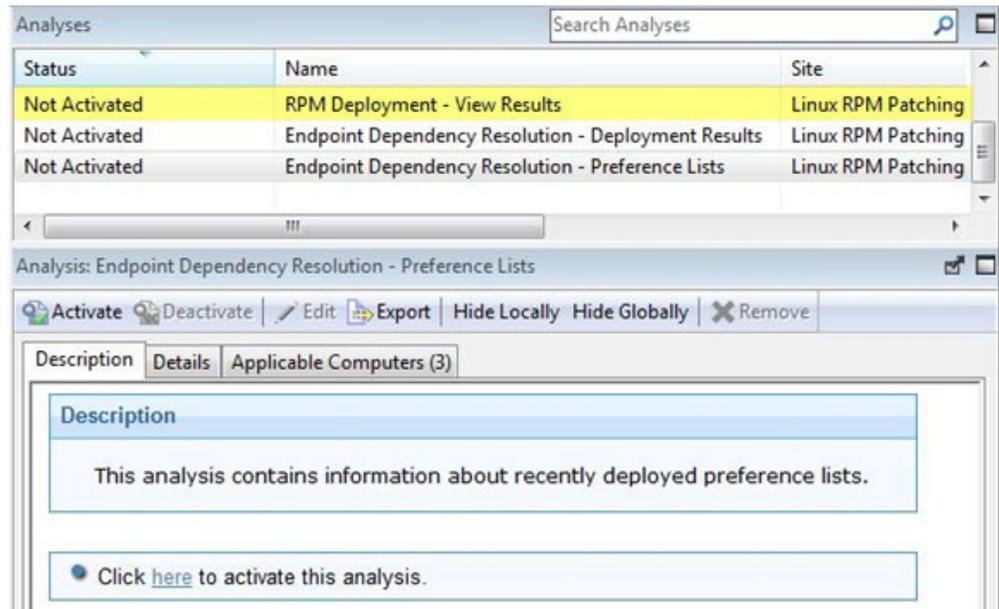
After you activate the analysis, a Results tab displays in the menu. Click *Results*.
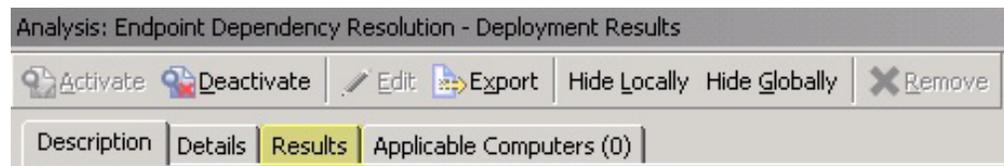
When you review an endpoint's properties, you can view the current preference list information on that system.

To remove a preference list from an endpoint, run either the *Remove Endpoint Dependency Resolution – Remove preferred list* or the *Remove Endpoint Dependency Resolution – Remove forbidden list* tasks.
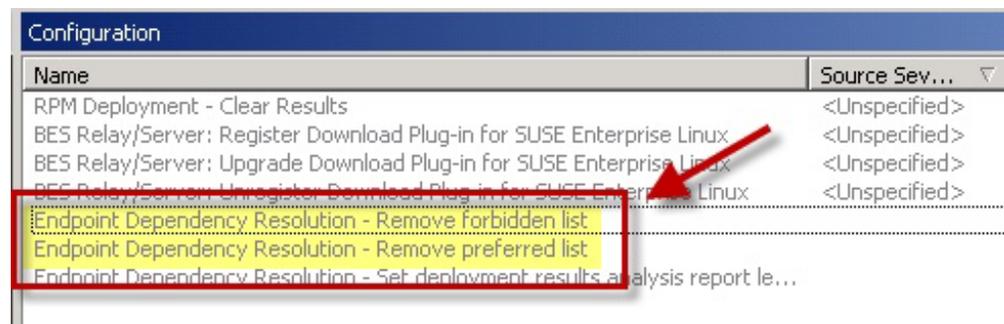
Uninstall Red Hat Enterprise Linux Patches

Use a task to uninstall RPMs, instead of a rollback.

