

BigFix
Patch for Open SUSE Leap 15 - User's Guide



Special notice

Before using this information and the product it supports, read the information in [Notices \(on page xxxi\)](#).

Edition notice

This edition applies to BigFix version 11 and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview

The BigFix Patch for Open SUSE Leap 15 keeps your Linux™ clients current with the latest updates and service packs.

Patch management is available through the Patches for Open SUSE Leap 15 sites from BigFix. For each new patch or update that becomes available, BigFix releases a Fixlet that can identify and remediate all the computers in your enterprise that need it. With a few keystrokes, the BigFix Console Operator can apply the patch to all the relevant computers and visualize its progress as it deploys throughout the network.

The BigFix 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.

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. Fixlets often have extra notes that allow the Console Operator to work around issues. Once you have subscribed to the Patches for Open SUSE Leap 15 sites, you can do Patch using Fixlets.

Supported architecture and repositories

BigFix Patches for Open SUSE Leap 15 supports erratas that are released for the following Open SUSE Leap 15 repositories.

Table 1. Supported platforms and patches for BigFix Patch

Supported platforms and patches are listed below:

Fixlet Site Name	Supported Platform Version	Supported Architecture	Supported repositories
Patches for Open Suse Leap 15	Open Suse Leap 15.4 and 15.5	x86_64	repo-non-oss
			repo-oss
			repo-update
			repo-update-non-oss
			repo-sle-update

To install the patches for x86_64, subscribe to the appropriate sites and register the OpenSUSE download plug-in on the BigFix server. For more information about registering the OpenSUSE download plug-in, see [Registering the OpenSUSE download plug-in \(on page 9\)](#).

Site subscription

Sites are collections of Fixlet messages that are created internally by you, by HCL, 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 HCL or by using the Licensing Dashboard. For more information about subscribing to Fixlet sites, see the *BigFix Installation Guide*.

For more information about sites, see the *BigFix Console Operator's Guide*.

Chapter 2. Using the download plug-in

The download plug-ins, OpenSUSE Plug-in is an executable programs that downloads relevant packages directly from the patch vendor. Fixlets use an internal protocol to communicate with the download plug-in to download files. These Fixlets are based on updates made by the vendor.

For the Fixlet to be able to use the protocol, register the download plug-in on the BigFix server. Use the Manage Download Plug-ins dashboard to register the appropriate plug-in.



Notes:

- Download plug-ins support basic authentication only.
- The BigFix server and the BigFix client must be on the same version to avoid a null error.

Table 2. OpenSUSE Leap 15 Download Plug-in

Download Plug-in Name	Applicable Sites
OpenSUSE Plug-in	Patches for OpenSUSE Leap 15.4 and 15.5

The OpenSUSE Plug-in downloads and caches patches directly from the vendor's website to the BigFix server, improving the accuracy and reliability of package dependency resolution and repository support.

The download plug-in is highly extensible and robust, enabling such possibilities:

- Customize available repositories through a user extensible repository list.
- Installation and dependency resolution can easily be extended to all repositories, not just those that are shipped out of the box.
- Functionalities can easily be extended by customers and service teams.

It also improves performance related to downloading large numbers of packages, which consequently shortens the turnaround time for patching.

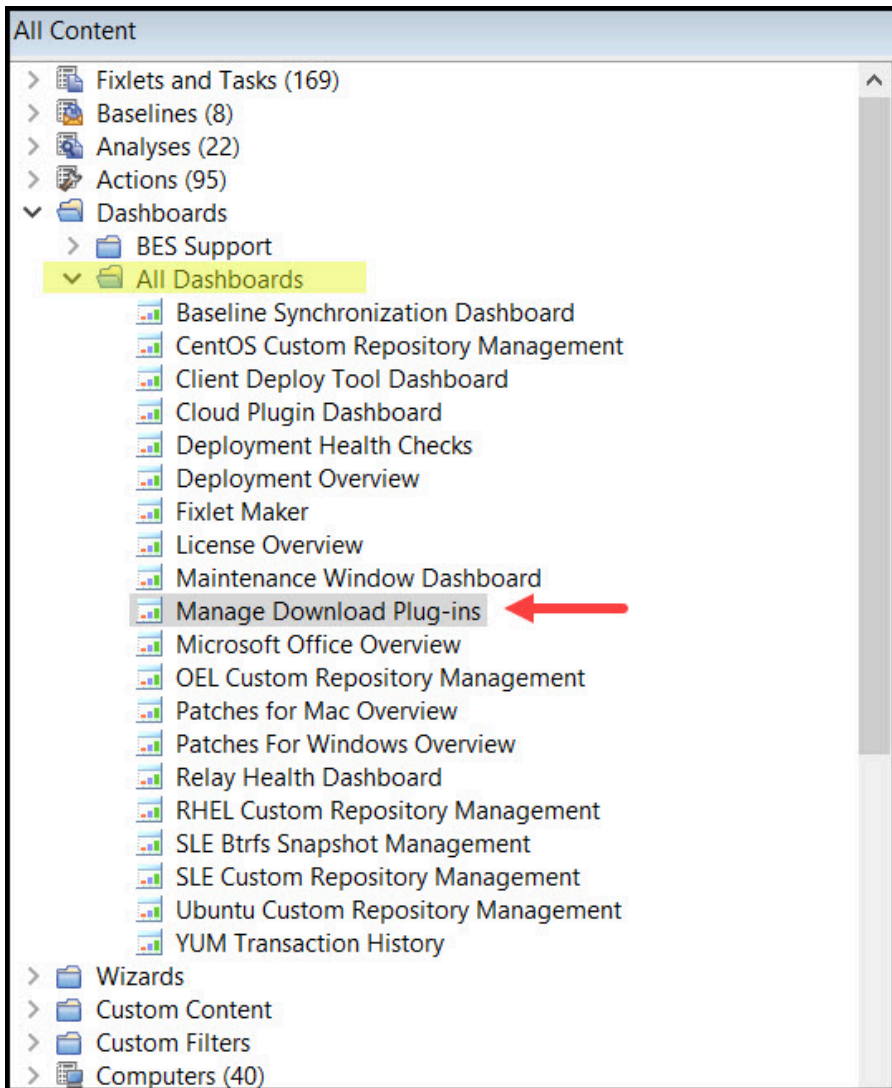
Manage Download Plug-ins dashboard overview

