BigFix Enterprise System

Linux RPM Patching

Quick Start Guide

Version 7.2

October 12, 2009

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Part One

Introduction

Audience

This guide is meant for Administrators and IT managers who want to manage their Linux software packages more efficiently and with less trepidation. Linux deployments are quite flexible, but the price for that is complexity: you may have several versions of a package that you want to switch between. Suddenly, version control becomes a major project.

The Linux RPM Patching Application uses Fixlet technology to precisely target the exact subset of your clients that require patches, updates or rollbacks. From a central BigFix Console, you can visualize software updates as they roll out across your network. Using white lists and black lists, you can set compliance policy corporate-wide or in any departments you choose.

Versions

The document includes the functionality introduced in the BigFix Enterprise Suite Version 7.2.

Supported Platforms

This version of Linux RPM Patching currently supports RPM packages that are published and supported by Red Hat and SUSE. The following platforms are supported:

Red Hat Enterprise Linux 5	SuSE Linux Enterprise Server 9
Red Hat Enterprise Linux 4	SuSE Linux Enterprise Desktop 10
Red Hat Enterprise Linux 3	SuSE Linux Enterprise Server 10

Although both SuSE and Red Hat are supported, only Red Hat currently has predefined Fixlet messages for users to customize.

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Terms Used in this Guide

Software package managers have a vocabulary of their own:

- **Target RPMs** – The RPM packages you will be deploying.
- **Dependency RPMs** – The RPM packages that are required for Target RPMs to be installed successfully.
- **Minimum Package List (MPL)** – A list of packages that are commonly installed on most systems. Consider it the least common denominator among the packages installed on your clients.
- **White List** – A list of packages that will be preferred when the dependency resolver is deciding which RPM to use to satisfy a particular dependency.
- **Black List** – A list of packages that are forbidden in both target and dependency RPMs.

Dependency Resolution

Before Linux packages can be installed they need to satisfy certain dependencies and criteria, some of which you can specify. The sequence that is followed to resolve these criteria is as follows:

1. **Black list –** Your list of packages to exclude is the first criteria to be checked.
2. **White list –** You can specify packages to prefer.
3. **Package Upgrade Option –** If a package upgrade is necessary, the resolution depends on the user's preference of oldest or latest:
    a. **Oldest** selects the *minimum* version that both satisfies the dependencies and results in an upgrade of the existing package.
    b. **Latest** selects the *most recent* version of the package which satisfies the dependency.
4. **Add new package** (dependency RPM) **–** always use the latest version available whenever a package must be added. This is an implicit option.
5. **Architecture Preference –** If two packages from two different architectures satisfy the same dependency, the choice turns on the architecture. This is an implicit option and the preference is made in this order:
    a. x86_64
    b. i686
    c. i386
6. **No Preference –** When two different packages satisfy the above dependencies, the selection will be chosen by a repeatable random function.

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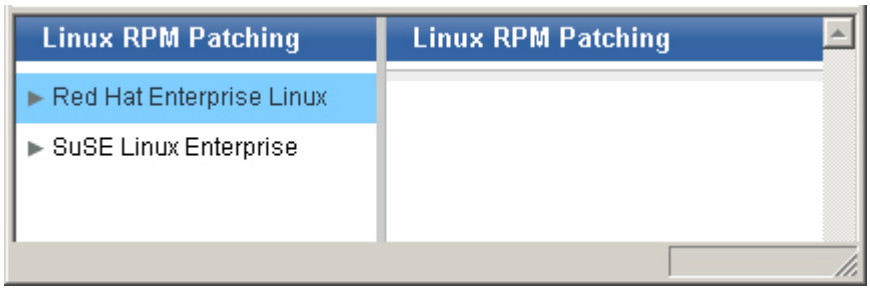
Part Two

Using the Dashboard

Starting up the Dashboard

The Dashboard is the central starting point for Linux RPM Patching. Select **Linux RPM Patching** from the **Dashboards** menu. After loading, the unitialized Dashboard appears in a new window.

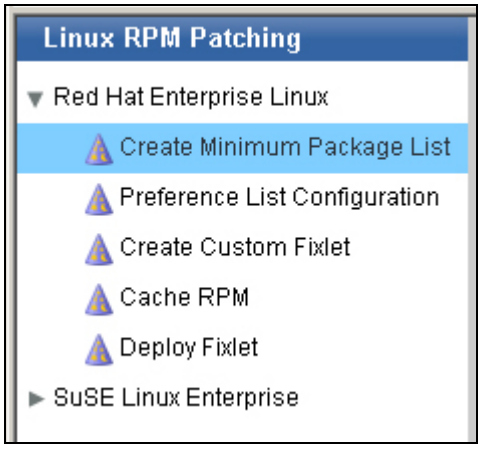


These options let you select either Red Hat or SuSE operating systems.

Creating a Minimum Package List

You can create a custom Minimum Package List (MPL) to satisfy your internal policy environment. This list can then be used as a part of your Preference List Configuration. Here's how:

