

IBM Endpoint Manager
Version 9.1

*Patch Management for SUSE Linux
Enterprise
User's Guide*



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Note

Before using this information and the product it supports, read the information in "Notices" on page 45.

This edition applies to version 9, release 1, modification level 0 of IBM Endpoint Manager (product number 5725-C45) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview

The Endpoint Manager Patch Management solution, which includes deploying a multi-purpose, lightweight agent to all endpoint devices, supports a wide variety of device types ranging from workstations and servers to mobile and point-of-sale (POS) devices.

What is new in this release

IBM Endpoint Manager now supports custom repositories and the Subscription Management Tool (SMT) for patching SUSE Linux Enterprise Desktop and SUSE Linux Enterprise Server version 11 endpoints.

custom_repo_support
custom_repo_support
custom_repo_support
custom_repo_support
custom_repo_support

Support for custom repositories for patch management uses existing local repository mirrors and extended support channels to download patches. This solution can also be used to deliver custom software through IBM Endpoint Manager. For more information, see Chapter 3, “Custom repositories management,” on page 17.

Supported platforms and patches

Endpoint Manager supports different SUSE Linux Enterprise platforms and updates.

Endpoint Manager Patch Management for SUSE Linux Enterprise supports the following Novell updates on the following platforms:

Table 1. Supported platforms and patches for the Patch Management for SUSE

Fixlet Site Name	Supported Platform	Type of Update
Patches for SLE10	SUSE Linux Enterprise Desktop 10 SP3 and SP4 (x86, x86_64)	• Mandatory • Recommended • Optional
	SUSE Linux Enterprise Server 10 SP3 and SP4 (x86, x86_64)	
Patches for SLE11	SUSE Linux Enterprise Desktop 11 SP1, SP2, and SP3 (x86, x86_64)	
	SUSE Linux Enterprise Server 11 SP1, SP2, and SP3 (x86, x86_64)	
Patches for SLE10 System Z	SUSE Linux Enterprise Server 10 SP3 and SP4 (s390x)	
Patches for SLE11 System Z	SUSE Linux Enterprise Server 11 SP1, SP2, and SP3 (s390x)	
Patches for SLE 11 Native Tools	SUSE Linux Enterprise Desktop 11 SP1, SP2, and SP3 (x86, x86_64)	See “Supported packages” on page 2 to view the list of Novell repositories that contain the supported packages.
	SUSE Linux Enterprise Server 11 SP1, SP2, and SP3 (x86, x86_64)	
Linux RPM Patching	Previously listed supported platform versions.	Previously listed updates.

Note: Endpoint Manager no longer releases new content Fixlets for SUSE Linux Enterprise Desktop (SLED) 10 and SUSE Linux Enterprise Server (SLES) 10 since Novell ended their general support on July 31, 2013. However, Endpoint Manager still supports the content Fixlets that were released before this date. If you acquired extended support with Novell and require Fixlets for the SLES and SLED 10 updates, contact IBM Professional Services.

To install x86 or x86_64 SUSE patches, subscribe to the Patches for SLE10, Patches for SLE11, and Linux RPM Patching sites. To install SUSE patches for System Z (s390x) endpoints, subscribe to the Patches for SLE10 System Z, Patches for SLE11 System Z and Linux RPM Patching sites.

Important: A download plug-in for SUSE must be registered before deploying patches from the Endpoint Manager console. For more information about registering the download plug-in, see “Registering the SUSE download plug-in” on page 7.

Supported packages

Patch Management for SUSE Linux Enterprise supports the packages in several Novell repositories.

The following table lists the repositories that contain the supported packages for the Patches for SLE 11 Native Tools site.

Table 2. Supported Novell repositories and packages

Operating System and Service Pack Level	Repository Name
SUSE Linux Enterprise Server 11 SP3	SLES11-SP3-Pool SLES11-SP3-Updates
SUSE Linux Enterprise Server 11 SP2	SLES11-SP1-Pool SLES11-SP1-Updates SLES11-SP2-Core SLES11-SP2-Updates
SUSE Linux Enterprise Server 11 SP2	SLES11-SP1-Pool SLES11-SP1-Updates
SUSE Linux Enterprise Server 11	SLES11-Pool SLES11-Updates SLES11-Extras
SUSE Linux Enterprise Desktop 11 SP3	SLED11-SP3-Pool SLED11-SP3-Updates
SUSE Linux Enterprise Desktop 11 SP2	SLED11-SP1-Pool SLED11-SP1-Updates SLED11-SP2-Core SLED11-SP2-Updates
SUSE Linux Enterprise Desktop 11 SP1	SLED11-SP1-Pool SLED11-SP1-Updates
SUSE Linux Enterprise Desktop 11	SLED11-Pool SLED11-Updates SLED11-Extras

Patching methods

IBM Endpoint Manager offers more flexibility to the patch management solution by providing patching options that cater to your needs.

IBM Endpoint Manager provides several different methods to manage patches for SUSE Linux Enterprise.

Patching by using the Endpoint Dependency Resolution (EDR) method

Endpoint dependency resolution (EDR) is an approach to UNIX patching where dependencies for bulletins are calculated dynamically during an action run time. Packages are patched regardless of which packages are already installed on the endpoints.

Subscribe to the following sites to use the EDR method:

- **Patches for SLE10**
- **Patches for SLE11**
- **Patches for SLE10 System Z**
- **Patches for SLE11 System Z**

With this approach, you can deploy preference lists to endpoints from the Preference Lists Dashboard in the **Linux RPM Patching** site. For more information about preference lists, see “Manage Preference Lists” on page 29.

When dependencies are resolved on the endpoints, there might be multiple valid sets of dependencies that satisfy the requirements of the targets. Preference lists help to decide which requirements to satisfy in these situations. For more information about the dashboard, see “Using the Preference Lists Dashboard” on page 29.

Patching by using the native tools (Zypper) method

Note: This method applies to patch management for SUSE Linux Enterprise Server 11 and SUSE Linux Enterprise Desktop 11 environments only.

Zypper is the default package manager for SUSE Linux Enterprise. It gives you more flexibility in terms of patch deployment and in providing results that are suitable for SUSE Linux Enterprise solutions. It uses a command-line interface and simplifies the process of installing, uninstalling, updating, and querying software packages. It is based on ZYpp, also known as libzypp. For more information about Zypper, see the documentation at <http://www.suse.com> or see the Novell Support website at <https://www.novell.com/support/>.

Zypper reduces dependency issues, improves performance, and is more reliable in terms of installing security patches. This method also enables you to use custom repositories for patching. For more information on custom repository support, see Chapter 3, “Custom repositories management,” on page 17.

The Zypper approach is introduced to replace the EDR utilities that Patch Management for SUSE Linux Enterprise previously used. Subscribe to the **Patches for SLE 11 Native Tools** site to use the Zypper method.

The Zypper native tools implementation has an external dependency on the expect utility. Endpoint Manager provides a task to install the expect utility on systems that are configured with Zypper repositories. Task ID 101: Install expect is available from the **Patches for SLE 11 Native Tools** site.

Zypper utility configuration settings

The **Patches for SLE 11 Native Tools** site uses all the settings in `/etc/zypp/zypp.conf`.

The following Zypper configuration settings are set to values that come from another file, which is dynamically created during Fixlet execution:

- `cachedir`
- `configdir`
- `metadatadir`
- `packagesdir`
- `reposdir`
- `repo.add.probe`
- `repo.refresh.delay`
- `solvfilesdir`

Identifying file relevance with Native tools content

The native tools captures file relevance in the same way as EDR. Both methods check for the relevance clause exist lower version of a package, but not exist higher version of it. If both tools are applied to the same deployment, the relevance results are the same.

Patching method matrix

The following table lists the applicable sites and features for each of the patching methods that are available for managing your SUSE Linux Enterprise endpoints.

Patching method	Applicable sites	Applicable features
Endpoint Dependency Resolution (EDR)	<ul style="list-style-type: none"> • Linux RPM Patching • Patches for SLE10 • Patches for SLE11 	<ul style="list-style-type: none"> • Download Plug-ins • RPM Deployment • Preference List
Native tools (Zypper)	<ul style="list-style-type: none"> • Patching Support • Patches for SLE 11 Native Tools 	<ul style="list-style-type: none"> • Download Plug-ins • Custom Repository Support

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*.

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**.

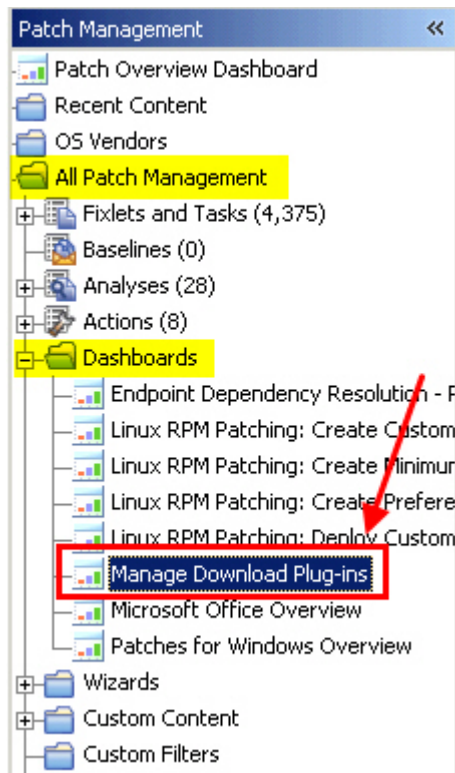


Figure 1. Patch Management navigation tree

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.

