

**BigFix
Patch for AIX User's Guide**



Special notice

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

Edition notice

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

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Chapter 1. Overview

BigFix Patch for AIX® provides unified, real-time visibility, and enforcement to deploy and manage patches to all endpoints from a single console. BigFix Patch keeps your AIX clients current with the latest packages, service packs, and fixes.

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

What's new in this update release

BigFix Patch for AIX provides several features and enhancement in this application update.

Table 1. What's new

Feature or Enhancement	Description	Resources
IBM Java support	BigFix Patch for AIX® extends its support for IBM Java across the supported AIX versions. Fixlets are available for the following IBM Java versions: <ul style="list-style-type: none">• IBM Java v6.0• IBM Java v7.0• IBM Java v7.1• IBM Java v8.0	N/A

Table 2. Previous updates

Feature or Enhancement	Description	Resources
Third-party application support	BigFix Patch for AIX® now supports for the following third-party applications across the supported AIX versions: <ul style="list-style-type: none">• OpenSSH• OpenSSL	Using the download plug-in (on page 20)
NFS Repository Management	The AIX Advanced Deployment Wizard provides you a solution to manage the technology level and service pack fix packs on NFS repositories. This includes features such as pre-caching downloads of the fix packs, verifying,	Network File System support (on page 12) NFS Repository Management overview (on page 67)

Table 2. Previous updates (continued)

Feature or Enhancement	Description	Resources
Multibos support	<p>and deleting of downloaded fix packs on registered NFS repositories.</p> <p>Multibos is an efficient way to apply updates on endpoints that might not have any free alternate disks, but has only one disk available on rootvg. With multibos, you can deploy technology level (TL) or service pack (SP) updates to an endpoint's standby base operating system (BOS) instance without impacting the active BOS instance.</p> <p>Multibos can help manage downtime and risk during an upgrade, ensuring continuous operation of the AIX operating system on the endpoint.</p>	<p>Multibos support (on page 14)</p> <p>Multibos utility overview (on page 58)</p>
AIX Deployment Wizard enhancements	<p>The AIX Deployment Wizard now includes more options for deploying fileset updates to endpoints.</p> <p>You can now specify if you want to update only the previously installed filesets on the endpoint, which means that other filesets that are in the source media are not included in the update.</p> <p>You can also specify whether you want to remove all the interim fixes upon the deployment of an update.</p>	<p>Creating Fixlets for AIX fileset updates (on page 46)</p>
AIX Deployment Health Check Dashboard enhancements	<p>The Deployment AIX Health Check Dashboard includes a listing of all the filesets that are locked, which would prevent a patch from successfully installing on an endpoint.</p> <p>You can check the locked fileset list before deploying any patches so you can cut down your time in troubleshooting for dependencies when a patch failure occurs.</p>	<p>Deployment AIX Health Checks Dashboard overview (on page 17)</p>
Interim fix support	<p>BigFix provides Fixlets for Security Advisories (SA) and High Impact/Highly Pervasive Fixes (HIPER) interim fixes. Use these Fixlets to install interim fixes on AIX endpoints from the BigFix console.</p>	<p>Interim fix support (on page 13)</p> <p>Deploying interim fixes (on page 42)</p>

Table 2. Previous updates (continued)

Feature or Enhancement	Description	Resources
AIX 7.2 support	An upgrade Fixlet for AIX 7.2 Recommended Service Pack (7200-00-01) is released. Inventory-only (audit) Fixlets are also made available for AIX Security Advisories, Critical Fixes, High Impact/Highly Pervasive Fixes and Program Temporary Fixes (PTFs) that are released since the last Maintenance Level Package update.	Supported platforms and updates (on page 10)
AIX Download Plug-in update	The AIX download plug-in is updated to use the Electronic Customer Care (ECC) services to retrieve AIX updates. Using ECC instead of fixget tool provides a centralized access point to access code updates for different IBM systems, which significantly impacts the supported protocols that are utilized for server communication and patch downloads.	Using the download plug-in
NFS support	You can now deploy fileset updates and program temporary fixes (PTFs) from an Network File System (NFS) share. The AIX Deployment Wizard recognizes NFS paths as the source location of these updates therefore allowing you to access the files remotely. Deploying updates from an NFS share shortens the installation time, decreases bandwidth usage, and reduces storage costs.	Creating Fixlets for AIX fileset updates (on page 46) Network File System support (on page 12)
Mirror management	You can break two-way mirrors before creating an alternate disk clone from the AIX Advanced Deployment Wizard. Breaking mirrors before patching is a common practice and is typically in a failback plan. When the patch installation or the upgrade is verified, you can use the Remirror disk back to rootvg task (ID #83) to resume disk mirroring.	Mirror management (on page 11)
Technology level and service pack deployment on existing rootvg clones	You can use the options in the AIX Advanced Deployment Wizard to create a custom content for deploying technology level and service pack updates to an existing rootvg clone.	Deploying technology levels and service packs to a new or existing alternate disk clone (on page 52)
Alternate disk clone creation	You can use the options in the AIX Advanced Deployment Wizard to create an alternate disk clone of the current	Creating a new alternate disk clone (on page 55)

Table 2. Previous updates (continued)

Feature or Enhancement	Description	Resources
Deployment previews	<p>rootvg on targeted AIX systems without deploying any updates to the clone.</p> <p>You can use the options in the AIX Advanced Deployment Wizard to create a Fixlet to run installation previews for technology level or service pack patches for a selected fix pack. The preview can help you identify the installation commands that are used and if there are any missing filesets.</p>	Creating preinstallation verification checks (on page 65)
Fileset rejection	<p>As a rollback feature, you can use the AIX Advanced Deployment Wizard to reject filesets, which are in the applied state, and restore the previous version of the update . You can reject filesets individually or by fix pack. You can also preview the fileset rejection process before actually rejecting any filesets.</p>	Rejecting applied filesets (on page 66)
AIX Deployment Health Check Dashboard	<p>You can use the Deployment AIX Health Check Dashboard to view a listing of all the filesets that are installed on an endpoint and the results of running preview deployments.</p>	Deployment AIX Health Checks Dashboard overview (on page 17)
AIX Advanced Deployment Wizard	<p>The AIX Advanced Deployment Wizard supplements existing patch management content. This wizard provides more functions such as alternate disk operations.</p>	AIX Advanced Deployment Wizard overview (on page 15)
Installation action enhancements	<p>Updates to the installation action that is used by the existing technology level and service pack Fixlets.</p>	
Network Installation Management (NIM) integration	<p>Network Installation Management (NIM) integration that focuses on the patch management features that NIM provides. The following dashboards are available to help run NIM-related tasks in an Endpoint Manager environment:</p> <ul style="list-style-type: none"> • NIM Installation and Setup Dashboard • NIM Management Dashboard 	Network Installation Management (NIM) integration (on page 76)

Supported platforms and updates

BigFix supports multiple versions or releases of AIX and updates that contain fixes for defects or software enhancements.

BigFix Patch supports the latest maintenance or technology level packages and service packs for AIX 5.1, 5.2, 5.3, 6.1, 7.1, 7.2, and 7.3.