1. Click the Red Hat option to open it. There are five main areas of functionality.



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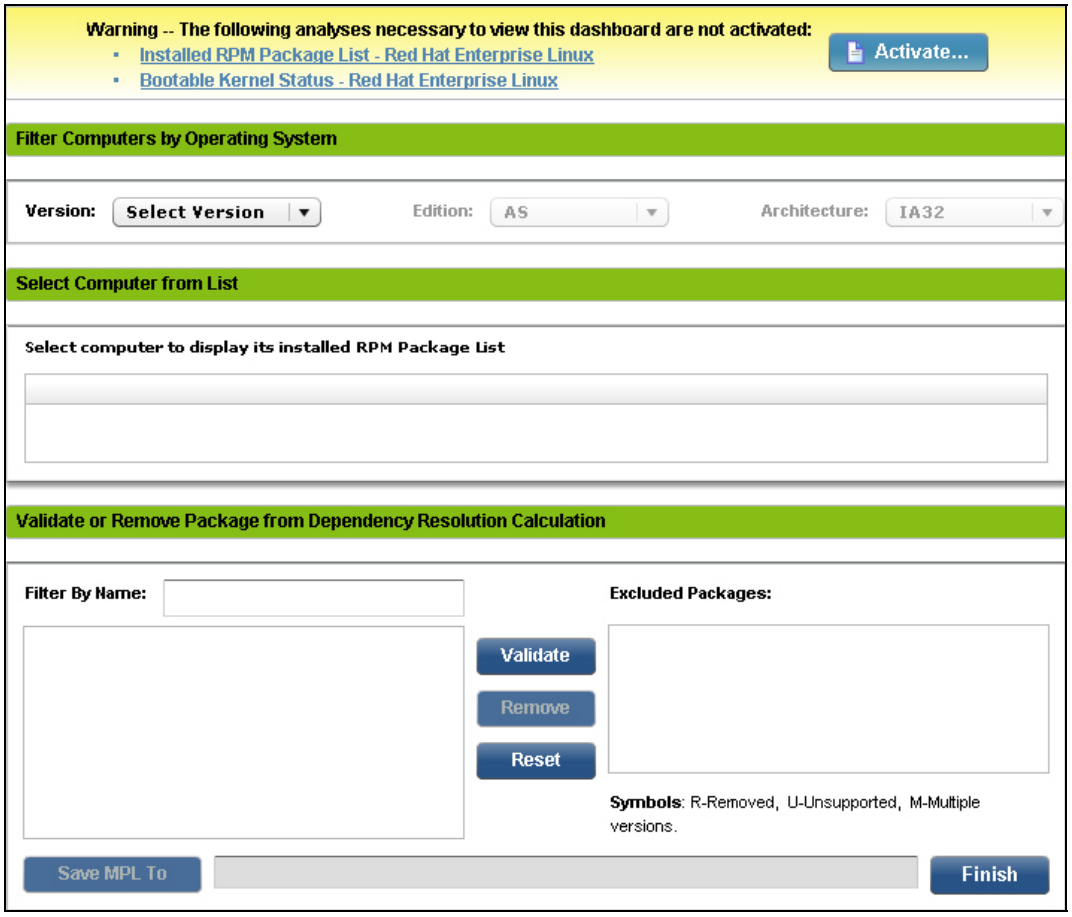
2. Click the **Create Minimum Package List** section. A new screen appears.



3. Click to **Activate** the Analysis. Enter your password when prompted. The Action will propagate to your BES Client computers.
4. Select an Operating System from the **Version** pull-down menu. The Clients, in response, will send back their list of installed RPM packages, which may take a few minutes. When all the lists have been received, the screen is redisplayed with a list of relevant computers.

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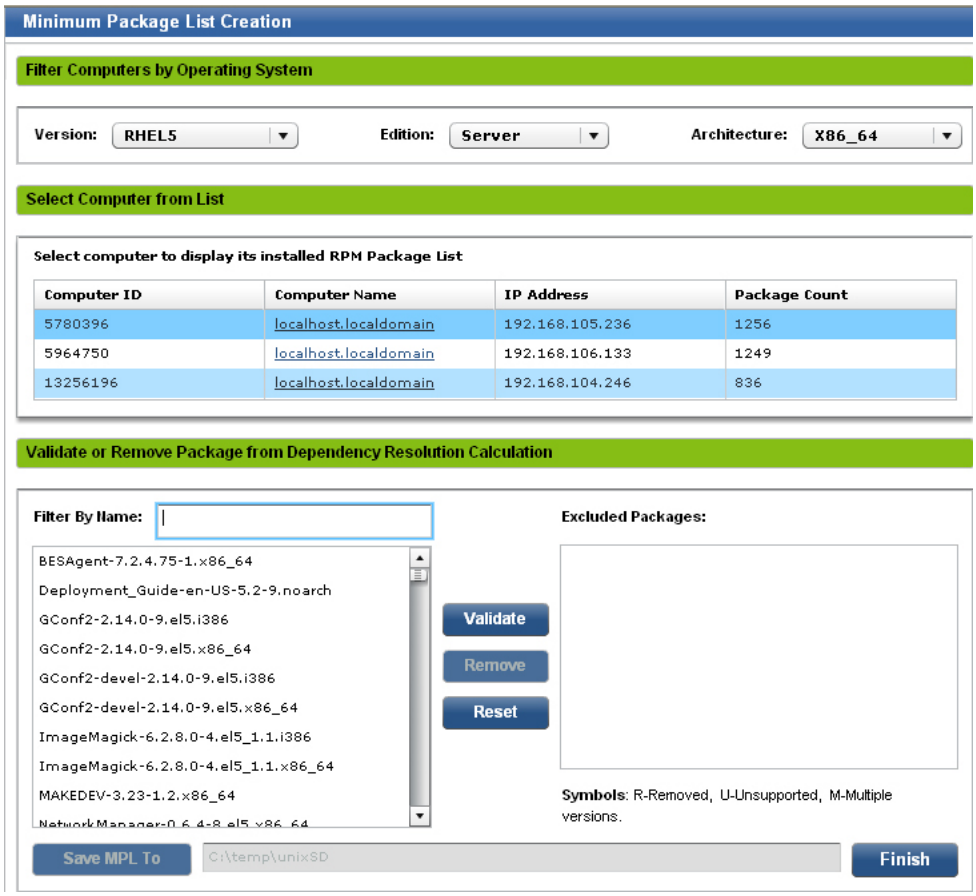
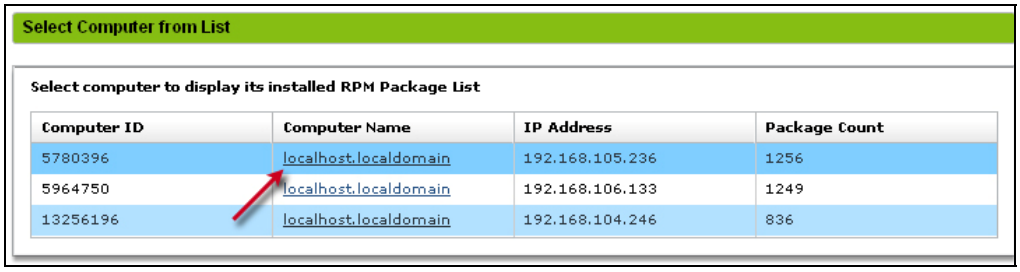