Endpoint Manager provides a task to uninstall Red Hat RPM packages. Instead of a rollback, this task specifically removes RPMs.

Note: This task does not uninstall a package if another installed package depends on the package that you are trying to remove.

Click *OS Vendors* in the navigation tree and select *Red Hat Enterprise Linux.* You see the *Uninstall Red Hat RPM Packages* patch in the List Panel on the right.
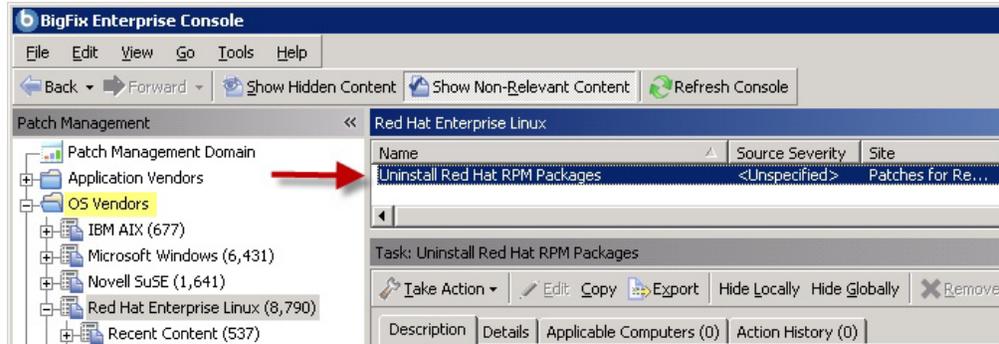
Double-click this Task to open the dialog, and then click in the Actions box to start the action.
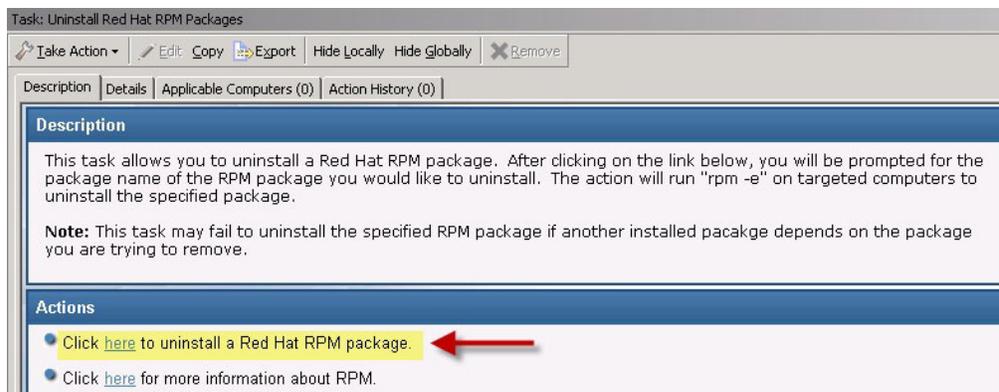
Chapter 4. Manage custom repositories

Use the RHEL Custom Repository Management dashboard to register and manage standard repositories and satellite repositories.

With the RHEL Custom Repository Management Support, users of Patch Management for Red Hat Native tools sites can:

- Use the dashboard to register, unregister, add, delete, and import custom repositories and Red Hat Network satellites.
- Deliver custom software through IBM Endpoint Manager Support for custom repositories leverages on existing local repositories to save bandwidth and improve performance.

Instead of following the current IBM Endpoint Manager infrastructure which allows Fixlets in the RHEL native tools to download the patches directly from the Red Hat servers, the Fixlets now allow YUM to download from local repositories.

Ensure that you have met the following requirements:

- IBM Endpoint Manager 8.2 and later versions
- RHEL versions 5 and 6
- Minimum YUM version: YUM 3.2.19-18
- Subscribe to the Patching Support site.
- Activate the Repository Configuration - Red Hat Enterprise Linux analysis from the Patching Support site to access the dashboard.
- Enable the following tasks:
  - Enable custom repository support - Red Hat Enterprise Linux
  - Disable custom repository support - Red Hat Enterprise Linux

Note: The dashboard does not support the creation and maintenance of local repositories. You must create local repositories separately.