All BigFix AIX related contents are available in the **Patches for AIX** site. It contains Fixlets for Technology Level, Service Packs, and Interim Fixes (Security Advisories and High Impact/Highly Pervasive Fixes) for various IBM AIX versions based on the IBM AIX support lifecycle. For more details, see the AIX support lifecycle information at <https://www-304.ibm.com/support/docview.wss?uid=isg3T1012517>. The available Fixlets provide actions to install the upgrade or fix on the endpoints.

The **Patches for AIX** site also contains content for third-party applications such as OpenSSH, OpenSSL, and IBM Java.

Apart from these types of content, BigFix also provides inventory-only Fixlets, also known as "Audit Fixlets" that are released since the last Technology Level update. These Audit Fixlets are for the following content:

- Security Advisories
- Critical Fixes
- High Impact/Highly Pervasive Fixes
- Program Temporary Fixes (PTFs)

In addition, the **Patches for AIX** site contains tasks and analyses that you can use to perform common system administration tasks such as comparing the patch level of a computer with the most currently available fixes. You can view your results in the BigFix console after you activated all analyses.

PeerNest feature on AIX clients

Starting from BigFix Platform Version 9.5.11, if you are using the PeerNest feature on AIX clients, ensure that you increase the disk storage space on non-passive PeerNest peers. For more information about this feature, see [Peer to peer mode](#).

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*.

Mirror management

BigFix Patch provides a way to help with the failback options for your mirror management solution.

Maintaining an active mirrored copy of the rootvg volume on another disk ensures continuous operation of the AIX operating system in an event of a disk failure. It is common practice to break the root disk mirrors before any OS patches are deployed in case issues occur during or after patching.



Note: Only two-way mirror is supported.

The following solutions are provided for managing mirrors before patches are deployed:

Break existing mirrors option in the AIX Advanced Deployment Wizard

Select this option to break two-way mirroring before you deploy any fix packs to the disks. For more information, see [Deploying technology levels and service packs to a new or existing alternate disk clone \(on page 52\)](#).

Re-mirror disk back to rootvg task (ID # 83)

Use this task to re-establish the AIX disks when the patching or the upgrade is complete and verified.

This task becomes relevant only if the disks were broken by using the **AIX Advanced Deployment Wizard**.

Network File System support

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 available Fixlets for Technology Level and Service Pack, which are on the **Patches for AIX** site, provide an option to install the packages from an accessible NFS share. 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.

There are few steps that you must take to use this capability:

1. Build a repository in an NFS accessible location.

Existing repositories can be used (such as a NIM lpp_source resource) if one already exists. If no repository exists, use the NFS Repository Management feature in the AIX Advanced Deployment Wizard. For more information, see [NFS Repository Management overview \(on page 67\)](#).

The AIX Download Cacher can also be used with the `--repo` parameter to build a repository of AIX filesets. For additional instructions on manually running the tool, see [Using the AIX download cacher \(on page 34\)](#).

You can use the following tasks on the same site to run basic NFS configuration:

AIX: Enable NFS Support

Use this task to enable NFS services on targeted AIX endpoints.

AIX: Disable NFS Support

Use this task to disable NFS services on targeted AIX endpoints.

AIX: Add NFS Share

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.

AIX: Remove NFS Share

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.

AIX NFS Service Information

Use this analysis to display the NFS daemon status and list of shares on AIX endpoints.

2. If you used the download cacher, generate a current Table of Contents (.toc) file using the **Generate Fileset Repository TOC File** task (ID #55). Run this task whenever new filesets are added to the repository.
3. Deploy technology level or service pack update by selecting the NFS share option in the selected Fixlet. For more information, see [Deploying technology levels and service packs \(on page 39\)](#).

Interim fix support

Fixlets for interim fixes, which are released through an AIX vulnerability advisory or subscription notification, are available for installation from the BigFix console.

An interim fix (previously called emergency fix) is a temporary solution for defects or known Authorized Program Analysis Reports APARs, which can be used to resolve critical problems until a permanent fix (PTF) becomes available. Interim fixes are tested for functionality and regression before they are made available. However, the scope and configurations are limited, and generally regression is not done in full. Before you install such fixes, ensure that you consider the nature of the issue and the available fix.

BigFix provides Fixlets for Security Advisories (SA) and High Impact/Highly Pervasive Fixes (HIPER) interim fixes for IBM AIX versions that are active in the last three years.

These Fixlets include fixes for the AIX operating system and third-party applications.


BigFix provides two types of Fixlet content to ensure that endpoints are secure and contain the fixes based on an endpoint's APAR applicability. One is mainly for inventory and tracking purposes, which means that it doesn't contain a way to apply the fix. The second type of content provides you a way to automatically apply the fix to the endpoints directly from the BigFix console.

The following table shows the difference between these two types of content.

Table 3. Difference between the audit Fixlet and interim fix Fixlet for SA and HIPER

	Audit Fixlet	Interim Fix Fixlet
Applicability and pre-checks	Includes an applicability check based on the system's current Technology Level and	Includes an applicability check based on the system's current Technology Level and Service

Table 3. Difference between the audit Fixlet and interim fix Fixlet for SA and HIPER (continued)

	Audit Fixlet	Interim Fix Fixlet
	Service Pack. This means that the Fixlet displays as <i>"Relevant"</i> if the APAR is applicable to your system.	Pack, and a preview installation embedded in the Fixlet action. This means that the Fixlet displays as <i>"Relevant"</i> if the APAR is applicable to your system.
Available actions	Provides a link to retrieve more information about the APAR, as well as steps on how to manually create a Fixlet using the AIX Interim Fix Management Wizard.	Provides a mechanism to automatically download the interim fix package (<code>.epkg.z</code> file) from Fix Central to the BigFix server.
	 Note: BigFix does not provide content support for packages with the <code>.rte</code> file extension.	
Categorization	Content are categorized as <i>"Security Advisory"</i> , <i>"High Impact/Highly Pervasive"</i> , and <i>"PTF in Error"</i> .	Content are categorized as <i>"Interim Fix - Security Advisory"</i> and <i>"Interim Fix - HIPER"</i> .
Conflict resolution	Not Applicable	Checks for conflicting interim fixes and provides an option to resolve locked filesets, by removing the previous interim fix, before applying the new interim fix.

Multibos support

You can use multibos to deploy technology level or service pack updates to endpoints with a standby base operating system (BOS) instance without impacting the active BOS instance. By doing so, you can ensure continuous operation of the AIX operating system on the endpoint.

With multibos, you can create two separate bootable instances of the BOS within the same root volume group (rootvg). You can simultaneously maintain these two bootable instances of a BOS. The instance of a BOS that is associated with the booted boot logical volume (BLV) is the active BOS, while the other instance that has not been booted is called the standby BOS. Only two instances of BOS are supported per rootvg.

Use multibos in environments with tight maintenance windows to manage system downtime and risk when upgrading the endpoints.

Requirements

The following are the general requirements and limitations on operating system, space, and logical volumes for multibos:

- The multibos utility is supported on AIX version 5.3 with the 5300-03 Recommended Maintenance package and higher versions.
- The current rootvg must have enough space for each BOS logic volume.
- The total number of copied logical volumes cannot exceed 128. The total number of copied logical volumes and shared logical volumes are subject to volume group limits.