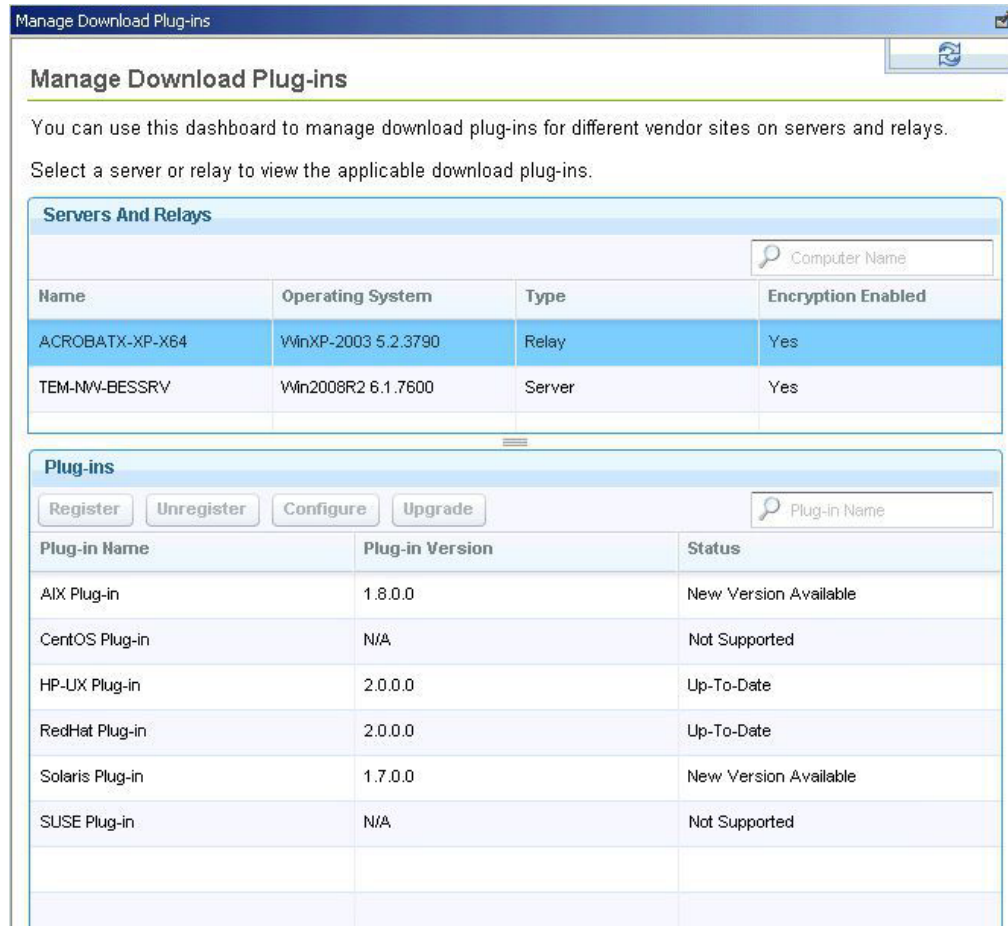


Figure 2. Manage Download Plug-ins dashboard

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 SUSE download plug-in

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

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

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 a 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 **SUSE Plug-in**.
4. Click **Register**. The Register SUSE Plug-in wizard displays.

Register SUSE Plug-in

This wizard installs and configures the SUSE Plug-in.
Existing configurations are overwritten.

Novell Credentials

Novell Username *

Novell Password *

Confirm Novell Password *

Mirror Server Settings

Mirror URL

Mirror Username

Mirror Password

Confirm Mirror Password

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

OK **Cancel**

Figure 3. Register SUSE download plug-in wizard

5. Enter the Novell credentials that you use to log on to the Novell Customer Center.

Novell Username

Your Novell account user name to the Novell Customer Center. It must have a valid support identifier to download patches.

Novell Password

Your Novell account password to the Novell Customer Center.

Confirm Novell Password

Your Novell account password for confirmation.

Large amounts of downloads through this channel might lock you out of your Novell account. Use the mirror server to prevent a temporary lock out from happening.

6. Optional: Enter the mirror parameters if you want the plug-in to download from a mirror server.

Mirror URL

The URL of your mirror server. It must be a well-formed URL, which contains a protocol and a host name. Leave the field blank to use the Novell mirror server: `https://nu.novell.com`.

Note: Ensure that you enter your Novell mirror server credentials. If you leave the following fields blank, the download plug-in uses the credentials for the Novell Customer Center instead.

Mirror Username

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

Mirror Password

Your proxy password if your mirror server requires authentication.

Confirm Mirror Password

Your mirror password for confirmation.

7. 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.

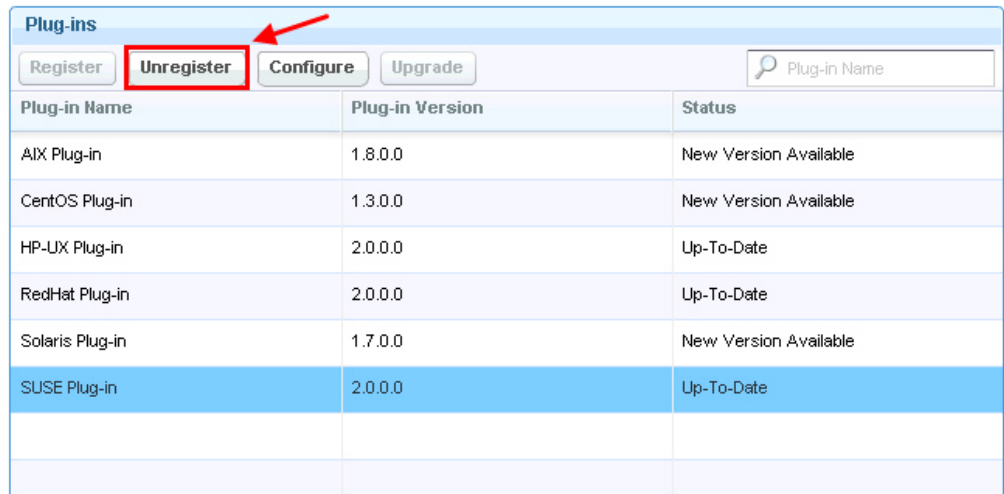
8. Click **OK**. The Take Action dialog displays.
9. Select the target computer.
10. Click **OK**.

You successfully registered the SUSE download plug-in.

Unregistering the SUSE download plug-in

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

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 **SUSE Plug-in**.
4. Click **Unregister**.



The screenshot shows the 'Plug-ins' dashboard with a table of installed plug-ins. The 'Unregister' button is highlighted with a red box, and a red arrow points to it from the right. The table lists various operating systems and their plug-in versions and statuses.

Plug-in Name	Plug-in Version	Status
AIX Plug-in	1.8.0.0	New Version Available
CentOS Plug-in	1.3.0.0	New Version Available
HP-UX Plug-in	2.0.0.0	Up-To-Date
RedHat Plug-in	2.0.0.0	Up-To-Date
Solaris Plug-in	1.7.0.0	New Version Available
SUSE Plug-in	2.0.0.0	Up-To-Date

Figure 4. Unregister the SUSE download plug-in

The Take Action dialog displays.

5. Select the target computer.
6. Click **OK**.

You successfully unregistered the SUSE download plug-in.

Configuring the SUSE download plug-in

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

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 **SUSE Plug-in**.
4. Click **Configure**. The Configure SUSE Plug-in wizard displays.

Configure SUSE Plug-in

This wizard configures the SUSE Plug-in.
Existing configurations are overwritten.

Novell Credentials

Novell Username *

Novell Password *

Confirm Novell Password *

Mirror Server Settings

Mirror URL

Mirror Username

Mirror Password

Confirm Mirror Password

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

Figure 5. Configure SUSE download plug-in wizard

5. Enter the Novell credentials that you use to log on to the Novell Customer Center.

Novell Username

Your Novell account user name to the Novell Customer Center. It must have a valid support identifier to download patches.

Novell Password

Your Novell account password to the Novell Customer Center.

Confirm Novell Password

Your Novell account password for confirmation.

Large amounts of downloads through this channel might lock you out of your Novell account. Use the mirror server to prevent a temporary lock out from happening.

6. Optional: Enter the mirror parameters if you want the plug-in to download from a mirror server.

Mirror URL

The URL of your mirror server. It must be a well-formed URL, which contains a protocol and a host name. Leave the field blank to use the Novell mirror server: `https://nu.novell.com`.

Note: Ensure that you enter your Novell mirror server credentials. If you leave the following fields blank, the download plug-in uses the credentials for the Novell Customer Center instead.

Mirror Username

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

Mirror Password

Your proxy password if your mirror server requires authentication.

Confirm Mirror Password

Your mirror password for confirmation.

7. 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.

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

You successfully configured the SUSE download plug-in.

Migrating the SUSE download plug-in

You must migrate the SUSE Linux download plug-in if the plug-in version is earlier than 2.0.0.0. You only need to do this 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 **SUSE Plug-in**.
4. Click **Migrate**. The Migrate SUSE Plug-in wizard displays.

Migrate SUSE Plug-in

Migrate plug-ins that are earlier than version 2.0.0.0.

This wizard migrates the SUSE Plug-in and upgrades it to the latest version.

Existing configuration are overwritten.

Novell Credentials

Novell Username *

Novell Password *

Confirm Novell Password *

Mirror Server Settings

Mirror URL

Mirror Username

Mirror Password

Confirm Mirror Password

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

Figure 6. Migrate SUSE download plug-in wizard

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

Novell Username

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

Novell Password

Your Novell account password to the Novell Support site.