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.

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

The screenshot shows the 'Manage Download Plug-ins' dashboard. At the top, there is a title bar and a subtitle. Below that, there is a brief description and a filter input field. The main content is divided into two sections: 'Servers And Relays' and 'Plug-ins'.

Servers And Relays Table:

Name	Operating System	Type	Encryption Enabled
WIN-UTMA6U7INU9	Win2022 10.0.20348.169 (21H2)	Server	False

Plug-ins Table:

Plug-in Name	Plug-in Version	Status
CentOS Plug-in R2	N/A	Not Installed
OEL Plug-in	N/A	Not Installed
Solaris Plug-in	N/A	Not Installed
HP-UX Plug-in	N/A	Not Installed
ESX Plug-in	N/A	Not Installed
WAS Plug-in	N/A	Not Installed
FixCentral Plug-in	N/A	Not Installed
OpenSUSE Plug-in	N/A	Not Installed

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



Note: If you install the download plug-in on BigFix relays, you must also install it on the BigFix server to avoid download issues.

Registering the OpenSuse download Plug-in

Use the Manage Download Plug-ins dashboard to register the OpenSuse Download Plug-in to install OpenSuse patches from the Patches for OpenSUSE 15site.

You must complete the following tasks:

- Ensure that the BigFix server and the BigFix client are on the same version to avoid a null error.
- Subscribe to the **Patching Support** site to gain access to the Manage Download Plug-ins dashboard.
- Activate the **Encryption Analysis for Clients** analysis, which is available from the **BES Support** site.
- Activate the **Download Plug-in Versions** analysis, which is available from the **Patching Support** site.
- If you want to encrypt endpoints, deploy the **Enable Encryption for Clients** Fixlet, which is available from the **BES Support** site.

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.

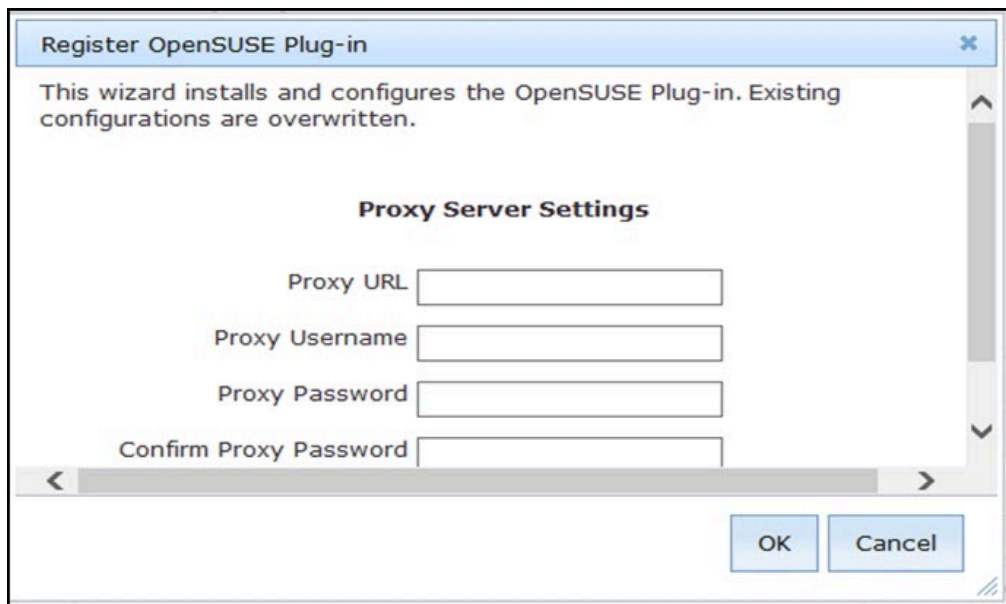
1. From the Patch Management domain, click **All Patch Management > Dashboards > Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server on which the download plug-in is to be registered.