5. In the first section, select the applicable **Operating System Options**.

6. In the second section, select one of the listed computers to use as the basis for your MPL.



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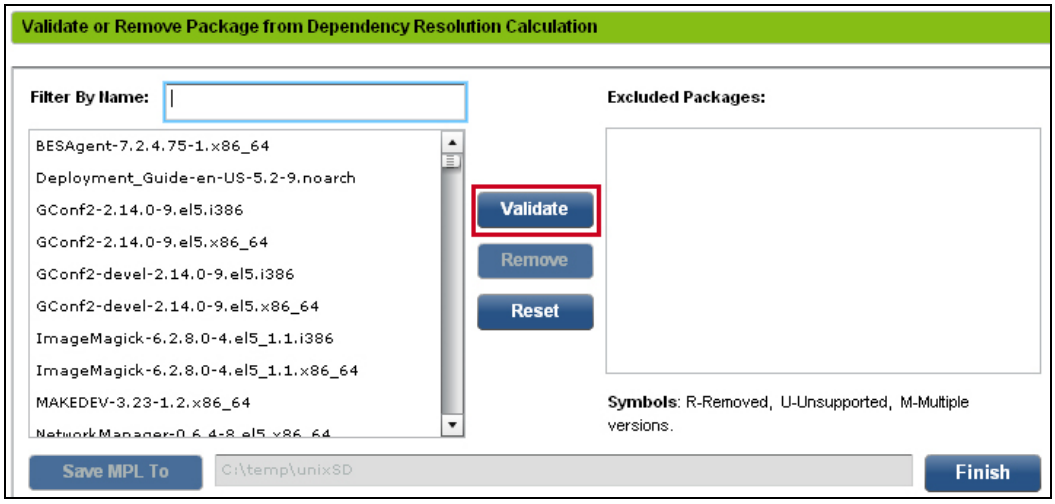
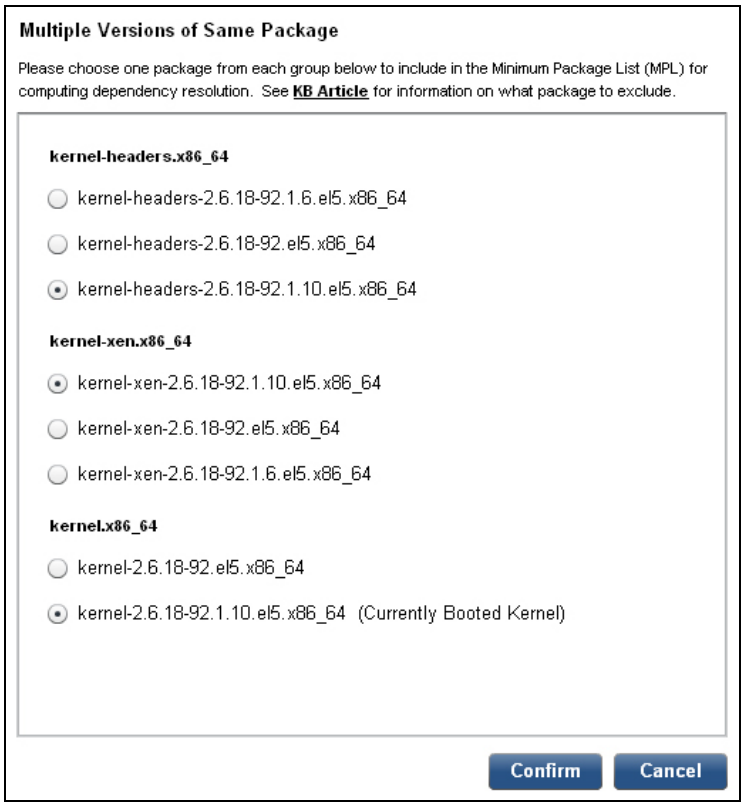
7. In the Validate or Remove Package from Dependency Resolution Calculation section, click the Validate button.



8. If the **Multiple Versions of Same Package** dialog opens, select one version of each package that you want to include in your MPL.



9. Click **Confirm**.

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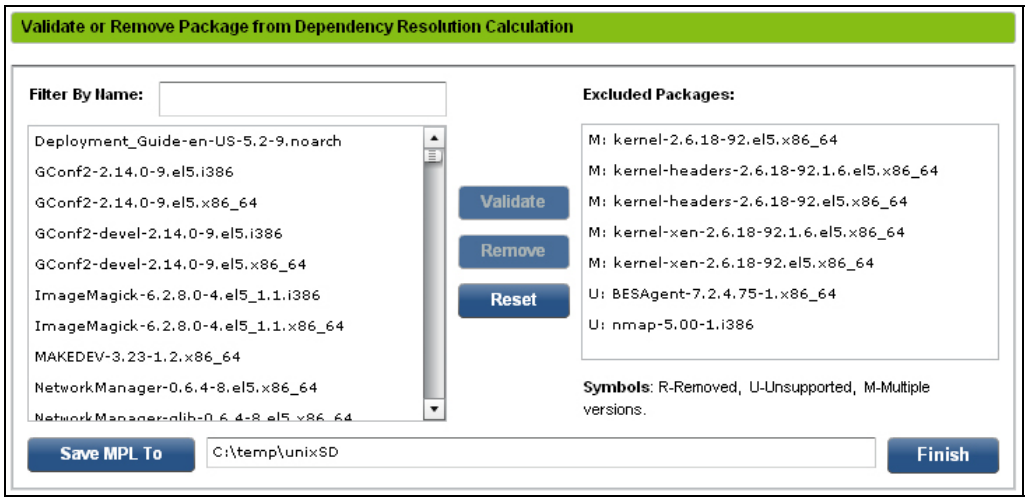
10. Unsupported Packages and other excluded packages will be listed in the **Excluded Packages** section. You can delete additional packages from the original list by first selecting the package on the left and clicking **Remove**.



11. Click on the **Save MPL To** button and browse to the folder where you wish to store your MPL file.
12. Click **Finish** to save your MPL. The MPL file will be named according to the following format: **OSConfiguration_ComputerID_HostName_Date.base**.

