BigFix

Patch for Solaris - User's Guide

Special notice

Before using this information and the product it supports, read the information in Notices *(on page lxxi)*.

Edition notice

This edition applies to BigFix version 10 and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. Overview

BigFix Patch for Solaris provides unified, real-time visibility and enforcement to deploy and manage patches to all Solaris endpoints from a single console. It keeps your Solaris clients current with the latest Oracle updates.

> ⚠️ **Important:** You must have an Oracle Support account to access the patches from the Oracle Support site at https://support.oracle.com. Your Oracle account user name must have a valid support identifier to download patches.

Patch management is available from the following sites:

Patches for Solaris

This site includes legacy Solaris 10 and earlier core OS patch content. It uses the older traditional single-user mode for applying patches.

Patches for Solaris Maintenance

This site includes legacy Solaris 10 and earlier non-core OS patch content.

Patches for Solaris Live Upgrade

This site includes patch content that uses the Solaris Live Upgrade utility to install patches to an alternate boot environment rather than the currently running OS.

Patches for Solaris 11

This site includes Fixlet content for Solaris 11/11, 11.1, 11.2, and 11.3.

For each new supported update that becomes available, BigFix releases a Fixlet® that identifies and updates all the computers in your enterprise that need it. For information on the supported updates, see Supported platforms and updates *(on page 9)*.

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, processors, and the existing installed packages to determine when and if a patch is necessary.

Using Fixlets, you can 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.

What's new in this update release

This release of BigFix® for Patch for Solaris contains an enhancement to an existing solution for retrieving the endpoint upgrade list.

Table 1. What's new

Feature or enhancement	Description	References
Fixlet content for Solaris 11.3	Solaris 11.3 patch updates are released through the Solaris Support Repository Update (SRU).	Patching endpoints on Solaris 11 or later *(on page 30)*

Previous updates

You must subscribe to the **Patches for Solaris 11** site to access the following additions to the product:

Table 2. Previous updates

Feature or enhancement	Description	References
Endpoint Upgrade List for Solaris 10	The **Endpoint Upgrade List- Solaris 10** analysis is enhanced to retrieve Solaris 10 endpoints that require an operating system update by checking for the updates against the recent published Solaris OS release and the kernel patch update. This analysis available from the **Patches for Solaris** site.	Retrieving the endpoint upgrade list *(on page 39)*
Mirror Management for Solaris 10	BigFix provides a task to help split root disk mirrors before patching and another task to resume disk mirroring when patch installation and the upgrade are verified. The tasks are available on the **Patching Support** site.	Mirror management *(on page 24)*
Network File System (NFS) Support for Solaris 10	The Fixlets for Oracle Recommended Patch Clusters and Oracle Critical Patch Updates (CPUs) allow you to directly install patches from the NFS without copying them to the local system. This feature is applicable to the patch clusters and CPUs that are on the **Patches for Solaris** site. You can select the NFS that you want to use and run basic NFS configuration from the available tasks that are on the **Patching Support** site.	Network File System Support *(on page 25)*
Solaris Live Upgrade Support for Recommended	Oracle Recommended Patch Clusters can now be applied with Live Upgrade to facilitate easy failback when issues are encountered during patching. The patch clusters are available from the **Patches for Solaris Live Upgrade** site.	Patching endpoints on Solaris 10 and earlier *(on page 29)*

Table 2. Previous updates (continued)

Feature or enhancement	Description	References
Patch Clusters		
Endpoint Upgrade List for Solaris 10 and 11	BigFix provides content to retrieve a listing of Solaris 10 and 11 endpoints that require an update. The analysis that retrieves the endpoint upgrade list for Solaris 10 systems is available from the **Patches for Solaris** site. The corresponding task and analysis for Solaris 11 systems are on the **Patches for Solaris 11** site.	Retrieving the endpoint upgrade list *(on page 39)*
Package List Results for Solaris 10 and 11	BigFix provides analyses to gather a listing of all currently installed packages on Solaris 10 and 11 endpoints. You can use the information to verify the level of the current installed patches against the latest installation. These analysis are available on the **Patches for Solaris** site and **Patches for Solaris 11** site.	Retrieving installed package information *(on page 38)*
Package Installation Task for Solaris 11	BigFix provides the **Install packages by using pkg** task on the **Patches for Solaris 11** site to allow you to install one or multiple packages on the endpoints. You can use this task also when you plan to upgrade the entire distribution to the latest SRU.	Installing packages on Solaris 11 *(on page 37)*
Fixlet content for Solaris 11.2	Solaris 11.2 patch updates are released through the Solaris Support Repository Update (SRU).	Patching endpoints on Solaris 11 or later *(on page 30)*
Fixlet content for Solaris 11/11 and Solaris 11.1	The Solaris 11/11 and Solaris 11.1 patch updates are released through the Solaris Support Repository Update (SRU). These updates contain several fixes and are available from the Oracle Support Repository.	
Solaris Image Packaging System Repository Management	Solaris Image Packaging System Repository Management dashboard for assigning local repositories to Solaris 11 endpoints. Regularly updating the endpoints in your deployment is crucial to the success of your organization. Network restrictions often prevent you from getting the latest set of changes from the Oracle hosted repositories. Maintain your own local package repositories to try to limit this restriction. By using local repositories, you can control which updates the endpoints have access to.	Solaris Image Packaging System Repository Management dashboard overview *(on page 11)*

Table 2. Previous updates (continued)

Feature or en- hancement	Description	References
	You can have multiple local repositories in your environment. For example, you might have one local repository that is used to mirror the latest SRU changes from Oracle and another repository that contains only one particular SRU.	

Supported platforms and updates

BigFix Patch supports several Solaris platforms and Oracle updates.

BigFix supports Oracle updates on the following platforms:

Table 3. Supported platforms and patches for BigFix Patch for Solaris

Fixlet Site Name	Supported Platform	Type of Update
Patches for Solaris	• Solaris 9 (SPARC) • Solaris 10 (SPARC, x86)	• Security Patches • Recommended Patches • Recommended Patch Clusters • Critical Patch Updates
Patches for Solaris Live Upgrade	• Solaris 9 (SPARC) • Solaris 10 (SPARC, x86)	• Security Patches • Recommended Patches • Recommended Patch Clusters • Critical Patch Updates
Patches for Solaris Maintenance	• Solaris 9 (SPARC) • Solaris 10 (SPARC, x86)	Maintenance Patches
Patches for Solaris 11	Solaris 11 (SPARC, x86)	Support Repository Updates

BigFix provides support also for Solaris Zones. For more information, see Solaris zone patching .

Note:

- BigFix does not support unbundled patches.
- Solaris 9 has reached its End of Life on October 2014. BigFix Patch will no longer support content for Solaris 9. We are planning to deprecate the site soon.
- Oracle Solaris 10 ended its premium support and since February 1, 2018, has been under extended support. BigFix does not support patches for extended support and no longer provides content and support for the Oracle Solaris 10 (SPARC and x86 platform versions). For inquiries about extended support for Oracle 10, contact Professional Services or file a Request for Enhancement (RFE).

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*.

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 BigFix 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.

Notes:

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

Solaris download cacher tool overview

The Solaris download cacher tool is an executable program that automatically downloads and caches patch packages on the Windows BigFix server to facilitate the deployment of Solaris Fixlets.

Note: Use the cacher tool only if you are using an air-gapped environment or if you want to cache all the downloads for faster execution of actions. Otherwise, use the download plug-in. The preferred method for acquiring Solaris patches is to register the Solaris download plug-in. For more information about plug-in registration, see Registering the Solaris download plug-in *(on page 16)*.

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 either run the download cacher tool task from the BigFix console, or access the tool by downloading and running it manually. For more information, see Using the Solaris download cacher *(on page 26)*.

Note: Solaris Download cacher (Solaris 11) does not support caching files for Patches.

Solaris Image Packaging System Repository Management dashboard overview

BigFix® provides the Solaris Image Packaging System Repository Management dashboard to help you manage your Solaris 11 endpoints and locally stored repositories.

Local repositories can significantly decrease the time that is taken to download the files that are needed for patching endpoints. Use this dashboard to set a local repository to use for patching. For information about patching, see Patching using Fixlets *(on page 29)*.

Note: This dashboard does not support the creation of a physical repository server. You must create the repository separately. For more information about creating repositories, see the Oracle documentation website at http://docs.oracle.com.

To access the dashboard, subscribe to the Patches for Solaris 11 site. From the **Patch Management** domain, click **All Patch Management > Dashboards > Solaris Image Packaging System Repository Management**.

To view the endpoints and local repositories in the dashboard, activate the **Solaris Origin Information** analysis.

The dashboard offers filtering options to ease searching. You can filter either by computer name or repository name.

Figure 1. Solaris Image Packaging System Repository Management dashboard

By default, the hosted Oracle Solaris release repository is the configured package repository. You can assign a different repository from the list of repositories in the dashboard. You can easily add more local repositories into the list. Ensure that the repository settings reflect the real repository server configuration.

Adding repositories

Local repositories must be created separately. Adding a repository to the dashboard does not create a physical repository server.

The dashboard does not check for the status of the local repository. Ensure that the repositories that you add in the dashboard are working.

Complete the following steps to add a local repository to the repository list in the dashboard:

1. From the dashboard, click **Manage Image Packaging System Repositories**.
2. Click **Add**.
3. Enter a repository name and the repository URI. For example, use this repository URI format: *protocol:// hostname:port/path/*.

> **Note:** The repository URI is validated only for HTTP and NFS shares.

Figure 2. Add a New Repository dialog
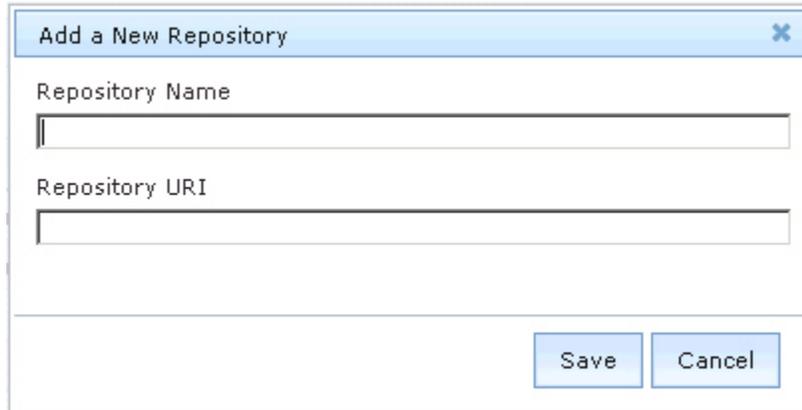
4. Click **Save**. The new repository is added to the list, which can be used by the endpoints.

Assigning repositories to endpoints

Complete the following steps to assign a local repository to Solaris 11 endpoints:

1. From the dashboard, click **Manage Endpoints**.
2. Select an endpoint that you want to configure to use a different repository.
3. Click **Assign a new repository**.
4. Select a repository.

Figure 3. Assign a New Repository dialog

5. Specify the repository SSL key and certificate if the selected repository requires those files.

> **Note:** The Solaris Image Packaging System Repository Management dashboard accepts key and certificate files in `.pem` format only.

> **Note:** The Oracle Solaris 11 Support Repository requires both the certificate and SSL key files to access the repository. Obtain both files from the My Oracle Support site. For more information, see http://pkg-register.oracle.com.

6. Click **Save**. The Take Action dialog opens.
7. Select the endpoint and click **OK**.
8. When the action completes, refresh the dashboard to see the changes.

Chapter 2. 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 4. Patch Management navigation tree
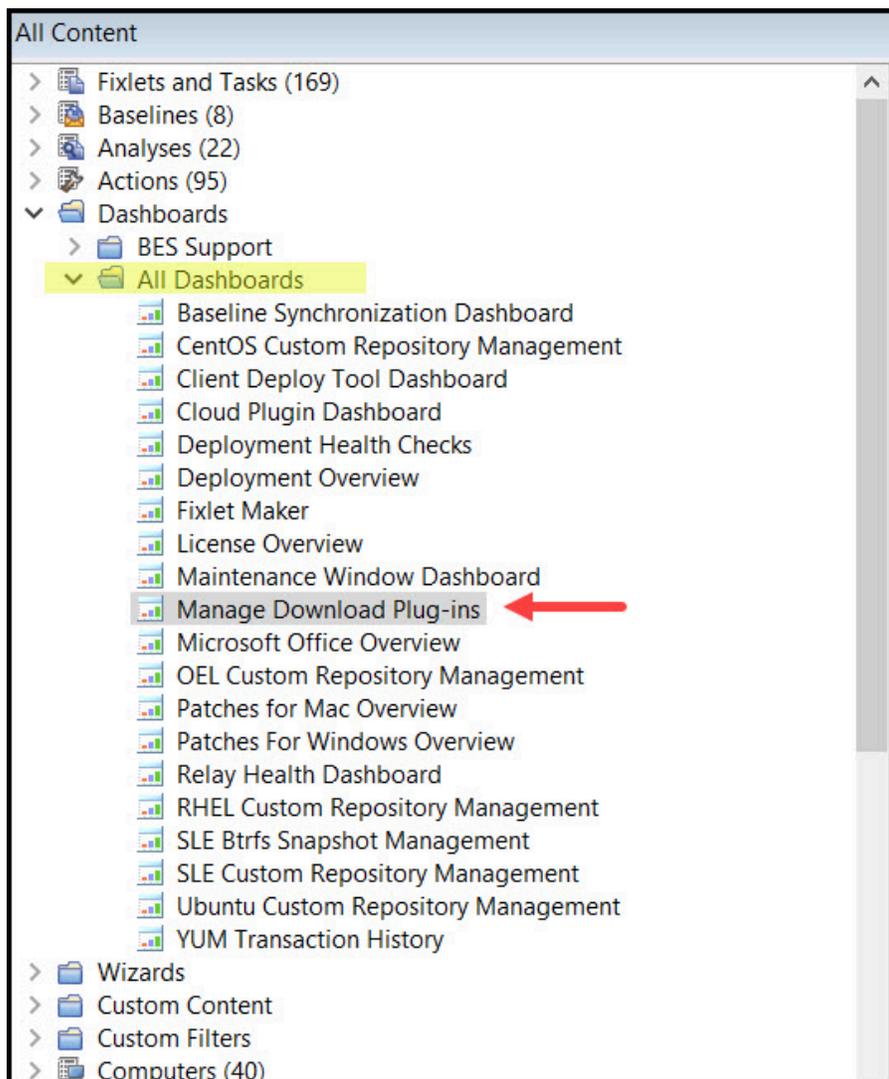
The dashboard displays all the servers and windows-only relays in your deployment. Select a server or relay to view all the plug-ins for that computer. The dashboard shows you also the version and status for each plug-in in one consolidated view.