! **Important:** You must always register the download plug-in on the BigFix server.

3. From the Plug-ins table, select **OpenSUSE Plug-in**.
4. Click **Register**.

The Register OpenSUSE Plug-in wizard displays.

Figure 3. Register OpenSUSE Download Plug-in wizard



The screenshot shows a dialog box titled "Register OpenSUSE Plug-in". Inside the dialog, there is a message: "This wizard installs and configures the OpenSUSE Plug-in. Existing configurations are overwritten." Below this message, the section "Proxy Server Settings" is displayed. It contains four input fields: "Proxy URL", "Proxy Username", "Proxy Password", and "Confirm Proxy Password". At the bottom right of the dialog, there are "OK" and "Cancel" buttons.

5. 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.

Proxy Password

Your proxy password if your proxy server requires authentication.

Confirm Proxy Password

Your proxy password for confirmation.

6. Click **OK**.

The Take Action dialog displays.

7. Select the target computer.
8. Click **OK**.

You successfully registered the OpenSUSE Leap Download Plug-in.

Configuring the basic OpenSUSE download Plug-in settings

Use the Manage Download Plug-ins dashboard to configure the proxy settings of the OpenSUSE Plug-in.



Note: Ensure that the BigFix server and the BigFix client are on the same version to avoid a null error.

The scope of this task only covers the basic OpenSUSE Plug-in configuration from the BigFix console. To configure the advanced settings for the OpenSUSE Plug-in, you must edit the `plugin.ini` file. For details about how to do this, see [Configuring the advanced OpenSUSE download Plug-in settings \(on page 12\)](#).

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 on which the download plug-in is to be configured.
3. From the Plug-ins table, select **OpenSUSE Plug-in**.
4. Click **Configure**.

The Configure OpenSUSE Plug-in wizard displays.

Figure 4. Configure OpenSUSE Download Plug-in wizard

Configure OpenSUSE Plug-in

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

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

OK Cancel

5. 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.

Proxy Password

Your proxy password if your proxy server requires authentication.

Confirm Proxy Password

Your proxy password for confirmation.

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

You successfully configured the OpenSUSE Download Plug-in.

Configuring the advanced OpenSUSE download Plug-in settings

For advanced configurations, manually edit the OpenSUSE download plug-in configuration file called `plugin.ini`.

The `plugin.ini` file is automatically created when the download plug-in is registered from the Manage Download Plug-in dashboard. It contains the settings for logging and caching, as well as custom configurations for extending the repository list file.

On Linux systems, the file is in the root directory tree occupied by the download plug-in. For example, `/var/opt/BESServer/DownloadPlugins/OpenSUSEProtocol`.

On Windows systems, the file is in the BigFix server installation directory. For example, `%PROGRAM FILES%\BigFix Enterprise\BES Server\DownloadPlugins\OpenSUSEProtocol`.

Figure 5. Example of the OpenSUSE download plug-in configuration file

```
[Logger]
file = logs/OpenSUSEPlugin.log
level = INFO

[UA]
proxy =
proxyUser =
proxyPass =

primaryRepoListFile = C:\Program Files (x86)\BigFix Enterprise\BES Server\
```

```
GatherDBData\gather\Patching_Support\CurrentSiteData\DLOpenSUSERepoList.json

extendedRepoListFile =
onlyUseExtendedRepoListFile = no

localCache =
localCacheOnly = no

CryptoUtilPath = C:\Program Files (x86)\BigFix Enterprise\BES Server\
DownloadPlugins\CryptoUtility\CryptoUtility_v11.exe
```



Note: The `plugin.ini` is divided into sections, which are denoted by square brackets. Ensure that the options are under the correct sections. Moving the options to a different section might result in errors.

Either an absolute path or relative path can be used in the options that require a path: `file`, `primaryRepoListFile`, `extendedRepoListFile`, and `localCache`. Relative paths are relative to the download plug-in executable directory. By default, the executable file is in the `DownloadPlugins\OpenSUSEProtocol` folder.

Setting the logging level

The logging level determines the amount of detail that is written to the `OpenSUSEPlugin` file.

The available logging levels are as follows:

ERROR

Contains errors related to the execution of the download plug-in, which might indicate an impending fatal error.

WARNING

Contains information about failed downloads, and reasons for failure.

INFO

Contains general information outlining the progress and successful downloads, with minimal tracing information.

DEBUG

Contains fine-grained information used for troubleshooting issues. This is the most verbose level available.

You can change the logging level option from the `[Logger]` section of the `plugin.ini` file.

```
[Logger]
logfile = logs/OpenSUSEPlugin.log
level = INFO
```

For example, if the logging is set to INFO, the logger outputs any logs for that level and any level above it. In this case, it outputs the INFO, WARNING, and ERROR logs.



Note: Setting the logging level to DEBUG increases the amount of information to log, which might impact performance. Only increase the logging level to DEBUG when investigating an issue, and switch back to INFO or WARNING after the issue is resolved.

Adding an extended repository list file

The OpenSUSE download plug-in can be configured to work with repositories that are not officially supported by BigFix, if required.