Using custom repositories can give you the flexibility to control what can be deployed to the endpoints in your deployment. For example, you can deploy custom software that you are hosting in your custom repositories.

Use the Install packages by using the YUM task from the Patching Support site to install custom software that are in your custom repositories.

Differentiating between repository and satellite

You can use standard and Red Hat Network satellite repositories in the dashboard. For both types of repositories, ensure that the repositories and satellites are updated. Actions might fail if the packages are not available.

Repository
> This type refers to standard software repositories, which are storage locations from which users can retrieve packages. The RHEL Custom Repository dashboard does not add physical repositories. You must do this separately. To learn about creating repositories, see the Red Hat documentation: https://access.redhat.com/site/documentation/en-US/.

Satellite

This type refers to the Red Hat Network (RHN) Satellite, a Red Hat product which manages patches and subscriptions. These satellite repostories can mirror the patches from Red Hat. Satellite repositories provide a local copy of the Red Hat patch content repositories which are synched to the Red Hat network.

Note: The dashboard only runs the bootstrap channels. Satellite channels cannot be configured through the dashboard.The channels that the endpoints use must be configured through the satellite servers.

Registering a repository

Using the dashboard, you can register and connect your existing repositories to endpoints.

1. Activate the Repository Configuration - Red Hat Enterprise Linux analysis.
2. Enable the following task: Enable custom repository support - Red Hat Enterprise Linux.

1. From the All Content domain, go to **Sites** > **External Sites** > **Patching Support** > **Dashboards** > **RHEL Custom Repository Management**.
2. Click the **Endpoints** tab and select an endpoint. The repositories of the selected endpoints are listed in the lower part of the window. When a repository is named as unspecified, it means that it is not listed in the Repository list.
3. Click **Register a new repository**.
4. From the Register a New Repository window, select the repository then click **Next**. The next window shows the name and the URL of the repository that you are registering.
5. This step is optional. You can also add more configuration information in **Additional Fields**. This information is saved in the YUM configuration files.

   Note: Users who have custom repositories that are not just mirrors of the vendor sites must add `gpgcheck=0` in **Additional Fields**. When the gpg signature files are excluded, the rpm files are not checked for authenticity and might cause the installation to fail.
6. Click **Save**.
7. From the Take Action window, select the computer and click **OK** to run the action.

Registering a satellite repository

Using the dashboard, you can register and connect your existing satellite repositories to endpoints.

1. Activate the Repository Configuration - Red Hat Enterprise Linux analysis.
2. Enable the following task: Enable custom repository support - Red Hat Enterprise Linux

1. From the All Content domain, go to **Sites** > **External Sites** > **Patching Support** > **Dashboards** > **RHEL Custom Repository Management**.
2. Click the **Endpoints** tab and select the endpoint. The repositories of the selected endpoints are listed in the lower part of the window. When a repository is named as unspecified, it means that it is not listed in the Repository list.

3. Click **Register a new repository**. From the **Register a New Repository** window, select the repository then click **Next**. A window opens showing the name and the URL of the repository that you are registering.

4. Enter the values in the following fields:

   - Bootstrap URL
   - Activation Keys

   Activation keys are generated by Red Hat Network Satellite. For more information about activation keys, see https://access.redhat.com/site/documentation/en-US/.

5. Click **Save**.

6. From the Take Action window, select the computer and click **OK** to run the action.

Unregistering a repository from an endpoint

When you unregister a repository, the dashboard removes the system ID file from the computer you selected. You must log in to the satellite server and delete the computer manually.

1. From the All Content domain, go to **Sites** > **External Sites** > **Patching Support** > **Dashboards** > **Custom Repository Management**.

2. Click the Endpoints tab and click **Unregister a new repository**.

3. From the **Unegister a New Repository** window, select the repository and click **Save**.

4. From the Take Action window, select the computer and click **OK**.

   Note: When you unregister a repository, the YUM configuration file is not deleted, but just disabled.

Adding repositories

You can add standard or satellite repositories with the RHEL Custom Repository Management dashboard.