Figure 5. 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

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 Solaris download plug-in

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

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 registering the plug-in on a computer for the first time, the plug-in gets installed and the configuration file is created. If you upgrade the download plug-in on a computer with an existing configuration file, the configurations will be overwritten.

For Solaris 11, use the Solaris Download plug-in version 2.3 or later.

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 **Solaris Plug-in**.
4. Click **Register**.
   The Register Solaris Plug-in wizard displays.

   Figure 6. Register Solaris download plug-in wizard

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

Oracle Username

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

Oracle Password

Your Oracle account password to the Oracle Support site.

Confirm Oracle Password

Your Oracle account password for confirmation.

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

> **Note:** Only basic authentication is supported.

Proxy URL

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

Proxy Username

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

Proxy Password

Your proxy password if your proxy server requires authentication.

Confirm Proxy Password

Your proxy password for confirmation.

7. Click **OK**.

The Take Action dialog displays.

8. Select the target computer.

9. Click **OK**.

You successfully registered the Solaris download plug-in.

Unregistering the Solaris download plug-in

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

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 **Solaris Plug-in**.

4. Click **Unregister**.

Figure 7. Unregister the Solaris download plug-in
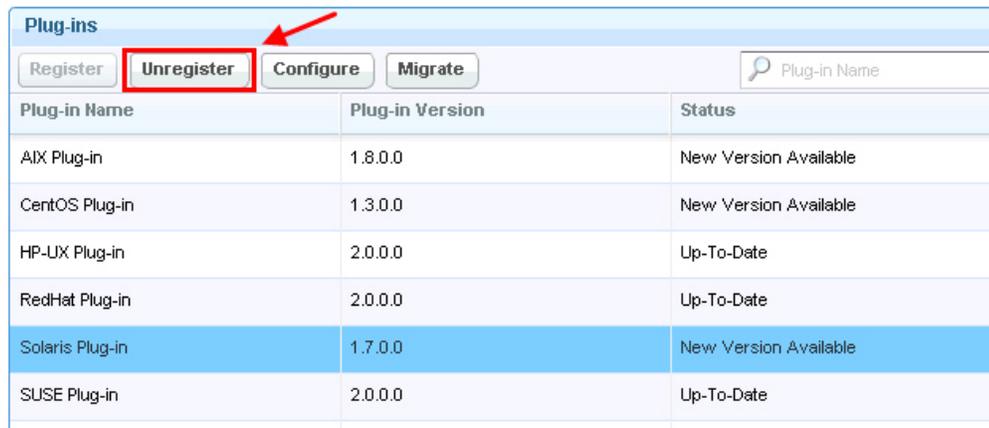
The Take Action dialog displays.

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

You successfully unregistered the Solaris download plug-in.

Configuring the Solaris download plug-in

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

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

You might want to take note of your existing configuration for the download plug-in because 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 **Solaris Plug-in**.
4. Click **Configure**.
   The Configure Solaris Plug-in wizard displays.

Figure 8. Configure Solaris download plug-in wizard

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

Oracle Username

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

Oracle Password

> Your Oracle account password to the Oracle Support site.

Confirm Oracle Password

> Your Oracle account password for confirmation.

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

Proxy URL

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

Proxy Username

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

Proxy Password

Your proxy password if your proxy server requires authentication.

Confirm Proxy Password

Your proxy password for confirmation.

7. Click **OK**.

The Take Action dialog displays.

8. Select the target computer.

9. Click **OK**.

You successfully configured the Solaris download plug-in.

Migrating the Solaris download plug-in

You must migrate the 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 because 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 **Solaris Plug-in**.

4. Click **Migrate**.

The Migrate Solaris Plug-in wizard displays.

Figure 9. Migrate Solaris download plug-in wizard

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

   Oracle Username

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

   Oracle Password

   Your Oracle account password to the Oracle Support site.

   Confirm Oracle Password

   Your Oracle account password for confirmation.

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

   Proxy URL

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

   Proxy Username

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

`domain\username`.

Proxy Password

Your proxy password if your proxy server requires authentication.

Confirm Proxy Password

Your proxy password for confirmation.

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

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

Upgrading the Solaris download plug-in

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

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 **Solaris 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 Solaris download plug-in installed.

Chapter 3. BigFix Patch for Solaris

Use the Fixlets on the various Solaris sites to apply Oracle patches and updates to your deployment.

For information about the available Fixlet sites for Solaris, see Supported platforms and updates *(on page 9)*.

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 Solaris download plug-in *(on page 16)*. For air-gapped environments, see Solaris download cacher tool overview *(on page 10)*.

Mirror management

BigFix provides tasks to help with the failback options for your mirror management solution. These tasks are available only for Solaris 10 endpoints.

System administrators create mirrors to protect data from disk failures. Disk mirroring, also known as RAID-1, provides high reliability and security against data loss. A mirror is composed of one or more RAID-0 volumes called submirrors. Each data block, which is a complete copy of each disk, is written to at least one other submirror. Typically, two or more disks are attached to a Solaris endpoint. In a scenario where a system has two disks, a mirror consists of two submirrors of the same data that is written on two different disks.

Each submirror contains an identical copy of the data root disk. When a disk fails, switching to one of the submirrors or disks can prevent system failure. Also, no data is lost because it can be recovered from other functioning submirrors or disks.

> **Note:** BigFix does not support the creation or configuration of the root disk mirrors or submirrors. For more information about mirroring, see the Oracle documentation at http://docs.oracle.com/cd/E18752_01/html/816-4520/about-metadevices-24868.html.

Mirror management plays a key role in managing system downtime and risk when installing critical software patches or upgrades. BigFix provides the following tasks on the **Patching Support** site to help reduce system downtime and service interruptions due to patching:

Break Solaris mirrors

This task splits or breaks UFS file system mirrors, which in turn stops a mirrored disk from reading and writing to a backup disk.

For multiple file system mirrors on the root disk, the task will only break the mirror of the root file system.

> **Note:** ZFS file system or VxVM based mirrors are not supported.

Re-mirror Solaris disks

This task resumes disk mirroring on Solaris 10 systems and synchronizes the updated disk with the backup disk.

As a precautionary measure before patching, use the **Break Solaris mirrors** task to split or break mirrors to allow you to use a disk as a backup copy of the system. You can then deploy the patch or upgrade to the master disk. You then run some verification steps to ensure that the patch or upgrade was successful. If the patch or upgrade was successful, you can use the **Re-mirror Solaris disks** task to put the disk back online, which begins the resynchronization process between the updated disk and the backup disk. However, if anything went wrong during the patching or the upgrade process, you can switch the disks and boot the backup disk without losing any data.

Network File System Support

The Network File System (NFS) is a mechanism for storing files on a network. It is a distributed file system that allows users to access files and directories that are on remote computers and treat those files and directories as if they were local.

All the Fixlets for Critical Patch Update (CPU) and the Recommended Patch Cluster, which are on the **Patches for Solaris** site and **Patches for Solaris Live Upgrade** site, provide an option to install the packages from an accessible NFS share instead of from the Oracle repository or a local repository. Because these patches can be large, downloading and extracting them directly to the endpoint can take some time. Deploying patches from an NFS share shortens the installation time, decreases bandwidth usage, and reduces storage costs. For information about deploying patches, see Patching endpoints on Solaris 10 and earlier *(on page 29)*.

You can use the following tasks on the **Patching Support** site to run basic NFS configuration:

Enable NFS Support - Solaris 10

Use this task to enable NFS services on targeted Solaris systems.

Disable NFS Support - Solaris 10

Use this task to disable NFS services on targeted Solaris systems.

Add NFS Share - Solaris 10

Use this task to export a new directory to the NFS client to make the directory accessible to other systems across the network. You can specify an NFS repository location that contains the updates that you want to install. The task provides options to add a persistent or non-persistent NFS share with certain access levels.

Remove NFS Share - Solaris 10

Use this task to remove a directory from the NFS client to stop sharing the directory with other systems across the network. You can remove the NFS share only from the current session or include the subsequent sessions.

For more information about NFS, see http://docs.oracle.com/cd/E23824_01/html/821-1454/rfsintro-2.html.

Using the Solaris download cacher

Use the Solaris download cacher utility to pre-cache Solaris updates to the BigFix server or to a specified target directory before deploying the Fixlets to targeted endpoints.

For more information about the download cacher, see Solaris download cacher tool overview *(on page 10)*.

To access the tool from the BigFix console, complete the following steps:

1. From the BigFix Management domain, click **Manage Sites > External Sites > Patches for Solaris > Run Solaris Download Cacher Tool - Windows**.

   📝 **Note:** The Windows BigFix server and relays must be subscribed to the Patches for Solaris site for the task to be relevant.

2. Select the appropriate link in the Actions box to start the download.
3. Enter the necessary information when prompted. Ensure that the credentials to access the Oracle site are correct.
4. Select the targeted servers or relays, and click **OK**.

Running the download cacher tool manually

For air-gapped environments, you can run the Solaris download cacher utility manually.

Download the Solaris download cacher tool from the BigFix software website at https://software.bigfix.com/download/bes/util/SolarisDownloadCacher.exe.

📝 **Note:** Solaris Download cacher (Solaris 11) does not support caching files for Patches.

To run in interactive mode:

```
SolarisDownloadCacher.exe
```

To run using a configuration file:

```
SolarisDownloadCacher.exe --configFile FILE
```

To run using command line options:

```
SolarisDownloadCacher.exe <OPTIONS>
```

Parameters:

--os OS1,OS2,...

Specifies a comma separated list of operating system names, such as 9,10,10x86. Default is all.

--patches ptch1,ptch2,...

Specifies a comma separated list of patch IDs in the format of `123456-78`. Default is all.

--downloads FILE

Specifies pairs of patch files (in the format of `123456-78.jar` or `10_Recommended.zip`) and SHA1s in a file. Each pair is on its own line. The patches and sha1 value should be separated by a space. If a file is specified, the cacher will parse this file for patchIDs instead of parsing a site.

--cluster

Gathers the cluster for specified operating systems, if designated, or all of them if no operating systems are specified.

--superseded

Specifies flag to grab superseded content only.

--maintenance

Gathers from the Patches for Solaris Maintenance site.

--username USER

Specifies the user name to use to access the Oracle website.

--password PASS

Specifies the password to use to access the Oracle website.

--cacheDirectory DIR

Specifies the directory to cache to. Uses the BES cache if undefined.

--noRename

Specifies flag to not rename the files to sha1 values.

--emailServer SERVER

Specifies the SMTP server to use.

--emailUser USER

Specifies the email login to use.

--emailPassword PASS

Specifies the email password to use.

--emailSender ADDR

Specifies the email sender address. Required if `emailServer` is given.

--emailTo ADDR1,ADDR2,...

Specifies a comma separated list of email addresses. Required if `emailServer` is given.

--proxy SERVER:PORT

Specifies the proxy server to use.

--proxyUser USER

Specifies the proxy username to use.

--proxyPassword PASS

Specifies the proxy password to use.

--forceDownloads

Specifies the flag to force the cacher to re-download files, even if they already exist.

--autoCacheIncrease

Specifies the flag to automatically increase the cache in the event that the BES cache is filled. Only applies if `--cacheDirectory` is not specified.

--sites EFXMFILE

Specifies the masthead file. Multiple masthead files may be listed, separated by commas. If given, specified sites will be parsed rather than the default Solaris Fixlet sites.

--configFile FILE

Specifies a cacher configuration file that might contain any of the previous listed options. For example:

```
--------------------------------------
[Options]
cacheDirectory=C:\cache
proxy=http://someproxyurl:8080
proxyUser=john_doe
proxyPassword=p@ssw0rd
--------------------------------------


Command-line options take precedence if the same option is passed
in the command line and the config file.


Additionally, the config file used for Download Plug-ins (plugin.ini)
is compatible here.  The [UA] and [Logger] sections from
plugin.ini may be included in the cacher config file.  For example:


--------------------------------------
[Options]
cacheDirectory=C:\cache


; The following snippet taken from a plugin.ini
[UA]
proxy=http://someproxyurl:8080
proxyUser=john_doe
proxyPassword=p@ssw0rd
--------------------------------------
```

--logfile FILE

Specifies direct logging to the specified file (as well as STDOUT).