Confirm Novell Password

Your Novell account password for confirmation.

6. Optional: Enter the mirror parameters if you want the plug-in to download from a mirror server.

Mirror URL

The URL of your mirror server. It must be a well-formed URL, which contains a protocol and a host name. Leave the field blank to use the Novell mirror servers.

Mirror Username

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

Mirror Password

Your proxy password if your mirror server requires authentication.

Confirm Mirror Password

Your mirror password for confirmation.

7. 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.

8. Click **OK**. The Take Action dialog displays.
9. Select the target computer on which the download plug-in is to be upgraded.
10. Click **OK**.

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

Upgrading the SUSE download plug-in

Use the Manage Download Plug-ins dashboard to upgrade the download plug-in for SUSE Linux.

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 **SUSE 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 SUSE download plug-in installed.

Download cacher tool overview

The SUSE Download Cacher is a command-line tool that is designed to automatically download and cache SUSE patches on the IBM Endpoint Manager server to facilitate the deployment of SUSE Fixlets.

Important: Use the download cacher tool only if you are using an air-gapped environment or if the total number of packages is too large. You can also use the tool if you want to cache all the downloads for faster execution of actions. Otherwise, use the download plug-in. The preferred method of SUSE patch caching is to register the SUSE Download Plug-in from the Manage Download Plug-ins dashboard. For more information about registration, see “Registering the SUSE download plug-in” on page 7.

The tool uses FTP to download large .zip files and by default, stores them in the sha1 cache folder. You can also choose to store the files in a different existing directory. Your environment must be configured to accept FTP use.

You can access the tool by downloading and running it manually. For more information, see the technote in <http://www-01.ibm.com/support/docview.wss?uid=swg21506059>.

Chapter 3. Custom repositories management

If you are using the native tools site, you can set up your custom repositories and Subscription Management Tool (SMT) to manage patches for SUSE Linux Enterprise Desktop and SUSE Linux Enterprise Server version 11. This solution allows for multiple repositories and SMTs on the entire deployment.

With the custom repository support, the Fixlets in the **Patches for SLE 11 Native Tools** site can use Zypper to directly download packages from custom repositories instead of going through the Novell Customer Center. Bandwidth throttling is not supported in a custom repository architecture.

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 Zypper** task from the **Patching Support** site to install custom software that are in your custom repositories.

Integrating your custom repository or SMT solutions is made easy with the use of the SLE Custom Repository Management dashboard.

Differentiating between repository types

The custom support covers both repository and SMT. You can register endpoints to a repository or to an SMT server.

Note: The SLE Custom Repository Management dashboard refers to SMT as one of the repository types for identification purposes only. The dashboard does not affect how SMT works.

Ensure that both types of repository are updated. Actions might fail if the packages are not available.

Repository

This type refers to standard software repositories, which are storage locations that contain a collection of packages and metadata. These repositories can be on online servers, CDs, DVDs, or on other media.

The SLE Custom Repository Management dashboard does not add physical repositories; you must do this action separately.

SMT With the SMT, enterprise customers can optimize the management of SUSE Linux Enterprise software updates and subscription entitlements. SMT provides a repository and registration target that is synchronized with the Novell Customer Center.

For more information about SMT, see the SUSE documentation at <https://www.suse.com/documentation/smt11/>.

SLE Custom Repository Management dashboard

Use the SLE Custom Repository Management dashboard to easily integrate your existing custom repository or Subscription Management Tool (SMT) solutions with the IBM Endpoint Manager patch management solution. Use this dashboard only if you are subscribed to the **Patches for SLE 11 Native Tools** site.

The SLE Custom Repository Management dashboard allows the Fixlets in the Native Tools site to use Zypper for downloads instead of using the standard IBM Endpoint Manager downloading infrastructure.

Note: Only endpoints on SUSE Linux Enterprise Desktop and Linux Enterprise Server version 11 are supported in this dashboard.

To access the dashboard, subscribe to the **Patching Support** site. From the Patch Management domain, click **All Patch Management > Dashboards > SLE Custom Repository Management**.

Important: Your custom repositories must be pre-configured with the required metadata and headers before you use the dashboard.

Use the SLE Custom Repository Management dashboard to perform the following actions for patch management:

- Register and unregister endpoints to a repository (custom repositories or SMT servers)
- Add, delete, and import custom repositories and SMT servers to the repository dashboard list

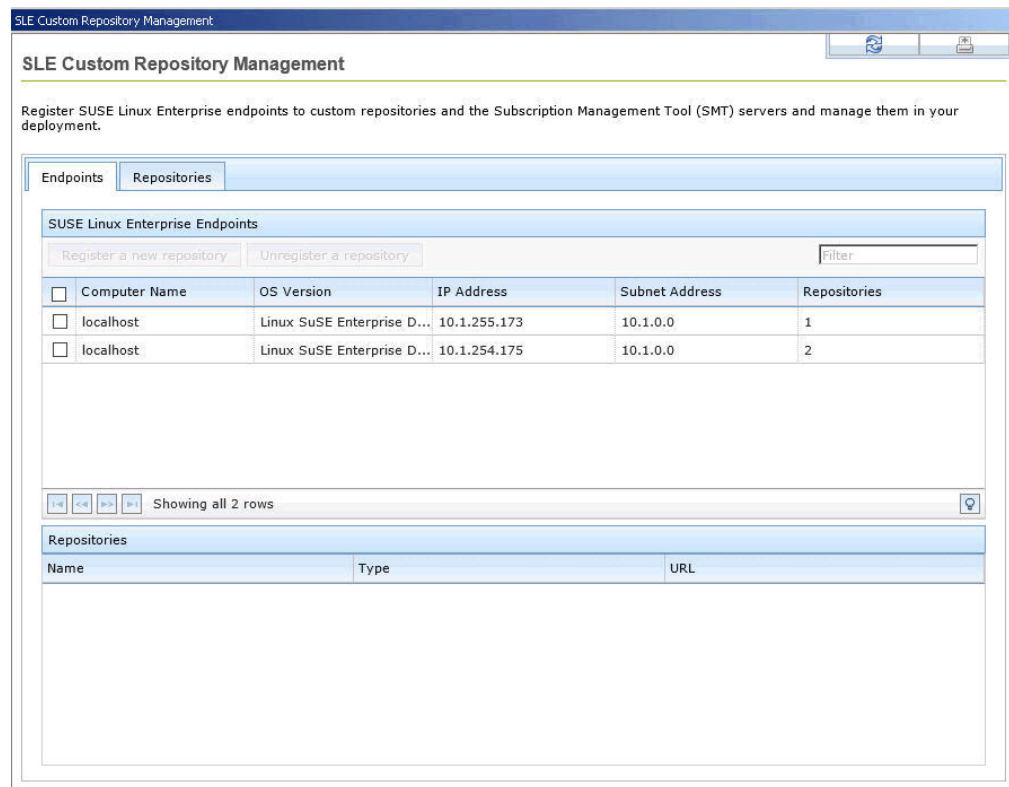


Figure 7. SLE Custom Repository Management dashboard

Note: The SLE Custom Repository Management dashboard does not support the creation of a physical repository server or SMT. You must create the repository separately. For more information about creating repositories, see the following resources:

- *SUSE Linux Enterprise Desktop 11 SP3 Deployment Guide* at https://www.suse.com/documentation/sled11/book_sle_deployment/data/sec_y2_sw_instsource.html
- *SUSE Linux Enterprise Server 11 SP3 Deployment Guide* at https://www.suse.com/documentation/sles11/book_sle_deployment/data/sec_y2_sw_instsource.html

Adding a repository or SMT

Add a custom repository or a Subscription Management Tool (SMT) server into the dashboard repository list so that you can register and connect it to endpoints.

- Activate the **Repository Configuration - SUSE Linux Enterprise** analysis.
- Run the **Enable custom repository support - SUSE Linux Enterprise** task.

1. From the **SLE Custom Repository Management** dashboard, click the **Repositories** tab.
2. Click **Add**.
3. From the Add a New Repository dialog, select the repository type that you want to add.

Note: Ensure that the repository settings match the repository server configuration.

- If you are adding a standard repository, enter values for the following fields:
 - **Repository Name**
 - **Repository URL**

Figure 8. Adding a repository

- If you are adding an SMT server, enter values for the following fields:
 - **SMT Server Name**
 - **SMT Server URL**
 - **clientSetup4SMT script URL**

Figure 9. Adding an SMT

Note: When you enter the SMT Server URL, the clientSetup4SMT script URL is generated automatically. This script is provided with SMT to configure endpoints to use the SMT server or to reconfigure it to use a different SMT server.

4. Click **Save**.

To connect the added repository to an endpoint, see “Registering endpoints to a repository or SMT.”

If you want to add all the known existing repositories of an endpoint, both SMTs and standard repositories, to the dashboard list, use the Import feature. For more information, see “Importing repositories or SMTs” on page 22.

Registering endpoints to a repository or SMT

Use the SLE Custom Repository Management dashboard to connect your repositories and SMTs to endpoints.

- Ensure that the repository settings match the repository server configuration.
- Activate the **Repository Configuration - SUSE Linux Enterprise** analysis.
- Run the **Enable custom repository support - SUSE Linux Enterprise** task.

1. From the **SLE Custom Repository Management** dashboard, click the **Endpoints** tab.
2. Select the endpoints that you want to register to a repository from the first table. The repositories of the selected endpoints are listed in the second table.

Note: When a repository is named as unspecified, it means that it is not listed in the Repository list of the dashboard.

3. Click **Register a new repository**.
4. From the Register a New Repository dialog, select a repository or SMT and click **Next**.