The AIX Advanced Deployment Wizard was enhanced to include a section mainly for the following multibos operations:

- Multibos express task: Creating a BOS and deploying TL or SP updates to it
- Creating a standby BOS
- Deploying TL or SP updates
- Updating the boot list
- Removing a standby BOS

For more information, see [Multibos utility overview \(on page 58\)](#).

Wizards and dashboards

BigFix Patch for AIX provides several wizards to help you create content for basic and advanced patch deployment.

You can create content for basic and advanced patch deployment using BigFix Patch for AIX wizards and dashboards.

AIX Deployment Wizard

Use the AIX Deployment Wizard to deploy fileset updates, service packs, conclusive service packs, or technology levels to AIX systems that have the BigFix client.

Related information

[Creating Fixlets for AIX fileset updates \(on page 46\)](#)

[Creating Fixlets for AIX package updates \(on page 50\)](#)

[Creating Fixlets for firmware updates \(on page 44\)](#)

[Deploying technology levels and service packs \(on page 39\)](#)

[Deploying firmware updates \(on page 45\)](#)

AIX Advanced Deployment Wizard overview

Use this wizard to configure advanced deployment options for the Fixlets on the Patches for AIX site.

Using the AIX Advanced Deployment Wizard, you can complete alternate disk operations, as well as multibos operations for patching the endpoints with a technology level and service pack update.

Alternate Disk operations

- Create a new clone of the current running system to an alternate disk and deploy the technology level and service pack updates to the newly-created clone.
- Deploy technology level and service pack updates to an existing rootvg clone.
- Update the rootvg boot device to identify where the boot device of the current running system is located in the list of boot devices.
- Remove alternate disk volume groups.

Multibos operations

- Create a new standby BOS and deploy the technology level and service pack updates to the newly-created BOS.
- Deploy technology level and service pack updates to an existing standby BOS.
- Update the rootvg boot device to identify where the boot device of the current running system is located in the list of boot devices.
- Remove a standby BOS.

The wizard also provides the following advanced options:

- Preview the installation of the technology level or service pack patches for a selected fix pack.
- Reject filesets that are in the applied state.
- Manage the technology level and service pack fix packs on NFS repositories. This includes features such as pre-caching downloads of the fix packs, verifying, and deleting of downloaded fix packs on registered NFS repositories.

Related information

[Alternate disk utility overview \(on page 52\)](#)

[Deploying technology levels and service packs to a new or existing alternate disk clone \(on page 52\)](#)

[Creating a new alternate disk clone \(on page 55\)](#)

[Updating the rootvg boot device \(on page 56\)](#)

[Removing alternate disk volume groups \(on page 57\)](#)

[Multibos utility overview \(on page 58\)](#)

[Creating a new BOS and deploying patches \(on page 59\)](#)

[Creating a new BOS \(on page 60\)](#)

[Deploying technology levels and service packs to a standby BOS \(on page 61\)](#)

[Updating the rootvg boot logical volume \(on page 63\)](#)

[Removing a standby BOS \(on page 64\)](#)

[Creating preinstallation verification checks \(on page 65\)](#)

[Rejecting applied filesets \(on page 66\)](#)

[NFS Repository Management overview \(on page 67\)](#)

AIX Interim Fix Management Wizard overview

Use the AIX Interim Fix Management Wizard to create custom Fixlets for interim fixes that are not provided by BigFix.

Related information

[Creating Fixlets for interim fixes \(on page 42\)](#)

[Deploying interim fixes \(on page 42\)](#)

[Uninstalling all interim fixes \(on page 43\)](#)

Deployment AIX Health Checks Dashboard overview

Use the Deployment AIX Health Checks Dashboard to view the summary of the installation preview results and the inventory list of filesets on the endpoints in your deployment.

You must subscribe to the **Patches for AIX** site to access this dashboard from the **Dashboards** node of this site.

Before you can use the dashboard, you must activate the following analyses:

- **AIX Preview Deployment Result** (ID #77)
- **AIX Filesets Inventory Result** (ID #80)

To access the dashboard, click the Patch Management domain and click **OS Vendors > IBM AIX > Deployment AIX Health Checks Dashboard**.

The Deployment AIX Health Checks dashboard provides two tabs:

Preview Deployment Results



Note: No data will be displayed until you create a preinstallation check by using the [Preview Deployment](#) feature in the [AIX Advanced Deployment Wizard \(on page 65\)](#).

Ideally, you should run a preview before deploying technology level or service pack updates in your environment. Previews can help to identify potential installation failures without having to run the installation commands. You can use the Deployment AIX Health Checks Dashboard to review and monitor the results for all previews that were deployed from the [AIX Advanced Deployment Wizard \(on page 65\)](#).

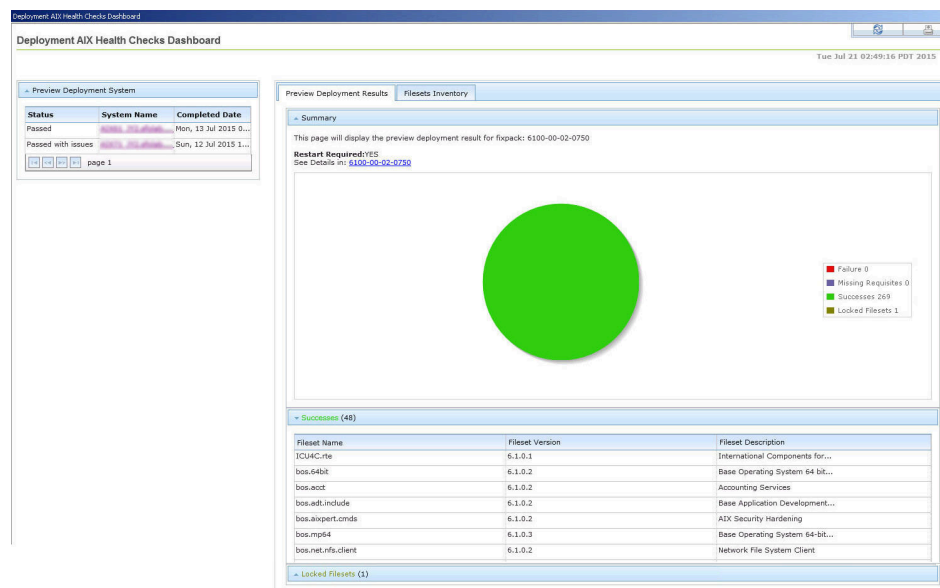
In the summary section of the **Preview Deployment Results** tab, a pie chart shows a visual representation of filesets with the following status and property:

- Failed fileset installations
- Successful fileset installations
- Filesets with missing requisites
- Locked filesets

The dashboard provides a list of names, version numbers, and descriptions for all the filesets that were used in the preview.

You can view the status of the targeted endpoints and the completion date of the preview task from the Preview Deployment System list, which is in the left side of the dashboard. This list also provides the completion date of the preview task.

Figure 1. Preview Deployment Results



Filesets Inventory



Note: If you open this tab for the first time, click **Create Fileset Inventory Action** to gather the inventory result every 24 hours.