Setting the download cache

You can use the download cacher tool to download the packages and repository metadata to a location that you specify.

There are three possible scenarios in which you can configure the download cacher for.

Sha1 download capability on air-gapped environments

The download cacher tool is mainly designed to be used for air-gapped environments, which require secure networks and therefore do not have access to the internet to download the files directly from the vendor site.

The sha1 download capability improves performance by caching the packages directly on the BigFix server's sha1 folder.

For information, see [Using the OpenSUSE Leap 15 download cacher for air-gapped environments \(on page 21\)](#).

Sha1 download capability on an internet-enabled BigFix server

This method is considered best practice for caching packages on environments with a BigFix server that is internet-enabled. The sha1 download capability improves performance by caching the packages directly on the BigFix server's sha1 folder.

For information, see [Caching packages on the sha1 folder \(on page 22\)](#).

Without the sha1 download capability on an internet-enabled BigFix server

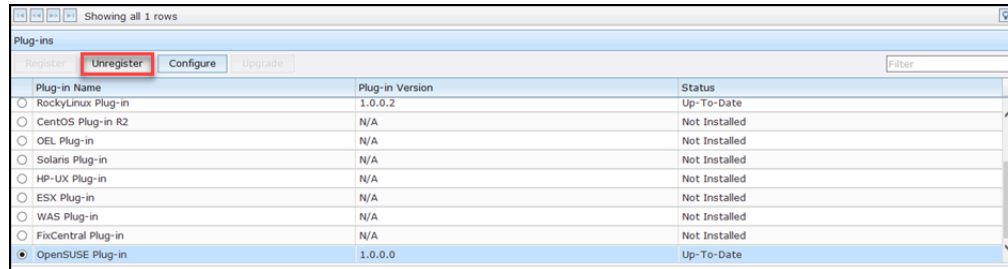
If for some reason you choose not to use the sha1 download capability to cache packages on the BigFix server's sha1 folder, you can use the local cache. For information, see [Caching packages on the local cache folder \(on page 23\)](#).

Unregistering the OpenSUSE download plug-in

Use the Manage Download Plug-ins dashboard to unregister the OpenSUSE 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 on which the download plug-in is to be unregistered.
3. From the Plug-ins table, select **OpenSUSE Plug-in**.
4. Click **Unregister**.

Figure 6. Unregister the OpenSUSE download plug-in



Plug-in Name	Plug-in Version	Status
<input type="radio"/> RockyLinux Plug-in	1.0.0.2	Up-To-Date
<input type="radio"/> CentOS Plug-in R2	N/A	Not Installed
<input type="radio"/> OEL Plug-in	N/A	Not Installed
<input type="radio"/> Solaris Plug-in	N/A	Not Installed
<input type="radio"/> HP-UX Plug-in	N/A	Not Installed
<input type="radio"/> ESX Plug-in	N/A	Not Installed
<input type="radio"/> WAS Plug-in	N/A	Not Installed
<input type="radio"/> FixCentral Plug-in	N/A	Not Installed
<input checked="" type="radio"/> OpenSUSE Plug-in	1.0.0.0	Up-To-Date

The Take Action dialog displays.

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

You successfully unregistered the OpenSUSE download plug-in.

Upgrading the OpenSUSE download plug-in

Use the Manage Download Plug-ins dashboard to upgrade the OpenSUSE 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 on which the download plug-in is to be upgraded.
3. From the Plug-ins table, select **OpenSUSE Plug-in**.
4. Click **Upgrade**.

The Take Action dialog displays.

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



Note: It is mandatory to re-configure the Download Plug-ins.



Note: The latest versions of Download Plug-ins are enhanced to strengthen the security of storing Proxy Password and Vendor Password.

You now have the latest version of the OpenSUSE Download Plug-in installed.

Chapter 3. Using the download cacher

The download cacher is a standalone command-line tool that is designed to download and cache files required for caching. The pre-cached files can be used by the download plug-in to patch the endpoints.

The download cacher is designed to be used for air-gapped environments. Use this tool to download and cache a large number of packages that are required by the Fixlets. By pre-caching the files, execution of actions are faster because you do not need to download the files from the Internet before distributing them to BigFix clients.



Note: If the BigFix server has access to the Internet, use the download plug-in. You must register the download plug-in from the Manage Download Plug-ins dashboard.

You can access the tool by downloading and running it manually.

OpenSUSE download cacher usage information

Use the OpenSUSE Download Cacher to download and cache OpenSUSE patches in air-gapped environments. This tool supports the **Patches for OpenSUSE Leap 15**.

You can run the OpenSUSE Download Cacher on a Windows system or a Linux system. For information about requirements, see [BigFix 11.0 - System Requirements](#).

The latest OpenSUSE Download Cacher is available from the BigFix Support site:

- For Windows systems, download the tool at <http://software.bigfix.com/download/bes/util/OpenSUSEPlugin-1.0.0.0.exe>.
- For Linux systems, download the tool at <http://software.bigfix.com/download/bes/util/OpenSUSEPlugin-1.0.0.0-linux>. This tool is supported on x86-64 (64-bit) systems.