Figure 10. Registering an endpoint to a repository

Note: An endpoint can be registered to only one SMT at a time. If an endpoint is already registered to an SMT, registering a different SMT overrides the registration with the existing SMT.

- If you selected a repository, you can add more configuration information in **Additional Fields**. For example, if you use a repository that is not a mirror of the vendor site, enter `gpgcheck=0` to prevent a patch from failing because the files cannot be opened.

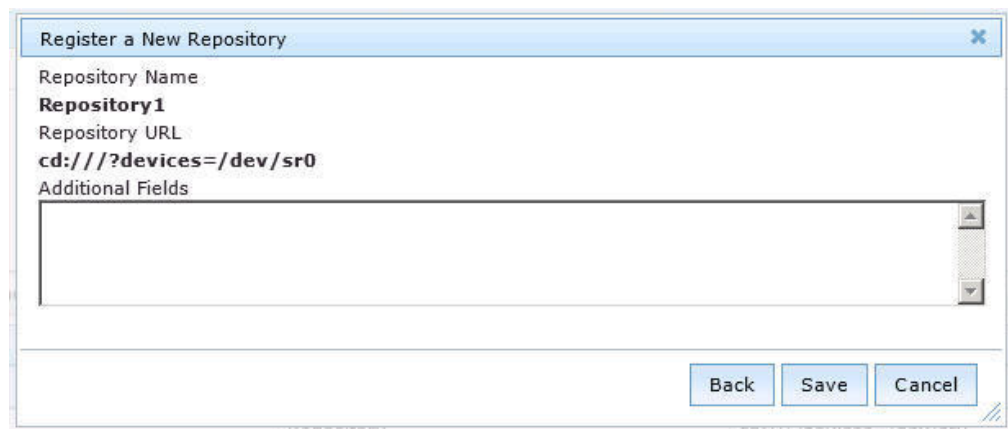


Figure 11. Additional fields when registering endpoints to a repository

- Click **Save**. This information is saved in the Zypper configuration files.
- From the Take Action dialog, select the computers and click **OK** to deploy the action.

Unregistering endpoints from a repository or SMT

Use the SLE Custom Repository Management dashboard to unregister endpoints from repositories or SMTs that are no longer relevant.

- Activate the **Repository Configuration - SUSE Linux Enterprise** analysis.
- Run the **Enable custom repository support - SUSE Linux Enterprise** task.

When you unregister a repository, the Zypper services and repositories from the endpoint that you selected are removed.

The Zypper configuration file is not deleted, but disabled when an endpoint is unregistered from a standard or SMT repository.

If you unregister an endpoint from an SMT repository, you must log in to the SMT server and delete the selected computer manually.

1. From the **SLE Custom Repository Management** dashboard, click the **Endpoints** tab.
2. Select the endpoints that you want to unregister a repository from.
3. Click **Unregister a new repository**.
4. From the Unregister a New Repository dialog, select a repository and click **Save**.
5. From the Take Action dialog, select the computers and click **OK** to deploy the action.

Deleting repositories or SMTs

To manage the dashboard repository list more easily, delete the repositories or SMTs that no longer exist in your deployment.

1. From the **SLE Custom Repository Management** dashboard, click the **Repositories** tab.
2. Select the repositories that you want to delete and click **Delete**. A delete confirmation dialog displays.
3. Click **Yes** to confirm and proceed with the deletion of the selected repositories.

The selected repositories are removed from the list.

Importing repositories or SMTs

Use the Import feature of the SLE Custom Repository Management dashboard to add all the known existing repositories of an endpoint to the list of repositories in the dashboard.

Activate the **Repository Configuration - SUSE Linux Enterprise** analysis.

1. From the **SLE Custom Repository Management** dashboard, click the **Repositories** tab.
2. Click **Import**.
3. From the Import Existing Repositories dialog, select the repositories or SMTs that you want to add in the dashboard repository list.
4. Enter a name for the repository.
5. Click **Save**.

The repositories or SMTs are now imported and added to the list in the dashboard.

Chapter 4. Patch Management for SUSE Linux Enterprise

Use the Fixlets on the Linux RPM Patching and the various Patches for SUSE Linux Enterprise Fixlet sites to apply patches to your deployment.

For information about the available Fixlet sites for SUSE Linux Enterprise, see “Supported platforms and patches” on page 1.

Patch content caching must be done through the download plug-in unless you are using an air-gapped environment. For more information about the download plug-in registration, see “Registering the SUSE download plug-in” on page 7. For information about the download cacher, see “Download cacher tool overview” on page 15.

IBM Endpoint Manager provides several different methods to manage patches for SUSE Linux Enterprise. For more information, see “Patching methods” on page 3.

Patching using Fixlets

You can apply SUSE Linux patches to your deployment by using the Fixlets on the Linux RPM Patching and Patches for SLE sites.

- Register the SUSE download plug-in. For more information about download plug-ins, see Download plug-ins.
- Subscribe to the appropriate sites.
- Activate the necessary analysis from the subscribed sites.
- If you are not using the **Patches for SLE 11 Native Tools** site to patch your systems, activate the **Endpoint Dependency Resolution - Deployment Results** analysis to view the patch deployment results. For more information, see “Viewing deployment results” on page 27.
- If you are using the **Patches for SLE 11 Native Tools** site to patch your systems, run the **Install expect** task (ID #101) to install the expect utility on systems that are configured with the Zypper utility.

Note: This only applies to the endpoints that do not have the expect utility installed.

The possible actions that you can make on a Fixlet depend on the patch type. For example, patch Fixlets provide an option to deploy a test run prior to applying the patch. Kernel updates provide the option to upgrade or install all kernel packages. 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.

Note: The upgrade option in Kernel updates replaces existing kernel packages with later versions. The install option installs the later kernel packages next to the previous versions.

1. From the Patch Management domain, click **OS Vendors > SUSE Linux Enterprise**, and navigate to the patch content using the domain nodes.

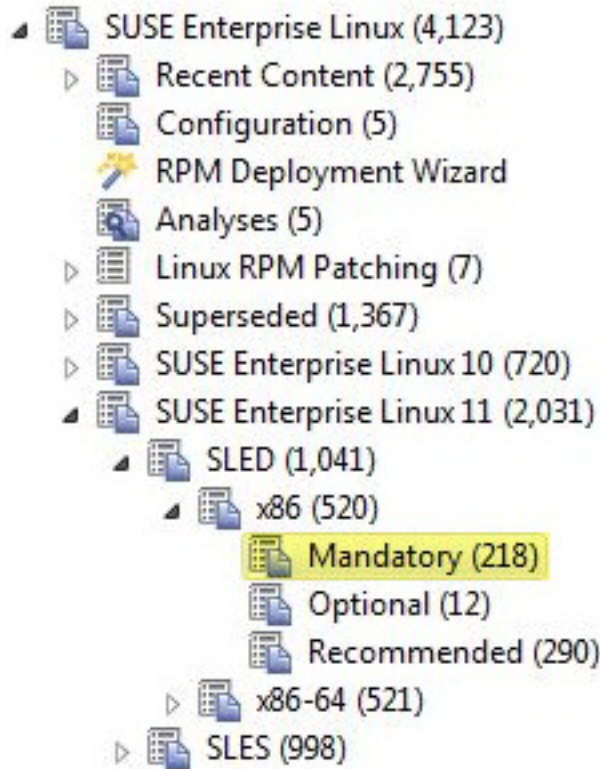


Figure 12. Patch Management navigation tree

2. In the content that is displayed in the list panel, select the Fixlet that you want to deploy. The Fixlet opens in the work area.
3. Click the tabs at the top of the window to review details about the Fixlet.
4. Click **Take Action** to deploy the Fixlet.
 - You can start the deployment process.

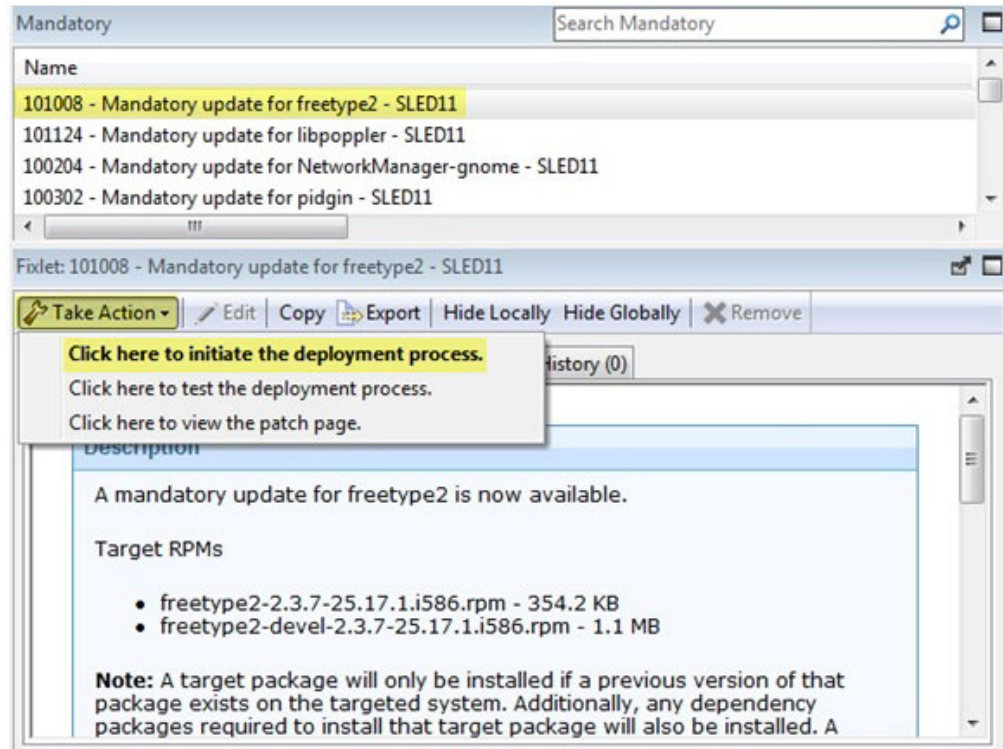


Figure 13. Take action to start the deployment process

- You can deploy a test run prior to applying the patch. View the **Deployment Results** analysis to determine if the dependencies have been successfully resolved and if an installation is successful.