1. From the All Content domain, go to **Sites** > **External Sites** > **Patching Support** > **Dashboards** > **RHEL Custom Repository Management**.

2. From the **Repositories** tab, select the repository that you want to add and click **Add**.

3. From the Add a New Repository window, select the repository type and enter values for the following fields.

   - For standard repositories:
     - Name
     - Repository URL
   - For satellite repositories
     - Satellite Name
     - Satellite URL
     - Satellite URL

   Note: When you enter the satellite URL, the bootstrap URL is entered automatically. Bootstraps are created on the satellite server.

4. Click **Save**.

You added a repository to the dashboard. To have an endpoint use the repository that you added, go to the **Endpoints** tab and register the repository.

Importing a repository

Users can import their existing repositories using this feature.

1. From the All Content domain, go to **Sites** > **External Sites** > **Patching Support** > **Dashboards** > **RHEL Custom Repository Management**.
2. Click the Repositories tab and click **Import**.
3. From the **Import Existing Repositories** window, select and name the repository.
4. Click **Save**.

The repository is now imported and added to the list of repositories in the dashboard.

Appendix A. Support

For more information about this product, see the following resources:

- http://pic.dhe.ibm.com/infocenter/tivihelp/v26r1/topic/com.ibm.tem.doc_9.1/welcome/welcome.html
- IBM Endpoint Manager Support site
- IBM Endpoint Manager wiki
- Knowledge Base
- Forums and Communities

Appendix B. Frequently asked questions

The questions and answers in the section can help you to better understand Patch Management for Red Hat Enterprise Linux.

What are superseded patches?
Superseded Fixlets are Fixlets that contain outdated packages. If a Fixlet is superseded, then a newer Fixlet exists with newer versions of the packages. The newer Fixlet ID can be found in the description of the superseded Fixlet.

Where are the deployment logs located on the endpoints?
The logs are in the EDRDeployData folder, under the client folder: /var/opt/BESClient/EDRDeployData.

Endpoint Dependency Resolution - Deployment Results in the Linux RPM Patching site can be used to view the deployment logs on the IBM Endpoint Manager Console.

If the latest plug-ins are registered, why do downloads still fail?
Patch number 8.0.627 has a known issue of not recognizing the whitelist for dynamic downloads. Upgrade to the latest version of IBM Endpoint Manager to resolve the issue. You can also add the following lines in the download whitelist on your server:
* RedHatProtocol://.*
* http://software.bigfix.com/download/bes/dep/rhel/.*
* http://software.bigfix.com/download/bes/dep/pkgdeps/.*

What needs to be done when the action reports back with EDR Plug-in failure, Invalid set of initially installed packages?
There is at least one conflict between the packages that exist on the system. The resolver does not work until the conflicting packages are removed.

Why is there XML in the deployment results?
The XML is from the error output of the resolver when the resolver fails to produce a solution. You can look at the description in the "errorType" tag to gain a better understanding of why the failure occurred.

What must be done when the deployment results display a "Dependency Resolver Failure, noSolution"? "
If the resolver finds that there is no solution, the system cannot install all targets and dependencies. This is caused by a conflict between these files and the endpoint files.

How often are new dependency graphs generated?
Dependency graphs are generated every Monday, Wednesday, and Friday.

What steps must be taken when an action reports back with an installation failure?
Check to see whether the conflict is caused by a vendor-acquired package. These packages must be removed for the installation to occur.

Why does the resolver function select a lower priority package over a higher priority one?
The resolver does not select a preferred package when selecting that package creates a conflict with another package. Therefore, it is possible for a lower priority package to be selected.

What are the dependency issues in RHEL 3 and 4, and how do they affect the deployment?
>See the **Dependency Issues** section of this document.

How do I verify that the download plug-in was registered correctly?
>Run a Fixlet with an action task to verify that the download plug-in is registered correctly. Verify that the patch download is successful. Otherwise, you might need to unregister the download plug-in and register it again.