In the summary section, you can review all the filesets that are in your deployment in a single view. These filesets are arranged according to their current state and include information such as the name, version number, issue date, and fix pack ID.

You can view the targeted endpoints and the date on which the fileset inventory was last gathered from the Filesets Inventory System list, which is in the left side of the dashboard. To view the latest inventory, click **Create Fileset Inventory Action** or run the **AIX: Generate Fileset Inventory Report** task (ID #81).

Figure 2. Filesets Inventory

The screenshot displays the 'Deployment AIX Health Checks Dashboard' with the 'Filesets Inventory' tab selected. The interface includes a sidebar for system inventory and a main content area with a summary, applied filesets, and committed filesets.

Filesets Inventory System

System Name	Date of Last Inventory
...	Mon, 13 Jul 2015 02:09:41 ...
...	Sun, 12 Jul 2015 18:02:58 ...

Preview Deployment Results | **Filesets Inventory**

Summary

If you open this tab for the first time, click the following button to get the fileset inventory result every 24 hours.

Create Fileset Inventory Action

Applied Filesets (1)

Fileset Name	Fileset Version	Fileset Issued Date	Fix Pack
bos.rte.install	6.1.0.2	07/12/13	6100-00-02-0750

Committed Filesets (548)

Fileset Name	Fileset Version	Fileset Issued Date	Fix Pack
BESClient	9.0.876.0	07/12/15	n/a
DCU4C.rte	6.1.0.0	11/20/12	n/a
Java5.sdk	5.0.0.130	11/20/12	n/a
Java5_04.sdk	5.0.0.150	11/20/12	n/a
TranM_Management_Agent.client.rte	3.7.1.0	11/20/12	n/a
X11.adt.libmaps	6.1.0.0	11/20/12	n/a
X11.adt.libmake	6.1.0.0	11/20/12	n/a
X11.adt.libinclude	6.1.0.0	11/20/12	n/a
X11.adt.lib	6.1.0.0	11/20/12	n/a
X11.apps.aixterm	6.1.0.0	11/20/12	n/a
X11.apps.clients	6.1.0.0	11/20/12	n/a
X11.apps.config	6.1.0.0	11/20/12	n/a
X11.apps.custom	6.1.0.0	11/20/12	n/a
X11.apps.msm2	6.1.0.0	11/20/12	n/a
X11.apps.rte	6.1.0.0	11/20/12	n/a
X11.apps.vrll	6.1.0.0	11/20/12	n/a
X11.apps.xdm	6.1.0.1	11/20/12	6100-00-01-0748,6100-00-02-0750

Chapter 2. Using the download plug-in

The download plug-ins, AIX Plug-in, and AIX Plug-in R2 are executable programs that download a relevant patches directly from the patch vendor. Fixlets use an internal protocol to communicate with the download plug-in to download files. These Fixlets are based on updates made by the vendor.

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



 **Note:** Download plug-ins support basic authentication only.

Table 4. Download Plug-ins for AIX Patching

Download Plug-in Name	Applicable Sites	Content Support
AIX Plug-in	Patches for AIX	Technology Level Service Packs Interim Fixes (Security Advisories and High Impact/Highly Pervasive Fixes)
AIX Plug-in R2	Patches for AIX	Third-party applications (OpenSSH and OpenSSL)

 **Note:** The following URLs should be included in the proxy whitelist to download third party packages using AIX Plug-in R2:

- <https://www.ibm.com>
- <https://www-01.ibm.com>
- <https://mrs-ux.mrs-prod-7d4bdc08e7ddc90fa89b373d95c240eb-0000.us-south.containers.appdomain.cloud>
- https://mrs-sd-prod-api.c8f8f055.public.multi-containers.ibm.com/*
- <https://softwaredownloads-prod.mrs-prod-7d4bdc08e7ddc90fa89b373d95c240eb-0000.us-south.containers.appdomain.cloud>
- https://sd-prod-api.c8f8f055.public.multi-containers.ibm.com/*

The AIX Plug-in utilizes the Electronic Customer Care (ECC) service to retrieve AIX updates. ECC replaces the fixget tool to provide a centralized access point to access code updates for IBM systems. Using ECC instead of fixget has a significant impact on the supported protocols utilized for fix server communication and to download updates.

The BigFix caching mechanism is utilized to download and cache filesets in the BigFix server, allowing them to be reused for later deployment. This approach tremendously saves time from having to download the same set of filesets every time an action is taken against a Fixlet.



Note: You are advised to register the download plug-in services only on the BigFix server and not on the BigFix® relay computers.

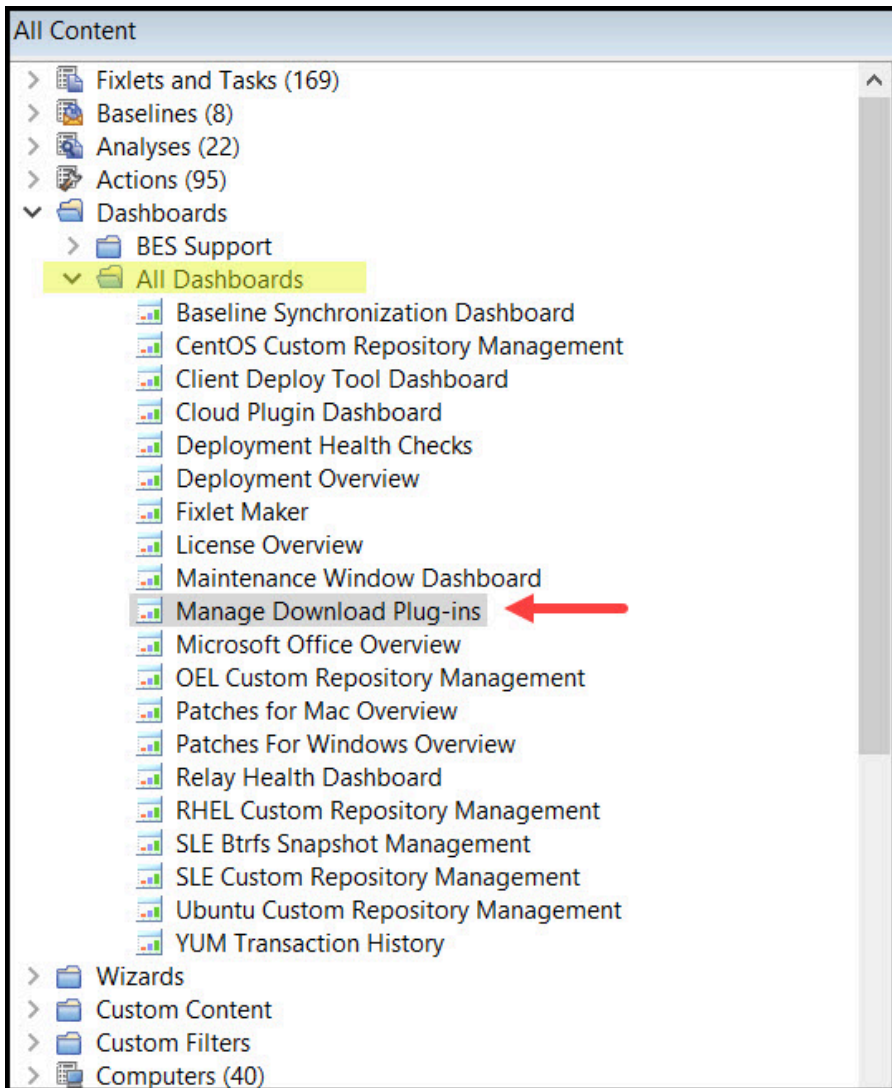
Manage Download Plug-ins dashboard overview

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 3. 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 4. Manage Download Plug-ins dashboard

The screenshot displays the 'Manage Download Plug-ins' dashboard. At the top, there is a header 'Manage Download Plug-ins' and a sub-header 'Manage Download Plug-ins'. Below this, there is a brief instruction: 'You can use this dashboard to manage download plug-ins for different vendor sites on servers and relays. Select a server or relay to view the applicable download plug-ins.'