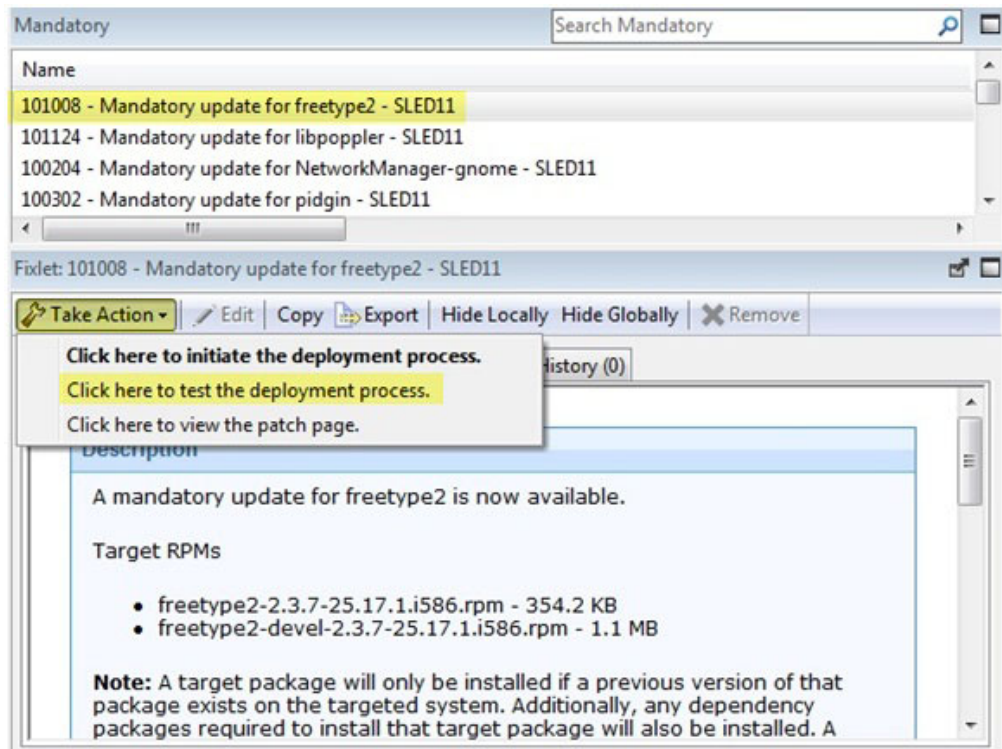


Figure 14. Take action to deploy a test

- You can view the Novell bulletin for a particular Fixlet, select the **Click here to view the patch page** action to view the patch page.

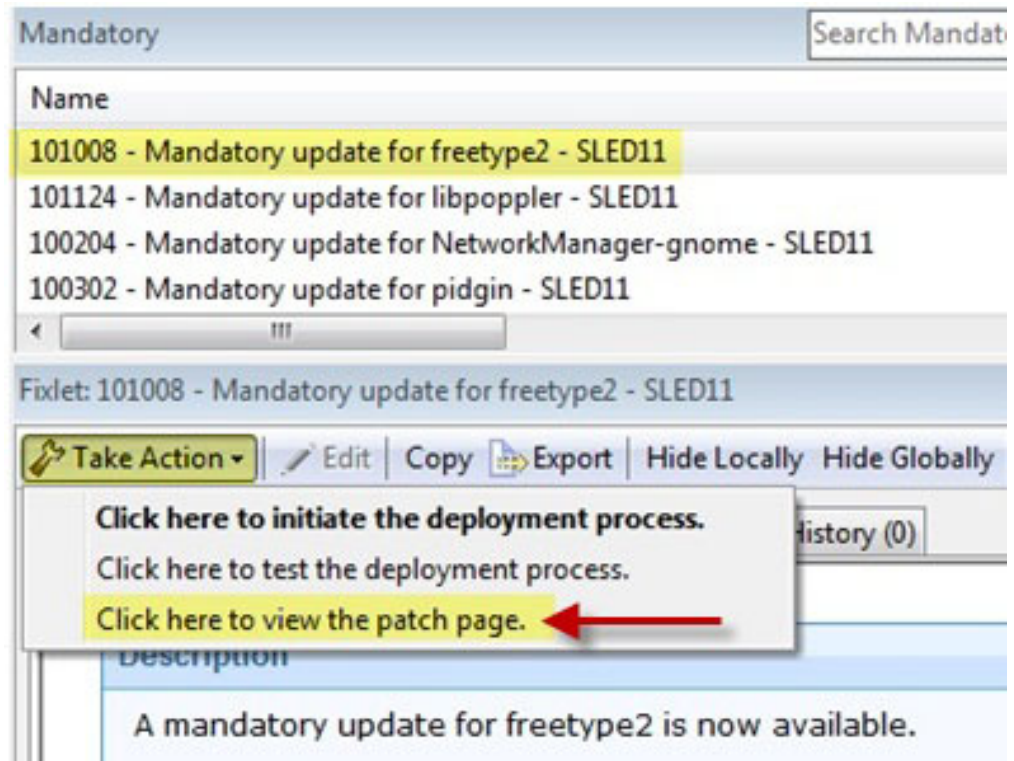


Figure 15. Take action to view patch page

- You can also click the appropriate link in the Actions box
5. You can set more parameters in the Take Action dialog.
For detailed information about setting parameters with the Take Action dialog, see the *IBM Endpoint Manager Console Operator's Guide*.
 6. Click **OK**.
 7. Enter your Private Key Password when necessary.

Viewing deployment results

The results of a successful action for Fixlet content with endpoint dependency resolution are written in a log file on the endpoint. You must activate an analysis to view the results.

1. From the Patch Management domain, click **OS Vendors > SUSE Linux Enterprise**.
2. Navigate to the analysis by clicking the Analyses node and select **Endpoint Dependency Resolution - Deployment Results**.

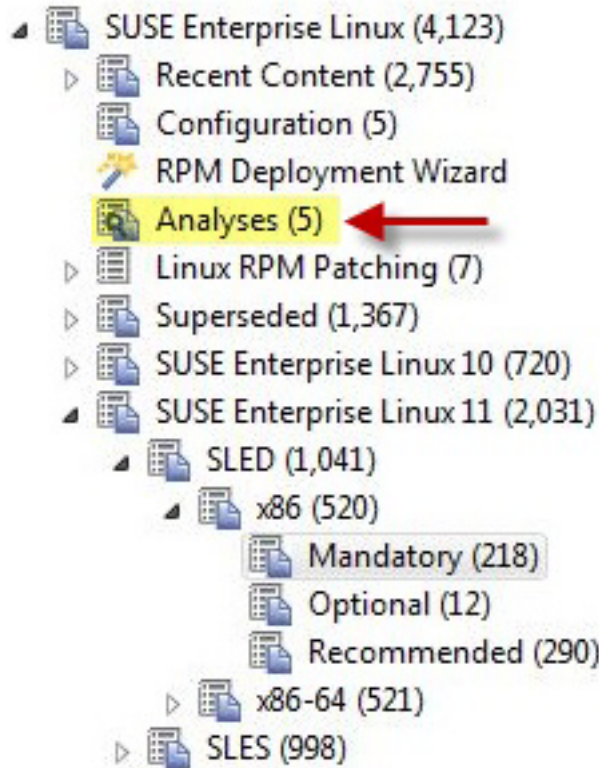


Figure 16. Analyses in the navigation tree

3. Click **Activate**.

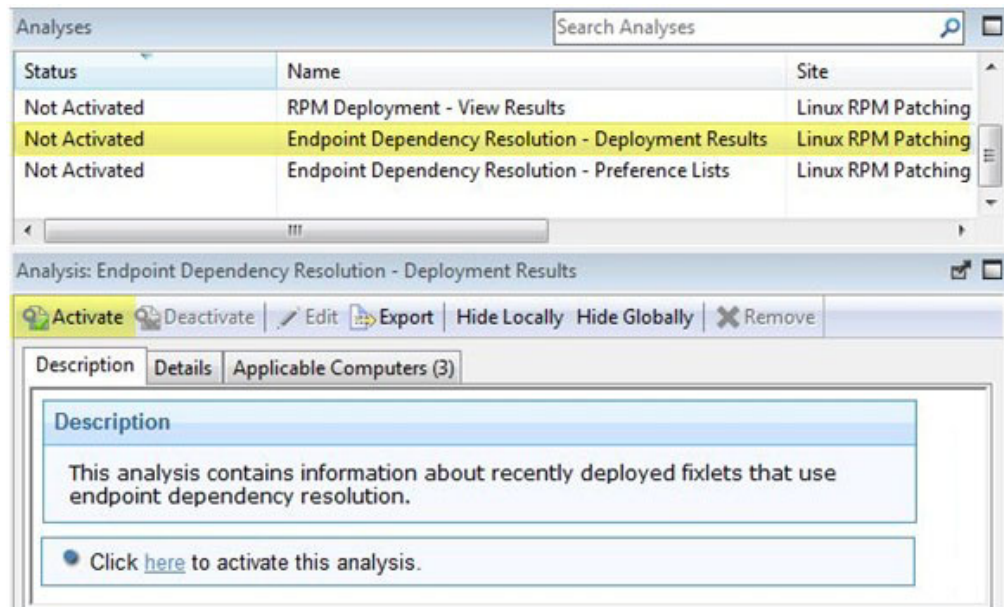


Figure 17. List of analyses

4. Click the **Results** tab in the Analysis window that is displayed after you activate the analysis.

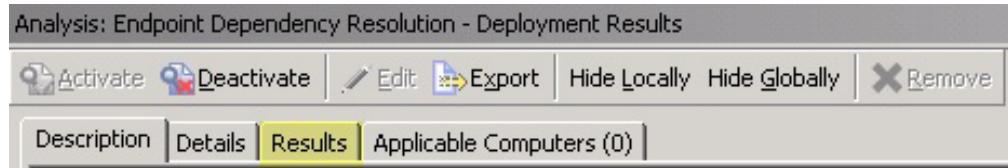


Figure 18. Results tab

- Optional: 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 > SUSE Linux Enterprise > Configuration**.