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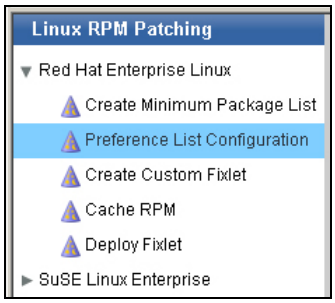
Using Preference Lists

Preference Lists allow you to order your packages from highest to lowest priority. You can also create white lists to ensure a specific package is installed, and black lists to eliminate packages you don't want.

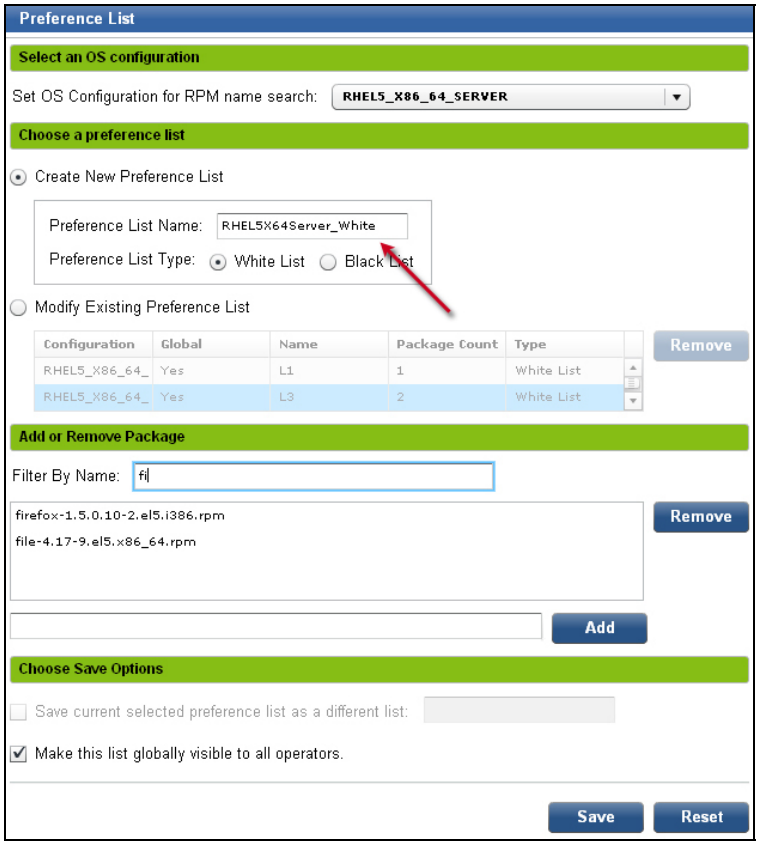
Creating a Preference List

This section lets you initialize white lists and black lists to either prefer or prevent specific RPM from being installed on your systems. To create a new preference list:

1. From the left navigation panel, select **Preference List Configuration**.



2. The **Preference List** panel appears on the right.



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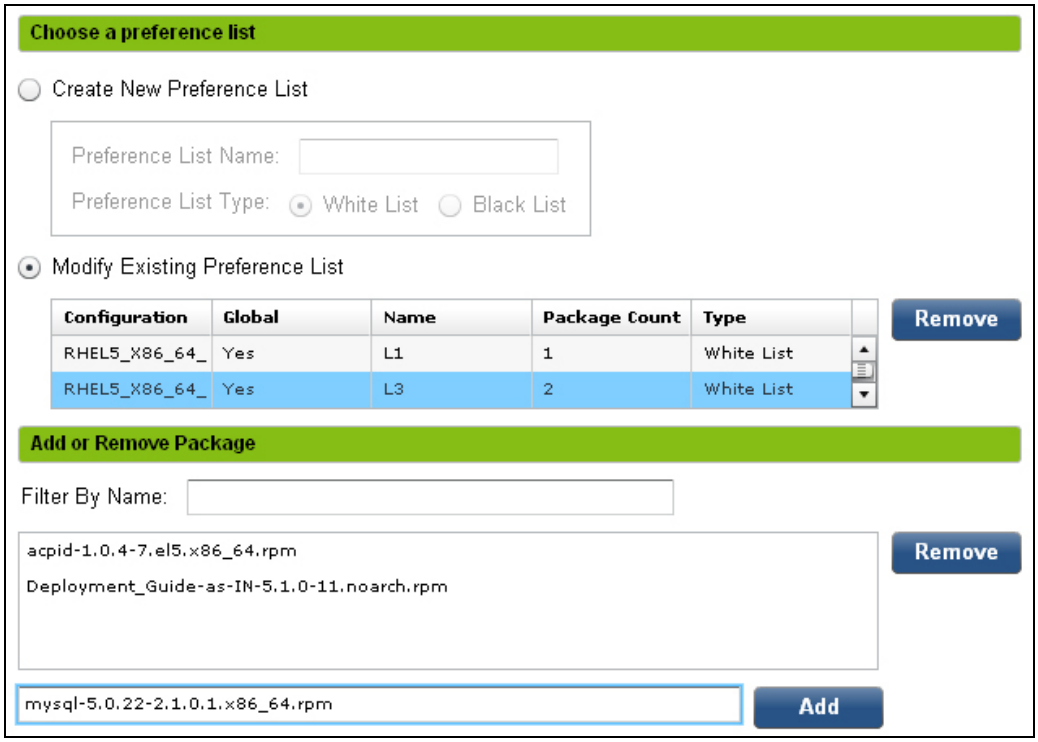
3. If it's not already selected, choose the desired **OS Configuration** from the pull-down menu. The packages corresponding to this list will appear below.
4. Make sure the Create New Preference List button is checked and in the text box labeled **Preference List Name**, enter a name for your new list.
5. You can choose to create a **White List** or a **Black List** by clicking the appropriate button.
6. **Remove** packages from this list using the relevant button. You may also wish to filter the list to make it more manageable. Just type in the first few characters of a package name to limit the items displayed.
7. Packages in the list are ordered, and those that appear first will have higher priority than those that appear later. You can drag and drop the items in the list to re-order their priority.
8. You may also add packages by entering names in the text box to the left of the **Add** button. Auto-completion will help you enter the name.
9. Click **Save** when you are finished editing your preference list.