--debug LEVEL

Specifies a debug level (0-5) to determine the verbosity of the output. Default is 0.

--help

Prints the help message.

Patching using Fixlets

You can apply Solaris patches to your deployment by using the Fixlets on the available Solaris sites.

Patching endpoints on Solaris 10 and earlier

When deploying patches, the required packages are downloaded from the Oracle repository by using the download plug-in. For Critical Patch Update (CPU) and the Recommended Patch Cluster, you can use a local repository to host the packages and share them across your network using Network File System (NFS).

- BigFix Patch for Solaris uses Bourne shell scripts to install packages on the endpoints. Ensure that an sh-compatible shell is installed on the endpoints to successfully patch using Fixlets.
- If you want to deploy patches by using the internet download method by using the download plug-in, complete the following steps:
  - Register the Solaris Download plug-in. For more information about download plug-ins, see Download Plug-ins.
  - For Recommended Patch Clusters and Critical Patch Updates, use the **Solaris 10: Insufficient Disk Space - /var** task (ID #3) to check whether the file system that contains `/var` has sufficient space to extract and install the patches.
- If you want to deploy patches through an NFS share, complete the following steps:
  1. Run the **Enable NFS Support - Solaris 10** task to enable the NFS protocol.
  2. Run the **Add NFS Share - Solaris 10** task to add the path to the NFS share. You can add a persistent or non-persistent share with different access levels.

  Both these tasks are available on the **Patching Support** site.

1. In the All Patch Management Content node of the navigation tree, click **Fixlets and Tasks > By Site**.
2. Depending on what you want to patch, select the appropriate site.
   - **Patches for Solaris** site
   - **Patches for Solaris Live Upgrade** site

   i **Tip:** It is suggested that you deploy the latest Critical Patch Updates (CPU) Fixlets before you deploy the Fixlets for the Patch Clusters.

> **Note:** The Oracle Recommended Patch Clusters are updated frequently. The patch vendor updates cause the sha1 value and the size of the patch bundle to change. The frequent patch updates might cause the Fixlets for the Patch Clusters to fail. Updated Fixlets are provided based on the service-level agreement with the patch vendor.

3. View the available content in the list panel and double-click the Fixlet that you want to deploy.
4. Review the text in the **Description** tab.
5. Click the appropriate link in the Actions box to start the deployment.

> **Note:** If you decide to deploy the patches for Critical Patch Update (CPU) and Recommended Patch Cluster from an accessible NFS share, enter the full path to the NFS repository. For example, `"myServer:/Solaris/fileset repo" myServer:/Local/Repo`.

6. Click **OK**.

Patching endpoints on Solaris 11 or later

BigFix allows you to deploy Oracle Support Repository Updates (SRUs) to endpoints either from an online repository or a local repository. It provides content to update your local repositories with the latest SRU from the Oracle Solaris release repository.

Ensure that you meet the following requirements before patching the endpoints:

- BigFix Patch for Solaris uses Bourne shell scripts to install packages on the endpoints. Ensure that an sh-compatible shell is installed on the endpoints to successfully patch using Fixlets.
- Subscribe to the Patches for Solaris 11 site.
- Expand the overall cache size for the server and relays to avoid getting a *"Disk Limited"* error when downloading SRUs. SRUs can be large, about 2.7 GB per image file. If you do not expand the cache, the downloads will fail.
- If you are using the repositories that are provided by Oracle or other publishers, your endpoints must be connected to the internet.
- If you are using a pre-configured local repository, complete the following steps:
    ◦ Install the BigFix client on the local repository.
    ◦ Assign the local repository to the endpoints using the Solaris Image Packaging System Repository Management dashboard *(on page 11)*.
    ◦ Register the Solaris Download plug-in. For more information about download plug-ins, see Download Plug-ins.
    ◦ Run the available tasks to update the local repository to ensure that it contains the latest SRU.
      For example, **Update Repository for Solaris 11.3 SRU 11.3.3.6.0 (x86)**. This task uses the Solaris download plug-in to download the required SRU from the Oracle Solaris release repository to the local repository, which is then used to patch the endpoints.

This section discusses how you can use Fixlets to patch a Solaris 11 operating system to a specific SRU with the assumption that a configured local repository is in place. For more information about creating repositories, see the Oracle documentation website at http://docs.oracle.com. For information about local repositories, see Local repositories *(on page 31)*.

The Fixlets in the Patches for Solaris 11 site use packages to patch SRUs either from the Oracle Solaris release repository or from a local repository, depending on your repository configuration. By default, the packages are downloaded from the Oracle Solaris release repository. You can set a local repository as the package repository for certain endpoints by using the Solaris Image Packaging System Repository Management dashboard.

An alternative method of patching Solaris 11 endpoints is to use the **Install packages by using pkg** task. This task enables you to deploy individual packages or all the packages for an SRU. For more information, see Installing packages on Solaris 11 *(on page 37)*.

1. In the All Patch Management Content node of the navigation tree, click **Fixlets and Tasks > By Site > Patches for Solaris 11**.

   A list of Fixlets is displayed.

2. Select a Fixlet to deploy a Support Repository Update from the list.
   For example, **Solaris 11.3 Support Repository Update 11.3.3.6.0**.

   > 📝 **Note:** Ensure that the corresponding SRU is available in the configured repository. Otherwise, the Fixlet fails. In the example given on step 2 *(on page 31)*, you must deploy the **Update Repository for Solaris 11.3 SRU 11.3.3.6.0 (x86)** Fixlet to update the repository with the necessary SRU content to update the endpoint.

3. Review the text in the **Description** tab.
4. Click the appropriate link in the Actions box to start the deployment.
5. Click **OK**.

Local repositories

BigFix provides a method for using local repositories to store patch updates for Solaris 11.

Solaris 11 uses Image Packaging System, which is a network-based package management system.

Regularly updating the endpoints in your deployment is crucial to the success of your organization. Network restrictions often prevent you from getting the latest set of changes from the Oracle hosted repositories. Maintain your own local package repositories to try to limit this restriction. By using local repositories, you can control which updates the endpoints have access to.

You can use the **Install packages by using pkg** task to install software products and patches that are in your local repositories. For more information, see Deploying Solaris packages *(on page 35)*.

You can have multiple local repositories in your environment. For example, you might have one local repository that is used to mirror the latest SRU changes from Oracle and another repository that contains only one particular SRU.

BigFix provides the **Solaris Image Packaging System Repository Management dashboard** to easily configure local repositories to be used for patching Solaris 11 endpoints. For more information about the dashboard, see Solaris Image Packaging System Repository Management dashboard overview *(on page 11)*.

> **Note:** You must subscribe to the Patches for Solaris 11 site to access Fixlet® content for Solaris 11/11, 11.1, 11.2, and 11.3.

For more information about Solaris 11, see the Oracle website at http://docs.oracle.com/cd/E23824_01/html/E21803/repo_intro.html.

Single-user mode patch application

You must bring computers into single-user mode to prepare them for kernel-level or cluster-level patching.

By default, the BigFix Solaris Patch solution applies Solaris patches in the current run level of the computer. Typically, Solaris computers use Run Level 3 or Multi-User mode. In some cases, single-user mode is used to successfully apply the Solaris patch.

The Patches for Solaris and Patches for Solaris Maintenance sites provide a task to bring a Solaris system down to single-user mode called **Single-User Mode Task - Solaris** task (ID #28).

> **Note:** Systems in single-user mode have extremely limited functionality and restricted network connectivity. Users who are remotely connected to the computer when the single-user mode action is applied lose their connection. Do not put a system into single-user mode unless you understand the effects of this action.

Creating a baseline for single-user mode

Create a baseline to modify a Solaris patch Fixlet for single-user mode.

> **Note:** Your BigFix deployment must include a subscription to the **Patches for Solaris** site to complete the following tasks.

Perform the following steps for each Solaris patch Fixlet that you want to apply in single-user mode.

1. Click the **Tools** menu at the top of the BigFix console and select **Create New Baseline**.

Figure 10. Create a baseline from the Tools menu
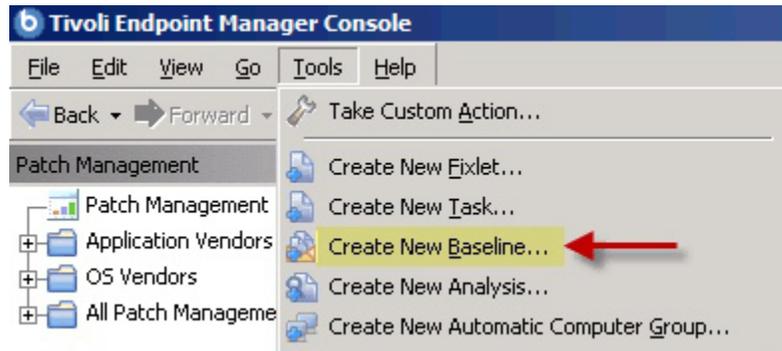
The **Create Baseline** window opens.

Figure 11. Create Baseline window
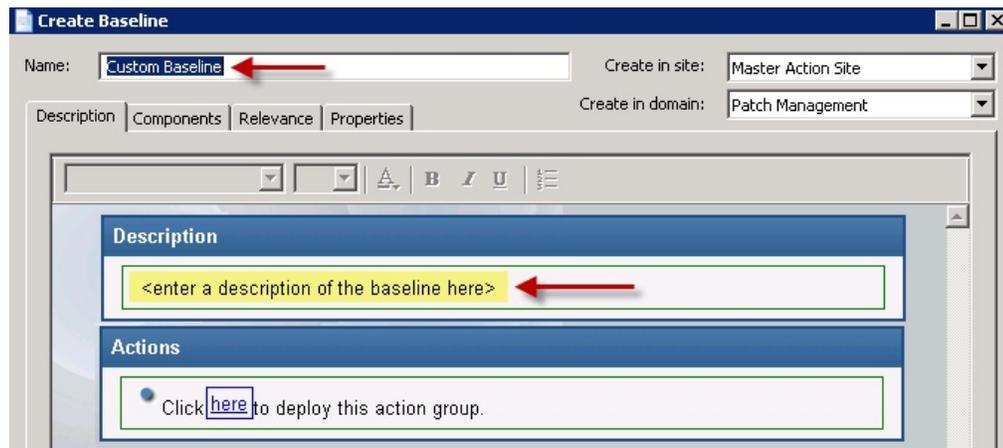
2. Enter a Name and Description, such as `Recommended Patch Cluster - Solaris 10 (Single User Mode)`.

Figure 12. Description tab of the Create Baseline window
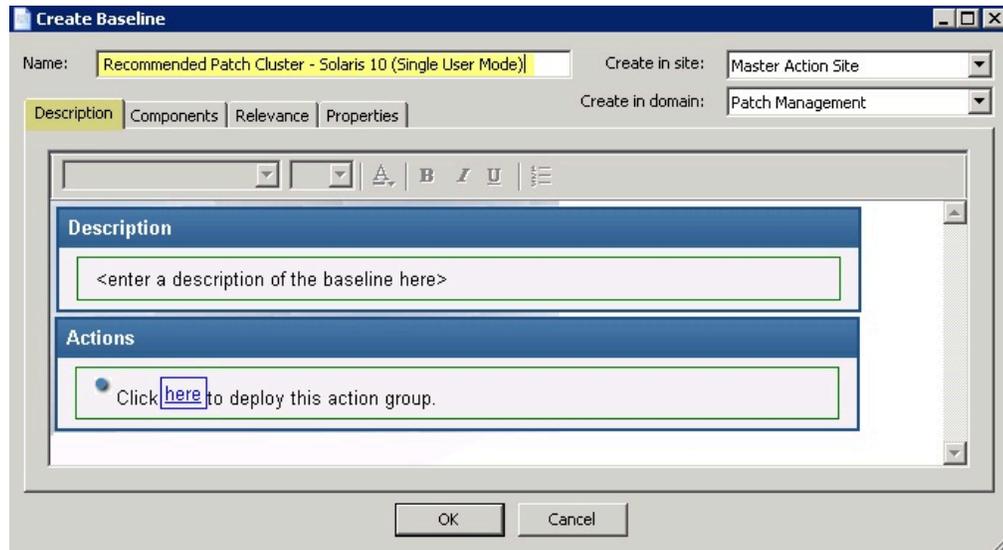
3. Click the **Components** tab.