How do I register a download plug-in? Do I use the register download plug-in task or the Manage Download Plug-in dashboard?
>To register a download plug-in, you must use the Manage Download Plug-in dashboard in the Patching Support site. Existing register download plug-in tasks are being deprecated. To learn more about plug-in registration, see "Registering the RedHat download plug-in" on page 5.
>
>**Note:** You must also use the Manage Download Plug-in dashboard to unregister, configure, and upgrade download plug-ins. The existing unregister and edit download plug-in tasks are being deprecated. For more information about the dashboard, see the topic on Manage Download Plug-ins dashboard in the IBM Endpoint Manager Information Center.

The password should be obfuscated, but is still in clear text. Why is that?
>If your download plug-in version is earlier than 2.1, you are still using an old version of the download plug-in that stores credentials in clear text. To encrypt credentials, upgrade your download plug-in to version 2.1 or later from the Manage Download plug-ins dashboard in the Patching Support site.

Which version of the YUM native tools must be used?
>The Patches for RHEL native tools site requires version 3.2.19-18 or later.

An action failed and the logs contain YUM-specific errors. How do I troubleshoot?
>For more information about YUM and errors related to it, see the YUM documentation at http://yum.baseurl.org and the YUM-related articles in the Red Hat Customer Portal.

What version of YUM is required to use the RHEL Custom Repository dashboard?
>You must have a minimum YUM version of 3.2.19-18.

Which Red Hat Enterprise Linux is supported by the RHEL custom repository dashboard?
>The dashboard supports Red Hat Enterprise Linux versions 5 and 6.

Which version of the IBM Endpoint Manager server supports the RHEL Custom Repository dashboard?
>The RHEL Custom Repository dashboard supports version 8.2 and later of IBM Endpoint Manager.

When deploying patches, should I use the existing method or go through the custom repository? Can the two methods co-exist?
>The two methods can exist together. However, when deploying patches for single clients, you must choose between using the native tools or through the custom repository method.

How are dependencies resolved the RHEL Custom Repository dashboard is used? YUM uses the metadata to resolve the dependencies to know which packages are needed.

Can the custom repositories be used for software installation?
> Yes, you use custom repositories for software installation. To use custom repositories for software installation, follow these steps:
>
> 1. Ensure that the clients are registered through the Custom Repository dashboard.
> 2. Create a Fixlet in the custom site with the action `yum install<space><package name>`. Ensure that you set the correct relevance or success criteria, that is, whether the Fixlet takes action against that client or endpoint. To learn more about creating Fixlets, see the *Console Operator's Guide*.
>
> **Note:** It is important to ensure that the repositories and satellites are updated. Actions can fail if the packages are not available.
>
> For satellites: The dashboard only helps to run bootstrap scripts and the `rhnreg_ks` command to subscribe the endpoints to satellite servers. The channels that the endpoints use must be configured through the satellite servers.

While registering a repository, I was prompted to enter an activation key. Where can access this activation key?
> Red Hat Network Satellite administrators create and manage these activation keys. For more information about activation keys, see https://access.redhat.com/site/documentation/en-US/.

Can previously configured repositories be configured again?
> Yes, you can configure again a previously configured repository.

From the logs, can I tell if I am using the normal YUM process to the satellite or repository in the log?
> Yes, the log indicates if the normal YUM process in the satellite or repository is used.

What is the difference between registering a repository and importing a repository?
> Use the import feature if you have existing repositories that are not included in the Repositories list in the dashboard. Use the register feature if you already have a repository in the Repository list, but you still need to link the repository with the endpoint.

What happens when the repository does not contain the package?
> When a package is not found, the Fixlet fails. You can troubleshoot from `EDR_DeploymentResult.txt`, which is where the YUM output is logged.

What happens if there are issues with the custom repository solution?
> Users that encounter issues with the custom repository resolution can revert to the standard BES server solution by running the task that is called Disable custom repository support – Red Hat Enterprise Linux.

In the Endpoints tab of the RHEL Custom Repository Management dashboard, are the repositories that are listed in the lower part of the window that is used in sequence?
> There is no sequence in the repositories that are listed in the Endpoints tab. When YUM queries the repositories, the repository that first gets the fetch query replies, including the package and its dependencies.