The main content area is divided into two sections:

- Servers And Relays:** A table with columns: Name, Operating System, Type, and Encryption Enabled. One row is visible: EC2AMAZ-T9TT7P5, Win2019 10.0.17763.1757 (1809), Server, False.
- Plug-ins:** A table with columns: Plug-in Name, Plug-in Version, and Status. The table includes several entries:

Plug-in Name	Plug-in Version	Status
ESX Plug-in	N/A	Not Installed
WAS Plug-in	N/A	Not Installed
FixCentral Plug-in	N/A	Not Installed
SCC Plug-in (SUSE)	N/A	Not Installed
RHSM Plug-in (Red Hat)	N/A	Not Installed
CentOS Plug-in R2	1.0.0.6	Up-To-Date
RockyLinux Plug-in	1.0.0.4	New Version Available
AIX Plug-in R2	N/A	Not Installed

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 AIX download plug-in

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

You must complete the following tasks:

- Subscribe to the **Patching Support** site to gain access to the Manage Download Plug-ins dashboard.
- Activate the **Encryption Analysis for Clients** analysis, which is available from the **BES Support** site.
- Activate the **Download Plug-in Versions** analysis, which is available from the **Patching Support** site.
- If you want to encrypt endpoints, deploy the **Enable Encryption for Clients** Fixlet, which is available from the **BES Support** site.

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

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

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

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

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

The Register AIX Plug-in wizard displays.

Figure 5. Register AIX download plug-in wizard

The figure displays two sequential screenshots of the 'Register AIX Plug-in' wizard. The top screenshot is titled 'Proxy Server Settings' and contains the following text and fields: 'This wizard installs and configures the AIX Plug-in. Existing configurations are overwritten.' followed by 'Proxy Server Settings' and four input fields: 'Proxy URL', 'Proxy Username', 'Proxy Password', and 'Confirm Proxy Password'. The bottom screenshot is titled 'Machine Entitled Details' and contains the following text and fields: 'Please provide the serial number of the machines for which Machine Code update(s) are designated and will be installed (each a Target Machine). The Type Number is a 4-digit number (usually followed by a 3-character Model identifier) printed on the exterior of your IBM system. It may be the first part of an ID labeled Model or System Model ID. The Serial Number is a 7 digit ID labeled S/N on the exterior of your IBM system. Dash ('-') characters may be omitted. The Country selection is based on the location of your IBM system for more information [Click here](#)' followed by three input fields: 'Machine Type*', 'Machine Serial Number*', and 'County Code*'. Both screenshots include 'OK' and 'Cancel' buttons at the bottom right.

5. Enter the proxy parameters and the machine entitled details 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.

Required Parameters:

Country Code

The Country code selection is based on the location of your IBM system.

Machine Serial Number

The Serial number is a 7 digit ID labeled "S/N" on the exterior of your IBM system. Dash ("-") characters may be omitted.

Machine Type

The Type number is a 4-digit number (usually followed by a 3-character Model identifier) printed on the exterior of your IBM system. It may be the first part of an ID labeled "Model" or "System Model" ID.

6. Click **OK**.

The Take Action dialog displays.

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

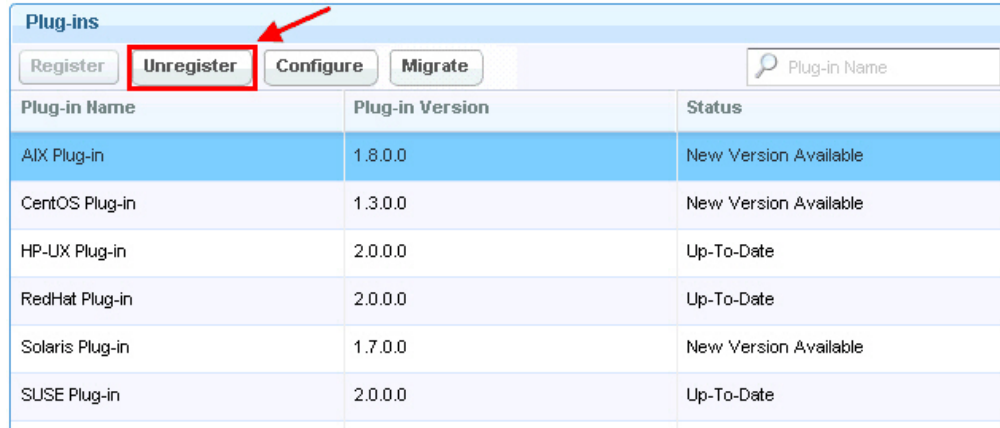
You successfully registered the AIX download plug-in.

Unregistering the AIX download plug-in

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

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

Figure 6. Unregister the AIX download plug-in



Plug-ins				
Register	Unregister	Configure	Migrate	Plug-in Name
Plug-in Name	Plug-in Version	Status		
AIX Plug-in	1.8.0.0	New Version Available		
CentOS Plug-in	1.3.0.0	New Version Available		
HP-LIX Plug-in	2.0.0.0	Up-To-Date		
RedHat Plug-in	2.0.0.0	Up-To-Date		
Solaris Plug-in	1.7.0.0	New Version Available		
SUSE Plug-in	2.0.0.0	Up-To-Date		

The Take Action dialog displays.

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

You successfully unregistered the AIX download plug-in.

Configuring the AIX download plug-in

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

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

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

The Configure AIX Plug-in wizard displays.

Figure 7. Configure AIX download plug-in wizard

Configure AIX Plug-in

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

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

OK Cancel

Configure AIX Plug-in

Machine Entitled Details

Please provide the serial number of the machines for which Machine Code update(s) are designated and will be installed (each a Target Machine). The Type Number is a 4-digit number (usually followed by a 3-character Model identifier) printed on the exterior of your IBM system. It may be the first part of an ID labeled Model or System Model ID. The Serial Number is a 7 digit ID labeled S/N on the exterior of your IBM system. Dash ('-') characters may be omitted. The Country selection is based on the location of your IBM system for more information [Click here](#)

Machine Type*

Machine Serial Number*

County Code*

OK Cancel

5. Enter the proxy parameters and the machine entitled details 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.

Required Parameters:

Country Code

The Country code selection is based on the location of your IBM system.