Figure 13. Components tab of the Create Baseline window
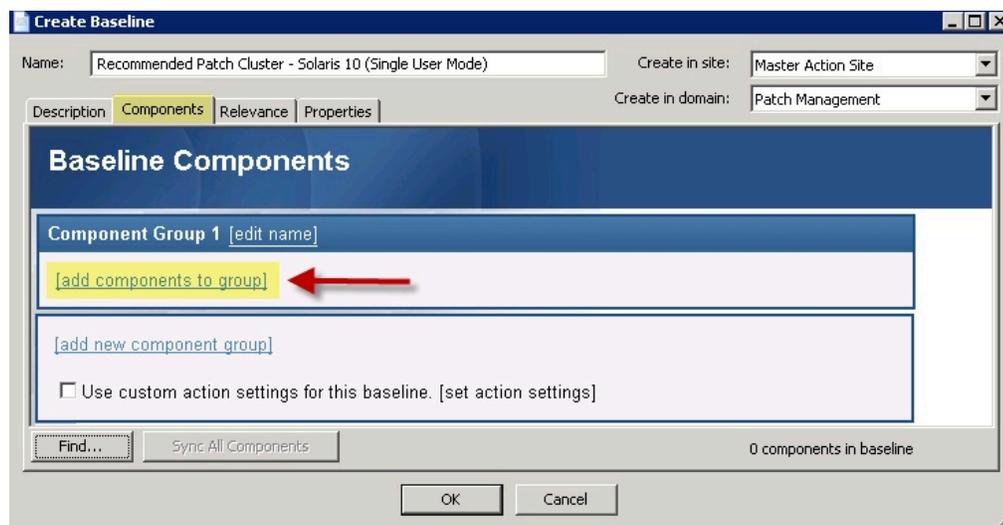
4. On the **Components** tab, add the following items to `Component Group 1` and ensure that they are ordered as follows:

 a. The **Single-User Mode Task - Solaris** (ID #28 in the Patches for Solaris site).

 b. One or more Solaris Patch Fixlets available in the Patches for Solaris site.

 c. Depending on the requirements of the patch, choose either:

 ▪ **Reboot Task - Solaris** (ID #32 in the Patches for Solaris site)

 ▪ **Reconfigure Reboot Task - Solaris** (ID #30 in the Patches for Solaris site)

5. Click **OK** and enter your Private Key Password. You can now apply the baseline to the Solaris patches that you specified in Single User mode.

Deploying Solaris packages

You can control which packages to deploy to Solaris computers that have the BigFix client installed.

BigFix provides two different solutions to help you install and update packages on different versions of Solaris endpoints.

Installing packages for Solaris 10 and earlier

You can use the Solaris Package Deployment Wizard to facilitate the deployment of Solaris packages to endpoints.

Ensure that you meet the following requirements:

- Subscribe to the **Patches for Solaris** site.
- Download the Solaris package that you want to deploy.
- To avoid problems with disk space, run the **Clean Solaris Deployment Wizard Packages** task (ID #24) with the options you need.

1. From the Patch Management domain, click **OS Vendors > Sun Microsystems Solaris > Configuration > Solaris Package Deployment Wizard**.

   Figure 14. Solaris Package Deployment Wizard navigation tree
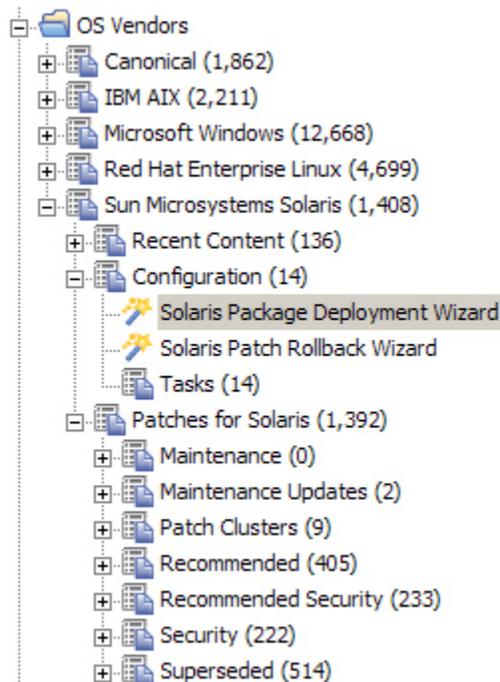
2. Choose the Solaris package (either patch or cluster) that you want to deploy.

Figure 15. Solaris Package Deployment Wizard
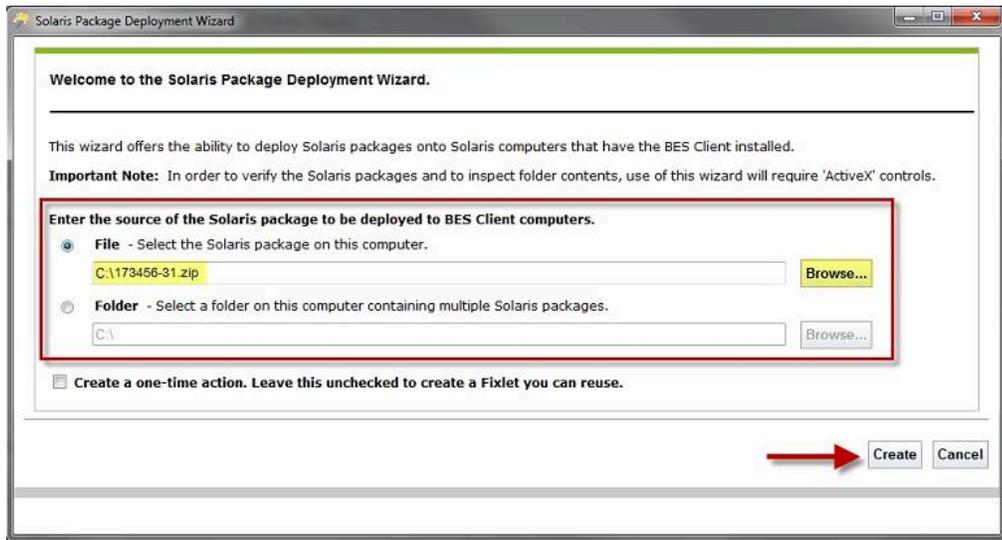
3. Click the check box to create a one-time action, or leave it blank to create a Fixlet that you can reuse.

4. When complete, click **Create**. You see the following progress window.

Figure 16. Creating Archive
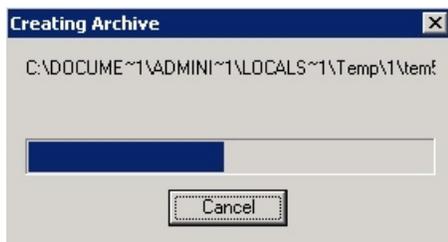
5. In the first task window, click **OK** and then click in the Actions box to start deployment.

Figure 17. Description tab of the Solaris Package Deployment task
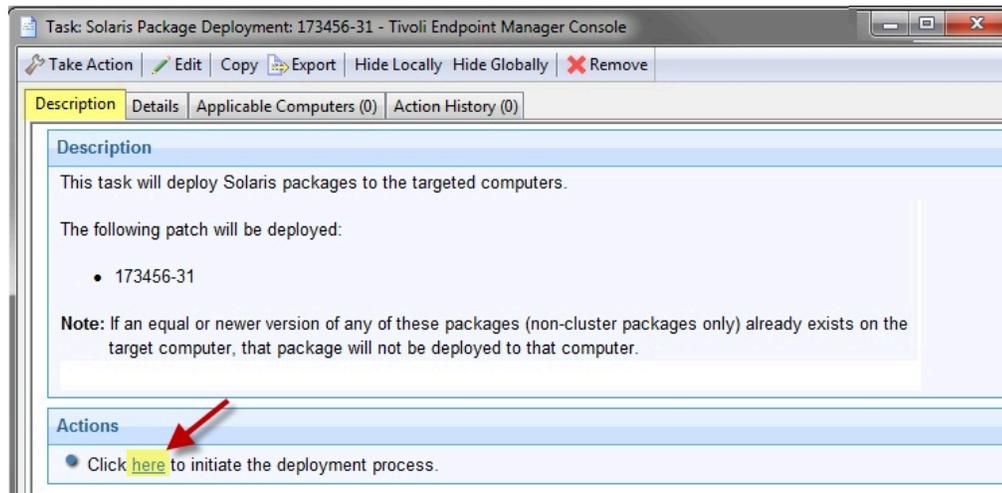
6. In the Take Action dialog, use the tabs across the top of the window to set parameters for this action and click
   OK. The wizard deploys this action to your clients.

Installing packages on Solaris 11

Use the **Install packages by using pkg** task to install and update packages on Solaris 11 and later endpoints that are
using local repositories or repositories that are provided by Oracle or other publishers.

Ensure that you meet the following requirements:

- Subscribe to the **Patches for Solaris 11** site to access the installation task.
- If you are using the repositories that are provided by Oracle or other publishers, your endpoints must be
  connected to the internet.
- If you are using a pre-configured local repository, you must assign it to the endpoints. For more information,
  see Local repositories *(on page 31)* or Solaris Image Packaging System Repository Management
  dashboard overview *(on page 11)*.

The **Install packages by using pkg** task uses Image Packaging System (IPS) retrieval client commands to distribute
and install software products and patches by using the packages that are in the configured repository.

You can use the package name to specify which packages to install on the endpoints. Package names are
hierarchical with an arbitrary number of components that are separated by forward slash (/) characters. For more
information about package names, see the Oracle documentation at http://docs.oracle.com/cd/E26502_01/html/
E28984/ghyer.html#fmri.

You can also update all the installed packages on the endpoint with newer available versions that are in the
configured repository.

The pkg commands for the available actions are as follows:

pkg install *<package_name1> <package_name2>*

> Updates or installs a package with a specific name. Multiple package update or installation is acceptable. Use a space to separate the package names.

pkg update

> Updates all the installed packages on the endpoint.

Command options are supported as extra flags for the `pkg install` and `pkg update` commands. For example: `--accept`. For more information about the commands, see the Oracle documentation at http://docs.oracle.com/cd/E23824_01/html/E21796/pkg-1.html.

The **Install packages by using pkg** task also provides actions to test the packages for installation, without installing the packages on the endpoints.

1. From the Patch Management domain, click **OS Vendors > Sun Microsystems Solaris > Configuration > Tasks**.
2. Select the **Install packages by using pkg** task.
3. In the Task pane, review the description and follow the instructions in the Actions box to start the task.
4. Depending on the action that you selected, provide the necessary information and click **OK**.

> **Note:** To update all installed packages on the endpoint, select the action to install packages, but do not specify any package name.

5. In the Take Action pane, select the endpoints to which the packages are to be installed or updated.
6. Click **OK**.

You can use the **Image Packaging System Results** analysis to verify whether the IPS packages that you installed by running the **Install packages by using pkg** task were successfully installed on endpoints. For more information, see Retrieving installed package information *(on page 38)*.

Retrieving installed package information

You can retrieve a list of all installed packages on Solaris 10 and 11 endpoints by activating analyses on the BigFix console.

Activate the appropriate analysis to gather the current list of installed packages on the Solaris version that you are using.

Installed Packages - Solaris 10

> This analysis retrieves information about packages that are installed with the `pkgadd` command on Solaris 10. It provides a list of the package names and version numbers. The packages that are installed by using other commands are not included in the list.

> You must be subscribed to the **Patches for Solaris** site to access this analysis.

Installed Packages - Solaris 11

This analysis retrieves information about packages that are installed with the `pkg install` command on Solaris 11 endpoints. It provides a list of the package names and version numbers. The packages that are installed by using other commands are not included in the list.

You must be subscribed to the **Patches for Solaris 11** site to access this analysis.

Image Packaging System Results

This analysis uses the `pkg list` command to retrieve the list of installed Image Packaging System (IPS) packages before and after the last deployment of the **Install packages by using pkg** task. This analysis is only for Solaris 11 or later endpoints.

You must be subscribed to the **Patches for Solaris 11** site to access this analysis.

You can use the information from the analysis as a baseline to verify whether the patch installation was successful.

Viewing the installed packages from the console helps reduce the need for a system administrator to log on to the actual endpoints.

1. From the Patch Management domain, **All Patch Management > Analyses**.
2. Click the appropriate analysis.
3. Click **Activate**.

Retrieving the endpoint upgrade list

You can retrieve a list of the Solaris 10 and 11 endpoints that contain packages with available updates by activating analyses on the BigFix console.

Activate the appropriate analysis to gather the list of Solaris endpoints that require an update.

Endpoint Upgrade List- Solaris 10

This analysis provides a list of Solaris 10 endpoints that can be updated to Oracle's latest available operating system update. The list includes the endpoints and their current operating system version numbers.

This analysis checks for the updates against the recent published Solaris OS release, which is currently at U11, and the kernel patch update, which contain a set of different fixes that is published on the Oracle support website.

Subscribe to the **Patches for Solaris** site to access this analysis.

Endpoint Upgrade List - Solaris 11

> **Note:** Before you activate this analysis, you must run the **Check Available Package Updates - Solaris 11** task at least once to execute the `pkg update -n` command on the endpoints. The output is stored in the `/var/opt/BESClient/IPSData/pkg_upgrade_output.txt` file and is used by this analysis.

This analysis provides the Solaris 11 endpoints that contain packages with available updates in the configured repositories. It provides a list of endpoints with the corresponding number of packages that are available for installation or update. It also provides the status of the output file and the date of when the endpoints were last scanned for updates.

You can use the `pkg_upgrade_output.txt` file for troubleshooting purposes.

> ⊙ **Important:** Run the **Check Available Package Updates - Solaris 11** task periodically to gather the latest content.

Subscribe to the **Patches for Solaris 11** site to access the **Endpoint Upgrade List - Solaris 11** analysis and the **Check Available Package Updates - Solaris 11** task.

View the endpoints that must be upgraded in a consolidated view to help reduce the need to individually check the status of each endpoint.