Modifying a Preference List

You can modify your Preference List at any time. Here's how:

1. As described in the previous section, select **Preference List Configuration** from the left navigation panel.
2. The **Preference List Panel** appears on the right.



3. Click **Modify Existing Preference List** and select a configuration to modify. Note that you can also delete a list from this interface.

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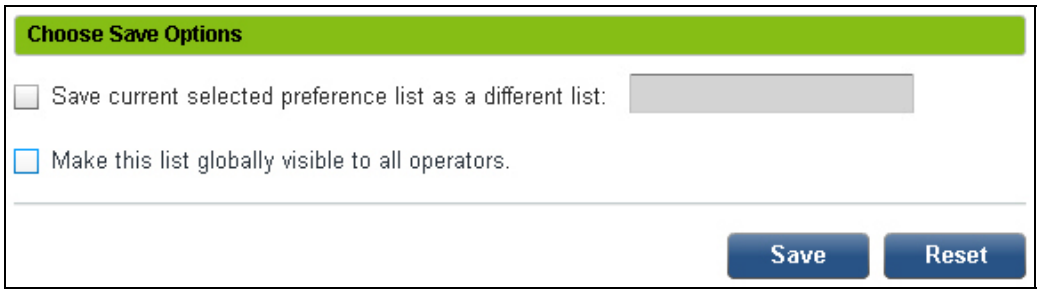
4. As before, **Add** or **Remove** packages from your list.
5. At the bottom of the page, you have a few options for saving your file.



6. You can choose to make a preference list global (the default option) by checking the box marked **Make this list globally visible to all operators**. Uncheck the box if you wish to keep your list private.
7. If you want to copy the existing list and save it under a different name, check the box next to **Save current selected preference list as a different list** and then supply a new name.
8. When you are satisfied with your modified list, click **Save**.

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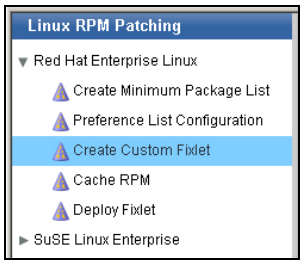
Using Custom Fixlet Messages

To deploy your preferred packages to all of your Linux computers, you can create custom Fixlet messages. Like all Fixlet messages, these will target only those machines that need them and no others. You can then view the deployment of your packages using the BigFix Console.

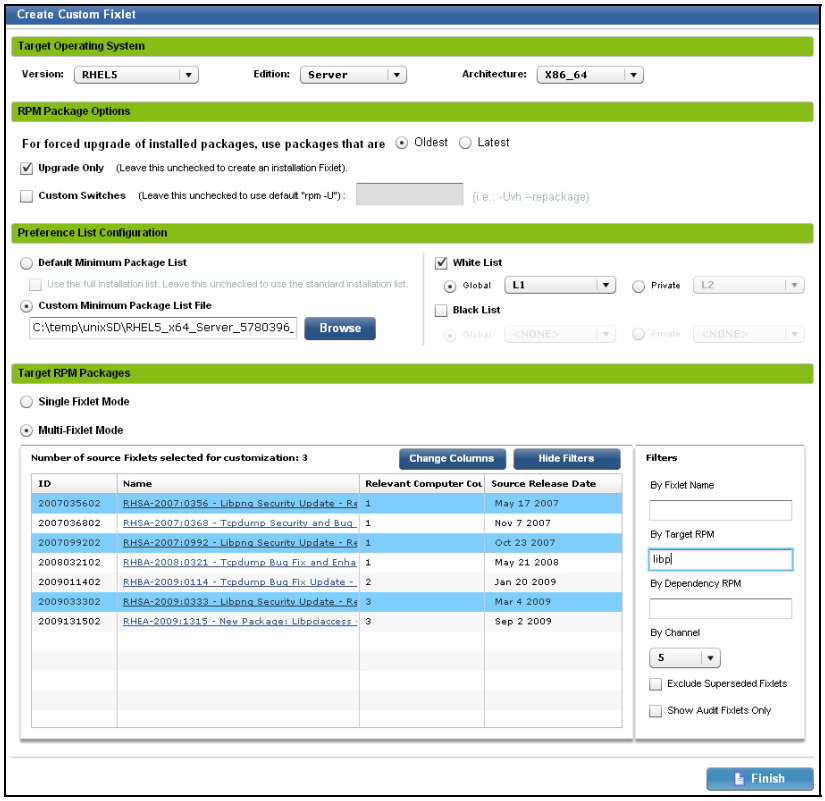
Creating Custom Fixlet Messages

This section allows you to create your own custom suite of Fixlet messages which you can use to manage the RPM packages you have defined. Here's how:

1. From the left navigation panel, select **Create Custom Fixlet**.



2. The **Create Custom Fixlet** panel appears on the right.



3. Most of the work of creating Fixlet messages has been done for you. This interface allows you to customize, target and filter the content to your specifications. When you are satisfied with your modifications, click **Finish**. A complete description of this interface follows below.

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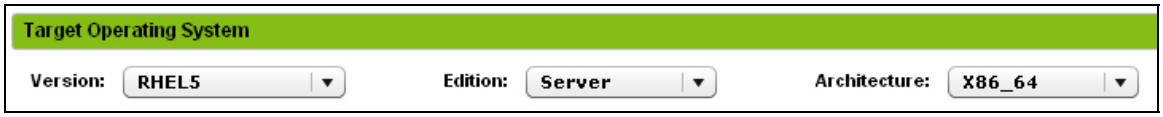
Understanding the Custom Fixlet Interface

There are several parts to this interface, and this section details each part.

Target Operating System

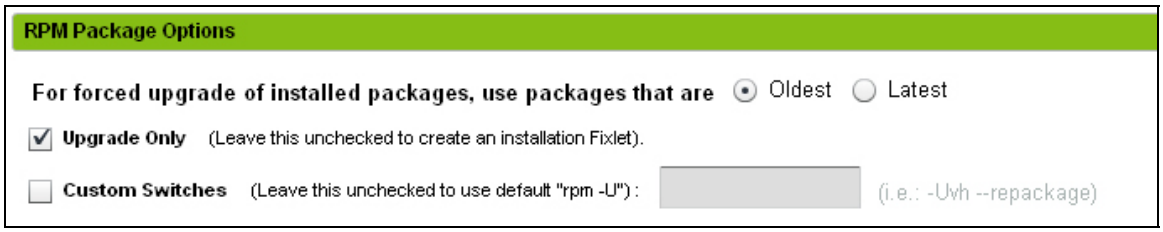
This section lets you set the specific operating system you wish to target. Note that Fixlet messages in the Multi-Fixlet Mode will also be filtered based on these values.