Through the RHEL Custom Repository Management dashboard, a patch was deployed through a custom repository that is not a mirror of the manufacturer site. The deployment failed and the EDR logs indicate that the rpm files could

not be opened. What should I do?
> When a custom repository that is not a mirror of the vendor site is used, it is possible that the default gpgcheck is being done as part of the installation and the gpg signature files might not be included. The rpm files might not be checked for authenticity and the installation might fail. To resolve this, ensure that when you register the endpoints in the RHEL Custom Repository Management dashboard, you added 'gpgcheck=0' to Additional fields.

Can I install several packages using 'Task: Install packages by using YUM'?
> Yes, you can install several packages with the task. Use a space to separate the rpm names.

Appendix C. Troubleshooting

You can try several ways to troubleshoot Patch Management for Red Hat Enterprise Linux.

Troubleshooting actions

The action reported back as a failed download
Make sure your download plug-in is updated to the latest version and is registered with the correct credentials.

The action reports back with "EDR Plug-in failure, Invalid set of initially installed packages"
There is at least one conflict between the packages that exist on the system. The resolver does not work until the conflicting packages are removed.

An action reports back with an installation failure
Check to see whether the conflict is caused by a vendor-acquired package. These packages must be removed for the installation to occur.

An action has failed and the EDR logs state that the private key is missing for some RPM files
When the EDR logs show the following entry when the action fails, this suggests that the RedHat Release Key is not accepted by the rpm command on the system where the action failed:

```
rpmts_HdrFromFdno: Header V3 DSA signature: NOKEY, key ID 37017186
Public key for <RPM files> is not installed.
```

You can resolve the issue in two ways:
- Use rpm --import /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release.
- Set gpgcheck=0 in /etc/yum.conf. This option only for the native tools sites.

It is suggested that you use the first command. The second command `gpgcheck` allows other unsigned packages to be installed.

An action has failed and the EDR logs do not give any information about the failing action
The last six lines of the deployment and test actions are intended to delete the temporary files that are created during the action execution. If the deployment logs do not give information about the reason for the failure, delete the following two lines to troubleshoot:
- To see the YUM configuration used during the action, delete "{parameter "EDR_YumConfig"}"
- To see the YUM output that is generated during the dependency resolution, delete "{parameter "EDR_YumResolveOutput"}"

When these two lines are deleted out, the following files are placed in the site folder for the Patches for RHEL Native tools site:
- EDR_YumConfig_<fixlet id>
- EDR_YumResolveOutput_<fixlet id>

An action failed and the logs contain YUM-specific errors.
> For more information about YUM and errors related to it, see the YUM documentation at http://yum.baseurl.org and the YUM-related articles in the Red Hat Customer Portal.

Troubleshooting the RHEL Custom Repository Management dashboard

Try the following steps to troubleshoot failed deployments in the RHEL Custom Repository Management dashboard.

- Ensure that you enable the task that is called Enable custom repository support - Red Hat Enterprise Linux task from the Patching support site.
- Ensure that when you register the endpoints, you added `gpgcheck=0` to Additional fields.
- Check that the client setting _BESClient_RHEL_AllowYumDownloads in the endpoints is set to 1.
- Verify that the downloads went through the custom repository through the https service logs in the custom repository.
- Refer to the following logs:
  - /var/opt/BESClient/EDRDeployData/register-repo.log
  - /var/opt/BESClient/EDRDeployData/register-satellite.log
  - /var/opt/BESClient/EDRDeployData/unregister-repo.log

  The following example shows a log for a standard repository:

  ```
  Processing /etc/yum.repos.d/test-repo.repo/etc/yum.repos.d/test-repo.repo
  Done with /etc/yum.repos.d/test-repo.repo
  ```
- Check the repository configurations that are stored in `/etc/yum.repos.d/`. The configurations include the user name and password of the repositories that the users have.

To check the deployment logs in the endpoints, go to `/var/opt/BESClient/EDRDeployData`. Endpoint Dependency Resolution - Deployment Results in the Linux RPM Patching site can be used to view the deployment logs on the IBM Endpoint Manager Console.

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