1. From the Patch Management domain, **All Patch Management > Analyses**.
2. Click the appropriate analysis.
3. Click **Activate**.

Uninstalling patches

You can uninstall Solaris patches from Solaris 9 and 10 computers by using the Solaris Patch Rollback Wizard.

> ✏️ **Note:** The result of the Solaris Patch Rollback Wizard might vary depending on several factors in your environment.

Click **OS Vendors** in the navigation tree, **Sun Microsystems Solaris**, and **Solaris Patch Rollback Wizard**.

Figure 18. Solaris Patch Rollback Wizard navigation tree
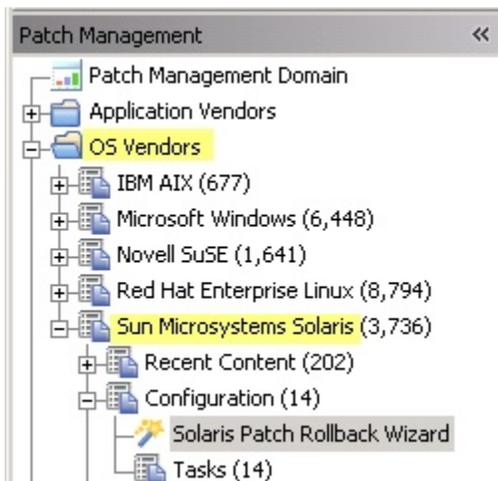
Click the link to activate the *Patchrm Output* property, which you use to view detailed results.

Figure 19. Solaris Patch Rollback Wizard
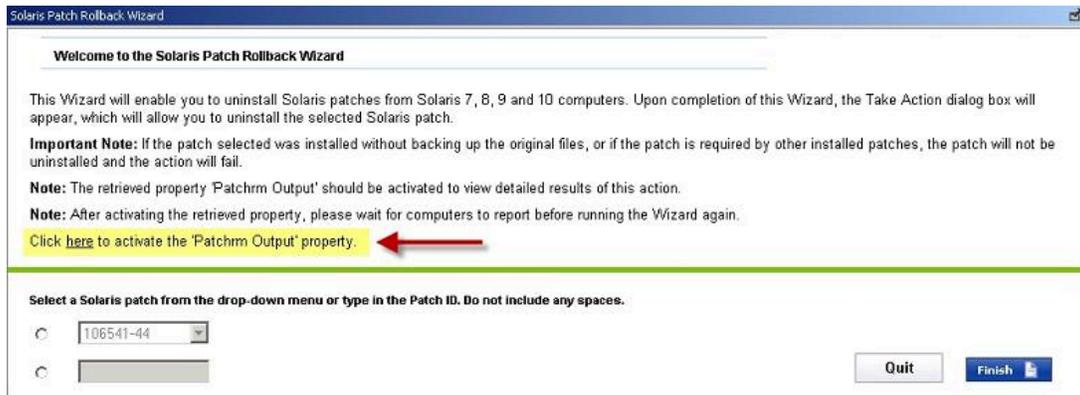
Figure 20. Create Property window
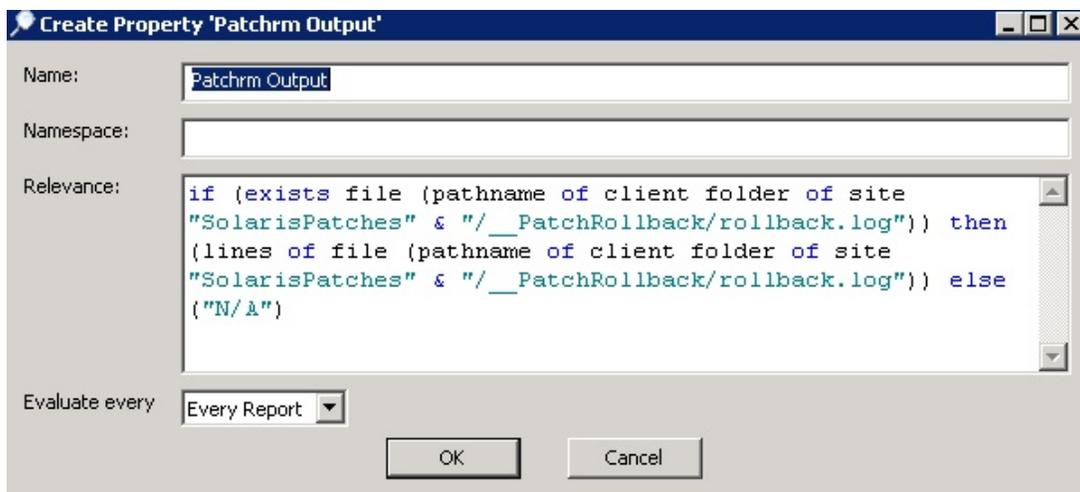
Enter a namespace, and choose the interval for which you want to evaluate output. Click **OK**. When you return to the wizard, you see the message as a note:

Figure 21. Retrieved property shown in the Solaris Patch Rollback Wizard
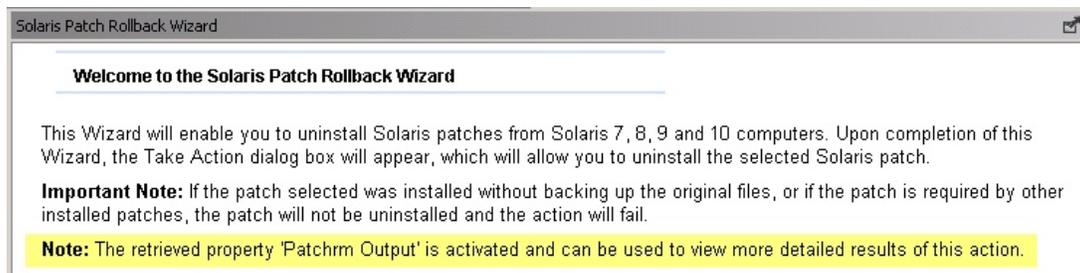

Select a Solaris patch from the drop-down menu, or type the Patch ID of the patch that you want to uninstall.

Click **Finish**. The Take Action dialog opens.

Use the tabs across the top of the window to set parameters for this action. Click **OK** and enter your Private Key Password. The wizard deploys this action to your clients.

Superseded Fixlets

Superseded Fixlets are Fixlets that contain outdated patch packages. If a Fixlet is superseded, a newer Fixlet exists with newer versions of the packages.

A superseded Fixlet is identified by *(Superseded)* at the end of its Fixlet name.

Figure 22. View of superseded Fixlets from the List panel

You can find the new Fixlet name and ID in the description of the superseded Fixlet.

Figure 23. Description of a superseded Fixlet showing the newer Fixlet ID

Enabling superseded Fixlets

You can install an earlier version of a Solaris patch by enabling superseded Fixlets.

Superseded patches are patches that are declared obsolete by Oracle, and have typically been replaced by newer patches.

You can use the **Enable Superseded Solaris Patch Evaluation** task (ID #13 in the Patches for Solaris and Patches for Solaris Maintenance sites) to install an earlier version of a Solaris patch on a client.

1. In the navigation tree of the Patch Management domain, expand the **OS Vendors** node.
2. Expand the **Sun Microsystems Solaris** node, and select **Configuration**.
3. In the List Panel, select the task **Enable Superseded Solaris Patch Evaluation**.
   The task window opens.
4. Select the link to enable evaluation of superseded Solaris patches in the Actions box.
   The Take Action dialog box opens.
5. Use the tabs across the top of the window to set parameters for this action.
6. Deploy the action. For information about deploying actions, see the BigFix Console Operator's Guide.

Chapter 4. Solaris zone patching

Patch Management for Solaris supports zone patching on Solaris 10 endpoints.

> 📝 **Note:** This guide uses the term *non-global zone* to refer to a *local zone*.

The **Patches for Solaris** site contains the Fixlet content that allows for global and non-global (whole root) zones patching.

The Solaris zones technology provides a way to efficiently manage and use resources by allowing you to have isolated software applications and services.

> 📝 **Note:** This guide does not cover the steps to create and configure Solaris zones. For comprehensive information about zones, see the *Oracle System Administration Guide: Oracle Solaris Containers-Resource Management and Oracle Solaris Zones* at: http://docs.oracle.com/cd/E19044-01/sol.containers/817-1592/index.html.

Oracle uses the `SUNW_PKG_ALLZONES` patch package to determine the patch type. Patches with `SUNW_PKG_ALLZONES=true` only allow the installation to all zones, both the global and non-global zones. Oracle forces the installation on the global zone, and then changes are propagated to all non-global zones. The Fixlet content for such patches provide only one installation action.

Patches with `SUNW_PKG_ALLZONES=false` allow the installation to occur in either the global or non-global zone. The Fixlet content for such patches has two installation actions.

For detailed information about patching zones, see .

Configuring clients in global zones

When you install the BigFix client on a computer in your network, you are, by default, installing it in the global zone. The global zone is the default zone and it always exists even when no other zones are configured. The client must be installed in the global zone first before optionally installing it in the non-global zones.

For information about manually installing the client on a Solaris system, see the Solaris Installation Instructions.

Configuring clients in non-global zones

In a Solaris Zones environment, you must install the BigFix client in the global zone first before optionally installing it in the non-global zones. In general, you do not need to separately install the client in the non-global zones if it is already installed in the global zone. One exception to this is when the client binaries are not available in the non-global zones.

If the client binaries are available in the non-global zone, you just need to save the masthead `actionsite.afxm` file in the `/etc/opt/BESClient/` directory of the non-global zone.

The non-global zone reports as a separate entity from the global zone. For example, if you have set up two non-global zones, you will see three instances of the machine in the console. The non-global zone endpoints will be identified by their hostname, so make sure that you use a descriptive name.

Patching global and non-global zones

Keep the global and non-global zones secured by patching them with the Fixlets in the Patches for Solaris site.

- Ensure that the non-global zones are configured correctly. For information about configuring a non-global zone, see the *Oracle System Administration Guide* at http://docs.oracle.com/cd/E19044-01/sol.containers/817-1592/z.conf.start-29/index.html.
- Ensure that each non-global zone is reporting back to the console as a separate endpoint. See Configuring clients in non-global zones *(on page 44)*.
- Register the Solaris Download Plug-in. See Registering the Solaris download plug-in *(on page 16)*.
- Run the **Solaris Zone Support** task (ID #1). This task identifies the type of zone in which a client is running. It then determines whether or not a certain patch content is applicable to that zone.

Only Fixlets with the `SUNW_PKG_ALLZONES=false` variable can patch a single zone without impacting other zones.

1. From the Patch Management domain, click **OS Vendors > Sun Microsystems Solaris > Patches for Solaris**.
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**, and select the action to deploy the Fixlet.
   - To patch the global and non-global zones, select **Click here to initiate the deployment process**.
   - To patch the global zone only, select **Click here to initiate the deployment process for the current zone only**.
   - To patch the specified non-global zone only, select **Click here to initiate the deployment process for the current zone only**.

Figure 24. Fixlet with zone patching actions
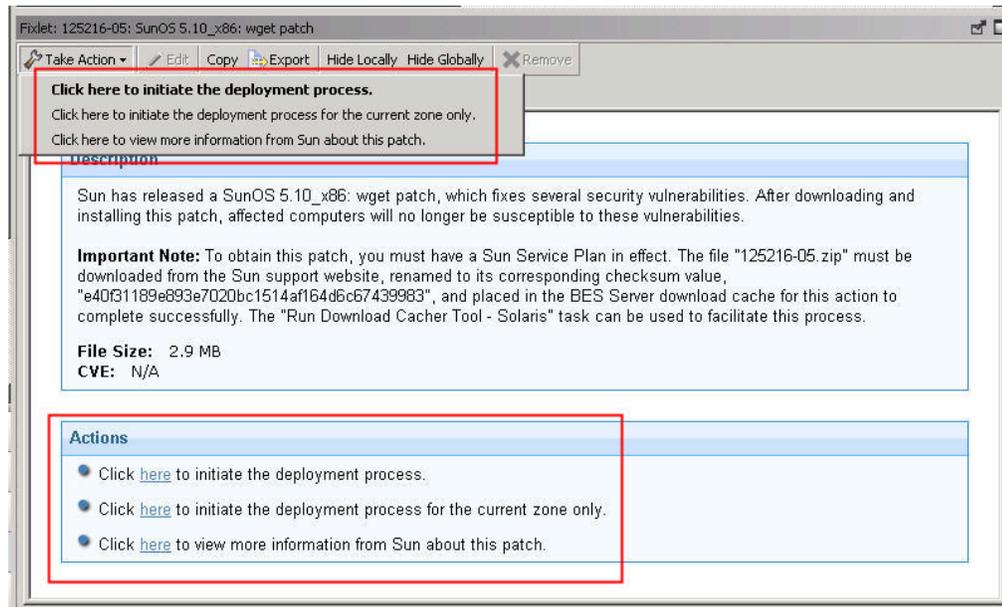
Alternatively you can click the appropriate link in the Actions box.

5. You can set more parameters in the Take Action dialog. Click **OK** when you have finished.

Removing patches in global and non-global zones

Use the Solaris Patch Rollback Wizard to remove a patch package and restore previously saved files in a global or non-global zone, or both. This wizard creates a Fixlet that uses the patchrm command to complete the action.