- **Version**: Enter the version of the OS you wish to target.
- **Edition**: Based on the version you chose, select a specific edition.
- **Architecture**: Select the desired computer architecture to complete the OS specification.

RPM Package Options

This section allows you to choose among several different techniques for updating installed packages.



- **Forced Upgrade Option**: Oldest indicates that the *minimum* version which satisfies the dependency but still results in an upgrade of the existing package will be selected. Latest indicates that the *most recent* version of the package which satisfies the dependency will be selected.
- **Upgrade Only**: Check this box to restrict the Fixlet message to only those computers which already have an existing version of the package installed. Uncheck this box to create an installation Fixlet message that will install the package from scratch.
- **Custom Switches**: specify switches for use in the RPM command. For example, for kernel packages, some users prefer "RPM -ivh".

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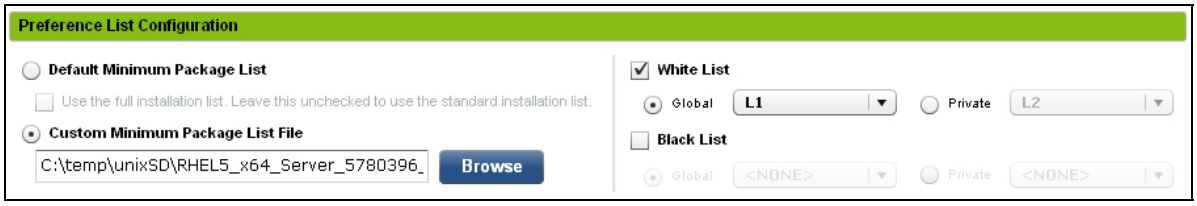
Preference List Configuration

This section helps you deal with dependencies using the supplier's recommendations or your own specifications, along with white and black lists.



- **Default Minimum Package List**: If all Linux systems in your environment are relatively uniform and they are similar to a standard installation or full installation, you are encouraged to use the default minimum package lists provided by BigFix.
- **Custom Minimum Package List File**: As an alternative, you can create your own custom minimum package list. For more information on how to do this, see the section on **Creating a Minimum Package List**. BigFix recommends that you supply your own MPL when customizing pre-packaged Fixlets to produce optimal dependency resolution.
- **White List/Black List**: Check the box to choose any previously defined black list or white list. See the section titled **Preference List Configuration** for more details.

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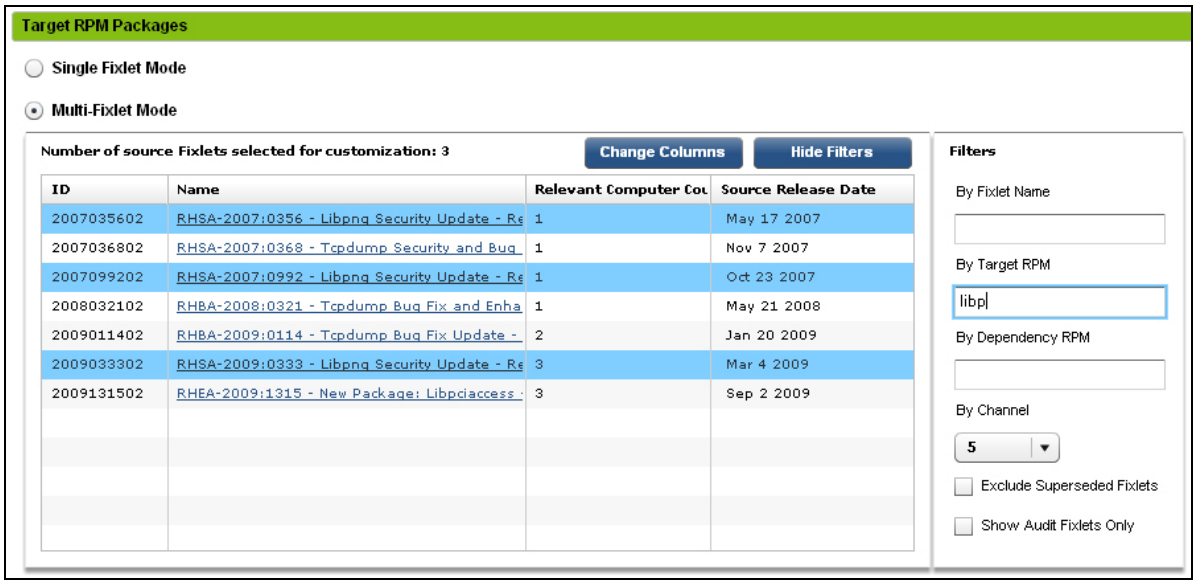
Target RPM Packages

This section allows you to target your RPM Packages to the desired set of computers.



- **Single Fixlet Mode**: Click this button to manually add RPM packages to the list or look them up by name. To look up a name, simply type the first few letters into the text box and then select the desired package from the drop-down list. Then click the **Add to list** button. Only RPM packages published by Red Hat and SuSE are supported.
- **Multi-Fixlet Mode**: Click this button to choose one or more Fixlet messages to customize. Use the filters to locate specific Fixlet messages. The time it takes to generate custom Fixlet messages is proportional to the number of source Fixlet messages you select.
- **Filters**: The Filter section lets you winnow down the list of Fixlet messages by **Name**, **Target RPM**, **Dependency RPM** or **Channel**. You can also choose to **Exclude Superseded Fixlets** or **Show Audit Fixlets Only** by checking the appropriate boxes.