Machine Serial Number

The Serial number is a 7 digit ID labeled "S/N" on the exterior of your IBM system. Dash ("-") characters may be omitted.

Machine Type

The Type number is a 4-digit number (usually followed by a 3-character Model identifier) printed on the exterior of your IBM system. It may be the first part of an ID labeled "Model" or "System Model" ID.

6. Click **OK**.

The Take Action dialog displays.

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

You successfully configured the AIX download plug-in.

Migrating the AIX download plug-in

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

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

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

Figure 8. Migrate AIX download plug-in wizard

Migrate AIX Plug-in

Migrate plug-ins that are earlier than version 2.0.0.0.
 This wizard migrates the AIX Plug-in and upgrades it to the latest version.
 Existing configuration are overwritten.

Proxy Server Settings

Proxy URL

Proxy Username

Proxy Password

Confirm Proxy Password

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

Proxy URL

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

Proxy Username

Your proxy user name if your proxy server requires authentication. 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.

6. Select the target computer on which the download plug-in is to be upgraded.
7. Click **OK**.

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

Upgrading the AIX download plug-in

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

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 **AIX 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 AIX download plug-in installed.

Registering the AIX Download Plug-in R2

Use the Manage Download Plug-ins dashboard to register the AIX Download Plug-in R2 to install patches for third-party applications such as NTP, OpenSSH, and OpenSSL.

You must complete the following tasks:

- Link your IBM ID to an IBM Customer Number (ICN) that is assigned to a valid contract. You can link multiple ICNs to your IBM ID. For linking instructions, see the steps that described in the announcement at <http://www-01.ibm.com/support/icn/>.



Note: To determine the ICNs associated with your current agreements with IBM, contact your IBM Business Partner or IBM Sales Representative. If you do not have an existing IBM ID or if you require further assistance, see the [IBM Support Portal](#).

- Subscribe to the **Patching Support** site to gain access to the Manage Download Plug-ins dashboard.
- Activate the **Encryption Analysis for Clients** analysis, which is available from the **BES Support** site.
- Activate the **Download Plug-in Versions** analysis, which is available from the **Patching Support** site.
- If you want to encrypt endpoints, deploy the **Enable Encryption for Clients** Fixlet, which is available from the **BES Support** site.

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

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

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



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

3. From the Plug-ins table, select **AIX Plug-in R2**.
4. Click **Register**.
The Register AIX Plug-in wizard displays.
5. Enter your IBM ID and password to download the available updates that you are entitled under an applicable warranty or support agreement.
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 AIX Download Plug-in R2.

Configuring the AIX Download Plug-in R2

Use the Manage Download Plug-ins dashboard to configure the AIX Download Plug-in R2.

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

1. From the Patch Management domain, click **All Patch Management > Dashboards > Manage Download Plug-ins dashboard**.
2. From the Servers and Relays table, select the server on which the download plug-in is to be configured.
3. From the Plug-ins table, select **AIX Plug-in R2**.
4. Click **Configure**.
The Configure AIX Plug-in wizard displays.
5. Enter your IBM ID and password to download the available updates that you are entitled under an applicable warranty or support agreement.



Note: Ensure that you linked your IBM ID to an IBM Customer Number (ICN) that is assigned to a valid contract. You can link multiple ICNs to your IBM ID. For linking instructions, see the steps that are described in the announcement at <http://www-01.ibm.com/support/icn/>.

To determine the ICNs associated with your current agreements with IBM, contact your IBM Business Partner or IBM Sales Representative. If you do not have an existing IBM ID or if you require further assistance, see the [IBM Support Portal](#).

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 AIX Download Plug-in R2.

Unregistering the AIX Download Plug-in R2

Use the Manage Download Plug-ins dashboard to unregister the AIX Download Plug-in R2.

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 **AIX Plug-in R2**.
4. Click **Unregister**.
5. Select the target computer.
6. Click **OK**.

You successfully unregistered the AIX Download Plug-in R2.

Upgrading the AIX Download Plug-in R2

Use the Manage Download Plug-ins dashboard to upgrade the AIX Download Plug-in R2.

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 **AIX Plug-in R2**.
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 AIX Download Plug-in R2 installed.

Chapter 3. Using the AIX download cacher


You can use the AIX download cacher utility to deploy service pack, concluding service pack, or technology level fixes. The download cacher uses HTTP to download specific fix packs. Ensure that HTTP network traffic is not blocked in your environment.

The AIX download cacher tool is a Python executable that automatically downloads and caches AIX technology levels, service packs, or concluding service packs on the Windows BigFix server to facilitate deployment of AIX Fixlets.

 **Note:** The AIX download cacher tool only supports basic HTTP authentication proxy.

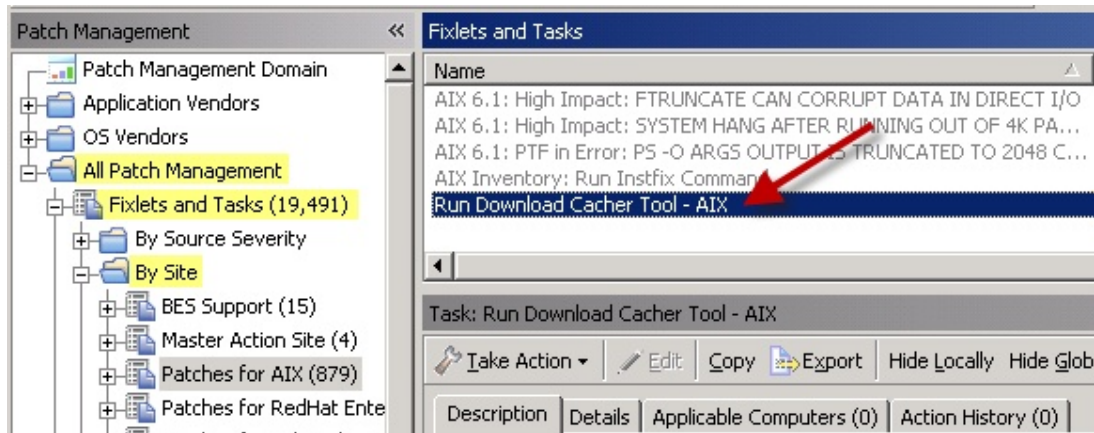
To access the tool from the BigFix console, complete the following steps:

1. Click **All Patch Management > Fixlets and Tasks > By Site > Patches for AIX > Run Download Cacher Tool - AIX**.

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

2. Select the appropriate link in the Actions box to start the download.

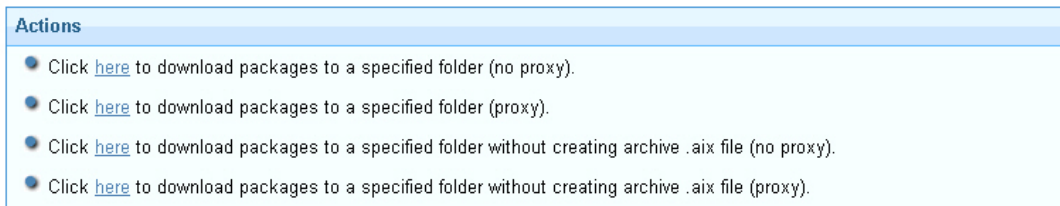
Figure 9. Run Download Cacher Tool - AIX task



To build a directory of filesets that can be used as an NFS source for a fix pack update, use either of these actions:

- **download packages to a specified folder without creating archive .aix file (no proxy)**
- **download packages to a specified folder without creating archive .aix file (proxy)**

Figure 10. Action box of the AIX Download Cacher task



Running the download cacher tool manually

The **Run Download Cacher Tool - AIX** task might require you to enter your proxy server user name and password. If you deploy the action, any action parameter you enter will be accessible in plain text on all client endpoints. Do not deploy the actions unless this behavior is acceptable in your environment. If this presents a security issue, run the Download Cacher tool manually.