- Ensure that each non-global zone is reporting back to the console as a separate endpoint. See Configuring clients in non-global zones *(on page 44)*.
- Run the **Solaris Zone Support** task (ID #1). This task identifies the type of zone in which a client is running. It then determines whether or not a certain patch content is applicable to the zone in question.
- Determine the patch ID and revision number of the Solaris package that you want to remove from the global or non-global zone.
- Check how the SUNW_PKG_ALLZONES patch package is set. To learn more about this package parameter, see the *Oracle System Administration Guide* at http://docs.oracle.com/cd/E19044-01/sol.containers/817-1592/z.pkginst.ov-12/index.html.

The interaction between the following factors determines the removal of a patch in global and non-global zones.

- SUNW_PKG_ALLZONES variable
- patchrm -G option

For more information about these factoring parameters, see the *System Administration Command Guide* at http://docs.oracle.com/cd/E19253-01/816-5166/patchrm-1m/index.html.

> **Note:** If the patch selected was installed without backing up the original files, or if the patch is required by other installed patches, the patch will not be uninstalled and the action will fail.

1. From the Patch Management domain, click **OS Vendors > Sun Microsystems Solaris > Configuration > Solaris Patch Rollback Wizard**.
2. Click the link to activate the *Patchrm Output* property, which you use to view detailed results.

Figure 25. Solaris Patch Rollback Wizard
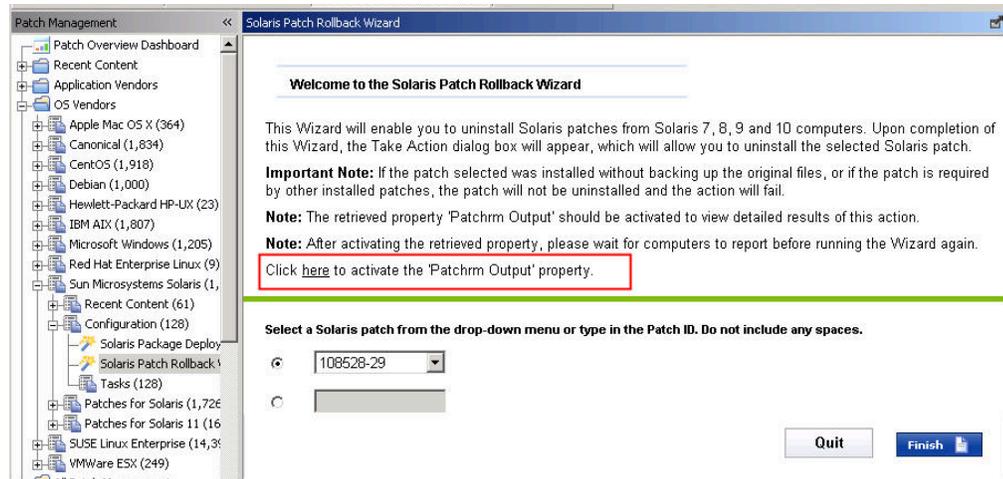
3. Enter a namespace, and choose the interval for which you want to evaluate output. Then click **OK**.

Figure 26. Patchrm Output Activation
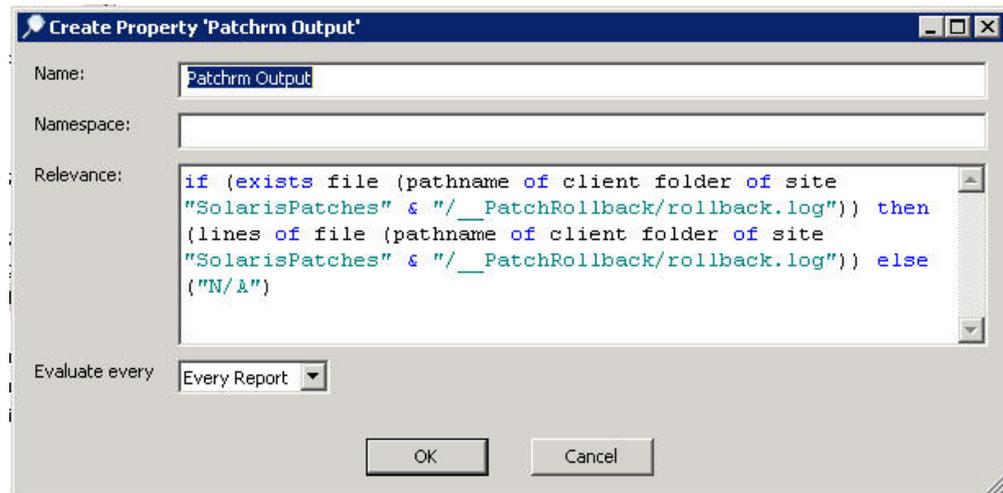
4. Select or enter the patch ID of the Solaris patch that you want to remove and then click **Finish**. The Take Action dialog opens.
5. Depending on what you want to do, follow the appropriate procedure.

◦ To remove the patch from the global and non-global zones, complete the following steps:

    a. Ensure that the `SUNW_PKG_ALLZONES` flag of the specified patch is set to `true`.

    b. Select the endpoint that represents the instance of the global zone as the target.

◦ To remove the patch from the global zone only, complete the following steps:

    a. Ensure that the `SUNW_PKG_ALLZONES` flag of the specified patch is set to `false`.

    b. Add the `-G` option to the Action Script.

Figure 27. Adding the patchrm -G option in the Action Script
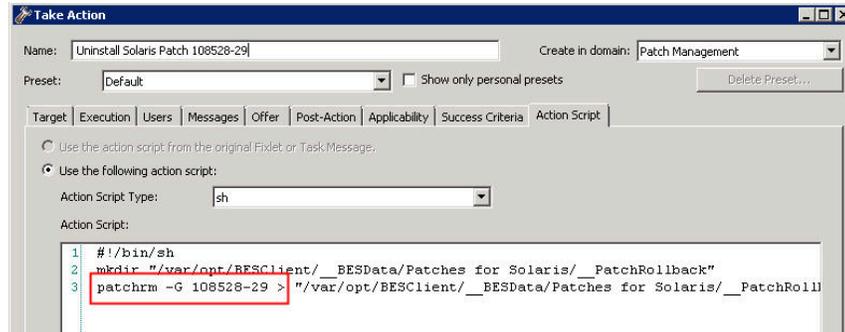
    c. Select the endpoint that represents the instance of the global zone as the target.

◦ To remove the patch from the non-global zone only, complete the following steps:

    a. Ensure that the `SUNW_PKG_ALLZONES` flag of the specified patch is set to `false`.

    b. Select the endpoint that represents the instance of the non-global zone as the target.

6. Click **OK**.

Chapter 5. Solaris Live Upgrade support

Use the Solaris Live Upgrade tool to manage system downtime and risk when installing patches on alternate boot environments on Solaris 9 and 10 computers.

Introduction

An alternate boot environment of a Solaris computer is typically created by copying the entire root file system. With Solaris Live Upgrade, patches are applied in the duplicate boot environment, which is in an inactive state, while the original boot environment is running. After patching is done, you can restart your computer to use the alternate boot environment. For more information about Solaris Live Upgrade, see the Solaris Live Upgrade 2.0 Guide from the Oracle documentation: http://www.oracle.com/technetwork/indexes/documentation/index.html.

Figure 28. Solaris Live Upgrade overview
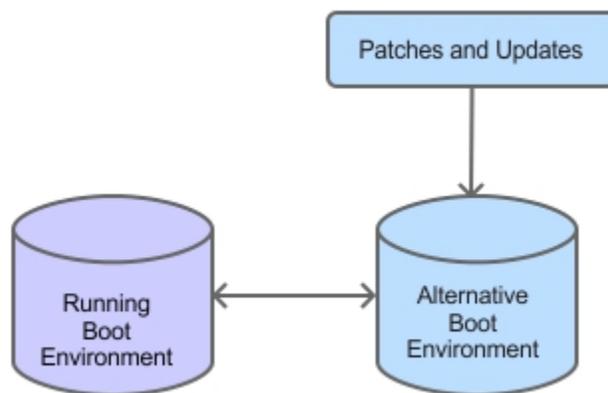
Solaris Live Upgrade supports patch management for Security Patches, Recommended Patches, and Critical Patch Updates. You can find the related Fixlets in the Patches for Solaris Live Upgrade site.

Roadmap

To use Solaris Live Upgrade, complete the following steps:

1. Ensure that the download plug-in is enabled.
2. Run the Enable Solaris Live Upgrade task. See the steps in Running the enable Solaris Live Upgrade task *(on page 50)*.
3. Ensure that the inactive boot environment that you want to patch has an BigFix client installed. For more information, see Installing the BigFix client *(on page 53)*.
4. The process for patching boot environments depends on the system environment:

- ◦ If there is only one inactive boot environment on the system, proceed with patching. For more information about patching, see Patching using Fixlets *(on page 29)*. Then, proceed to step 5 *(on page 50)*.
- ◦ If there are several inactive boot environments, you must select one boot environment for live upgrade from the Manage Solaris Boot Environments dashboard. For more information about this task, see Selecting inactive boot environments for Live Upgrade *(on page 54)*.

  For more information about the dashboard, see Manage Solaris Boot Environments dashboard overview *(on page 51)*.

5. Activate the newly-patched boot environment. For more information, see Activating inactive boot environments *(on page 55)*.

   📝 **Note:** You must activate the boot environment that you choose immediately before rebooting the computer.

6. Reboot to the alternate boot environment. For more information, see Rebooting to an alternate boot environment *(on page 56)*.

Running the Enable Solaris Live Upgrade task

To use Solaris Live Upgrade correctly, you must deploy the Enable Solaris Live Upgrade task on every Solaris computer.

To access the **Enable Solaris Live Upgrade** task (ID #2), you must subscribe to the Patches for Solaris Live Upgrade site.

The **Enable Solaris Live Upgrade** task determines the inactive boot environments and their patch levels on Solaris computers.

1. From the Patch Management domain, click **Patch Management > Fixlets and Tasks**.
2. Click **Enable Solaris Live Upgrade**.

   Figure 29. Enable Solaris Live Upgrade task

3. Run the action.

The inactive boot environments for each Solaris computer are now visible in the Manage Solaris Boot Environment dashboard.

For systems with only one inactive boot environment, that inactive boot environment is automatically selected to use Solaris Live Upgrade. All Solaris Live Upgrade Fixlets become relevant.

If you have a system with only one inactive boot environment, you can proceed with patching the boot environment using Fixlets.

If you have more than one inactive boot environment, you must use the Manage Solaris Boot Environments dashboard to identify which inactive boot environment is going to use Solaris Live Upgrade.

Manage Solaris Boot Environments dashboard overview

Patch Management for Solaris provides a dashboard to manage boot environments for Solaris Live Upgrade.

You can use the Manage Solaris Boot Environments dashboard to complete the following tasks:

- Install the BigFix client in inactive boot environments.
- Select inactive boot environments for Live Upgrade.
- Activate inactive boot environments.
- Reboot systems to boot environments that you have activated.

Before you use the dashboard, you must deploy the following task and analysis:

- **Enable Solaris Live Upgrade** - ID #2 in the Patches for Solaris Live Upgrade site. For more information about the task, see Running the Enable Solaris Live Upgrade task .
- **Boot Environment Information** - ID #5 in the Patches for Solaris Live Upgrade site. This analysis gets boot environment data from Solaris computers.

You can access the dashboard from the navigation pane by clicking **Patch Management > All Patch Management > Dashboards > Manage Solaris Boot Environments**.

The dashboard is divided into two tables: Solaris Computers and Inactive Boot Environments.

Figure 30. Manage Solaris Boot Environments dashboard

The Solaris Computers table displays all Solaris computers in your deployment, and includes the following information:

- Host name
- IP address
- Version of the installed operating system
- Name of the active boot environment
- Version of the client installed on the active boot environment
- Number of boot environments for each computer

You can select multiple Solaris computers to display all the corresponding boot environments in one consolidated view.

The dashboard shows the status of each boot environment. It shows whether the boot environment is selected for Live Upgrade or if it was selected as the running boot environment for when the system restarts.

The dashboard can also determine whether the BigFix client is installed in a boot environment. If the client is installed, the dashboard displays its corresponding version.

The dashboard has a live keyword search capability for Solaris computers and boot environments. You can search based on the naming convention of the computer or boot environment name.

Figure 31. Search for computer or boot environment name

BigFix client installation behavior

The version of the client that is installed on an inactive boot environment depends on the client version that is in the running boot environment.

The process of installing the client on an inactive boot environment depends on the state of the inactive boot environment:

Inactive boot environment without the client

> The latest available minor version of the client in the active boot environment is installed in the inactive boot environment.

Inactive boot environment that has an earlier version of the client than the active boot environment

> The client in the inactive boot environment is upgraded to the latest minor version of the client in the active boot environment.

Inactive boot environment that has a later version of the client than the active boot environment

> The client in the inactive boot environment remains unchanged.

For example,

```
Server Version: 8.2.1175

Running boot environment client version: 8.1.608

                (Latest available version is 8.1.634)

Inactive BE_First client version: 8.0.584

                (Latest available version is 8.0.627)

Inactive BE_Second client version: 8.2.1078

                (Latest available version is 8.2.1372)

Inactive BE_Third client version: 8.1.608

Inactive BE_Fourth client not installed.


Output:

BE_First: Version is upgraded to 8.1.634

BE_Second: No changes (Version remained at 8.2.1078)

BE_Third: Version upgraded to 8.1.634

BE_Fourth: Version 8.1.634 is installed
```

Installing the BigFix client

The BigFix client must be installed on all boot environments to use Solaris Live Upgrade correctly.