Note: The default analysis report length is 100 entries.

When you review the properties of an endpoint, you can view the current deployment information on that system. To view this data, navigate on the **All Content** domain and select the **Computers** node. Select the computer that you want to inspect in the work area. Scroll down to the Deployment Results.

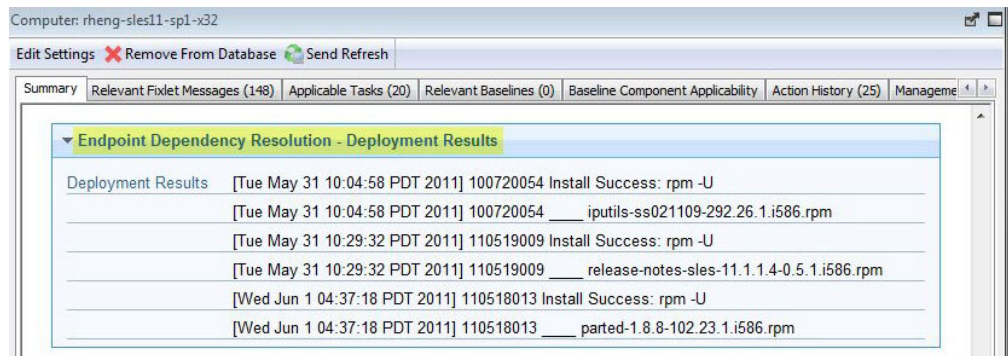


Figure 19. Endpoint Dependency Resolution - Deployment Results

Manage Preference Lists

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

Preference lists have the following characteristics:

- 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

Use the Preference List Dashboard to create preference lists.

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

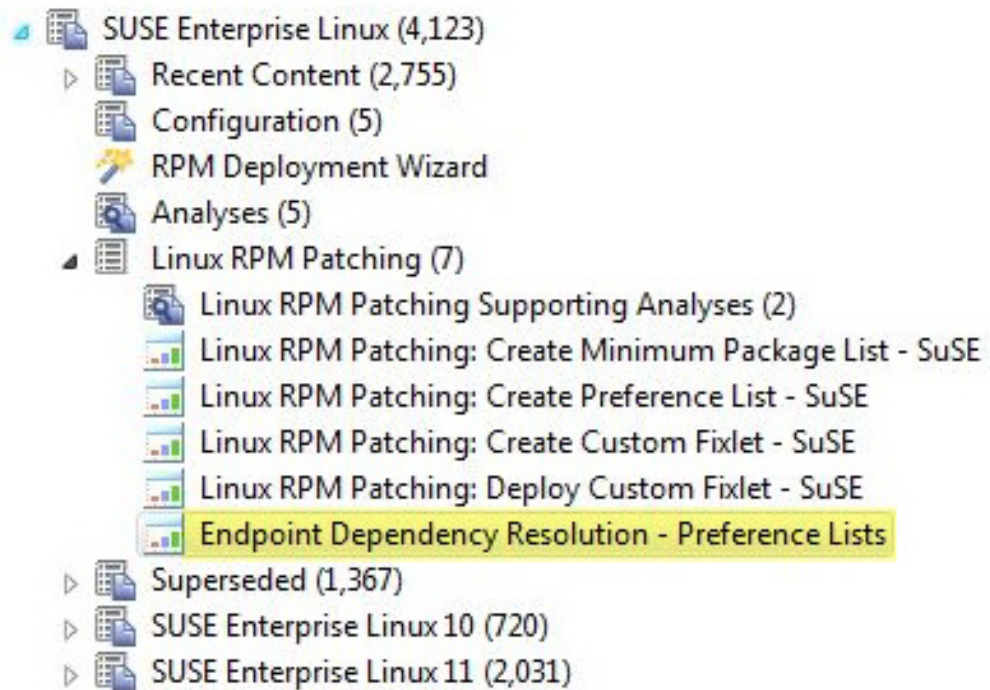


Figure 20. *Endpoint Dependency Resolution - Preference Lists* dashboard in the navigation tree

To create new Forbidden package lists, click *New Forbidden Package List*.

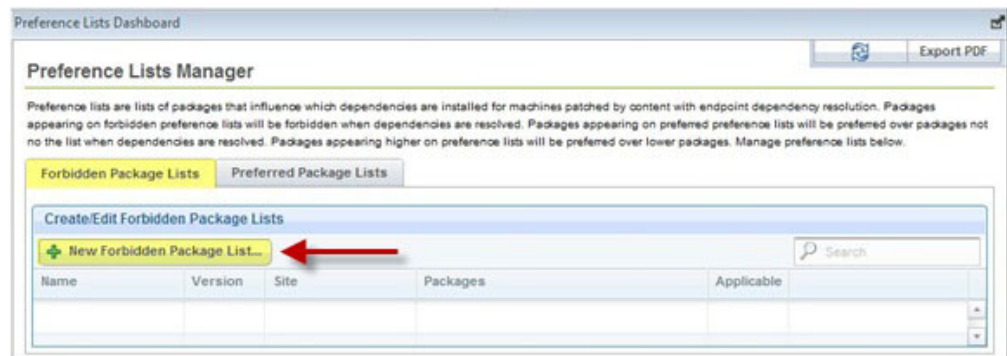


Figure 21. *New Forbidden Package List*

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*.



Figure 22. Create new Forbidden Package List

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.

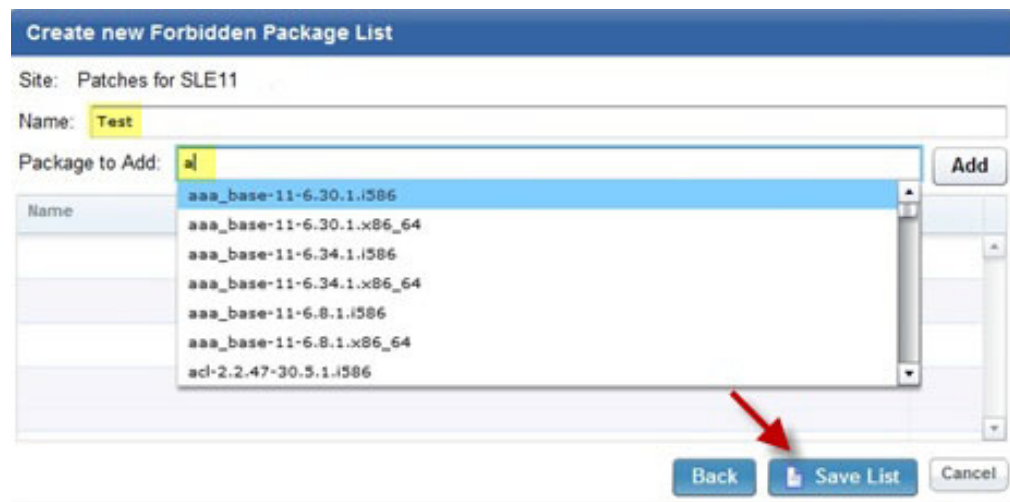


Figure 23. Add package

To edit a preference list, click *edit* for that particular list.

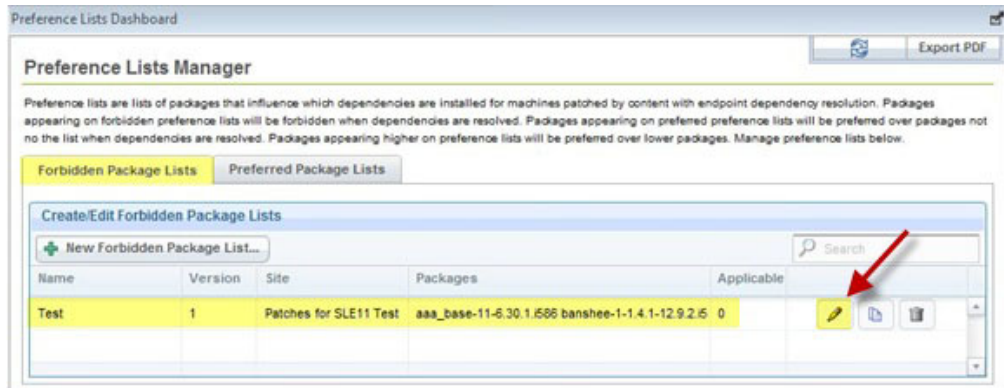


Figure 24. Edit button

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.