To run the AIX Download Cacher manually, do the following steps:

1. Download the BFArchive tool from the BigFix software website at <https://ibm.biz/BdHSUw>.

This tool uses HTTP to download specified fix packs, ensure such behavior is acceptable in your environment.

2. Download the AIX Download Cacher Package Tool from the BigFix software website at <https://ibm.biz/BdHSUt>, and store it in the same directory as the BFArchive tool.

This package consists of the Python executable, JRE, and the Electronic Customer Care (ECC) client.

3. Use the BFArchive Tool to extract the download cacher package tool. Use the following command:

```
<name of the BFArchive tool executable file> -x <source archive> <target directory>
```

For example:

```
BFArchive-win-x86-9.3.1.0.exe -x AIXDownloadCacher.bfarchive c:/AIXDownloadCacher
```

4. To run the AIX Download Cacher tool, you can create a batch file with the listed parameters. If you run the tool without specifying any parameters, you are prompted to enter the parameters at the command line.

A sample `.bat` file:

```
AIXDownloadCacher.exe --dir "C:\SavedFiles" --logdir "C:\logs" --repo "C:\MyAIXRepo"
--proxyserver http://proxy.server.com:8080 --proxyuser myuser --proxypass secretpass
--fixid 6100-08-07-1524
```

Usage:

```
AIXDownloadCacher.exe --dir <directory> --fixid <Fix Pack ID> [optional parameters]
```

Required Parameters:

--dir <path to output directory>

Directory where downloaded files will be saved. This directory is also used for temporary storage of downloaded files before being compressed into a single archived file.

--fixid <Fix Pack ID>

AIX Fix Pack ID or Interim Fix APAR ID to be downloaded. For example, 6100-08-07-1524 or IZ93611.



Note: You must specify the operating system level, technology level, service pack level, and build number in the Fix Pack ID.

--CountryCode <COUNTRY CODE>

The Country code selection is based on the location of your IBM system.

--MachineSerialNumber <MACHINE SERIAL NUMBER >

The Serial Number is a 7 digit ID labeled "S/N" on the exterior of your IBM system. Dash ("-") characters may be omitted.

--MachineType <MACHINE TYPE>

The Type Number is a 4-digit number (usually followed by a 3-character Model identifier) printed on the exterior of your IBM system. It may be the first part of an ID labeled "Model" or "System Model" ID.

Optional Parameters:

--proxyserver <servername:port>

Name and port of proxy server (for example, <http://myproxy.company.com:8080>).

--proxyuser <username>

Proxy username if required by server.

--proxypass <password>

Proxy password if required by server.

--logdir <path to log directory>

Specify the directory to write the log file to. Defaults to the current working directory.

--repo <path to local repository of .bff files>

Specify the location of the local cache to check before attempting to download files from the Internet. Missing files are added to the cache directory if write access is enabled.

--base

Specify the base Technology Level (for example, 6100-00) to use when building the fileset list for the specified fix pack ID. Defaults to the TL of the fix pack. This option is ignored with interim fixes.

--no-archive

Skip creation of `.aix` archive file. The output directory will contain the individual filesets.

--clean

Remove temporary files after each run. Enabling this option disables the ability to resume failed and incomplete downloads. Default behavior is to remove temporary files only after all files for the fileset have been downloaded and a complete archive has been created.

--sha1

Renames the archived `.aix` file to its SHA1 value.

--version

Display version information.

--help

Displays usage information.

Examples:

Download Fix Pack 6100-08-07-1524 through a proxy server using a local repository.

```
AIXDownloadCacher --dir "C:\temp" --fixid 6100-08-07-1524
--proxyserver http://proxy.server.com:8080 --proxyuser myuser
--proxypass secretpass --repo "D:\AIXCache"
```

Download Fix Pack 7100-02-07-1524 for systems already at Technology Level 2, force removal of temp files on failures and rename `.aix` archive file to its SHA1 value.

```
AIXDownloadCacher --dir "C:\temp" --fixid 7100-02-07-1524 --base 7100-02
--clean --sha1
```

Download Fix Pack 6100-08-07-1524 with complete Technology Level without compressing filesets into `.aix` archive file.

```
AIXDownloadCacher --dir "C:\temp" --fixid 6100-08-07-1524 --base 6100-00
--no-archive
```



Notes:

- If you run the tool without specifying any parameters, you are prompted to enter the parameters at the command line.
- The `--sha1` parameter works only with created archive files and is ignored if it used with the `--no-archive` parameter.

Chapter 4. Using BigFix Patch for AIX

Use the Fixlets on the Patches for AIX Fixlet site to apply AIX patches to your deployment.

Fix pack download configuration

Configure the target AIX systems and the BigFix server to download filesets from the internet.

Before you deploy any updates using the internet download option, register the AIX Download Plug-in from the Manage Download Plug-ins dashboard. See [Manage Download Plug-ins dashboard overview](#).

The download plug-in gathers a list of filesets that are included in the specified fix pack and downloads them one at a time. The download plug-in gathers the fix packs at run time.



Note: The download plug-in is not required when you deploy updates through NFS mount.

You can also use the AIX Download Cacher to download fix packs. To enable the AIX Download Cacher to download filesets, deploy the **Run Download Cacher Tool - AIX** task. For more information about the download cacher, see [Using the AIX download cacher \(on page 34\)](#).

Downloading large files from the internet requires large amounts of available disk space on the `/var` partition, where the BES Data directory is located. To accommodate large files from the internet, deploy the following tasks:

AIX: Set Disk Space - BES Data Folder task (ID #57)

AIX sets partition sizes to a predetermined minimum that allows the unused disk space to be dynamically provisioned to various partitions as needed.

This task expands the partition that contains the BigFix client data directory to make enough room for a fix pack to be transferred and extracted.

AIX: Change BES Client Download Limits task (ID #59)

This task extends the default BigFix client limitation for file transfers of 2 GB to allow large file transfers.

AIX: Remove File Size Limit for Root User task (ID #60)

This task removes the default AIX limitation of 1 GB for the allowed file size.



Note: These configuration changes are unnecessary if you are installing over an NFS mount.

Fileset installation states

Fileset installations can be in either an Applied or a Committed state.

The two fileset installation states have the following properties:

Applied

Applied installations create backups of the filesets that are being replaced. These backups can be used to revert updates.

All installation actions, either through released content or custom content that is generated by the **AIX Deployment Wizard**, are done in the applied state.