> **Note:** Each pre-packaged Fixlet in **Patches for RHEL 3, 4** or **5** contains solutions for an Erratum or Bulletin for all editions of an OS version of a particular architecture, such as RHEL4_IA32 AS, ES or WS. For example, if the dependency resolver cannot find a dependency resolution for RHEL4_IA32_AS, then BigFix will not produce a remediation Fixlet for that Erratum or Bulletin. Instead, BigFix will generate an audit Fixlet. In this case, you are strongly encouraged to customize these audit Fixlet messages based on one OS configuration instead of all three. There will be a greater chance the resolver will find a dependency resolution for that Errata and Bulletin after you supply your own MPL.

When you are satisfied with your collection of customized options, click the **Finish** button at the bottom of the window. When you do, the Fixlet messages you specified will be customized and presented for your final approval before you import them.

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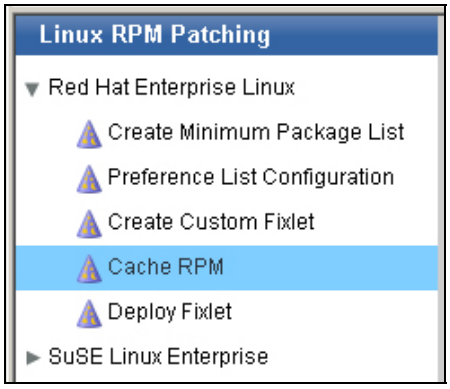
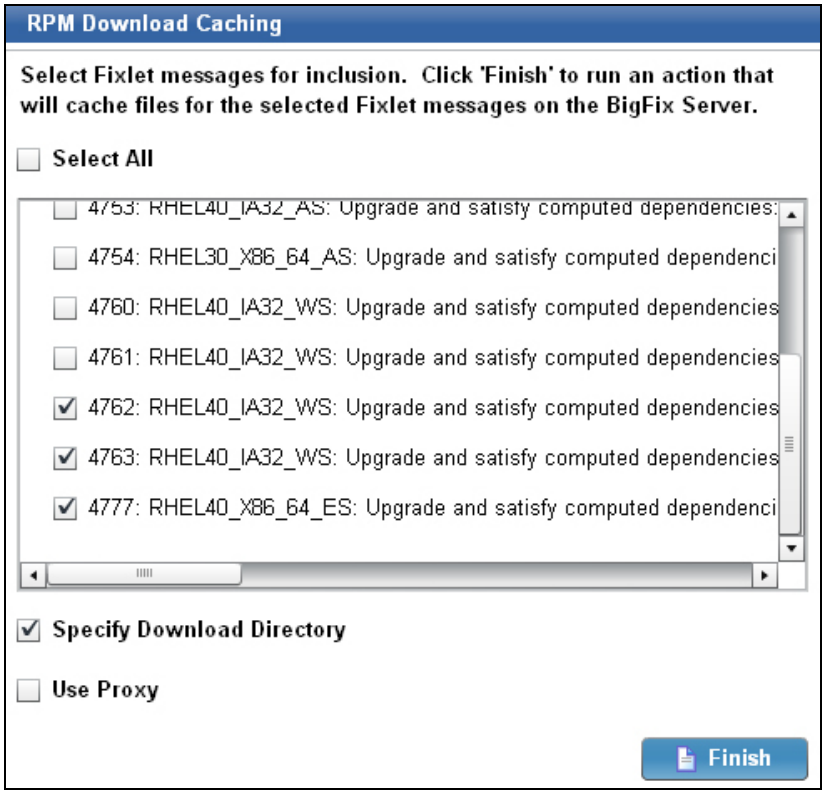
Caching RPMs

Once you have created, selected or modified a set of Fixlet messages in the previous step, caching gives you a chance to make the process more efficient. By caching the necessary files before you issue the Fixlet messages, you can better control the bandwidth usage. Here's how to set it up:

1. From the left navigation panel, select **Cache RPM**.



2. The **RPM Download Caching** panel opens up.



3. Check the appropriate boxes to indicate which of your custom Fixlet messages could benefit from download caching. **Click Select All** to cache RPM files for all available Fixlet messages.

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4. Check the **Specify Download Directory** option if you want to download files to a location other than the BES Server file cache (you will be asked later to provide a folder name).
5. Check the **Use Proxy** option if your network requires a proxy server for Internet access (you will be asked later for the required proxy parameters).
6. Click **Finish**. A warning pops up reminding you to target your cache to a BigFix Server.
7. Enter your RHN or Novell account username and password.

> **Note:** If you have customized a large number of Fixlet messages and you cache all RPM packages on them – including both target and dependency – they can consume a substantial amount of space on your BES Server.

For instructions on how to manually run the download Cacher tool for Red Hat and SUSE respectively, please refer to ***BigFix Patch Management for Red Hat Enterprise Linux***. You may also wish to consult the Resource section at the end of this document for more detailed information.