For illustration purposes, this section indicates the steps to run the OpenSUSE Download Cacher in Windows. However, the parameters and subcommands to run the OpenSUSE Download Cacher are the same for both Windows and Linux systems.

You can run the tool `OpenSUSEPlugin-1.0.0.0.exe` to perform additional operations. To run this tool from the command prompt, use the following command:

```
OpenSUSEPlugin-1.0.0.0.exe [-h] [parameters...] {subcommand} [subparameters...]
```

where:

`-h`

Specifies the help message of a command instead of running the command.

parameters

Specifies the optional parameters to be used to configure the download cacher.

--proxyServer

Specifies the URL of the proxy server to use. It must be a well-formed URL that 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.`

--proxyUser

Specifies the proxy user name if your proxy server requires authentication.

--proxyPass

Specifies the proxy password if your proxy server requires authentication.

Only basic authentication is supported.

--download_dir

Specifies the directory where the repository metadata files are cached.

If this parameter is not defined, the files are downloaded to the directory that is relative to the download cacher executable directory.

You can configure the OpenSUSE Download Plug-in to use the cached files by setting `localCache` in the `plugin.ini` file.

--sha1_download_dir

Specifies the directory where the packages are cached with a sha1 filename into a single flat directory. The cacher downloads all packages from all repositories (keys) as files in the specified directory.

Only the packages are stored in the `sha1_download_dir`. Each repository metadata is stored in the `download_dir`, and the OpenSUSE Repository directory structure is maintained.



Note: When using this parameter, consider the cache limit of the BigFix's sha1 file folder.

--redownload

Specifies the flag to re-download and overwrite existing RPM files that are in the download directory.

If this parameter is not defined, RPM files are not re-downloaded. However, metadata are, by default, downloaded and overwritten.

--verifyExistingPkgChecksum

Specifies the flag to enforce a checksum check for existing RPM files when trying to download packages using the "buildRepo", "downloadPkg", or "downloadbypatchid" subcommands.



Note: The checksum is set to 'off' by default.

--loglevel

Specifies the log level. You can choose among DEBUG', 'INFO', 'WARNING', or 'ERROR'. By default, the value is set to 'INFO'.

INFO

Contains general information outlining the progress and successful downloads, with minimal tracing information.

WARNING

Contains information about failed downloads, and reasons for failure.

ERROR

Contains errors related to the execution of the download plug-in, which might indicate an impending fatal error.

DEBUG

Contains fine-grained information used for troubleshooting issues. This is the most verbose level available.

--help

Specifies the full description and help of a command instead of running the command.

subcommand subparameter

Specifies the subcommand and subparameters to be used to run the download cacher.



Note: The subcommand and subparameter names are case-sensitive.

The *subparameter* varies for each *subcommand* as follows:

check-baserepos

Checks if the BigFix supported OpenSUSE base repositories can be accessed. The results are displayed in the command prompt and in the `<cache directory>\logs\OpenSUSEDownloadCacher.log` file.

check-allrepos

Checks if the BigFix supported OpenSUSE base repositories and sub-repositories can be accessed. The results are displayed in the command prompt and in the `<cache_directory>\logs\OpenSUSEDownloadCacher.log` file.

check-storagereq

Checks the storage space requirement when using the `builRepo` command with and without the `--sha1_download_dir` option. The results are displayed in the command prompt and in the `<cache_directory>\logs\OpenSUSEDownloadCacher.log` file.

showKeys

Outputs the list of OS keys for the supported repositories in the `<cache_directory>\logs\OpenSUSEDownloadCacher.log` file. An OS key indicates the OpenSUSE Leap 15 operating system version and architecture of a single OpenSUSE Leap repository.

The syntax to run this subcommand is:

```
OpenSUSEDownloadCacher.exe --download_dir <download_dir>
[parameters] showsKeys
```

For example, `OpenSUSEDownloadCacher.exe --download_dir C:\downloads showKeys`

buildRepo

Builds a local mirrored repository and downloads all the relevant files based on the specified OS key.

The syntax to run this subcommand is:

```
OpenSUSEDownloadCacher.exe --download_dir <download_dir>
--sha1_download_dir <sha1_download_dir> [parameters]
buildRepo --key <OS_key1,OS_key2,...>
```

For example, `OpenSUSEDownloadCacher.exe --download_dir C:\downloads --sha1_download_dir C:\sha1_downloads buildRepo --key leap-15_4-x64`

where:

--key OS_key1,OS_key2,...

Specifies the OpenSUSE Leap 15 operating system version and architecture. Entries must be separated by a comma and must not include spaces. It must use the following format:

```
<product>-<version_number>-<architecture>
```

For example, `--key leap-15_4-x64`.

downloadMetadataOnly

Downloads the metadata of the specified OS keys.

The syntax to run this subcommand is:

```
OpenSUSEDownloadCacher.exe --download_dir <download_dir>
[parameters] downloadMetadataOnly --key <OS_key1,OS_key2,...>
```

For example:

```
OpenSUSEDownloadCacher.exe --download_dir C:\downloads downloadMetadataOnly
--key leap-15_4-x64
```

where:

--key OS_key1,OS_key2,...