You can install the client from the Manage Solaris Boot Environments dashboard. To know more about how the client installation works from the Manage Solaris Boot Environments dashboard, see BigFix client installation behavior *(on page 53)*.

You cannot select the boot environment for Live Upgrade from the dashboard if the client is not installed in the boot environment.

> 📝 **Note:** Systems with only one inactive boot environment that do not have the client installed are by default selected for Live Upgrade.

1. From the Manage Solaris Boot Environments dashboard, choose the inactive boot environments where you want the client to be installed.
2. Click **Install Client**.

   Figure 32. Installing the BigFix client in an inactive boot environment

   The Take Action dialog opens. For more information about using the Take Action dialog, see the *BigFix Console Operator's Guide*.

3. Select the computers where the boot environments belong.
4. Click **OK**.
   It usually takes a few minutes for the targeted computers to report back their Action status.

The client is now installed in the selected boot environments.

Selecting inactive boot environments for Live Upgrade

Use the Manage Solaris Boot Environment dashboard to select the inactive boot environments that you want to patch.

You must install the client in the boot environments that you want to select for Live Upgrade.

You cannot select two boot environments from the same computer to use Live Upgrade. Ensure that the selected boot environments belong to different computers.

1. From the Manage Solaris Boot Environments dashboard, choose the inactive boot environments for Live Upgrade.
2. Click **Select for Live Upgrade**.

Figure 33. Select Boot Environments for Live Upgrade

The Take Action dialog opens. For more information about using the Take Action dialog, see the *BigFix Console Operator's Guide*.

3. Select the appropriate settings.
4. Click **OK**.

It usually takes a few minutes for the targeted computers to report back their Action status.

The boot environments that you selected are ready for Live Upgrade.

After you select a boot environment for Live Upgrade, you can proceed with patching the environment using Fixlets. For more information, see Patching using Fixlets *(on page 29)*.

Activating inactive boot environments

The inactive boot environment that is selected for activation becomes the running boot environment after a restart. Use the Manage Solaris Boot Environment to identify the boot environments that you want to activate.

You cannot activate boot environments that are not selected for Live Upgrade.

You can activate only one inactive boot environment for each computer.

Synchronization between the running boot environment and an inactive boot environment occurs upon activation. The BES configuration file from the running boot environment is copied to the inactive boot environment for a smooth transition.

1. From the Manage Solaris Boot Environments dashboard, choose the inactive boot environments that you want to activate.
2. Click **Activate**.

Figure 34. Activate

Inactive Boot Environments					
Select for Live Upgrade	Activate	Install Client			Search
☐	Boot Environment Name	Computer Name	Client Version	Selected for Live Upgrade	Active on Reboot
☑	second_boot	com1(10.1.12.128)	8.2.1372.0	Yes	No
☐	third_boot	com1(10.1.12.128)	Client not found	No	No

The Take Action dialog opens. For more information about using the Take Action dialog, see the *BigFixConsole Operator's Guide*.

3. Select the appropriate settings.
4. Click **OK**.

   It usually takes a few minutes for the targeted computers to report back their Action status.

The boot environments that you selected are now activated. These boot environments are identified as active after a restart.

Reboot the boot environments immediately after activation.

Rebooting to an alternate boot environment

Use the Manage Solaris Boot Environments dashboard to restart the current running boot environment to the boot environment that you want.

You must select and activate the alternate boot environment before rebooting. If you click **Reboot** without selecting an alternate boot environment for activation, the computer restarts to its existing state.

1. From the Manage Solaris Boot Environments dashboard, choose a computer from the Solaris Computers table.
2. Click **Reboot**.

   Figure 35. Reboot to an inactive boot environment

Solaris Computers					
Reboot					Search
☐	Host Name	IP Address	Operating System Ver	Active Boot Environme	Client Version	Number of Boot Environi
☐	unknown	10.1.232.117	SunOS 5.10 (Generic_14	benv1	8.2.1372.0	3
☑	com1	10.1.12.128	SunOS 5.9 (Generic_118	c1t0d0s0	8.2.1372.0	3
☐	com2	10.1.12.129	SunOS 5.10 (Generic_13	benv1	8.2.1372.0	3
☐	com3	10.1.255.233	SunOS 5.10 (Generic_14	old	8.2.1310.0	3

The Take Action dialog opens. For more information about using the Take Action dialog, see the *BigFix Console Operator's Guide*.

3. Select the appropriate settings.
4. Click **OK**.

   It usually takes a few minutes for the targeted computers to report back their Action status.

The Solaris computer restarts to the new active boot environment.

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

Appendix B. Frequently asked questions

To better understand BigFix Patch for Solaris, read the following questions and answers.

The Manage Download Plug-ins dashboard is not reflecting any data. What do I do?

Here are some steps you can do to troubleshoot the issue:

- Gather the latest **Patching Support** site.
- Activate the **Download Plug-in Versions** analysis, available from the **Patching Support** site.
- Clear the BigFix console cache.

Why does a patch fail, but complete successfully?

Sometimes under specific circumstances, a patch is successfully applied but the relevance conditions indicate that it is still needed. Check to see if there are any special circumstances that are associated with the patch, or contact HCL Software Support.

If a patch fails to install, what should I do?

If a patch fails to install, check to see if you applied the patch to the correct computers, or run the patch manually by downloading it from the Oracle website.

Why is there no default action?

You must always test on a testbed before applying the Fixlet® or patch. There can also be multiple actions that are associated with the Fixlet®. Be sure to read the text in the Description tab of the Fixlet® before starting the action.

What are superseded patches?

Superseded patches are older versions of patches that no longer need to be applied.

What shell should I use?

BigFix Patch for Solaris uses Bourne shell scripts to install packages on the endpoints. Ensure that an sh-compatible shell is installed on the endpoints to successfully patch using Fixlets.

How do I handle missing patches?

BigFix provides all patches except those patches that are unbundled. Missing patches might be superseded. For recently superseded content, run the **Enable Superseded Solaris Patch Evaluation** task (ID #13) to allow supersedence evaluation. This task is available from the **Patches for Solaris** site. For information about older content, contact HCL Software Support.

I already have an Oracle support account, but the plug-in to download patches still failed. Why is that?

Your Oracle support account must have a valid support identifier to successfully download patches.

How much space do I need to download and install patches of Recommended Patch Clusters or Critical Patch Updates (CPU)?

You might need at least 12 GB of disk space for the download and installation of patches. For Recommended Patch Clusters, you can use the **Solaris 10: Insufficient Disk Space - /var** task (ID #3) to check whether the file system containing `/var` has sufficient space to extract and install patch cluster patches.

What log can I use to debug the patch cluster installation?

For Fixlets from the Patches for Solaris site

To debug the commands used to install patch cluster, check the log located in `/var/opt/BESClient/__BESData/__Global/Logs/<YYMMDD>.installcluster.log`. The log follows the BigFix log format, which starts with a timestamp for each run. If the Fixlet® is deployed to an endpoint multiple times on the same day, each run is appended to the log file. The log file does not get overwritten.

For Fixlets from the Patches for Solaris Live Upgrade site

To debug the commands used to install patch cluster, check the log located in `/var/opt/BESClient/__BESData/__Global/LUdata/<BE_name>_cluster_install.log`. If the Fixlet® is deployed to an endpoint multiple times on the same day, the log gets overwritten and will contain details about the latest deployment.

The sha1 value and the size of the Patch Cluster Fixlets are outdated. Why is that?

The sha1 value and the size of the Patch Cluster Fixlet® might be outdated due to the frequent Oracle Recommended Patch Clusters updates. Updated Fixlets are provided based on the service-level agreement with the patch vendor.

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 Solaris download plug-in *(on page 16)*.

> **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 BigFix Knowledge Center.

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

Check that 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.

I'm having problems with the Solaris download plug-in. What should I do?

Locate the `plugin.ini` file from the `C:\Program Files (x86)\BigFix Enterprise\BES Server \DownloadPlugins\SolarisProtocol` directory. Check and confirm that the configurations are properly set in the `plugin.ini` file.

What happens when I do not select an inactive boot environment for Activation before I reboot a computer?

The computer reboots back to the current active boot environment.

I already have the client in some of the boot environments. What happens to them when I install the client from the Manage Solaris Boot Environment dashboard?

To find out what happens to those boot environments, see BigFix client installation behavior *(on page 53)*.

How do I patch boot environments with a baseline?

Use baselines to patch boot environments in the same way that you use baselines to patch computers.

Can I select multiple boot environments for Live Upgrade on a single machine?

Even if you have more than one inactive boot environment on a Solaris machine, you can select only one boot environment for Live Upgrade.

I cannot activate multiple boot environments that are on the same machine. Why is that?

Activating a boot environment makes it bootable on the next reboot of the system. Also, Solaris machines can have only one running boot environment at a time.

I selected multiple boot environments for Live Upgrade. Why are some of the boot environments excluded from the action?

The boot environments that are excluded from an action might not have passed the requirements for that action. Each action has its own set of criteria:

Selecting boot environments for Live Upgrade:

A client must be installed in the boot environment.

Only one boot environment for each computer can be selected for Live Upgrade.

Activating boot environments:

A client must be installed in the boot environment.

The boot environment must first be selected for Live Upgrade before activation.

Only one boot environment for each computer can be activated.

What can I do if an inactive boot environment is selected for Live Upgrade even if it does not have a client installed? Is this scenario even possible?

Yes, this scenario might occur when the **Enable Solaris Live Upgrade** task is deployed on a system with only one inactive boot environment. The task, by default, selects the inactive boot environment for Live Upgrade without checking the existence of a client. If you encounter this scenario, you must install the client from the Manage Solaris Boot Environment dashboard.

Why do I see duplicate computers in the Manage Solaris Boot Environment dashboard?

Computers have different client IDs. When a computer abruptly goes offline and comes back on, a new client ID is assigned to the computer. The console does not recognize the old computer because of its new client ID. It is suggested that you delete the computer with the oldest report time. Complete the following steps:

1. Click **All Content > Computers**.
2. Right-click the computer that you want to delete.
3. Click **Remove from Database**.

What does the Enable Solaris Live Upgrade task do?

When Live Upgrade is enabled, a back-end utility script fetches information from all the boot environments. The information is saved in a plain text format, which can be found in `/var/opt/BESClient/__BESData/__Global/LUdata`.

Where can I find the log files for Live upgrade?

The Live Upgrade log files are in `/var/opt/BESClient/__BESData/__Global/LUdata`. The following log files can be used for troubleshooting:

`SLU.log`

> To verify that the boot environment was successfully enabled for Live Upgrade.

`restart.log`

> To verify that the boot environment was successfully activated.

`<BE_name>_package.txt`

> To verify that the client is already installed in a boot environment. This text file contains the package and version list of the particular boot environment. If the client version is not listed in the file, the client is not installed.

`<BE_name>_patch.txt`

> To verify the list of installed patches.

`<BE_name>_cluster_pre_install.log`

> To verify whether prerequisite patches for a Recommended Patch Cluster are applied.

`<BE_name>_cluster_install.log`

To verify whether a Recommended Patch Cluster installation is successful.

`<BE_name>_CPU_Pre_install.log`

To verify whether prerequisite patches for a CPU are applied.

`<BE_name>_CPU_install.log`

To verify whether a CPU installation is successful.

What do I do if the active boot environment displays a `Null` value in the dashboard?

Run the **Enable Solaris Live Upgrade** task or **Update Boot Environment Information** task, whichever is relevant.

I just switched boot environments, however the new running boot environment is not reporting to the server. What do I do?

1. Check that the client is installed. Run `pkginfo |grep BES` from the command-line interface to check whether the client exists in the boot environment.
2. Check that the client is running. Run `ps -ef | grep -i bes` from the command-line interface to check whether the client is currently running.
3. Check that the `actionsite.afxm` file is in `/etc/opt/BESClient/`.
4. Check that you can ping the server host name. If you cannot ping the server host name, edit `/etc/hosts` and add the IP address and host name in the file.

Why is it taking so long for the Manage Solaris Boot Environment dashboard to refresh after an action was taken?

The time delay might be caused by the multiple processes that are running at the back end. When an action is taken, the utility script gets the changes from the boot environments and stores the information in a text format. The client then sends the data to the server. The server gathers the data by using the analysis, which is read by the dashboard. It usually takes a few minutes for the targeted computers to report back their Action status to the dashboard.

How do I create a local Image Packaging System (IPS) package repository?

For information about how to create an Image Packaging System (IPS) package repository, see the Oracle documentation website at http://docs.oracle.com.

Where can I get the key and certificate files?

You can obtain both files from the My Oracle Support site. For more information, see http://pkg-register.oracle.com.

Are the key and certificate files always in `.pem` format?

Yes, both files are in `.pem` format when you download them from the Oracle Support site. Note: The Solaris Image Packaging System Repository Management dashboard accepts key and certificate files in `.pem` format only.

Should patching Solaris 11 endpoints be done in single-user mode?

Since Live Upgrade is handled by Image Packaging System (IPS), it is not necessary to go to single-user mode. For more information, see http://www.oracle.com/technetwork/server-storage/solaris11/overview/solaris-matrix-1549264.html.