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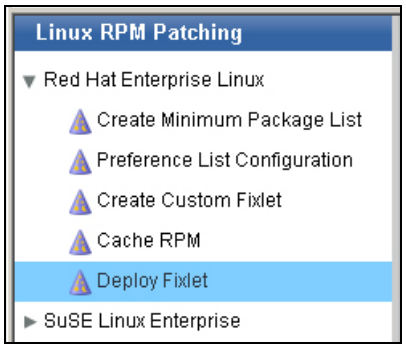
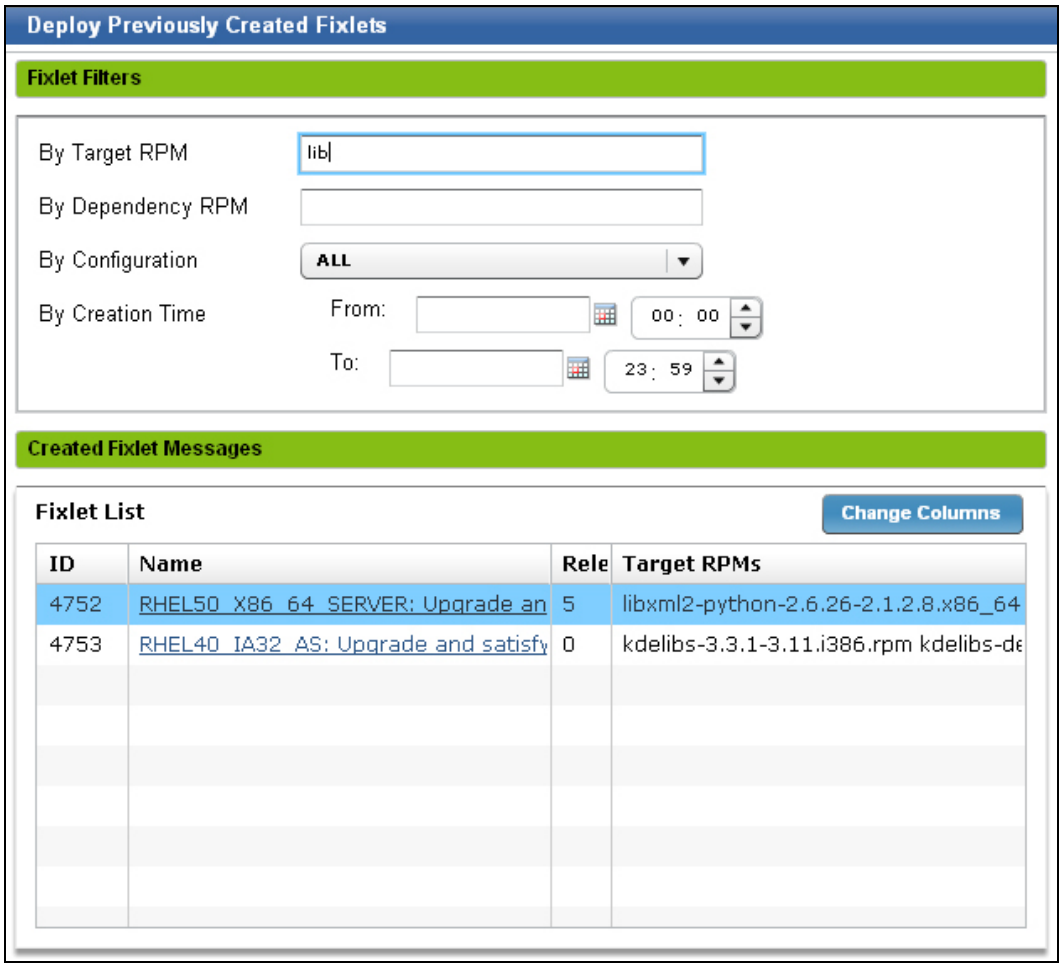
Deploying Fixlet Messages

This final section presents you with several ways to filter the created Fixlet Messages.

1. From the left navigation panel, select **Deploy Fixlet**.



2. The Deploy Previously Created Fixlets panel opens up.



3. Use the Filters to help you deploy the desired Fixlet messages. When you are ready to deploy a Fixlet, click on it from the Fixlet list. This will bring up the Fixlet for you to finalize the deployment.

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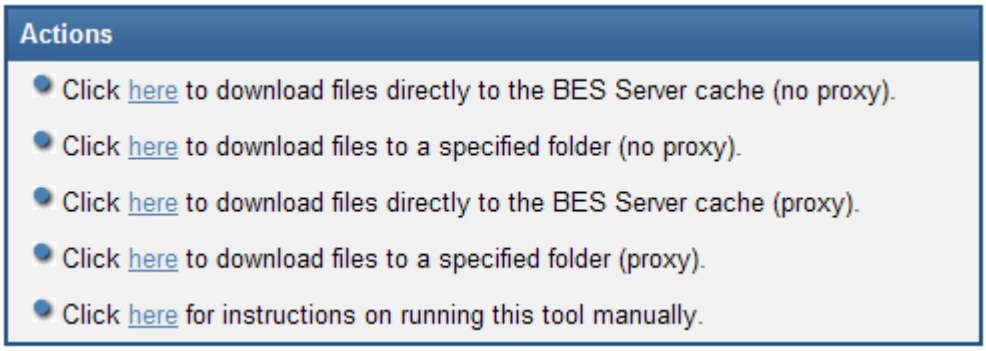
Your options include:

- **Target RPM**. Enter the Target RPM name in the space provided. You can interactively see the list get filtered as you enter the RPM name.
- **Dependency RPM**. Enter the Dependency RPM name in the space provided. Again, you can see the filtering of the list as you type.
- **By Configuration**. Select the configuration from the drop-down menu.
- **By Creation Time**. Select a bounding date and time to filter the Fixlet messages.

Using the Download Cacher

For convenience, you may wish to download and cache all the pre-packaged Fixlet messages in the **Patches for RHEL 3|4|5** sites to your BigFix server. The default location is: C:\\Program Files\BigFix Enterprise\BES Server\wwwrootbes\bfmirror\downloads\sha1. Here's how:

1. In the BigFix Console, click the **Tasks** tab.
2. From the tree view on the left, select **Linux RPM Patching**.
3. From the list of Tasks, click **Run Download Cacher Tool**.
4. Before clicking any Action links, read the description carefully. Even though an attempt is made to exclude superseded content and minimize file size, they may consume a large amount of disk space. There are several options available to you.



Select the one that best matches your situation and click the appropriate **Action** link.

Warning: Each OS configuration may require up to 15-30 GB of disk space. There are over 9,000 pre-packaged Fixlet messages to deal with the entire set of Red Hat configurations. To cache the entire set will require about 100 GB. Please make sure you have the room to hold these caches *before* you download!

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Part Three

Resources

Knowledge Base Articles

For more information on troubleshooting and the latest upgrades to the program, please consult the online Knowledge Base articles at the BigFix Support Site.

Multiple Version of same package:
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=828

RHEL UnixSD Download Cacher Usages:
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=992

Troubleshooting Errors:
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=664

Enhanced Kernel Package support:
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=665

Not-Supported Errata (RHEL only):
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=666

SuSE RPM packages that are only available from the SuSE OS installation media:
http://support.bigfix.com/cgi-bin/kbdirect.pl?id=1009

Global Support

BigFix offers a suite of support options to help optimize your user-experience and success with this product. Here's how it works:

- First, check the BigFix website Documentation page:
- Next, search the BigFix Knowledge Base for applicable articles on your topic:
- Then check the User Forum for discussion threads and community-based support:

If you still can't find the answer you need, contact BigFix's support team for technical assistance:

- Phone/US: 866 752-6208 (United States)
- Phone/International: 661 367-2202 (International)
- Email: enterprisesupport@bigfix.com

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