Specifies the Rocky Linux operating system version and architecture. Entries must be separated by a comma and must not include spaces. It must use the following format:

```
<product>-<version_number>-<architecture>
```

For example, `--key leap-15_4-x64`.

downloadPkg

Downloads the listed RPM files for the specified OS key.



Note: If the package that you are downloading has dependencies, it is suggested that that buildrepo be used instead to avoid dependency issues

The syntax to run this subcommand is:

```
OpenSUSEDownloadCacher.exe --download_dir <download_dir>
[parameters] downloadPkg --key <OS_key1,OS_key2...>
--pkg <pkg1,pkg2,...>
```

For example:

```
OpenSUSEDownloadCacher.exe --download_dir C:\temp --redownload downloadPkg
--key leap-15_4-x64 --pkg opera-90.0.4480.84-lp155.3.3.1.x86_64.rpm
```

where:

--key OS_key1,OS_key2,...

Specifies the OpenSUSE Leap 15 operating system version and architecture. Entries must be separated by a comma and must not include spaces. It must use the following format:

```
<product>-<version_number>-<architecture>
```

For example, `--key leap-15_4-x64`.

--pkg pkg1,pkg2,...

Indicates the package name.

Each entry must be separated by a comma and must not include

spaces. For example, `--pkg opera-90.0.4480.84-lp155.3.3.1.x86_64.rpm,`

`apptainer-1.1.2-lp154.2.1.x86_64.rpm`.

Using the OpenSUSE Leap 15 download cacher for air-gapped environments

You can use the OpenSUSE Download Cacher for air-gapped environments by using the `buildRepo` subcommand to download all patches for a repository to a specified directory.

- Ensure you have access to the BigFix supported OpenSUSE base repositories and sub-repositories. To check, run the subcommand `check-allrepos`.
- Ensure you have enough space to download the repository metadata and packages. To check for the required storage space, run the subcommand `check-storagereq`.
- Increase the BigFix server's sha1 folder size limit by doing the following steps:
 1. From the BigFix console, right-click the computer and select **Edit Computer Setting**.
 2. Increase the **_BESGather_Download_CacheLimitMB** size.

The suggested size is the current BigFix server's sha1 folder size plus the size of `sha1_download_dir`.

If the size of the `sha1_download_dir` cannot be determined beforehand the suggested size of the `sha1_download_dir` is a minimum of 20GB per repository. Note that the minimum size of 20GB might increase over time.

1. Use the `buildRepo` subcommand with the `OpenSUSEDownloadCacher.exe` file to download all the files for a repository to a specified directory. For example:

```
OpenSUSEDownloadCacher.exe --download_dir C:\downloads
--sha1_download_dir C:\sha1_downloads
buildRepo --key leap-15_4-x64, leap-15_5-x64
```

In this example, the download cacher tool downloads the packages to `sha1_download_dir` and the repository metadata to `download_dir` for OpenSUSE Leap15.4 and 15.5 repositories.

2. Transfer the `download_dir` to the air-gapped BigFix server and the sha1 files in `sha1_download_dir` to the BigFix server's sha1 folder.
3. Open the configuration file of the OpenSUSE Download Cacher called `plugin.ini`. Configure the `plugin.ini` file with the following settings to set the BigFix server to retrieve the repository metadata and required packages from the local cache instead of trying to retrieve them online.

```
localCache = <download_directory_specified_for_the_--download_dir_parameter>
localCacheOnly = yes
```

Caching packages on the sha1 folder

You can use the OpenSUSE Download Cacher to cache packages directly on an internet-enabled BigFix server's sha1 folder to improve performance during the Fixlet deployment.

- Ensure you have access to the BigFix supported OpenSUSE base repositories and sub-repositories. To check, run the subcommand `check-allrepos`.
- Ensure you have enough space to download the repository metadata and packages. To check for the required storage space, run the subcommand `check-storagereq`.
- Increase the BigFix server's sha1 folder size limit by doing the following steps:
 1. From the BigFix console, right-click the computer and select **Edit Computer Setting**.
 2. Increase the `_BESGather_Download_CacheLimitMB` size.

The suggested size is the current BigFix server's sha1 folder size plus the size of `sha1_download_dir`.

If the size of the `sha1_download_dir` cannot be determined beforehand the suggested size of the `sha1_download_dir` is a minimum of 20GB per repository. Note that the minimum size of 20GB might increase over time.

This task enables the BigFix server to leverage the internet to ensure that the necessary files, such as the repository metadata and packages, are available during Fixlet deployment.

1. Use the `buildRepo` subcommand with the `OpenSUSEDownloadCacher.exe` file to download packages from a repository to the BigFix server's sha1 folder. For example:

```
OpenSUSEDownloadCacher.exe --download_dir C:\downloads --sha1_download_dir
C:\Program Files (x86)\BigFix Enterprise\BES Server\wwwrootbes\bfmirror\downloads\sha1
buildRepo --key leap-15_4-x64
```

In this example, the download cacher tool downloads the packages directly to the BigFix server's sha1 folder.