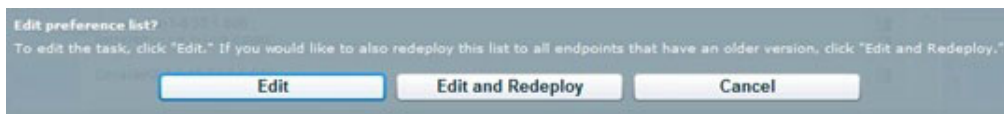


Figure 25. Edit dialog

To create a copy of a preference list, click copy for that particular list.

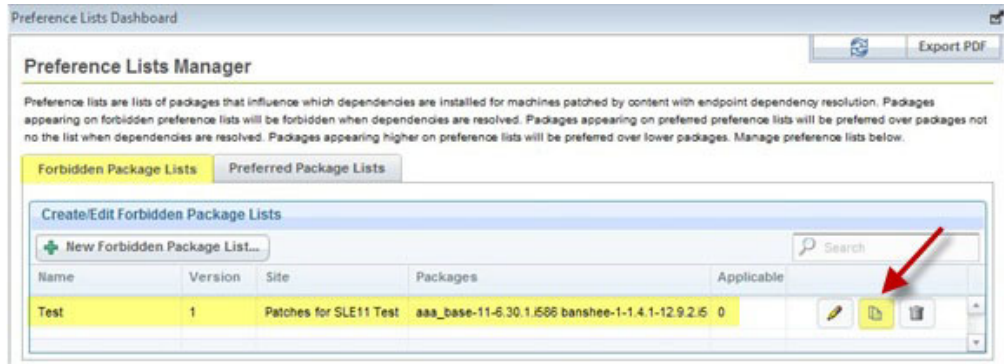


Figure 26. Copy button

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.

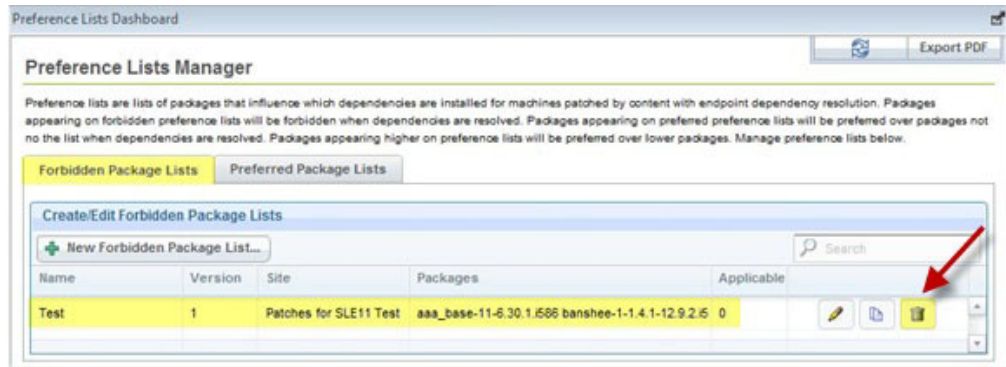


Figure 27. Delete button

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*.

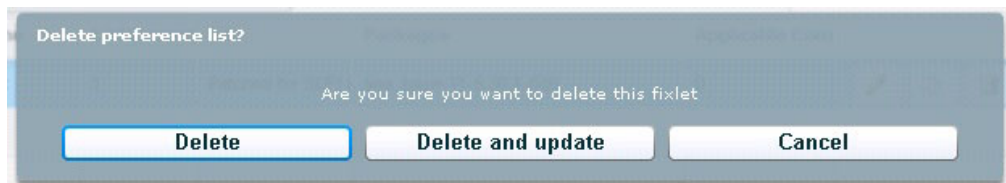


Figure 28. Delete dialog

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.

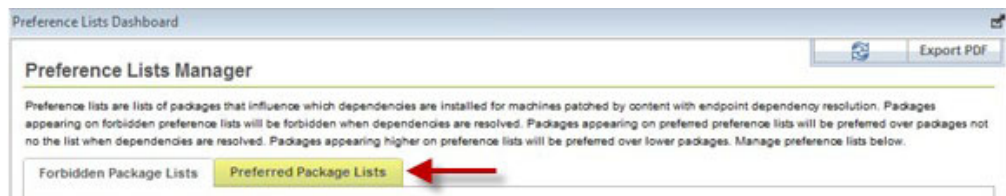


Figure 29. Preferred Package Lists tab

Packages are ordered from top to bottom in preference lists. Drag and drop packages to specify priority.

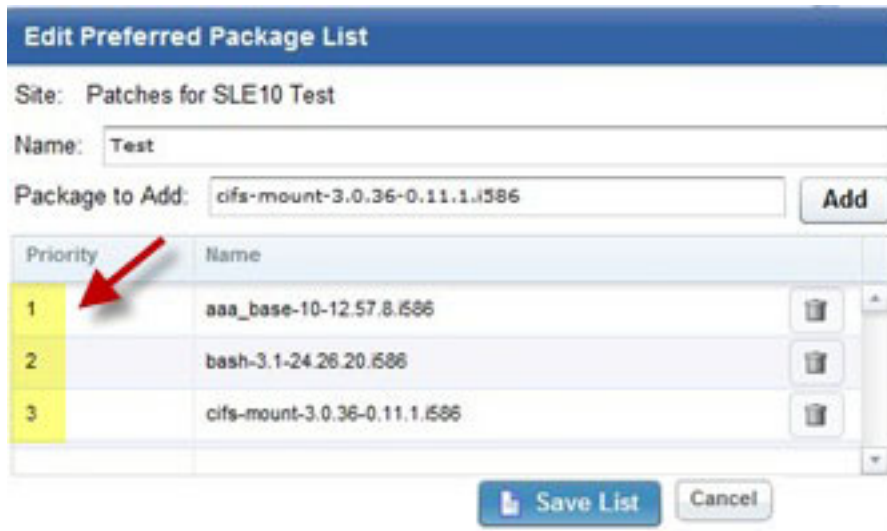


Figure 30. Sort priority

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.

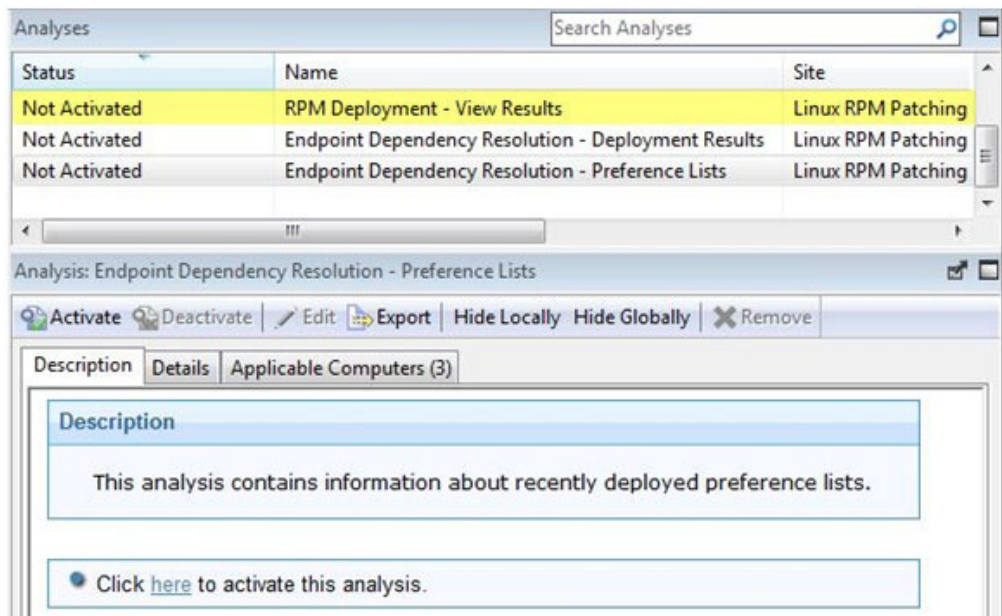


Figure 31. List of analyses

Click the Results tab in the Analysis window that is displayed after you activate the analysis.

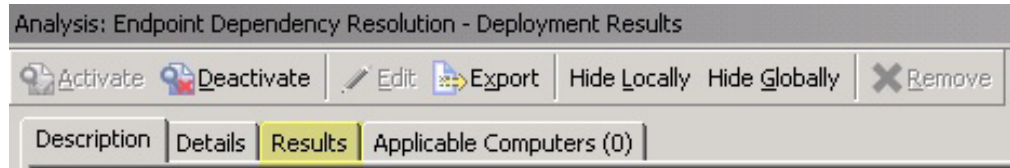


Figure 32. Results tab

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.

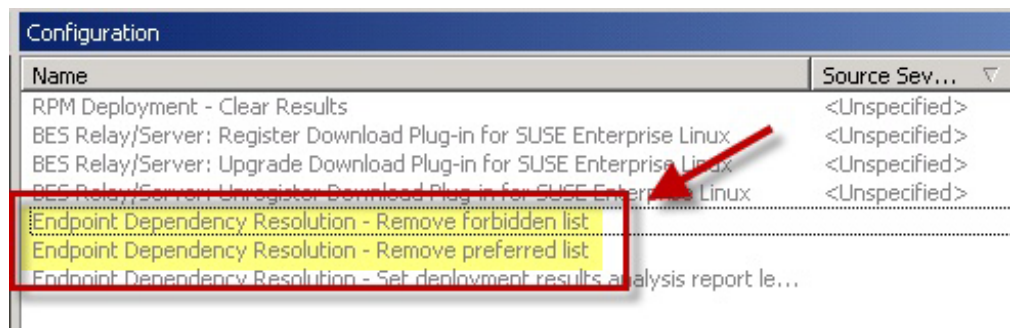


Figure 33. Available Fixlets to remove a preference list

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

To better understand Patch Management for SUSE Linux Enterprise, read the following questions and answers.