How much space do I need to download and install patches of SRUs?

The space that is needed depends on exactly what is installed on the system. With the SRU patching, the system finds out the missing packages on the system and downloads only the relevant files. Important: Expand the overall cache size for server and relays to downloaded large SRUs to avoid the *"Disk Limited"* error. SRUs can be huge, about 2.7 GB per image file. If you do not expand the cache, the gigantic download might flush out the existing files in the cache.

Does the existing Live Upgrade offer also work for Solaris 11?

No, unfortunately not. The existing Live Upgrade solution works only for Solaris 10.

I am trying to patch my machine, but I have very limited temp space, should I be concerned?

With Image Packaging System (IPS) in Solaris 11, SRUs are not downloaded entirely. The system finds out the missing packages on the system and downloads only the relevant files.

I have a local repository, how do I set it to be used for patching Solaris 11 endpoints?

Use the Solaris Image Packaging System Repository Management dashboard to set a local repository to be used for patching.

I want to patch a Solaris 11 system with the latest SRU, however, I do not have any internet connection. What do I do?

You need to have a local repository where you can bring in the latest SRU image. The endpoint can use that repository instead of connecting internet.

Do I need to run all the tasks to ensure that my local repo is up to date? Or can I run the task with the latest Support Repository Update (SRU)?

You do not need to install all the SRUs. If you want to keep the endpoints up-to-date, install the latest SRU. But if a specific SRU is required on an endpoint, then the repository must host the base repository content and the SRU that you want the endpoint to upgrade to. For example, if you have both Solaris 11/11 and 11.1 endpoints, and you want to keep them up-to-date, then your repository must host the following content:

- Solaris 11 11/11 repo base image + SRU 13.4 (latest SRU)
- Solaris 11 11.1 repo base image + SRU 21.4.1 (latest SRU)

What is the suggested method to patch SRUs? Is it through a local repo or through the support site?

Having a local repository helps with the download speed and network load.

Where can I find the logs for Solaris 11?

The Solaris 11 logs are in `/var/opt/BESClient/IPSData/`. You can use the following log files for troubleshooting patches in Solaris 11.

> ✏️ **Note:** The logs show the latest result of an action from a Fixlet® or task.

`pkg_set_publisher.log`

To verify that the new repository was assigned to an endpoint in the Solaris Image Packaging System Repository Management dashboard.

This log file contains the output from the following command:

```
pkg set-publisher -G '*' -M '*' -g 'THE_NEW_REPOSITORY_URI' solaris
```

Example of a successful message in the `pkg_set_publisher.log` file:

```
Startup: Refreshing catalog 'solaris' ... Done

Startup: Caching catalogs ... Done
```

Example of a failed message in the `pkg_set_publisher.log` file due to invalid repo URI:

```
pkg set-publisher: The origin URIs for 'solaris' do not appear

to point to a valid pkg repository.

Please verify the repository's location and the

client's network configuration.

Additional details:


Unable to contact valid package repository

Encountered the following error(s):

Unable to contact any configured publishers.

This is likely a network configuration problem.

Framework error: code: 6 reason: Couldn't resolve host

'10.1.240.299'

URL: 'http://10.1.240.299' (happened 4 times)
```

`update_repo_sru.log`

To verify that the repository update task was successful. The log file contains information about the various actions: extracting compressed files, mounting images, copying content to the repository, and rebuilding repository indexes.

> ✏️ **Note:** The log does not contain any information if the repository verification fails. The error displays only in the console. You can check *"Show action information..."* on the failed computer.

Example of a successful message in the `update_repo_sru.log` file:

```
Archive:   __Download/p17865983_1100_Solaris86-64.zip

 inflating: /var/p17865983_1100_Solaris86-64/

   readme_11_1_14_5_0.html

 inflating: /var/p17865983_1100_Solaris86-64/

   readme_11_1_14_5_0.txt

 inflating: /var/p17865983_1100_Solaris86-64/

   sol-11_1_14_5_0-incr-repo.iso

sending incremental file list


<STATUS DURING COPYING REPOSITORY CONTENT>


sent 3004537729 bytes  received 1989315 bytes  3418450.31 bytes/sec

total size is 2994859457  speedup is 1.00

Initiating repository rebuild.
```

`pkg_update_entire.log`

To verify that the endpoint was updated with the specified SRU. This log file contains the output from the following command:

```
pkg update entire@PACKAGE_VERSION_FOR_THAT_SRU
```

Example of a successful message in the `pkg_update_entire.log` file:

```
 Startup: Refreshing catalog 'solaris' ... Done
 Startup: Caching catalogs ... Done
Planning: Solver setup ... Done
Planning: Running solver ... Done
Planning: Finding local manifests ... Done
Planning: Fetching manifests:   0/178  0% complete
Planning: Fetching manifests: 100/178  56% complete
Planning: Fetching manifests: 178/178  100% complete
Planning: Package planning ... Done
Planning: Merging actions ... Done
Planning: Checking for conflicting actions ... Done
Planning: Consolidating action changes ... Done
Planning: Evaluating mediators ... Done
Planning: Planning completed in 41.85 seconds
            Packages to remove:   1
          Packages to install:   3
           Packages to update: 175
          Mediators to change:   1
```

```
        Create boot environment: Yes
Create backup boot environment:  No


Download:     0/10018 items   0.0/328.8MB  0% complete
Download:   253/10018 items   15.3/328.8MB  4% complete (3.4M/s)
Download:   650/10018 items   31.4/328.8MB  9% complete (3.2M/s)
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Download: 7938/10018 items  257.2/328.8MB  78% complete (4.1M/s)
Download: 9311/10018 items  310.0/328.8MB  94% complete (6.6M/s)
Download: Completed 328.80 MB in 54.30 seconds (6.0M/s)
```

Example of a failed message in the `pkg_update_entire.log` file that is due to unavailable SRU content in the repository:

```
Startup: Refreshing catalog 'solaris' ... Done
pkg update: 'entire@0.5.11-0.175.1.1.0.4.0' matches
  no installed packages
```

pkg_deployment_results.log

To verify that a package was installed successfully by using the **Install packages by using pkg** task. This log file contains the output from either of the following commands:

```
pkg install <package_name1> <package_name2>


pkg update
```

Example of a successful message in the `pkg_deployment_results.log` file:

```
oot@solaris11-1-ips-repo:/var/opt/BESClient/IPSData#
     cat pkg_deployment_results.log
2 Test Install Success: pkg install -n
2 ____ php-52
2 Test Install Success: pkg install -n -q --no-refresh
2 ____ php-52
2 Install Success: pkg install
2 ____ php-52
2 Install Success: pkg install -q --no-refresh
2 ____ ipython-26
```

Example of a failed message in the `pkg_deployment_results.log` file:

```
2 Test Install Failure: pkg install -n - Error:

2 ____ pkg install: Illegal FMRI 'fmri://web/curl':

     Invalid Package Name: fmri://web/curl

2 ____ Failed to install the following packages:

2 ____ fmri://web/curl
```

What is the difference between the Fixlet® content found on the *"Patches for Solaris"* and *"Patches for Solaris Live Upgrade"* sites?

The **Patches for Solaris** site includes legacy Solaris 10 and earlier core OS patch content. It uses the older traditional single-user mode for applying patches for CPU and Recommended Patch Clusters. The **Patches for Solaris Live Upgrade** site includes patch content that uses the Solaris Live Upgrade utility to install patches to an inactive boot environment rather than the currently running OS. The content of the site includes Security Patches, Recommended Patches, Recommended Patch Clusters, and Critical Patch Updates.

I have deployed a CPU patch to an inactive BE using the Fixlet® in the *"Patches for Solaris Live Upgrade"* site. Without rebooting, it looks like that the same CPU patch found in the *"Patches for Solaris"* site still displays as relevant. Why is that?

The relevance for a particular patch in those two sites are different. The Fixlets in the **Patches for Solaris Live Upgrade** site patch the inactive boot environment, while the Fixlets in the **Patches for Solaris** site patch the running boot environment. Without rebooting the inactive boot environment, the current status of the active boot environment remains. One possible reason why the patch still shows as relevant is because the active boot environment might have not been patched with the same CPU.

How do I configure zones?

For information about configuring a non-global zone, see the *Oracle System Administration Guide* at http://docs.oracle.com/cd/E19044-01/sol.containers/817-1592/z.conf.start-29/index.html.

What makes it possible for a Fixlet® to be patched on a specified zone?

The Fixlet® uses the `patchadd -G` option to apply the patch to the current zone. For more information about the `patchadd` option, see http://docs.oracle.com/cd/E19253-01/816-5166/patchadd-1m/index.html

What do I need to do before removing a patch from a zone?

Ensure that the patch is not required by other installed patches and that a backup of the original patch files exist. Failure to do so might cause the rollback action to fail and consequently the patch remains installed in the zone.

Where is the rollback log located?

Use the `rollback.log` file found in `/var/opt/BESClient/__BESData/Patches for Solaris/__PatchRollback/`.

How can I tell if a Solaris patch or Fixlet® content supports zone patching?

Check the information file of the Solaris patch to see what the `SUNW_PKG_ALLZONES` variable is. If the patch package is set to true, this means that Oracle forces the installation to all zones (global and non-global zones). The Fixlet® content for such a patch has only one installation action. If the patch package is set to false, the installation can occur in either the global or non-global zone. The Fixlet® for such a patch contains two installation actions.

How can I install custom packages that are on the local repository?

You can use the **Install packages by using pkg** task from the **Patches for Solaris 11** site:

For more information, see Deploying Solaris packages *(on page 35)*.

Can I install several custom packages by using the installation tasks?

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

Can use the Install packages by using pkg task to install a package from a single file?

Single files are installed by using the pkgadd command. The **Install packages by using pkg** task supports the pkg command only.

What are the possible causes for the Install packages by using pkg task to fail?

The possible causes of failure are:

- No repository was configured.
- No repository was registered to the endpoints
- No internet connection is available on the endpoints.

I used the Install packages by using pkg to install packages. How do I verify if they were installed successfully?

You can use the **Image Packaging System Results** analysis to verify whether the packages that were installed by using the **Install packages by using pkg** task were successfully installed on endpoints.

The Image Packaging System Results analysis did not return anything. Why is that?

You must deploy the **Install packages by using pkg** task at least once to create the `pkg_list.log` file on the endpoint. This file stores all the installed packages on the endpoint and is used by the **Image Packaging System Results** analysis.

Where can I find the log files for breaking and re-mirroring disk mirrors?

Both the `break_mirrors.log` and `re_mirrors.log` files are located in the folder `/var/opt/BESClient/ EDRDeployData`.

After splitting the root disk mirrors, how can I re-mirror them?

You can use the **Re-mirror Solaris disks** task from the **Patches for Solaris** site to put the submirrors or disks back online. For more information about the commands used in the task, see http:// docs.oracle.com/cd/E23824_01/html/821-1462/metattach-1m.html.

What types of mirror are supported in the Break Solaris mirrors task?

The **Break Solaris mirrors** task can break the following UFS mirrors: root (`/`), `/var`, `/opt` and `/usr`. ZFS file system or VxVM based mirrors are not supported.

How many submirrors can a mirror contain?

You can create a mirror of up to three submirrors or disks. For more information, see the *Solaris Volume Manager Administration Guide* at http://docs.oracle.com/cd/E19253-01/816-4520/.

I tried to patch my inactive ZFS boot environments, but none of the Fixlets in the *"Patches for Solaris Live Upgrade"* **are relevant. What do I do?**

When using Solaris Live Upgrade, you can mount a maximum of two ZFS boot environments at the same time. If more than two ZFS boot environments are mounted, the Fixlet® relevance evaluation fails. If you encounter this issue, complete the following steps:

1. Check if the **Enable Solaris Live Upgrade** task (ID #2) is relevant to the endpoint.
2. Check and delete the `/.alt.<BE_Name>` folder on the endpoint.
3. Check the `mount` and `zfs list` result, and restart the computer to reset the mount points for the zone file system.
4. Run the **Enable Solaris Live Upgrade** task (ID #2) on the endpoint.

Why do I need to run the Check Available Package Updates - Solaris 11 task before activating the Endpoint Upgrade List - Solaris 11 analysis?

The task generates an output file named `pkg_upgrade_output.txt` that is stored in the folder `/var/opt/BESClient/IPSData/`, which is used by the analysis to display the list of endpoints that need to be upgraded. If you do not run the task at least once, the analysis will indicate that the file does not exist. To ensure that the analysis is displaying the latest content, run the task.

Do I need to run the Check Available Package Updates - Solaris 11 task before viewing the Endpoint Upgrade List - Solaris 11 analysis?

Yes, run the task before viewing the results from the analysis. Running the task periodically ensures that you gather the latest content.

The Endpoint Upgrade List - Solaris 11 analysis displays that one of the endpoint's Output Files cannot be parsed. What happened?

The `pkg_upgrade_output.txt` file that is stored in the folder `/var/opt/BESClient/IPSData/` might be corrupted. Complete the following steps:

1. Check and follow the instructions in the `pkg_upgrade_output.txt` file.
2. Run the **Check Available Package Updates - Solaris 11** task again to execute the `pkg update -n` command and overwrite the existing `pkg_upgrade_output.txt` file.
3. Check the analysis again.

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