2. Open the configuration file of the OpenSUSE Download Cacher called `plugin.ini`. Configure the `plugin.ini` file with the following settings to set the BigFix server to retrieve the packages from its sha1 folder.

```
localCache =
localCacheOnly = no
```

Do not specify a value for the `localCache` setting if the BigFix server is internet-enabled and the packages are saved directly in the BigFix server's sha1 folder.

The BigFix server will first check if the necessary files are in the download plug-in's cache and sha1 folders before retrieving them from the internet. If the repository metadata in the download plug-in's cache folder has expired, a new

repository metadata is downloaded online. If the required packages do not exist in the BigFix server's sha1 folder, the packages are downloaded from the internet.

Caching packages on the local cache folder

You can use the OpenSUSE Download Cacher to cache packages on an internet-enabled BigFix server. You can configure the BigFix server to use the repository metadata and packages from both the cache folder and the internet.

Store packages in a separate folder instead of the BigFix server's sha1 folder in case the folder size inflates. Since the BigFix server only stores the latest download, the stored packages might be replaced by newer files if the BigFix server sha1 folder size limit is too small.

Storing the packages in the local cache allows the OpenSUSE Download Plug-in to use it instead of getting it from the internet.

Additional space may be required as the package will also be cached in the BigFix server's sha1 folder when the BigFix server requests the package from the local cache.

1. Use the `buildRepo` subcommand with the `OpenSUSEDownloadCacher.exe` file to download packages from a repository to the BigFix server's sha1 folder. For example:

```
OpenSUSEDownloadCacher.exe --download_dir C:\downloads  
buildRepo --key leap-15_4-x64
```

In this example, the download cacher tool downloads the packages to the specified download folder.

2. Open the configuration file of the OpenSUSE Download Cacher called `plugin.ini`. Configure the `plugin.ini` file with the following settings:

```
localCache = <location of the transferred download_dir>  
localCacheOnly = no
```

With this setting, the BigFix server first checks the repository metadata in the download plug-in's cache folder. If it has not expired, the BigFix server will use that metadata. Otherwise, the BigFix server will get the repository metadata from the internet. As for the packages, the BigFix server initially checks if the packages exist in the sha1 folder, then proceeds to the localCache before it goes to the internet.

Chapter 4. Using BigFix Patch for OpenSUSE Leap 15

Use the Fixlets on the Linux™ RPM Patching and the various Patches for OpenSUSE Leap 15 Fixlet sites to apply patches to your deployment.

For information about the available Fixlet sites for OpenSUSE Leap 15, see [Supported architecture and repositories \(on page 5\)](#).

Patch content caching must be done through the download plug-in unless you are using an air-gapped environment or a custom repository. For more information, see the following topics:

- [Using the download plug-in \(on page 7\)](#)
- [Using the download cachier \(on page 16\)](#)

Patching using Fixlets

You can apply OpenSUSE Leap 15 patches to your deployment by using the Fixlets that are available from the OpenSUSE Leap 15 Fixlet sites.

- Subscribe to the appropriate Fixlet sites.
- Activate the necessary analyses from the Patching Support site or Fixlet sites, such as the **Endpoint Dependency Resolution - Deployment Results** analysis to view the patch deployment results.
- Set the appropriate configuration for the client `/var` directory.
 - If the `/var` directory is set to `noexec` option, specify a different directory to run the executable for patching. Otherwise, patching will fail. You can run the **Set the path for _BESClient_LinuxPatch_executable_directory** Fixlet and specify the alternative directory name.
 - If the `/var` directory has limited disk space, provide a directory with more space to cache the patch metadata. You can run the **Set the path for _BESClient_LinuxPatch_metadata_directory** Fixlet and specify the alternative directory name.



Note: The specified directory path for both the `_BESClient_LinuxPatch_executable_directory` and `_BESClient_LinuxPatch_metadata_directory` settings must be a valid, absolute path name. It can contain only alphanumeric characters, forward slashes, and underscores.

- If you are not using repositories, register the appropriate OpenSUSE download plug-in. For more information about download plug-ins, see [Using the download plug-in \(on page 7\)](#).

When running a OpenSUSE patch Fixlet®, you can also deploy a test run before applying the patch. You can view the Deployment Results analysis to determine if the dependencies have been successfully resolved and if an installation will be 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.

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

Figure 7. 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 also click the appropriate link in the Actions box:

- You can start the deployment process.
 - You can deploy a test run prior to applying the patch. View the **Endpoint Dependency Resolution - Deployment Results** analysis to determine if the dependencies have been successfully resolved and if an installation is successful.
 - You can view the Red Hat bulletin for a particular Fixlet, select the **Click here to view the patch page** action to view the patch page.
5. You can set more parameters in the Take Action dialog.

For detailed information about setting parameters with the Take Action dialog, see the [BigFix Console Operator's Guide](#).

6. Click **OK**.

Supersedence

Please refer to [Supersedence for Non-Windows](#) to know more about the supersedence.