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.

How do I deal with missing patches?

IBM only provides patches for bulletins that are listed on the Novell website for supported configurations. These bulletins can be found in Novell Patch Finder: Patch Finder

Where are the deployment logs on endpoints?

The logs are in a folder that is called EDRDeployData in the client folder that is at /var/opt/BESClient/EDRDeployData.

Why is my action reporting back as a failed download?

Make sure you update the download plug-in to the latest version and register it with the correct credentials.

If I have registered the latest plug-ins, why do downloads still fail?

For product versions 8.0.627, upgrade to the latest version of IBM Endpoint Manager to resolve the issue on dynamic downloads whitelist.

For product versions later than 8.0.627, verify your existing download plug-in configuration. Verify that the Novell credentials, proxy settings, and mirror server settings are valid.

What do I do when action reports back with an “EDR Plugin failure, Invalid set of initially installed packages? ”

There is at least one conflict between the packages that exist on the system. The resolver will 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 do I do 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 because of a conflict between these files and the endpoint files.

If the resolver finds that there is no solution, the system cannot install all targets and dependencies because of a conflict between these files and the endpoint files. Dependency graphs are generated every Monday, Wednesday, and Friday.

What do I do when an action reports back with an installation failure?

Check to see if the conflict is caused by a vendor-acquired package. These 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 if by selecting that

package creates a conflict with another package. Therefore, it is possible for a lower priority package to be selected.

How do I verify if the download plug-in was registered correctly?

Run a Fixlet with an action task to verify if 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 SUSE download plug-in" on page 7.

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.

I was expecting the password to be obfuscated, but it's still in clear text. Why is that?

Check if your download plug-in version is earlier than 2.0. If so, 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 2.0 or later from the Manage Download plug-ins dashboard in the Patching Support site.

Is there a certain level of Zypper that is needed to use SLE 11 with the Native tool site?

No - any version of the installed Zypper works.

Where can I find the Endpoint Dependency Resolver (EDR) deployment log?

You can find the results of the EDR deployment in the **EDR_DeploymentResults.txt** log file that is at `/var/opt/BESClient/EDRDeployData`.

An action failed and the EDR logs do not give any information about the failing action. How do I troubleshoot?

The last six lines of the deployment and test actions are intended to delete the temporary files that were 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 Zypp configuration that is used during the action, delete **{parameter "EDR_ZyppConfig"}**
- To see the Zypper output that is generated during the dependency resolution, delete **{parameter "EDR_ZypperResolveOutput"}**

When these two lines are deleted, the following files are placed in the site folder for the **Patches for SLE 11 Native Tools** site:

- `EDR_ZyppConfig_<Fixlet_id>`
- `EDR_ZypperResolveOutput_<Fixlet_id>`

An action failed and the logs contain Zypper-specific errors. How do I troubleshoot?

For more information about Zypper and errors that are related to it, see the Zypper documentation at <http://www.suse.com> and the Zypper-related articles in the Novell Customer Center.

How can I improve the download speed when I download packages with the download plug-in?

You can improve the package download speed in the following ways:

- Your local mirror must follow this URL structure: `<localmirror_server>/repo/$RCE/<name_of_the_repo>`
For more information about how to create mirrors, see https://www.suse.com/documentation/smt11/book_yep/data/smt_mirroring.html
- Use the Novell mirror server, which is at the `nu.novell.com` directory. Credentials for this mirror server can be obtained from Novell Customer Center. For more information, see https://www.suse.com/documentation/smt11/book_yep/data/smt_mirroring_getcredentials.html

What must I do if I see an error similar to the following error message?

```
Hard failure exit code 'execute prefetch plug-in' "/bin/bash"  
"{parameter "sitefolder"}/ResolveDependencies.sh" ....."  
(action 159317) Exited with exit code of 2
```

You must complete the following steps:

1. Open the mentioned bash script and add the following after line 2 of the script:

```
set -x  
logpath=/path/of/your/choice  
exec >$logpath 2>&1
```

2. Deploy the action immediately after you update the script.

Note: The client might override the file, so do not wait too long between updating the script and deploying the action.

This procedure creates the file that is mentioned in the log path, with a line-by-line detailed output for the script.

What are the configuration settings that Zypper use?

The **Patches for SLE 11 Native Tools** site uses all the Zypper settings in `/etc/zypp/zypp.conf`.

The following Zypper configuration settings are set to values that come from another file, which is dynamically created during Fixlet execution:

- **cachedir**
- **configdir**
- **metadatadir**
- **packagesdir**
- **reposdir**
- **repo.add.probe**
- **repo.refresh.delay**
- **solvfilesdir**

Which versions of IBM Endpoint Manager support custom repositories for SUSE?

IBM Endpoint Manager V8.2 and later support custom repositories for SUSE Linux Enterprise Desktop and SUSE Linux Enterprise Server version 11.

What is a custom repository?

The term custom repository refers to any software repository that is not

natively supported by the Novell Customer Center. Custom repositories give you the benefit of being able to control exactly what is in the repository. In the SLE Custom Repository Management dashboard, the term custom repository can refer to a repository or the Subscription Management Tool (SMT).

What is the purpose of a repository?

A repository is a storage location that contains a collection of packages and metadata for the available packages. These repositories can be on online servers, CDs, DVDs, or on other media.

What is SMT?

SMT stands for Subscription Management Tool. It provides a repository and registration target that is synchronized with Novell Customer Center. With the SMT, enterprise customers are able to optimize the management of SUSE Linux Enterprise software updates and subscription entitlements. For more information about SMT, see <https://www.suse.com/documentation/smt11/>.

What are the logs that I can use to troubleshoot the SLE Custom Repository Management dashboard?

You can refer to the following log files to troubleshoot the dashboard:

- /var/opt/BESClient/EDRDeployData/register-repo.log
- /var/opt/BESClient/EDRDeployData/register-SMT.log
- /var/opt/BESClient/EDRDeployData/unregister-repo.log
- /var/opt/BESClient/EDRDeployData/unregister-SMT.log

What version of Zypper is required to use the SLE Custom Repository Management dashboard?

No minimum requirement. All Zypper versions that are used in SUSE Linux Enterprise version 11 works.

How do I create a repository?

To learn about creating repositories, see the SUSE documentation:

- *SUSE Linux Enterprise Desktop 11 SP3 Deployment Guide* at https://www.suse.com/documentation/sled11/book_sle_deployment/data/sec_y2_sw_instsource.html
- *SUSE Linux Enterprise Server 11 SP3 Deployment Guide* at https://www.suse.com/documentation/sles11/book_sle_deployment/data/sec_y2_sw_instsource.html

Can I deploy patches using the existing method and the custom repository at the same time? Can the two methods co-exist?

The two methods can exist together. However, when you deploy patches for single clients, you must choose between using the native tools or through the custom repository method. The two methods cannot co-exist on a single client.

Can I reconfigure a repository that I previously configured?

Yes, you can reconfigure a previously configured repository by using the `clientSetup4SMT.sh` script. It is provided with SMT to configure endpoints to use the SMT server or to reconfigure it to use a different SMT server.

From the logs, can I tell if I am using the normal Zypper process to the SMT or repository in the log?

Yes, the log indicates if the normal Zypper process is used for either a standard repository or SMT.

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 `/var/opt/BESClient/EDRDeployData/EDR_DeploymentResults.txt`, which is where the Zypper output is logged.

What happens if there are issues with the custom repository solution?

You can revert to the standard Endpoint Manager server solution by running the **Disable custom repository support – SUSE Linux Enterprise** task.

How are dependencies resolved?

Dependencies are resolved by Zypper.

Are the repositories that are listed in the second table of the Endpoints tab in the SLE Custom Repository Management dashboard used in sequence?

There is no sequence in the repositories that are listed in the Endpoints tab, even if you specified the priority as an extra note when you registered the repository. When Zypper queries the repositories, the repository that first gets the fetch query replies, including the package and its dependencies.

Through the SLE Custom Repository Management dashboard, I deployed a patch by using a custom repository that is not a mirror of the vendor site. The deployment action failed and the logs indicate that the files cannot be opened. What must I do?

When you use a custom repository that is not a mirror of the vendor site, it is possible that the default gpgcheck is being done as part of the installation. The GPG signature files might not be included in the repository. The files are not checked for authenticity and might cause the installation to fail. To resolve this issue, ensure that when you register the endpoints in the SLE Custom Repository Management dashboard, you add `gpgcheck=0` to **Additional Fields**.

Which file could tell me why the mirror server is not working?

To check whether the issue is due to an incorrect URL or mirror server credentials, check the `plugin.ini` file at `<BES Server directory>/DownloadPlugins/SuseProtocol`.

I am locked out from my Novell account. What do I do?

One possible reason for an account lock out is due to invalid credentials. Ensure that you use the mirror server configuration from Novell when you register or configure the download plug-in. Account lockouts are common but temporary. Contact Novell Support if you get locked out of your account.

Can I install several custom packages using the 'Install packages by using Zypper' task?

Yes, you can install several custom packages with the task. Use a space to separate the package names.

Is bandwidth throttling available in a custom repository architecture?

Unfortunately, bandwidth throttling is not supported in a custom repository architecture since it is outside of the IBM Endpoint Manager infrastructure.

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