Chapter 5. Multiple-Package Baseline Installation

BigFix Patch provides a solution to combine the installation of updates for multiple packages in a baseline into a single task, which can reduce the execution time of the baseline.

Baselines can help you gather multiple Fixlets into groups, which you can apply immediately to any set of target computers. It is a powerful way to deploy a group of actions across an entire network. However, each Fixlet in a baseline creates a separate zypper update transaction when the baseline is run. A single baseline can have numerous zypper calls, which can severely impact performance as it increases the time taken to complete all the transactions.

The multiple-package baseline installation solution helps address the poor performance that is due to the dependency resolution and package installation that is done separately for each Fixlet. This solution requires you to enable the feature at the start of the baseline and append the installation task to install the relevant packages from a single zypper call.

Use the **Enable the Multiple-Package Baseline Installation feature** task or the **Enable the Multiple-Package Baseline Installation feature** task to set the flag that instructs Fixlets to add packages to a list instead of installing them. The flag is cleared after the baseline is completed. You must add the appropriate task at the start of the baseline to allow the installation of multiple packages from a single command.

A multiple-package installation task is made available for each SUSE distribution, operating system version, service pack level, and architecture. You must add the appropriate installation task at the end of your baseline to complete the dependency resolution, download the packages, and then install them on the endpoints.



Note: The multiple-package baseline installation feature does not support the pre-cache option **Start download before all constraints** are met in **Take Action**.



Important: The **Enable the Multiple-Package Baseline Installation feature** and **Multiple-Package Baseline Installation** tasks must exist in the same baseline.

Available from the Patches for Open SUSE Leap 15 site:

- Multiple-Package Baseline Installation - leap15.4 - x86-64.bes
- Multiple-Package Baseline Installation - leap15.5 - x86-64.bes

These tasks must be run at the end of the baseline to do dependency resolution and package installation for the entire baseline in a single instance.

You can also do a dry run of the installation to preview the changes on the packages to avoid broken dependencies, which might be due to undesired packages updates. The test action outputs to the following files at `/var/opt/BESClient/EDRDeployData:`

`PkgToInstallList.txt` **file**

This file contains packages that are to be installed after a dependency check.

`PkgToRemoveList.txt` **file**

This file contains the packages that are to be removed from the target SUSE endpoint.

BigFix Patch also provides the following content to facilitate the installation:

Delete leap 15 Package List File for Multiple-Package Baseline Installation

Deletes the package list file on targeted the OpenSUSE Leap 15 (x86_64) computers

Add this task at the beginning of the baseline to avoid issues that might be related with resolving dependencies for the packages.

For detailed information about using the multiple package installation feature, see [Installing multiple packages in a baseline \(on page 28\)](#).

Installing multiple packages in a baseline

The multiple-package baseline installation feature helps you to save time when deploying Fixlets with multiple unique packages from a baseline.

1. Create a baseline.

Highlight the Fixlets from a Fixlet site and select **Add to New Baseline** from the context menu. You can also select **Create New Baseline** from the **Tools** menu.

2. **Optional:** Add the **Delete Leap 15 Package List File for Multiple-Package Baseline Installation** task before adding any of the Fixlets.
3. Add the appropriate **Enable the Multiple-Package Baseline Installation feature** task.
Ensure that the **Baseline will be relevant on applicable computers where this component is relevant** option is not selected.
4. Selectively add the patch Fixlets in the baseline.
Ensure that for all Fixlets the **Baseline will be relevant on applicable computers where this component is relevant** option is selected.



Note: If you add two or more Fixlets to the baseline that affect different versions of the same package, the installation task will skip the older versions of the package and install the latest one only.

5. Add the appropriate **Multiple-Package Baseline Installation** task at the end of the baseline. With this task, you can deploy any of the following actions:
 - Run a preview of the installation, without actually installing the packages, to check for possible issues.
 - Install all the RPMs in a single zypper transaction.Ensure that the **Baseline will be relevant on applicable computers where this component is relevant** option is not selected.

Before running the baseline, ensure that you meet the following requirements:

- The repositories that are registered on the endpoint must contain the target packages and all the required dependency packages.
- Allow enough time for a Fixlet, which is using the multiple-package installation method, to complete all zypper transactions and refresh the status on the endpoints before individually deploying the same Fixlet.
- Do not run multiple baselines from the same site on the same endpoint.
- Follow the Baseline Best Practices documented in the following site: https://support.hcltechsw.com/csm?id=kb_article&sys_id=d288c2021b098c9477761fc58d4bcbdf



Note: When you deploy the baseline, the initial sub-action status for all the patch Fixlets will show that they failed. This is the expected behavior. The process for downloading and installing the packages in the baseline is not done at the Fixlet action level, but in the **Multiple-Package Baseline Installation** task. When the baseline completes, the baseline sub-action status of the Fixlets will reflect the final state of each patch installation.

Appendix A. Support

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

- [BigFix Support Portal](#)
- [BigFix Developer](#)
- [BigFix Playlist on YouTube](#)
- [BigFix Tech Advisors channel on YouTube](#)
- [BigFix Forum](#)

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