Note: Reverting technology level updates is not supported by AIX and might have unexpected results.

Committed

Committed installations have no backups and cannot be reverted.

Commit applied installations after confirmation to free up the disk space that is used by the installation backups.

The **Commit Applied Filesets** Fixlet can be used to facilitate the process for the committed state.

Deploying technology levels and service packs

You can deploy technology level and service pack updates through the BigFix released content or the custom content that is generated by the AIX Deployment Wizard.

Complete the following tasks:

- Prior to a Technology Level upgrade or a Service Pack update, install the expect package (5.42 or higher) or the expect.base fileset for AIX 6.1. You can obtain the package from the AIX toolbox download site: <http://www.ibm.com/systems/p/os/aix/linux/toolbox/download.html>.
- If you want to deploy fix packs through the internet download option, register the AIX Download Plug-in. For more information, see [Registering the AIX download plug-in \(on page 23\)](#).
- Ensure that you have sufficient amount of disk space on the /var partition to accommodate large files. Use the available tasks to set any size or space limitations. For more information, see [Fix pack download configuration \(on page 38\)](#).
- For BigFix version 8.1 and earlier, run the **Determine OS Level** Fixlet.

AIX determines the operating system level by comparing the installed filesets to a list of known Authorized Program Analysis Reports (APARs).

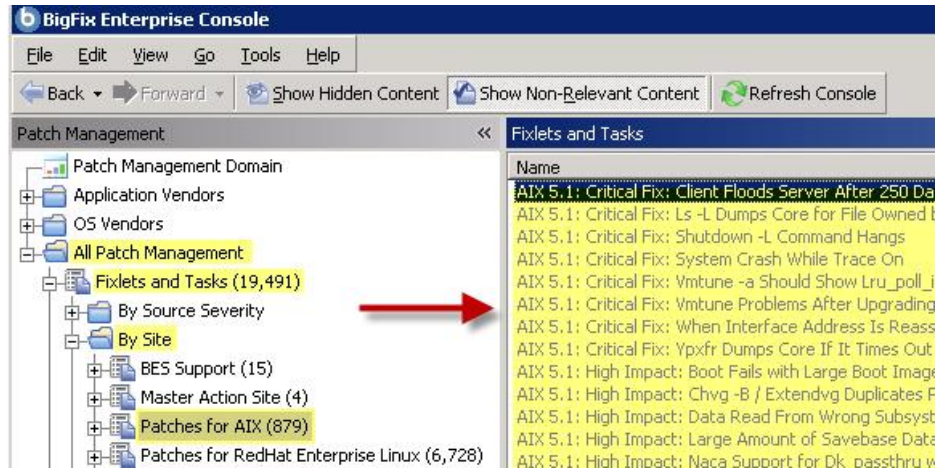
Use the NFS method to use a local repository as the source of the filesets for the fix pack to be installed. This method enables faster installations and uses less bandwidth.

- To deploy fix packs through the released content, either through the internet download option or through an NFS mount, complete the following steps:

1. From the BigFix console, click **All Patch Management > Fixlets and Tasks > By Site > Patches for AIX**.

A list of Fixlets is displayed.

Figure 11. Fixlet list panel view



2. Select a Fixlet to deploy a technology level or service pack update from the list.

For this example, the Fixlet *AIX 5.3: Recommended Service Pack 5300-11-04* was selected.

Figure 12. Sample Fixlet

ID	Name	Site
530929	AIX 5.3: Recommended Service Pack 5300-11-04	Patches for AIX
530930	AIX 5.3: Recommended Technology Level Package 5300-12	Patches for AIX

Fixlet: AIX 5.3: Recommended Service Pack 5300-11-04

Take Action Edit Copy Export Hide Locally Hide Globally Remove

Description Details Applicable Computers (0) Action History (0)

want to save this file, please rename or move the file before taking this action.

Important Note: This Fixlet message will fail if there is not enough free disk space in the BES Data folder. If necessary, please apply Fixlet message 7 to ensure that the filesystem containing the BES Data folder has sufficient space to accommodate this Package before deploying the action below.

Note: The NFS actions will set the NFS options "nfs_use_reserved_ports" and "portchecker" to a value of 1 for the duration of this action.

Note: Installs via NFS require a current Table of Content (.toc) file in the repository. The task "Generate Fileset Repository TOC File" (ID 55) can be used to create a new .toc file for the source repository if necessary.

Note: This Fixlet message will not become relevant if the "Determine OSLevel" Fixlet message (ID 6) has not been run.

Note: This Fixlet message will not become relevant unless the build date for this update is greater than the build date of the current OS Level on the target computer.

Note: Affected computers will report back as 'Pending Restart' once the patch has run successfully, but will not report back their final status until the affected computer is restarted.

Actions

- Click [here](#) to deploy this Service Pack.
- Click [here](#) to deploy this Service Pack via NFS mount.
- Click [here](#) to deploy this Service Pack with the Technology Level.
- Click [here](#) to deploy this Service Pack with the Technology Level via NFS mount.
- Click [here](#) to view more information from IBM.

3. Review the text in the **Description** tab.
4. Click the appropriate link in the Actions box to start the deployment.
5. **Optional:** If you decide to deploy the fix packs on NFS mount, you must enter the full path to NFS repository (for example, "myServer:/AIX/fileset_repo" myServer:/Local/Repo).



Note: If you used the AIX Advanced Deployment Wizard to download the fix packs, you can copy the exact NFS Path to the location of a fix pack from the **Manage Cached Fix Packs on a Registered AIX NFS Repository** tab.

- To deploy patches through custom content, you must create the Fixlet or a custom action by using the **AIX Deployment Wizard**.

For more information about how to use the wizard, see [Creating Fixlets for AIX package updates \(on page 50\)](#).



Note: This deployment method provides an extra layer of security by prompting you to manually provide authentication credentials.

Creating Fixlets for interim fixes

Use the AIX Interim Fix Management Wizard to create Fixlets to install customized interim fixes on AIX systems.

Before you can deploy the patches, you must download the interim fixes from the AIX website. The Authorized Program Analysis Reports (APAR) provides a link to where you can download the interim fix if one is available.

You can use the AIX Download Cacher to download interim fixes. For more information, see [Using the AIX download cacher \(on page 34\)](#).

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Interim Fix Management Wizard**.
2. Click **Install**.
3. Enter where the interim fixes are located.

You can provide this information in one of the following ways:

- Download from URL
- File
- Folder



Note: All interim fixes must have an `.epkg.z` file extension.

4. Click **Next**.
5. Select the relevant platforms and customize the fields as necessary.
6. Select the check box if you want to create a one-time action rather than a reusable Fixlet.
7. Click **Finish**.
8. Deploy the action.

To view the results of the deployment, activate the **AIX Interim Fixes** analysis (ID #43). This analysis displays only installed interim fixes on a per-system basis.

Deploying interim fixes

BigFix provides Fixlets for interim fixes that are released through an AIX vulnerability advisory or subscription notification. You can deploy these Fixlets to install interim fixes to endpoints. For customized interim fixes, you can use the AIX Interim Fix Management Wizard to create custom Fixlets for deployment.

Ensure the systems have internet access. Otherwise, the interim fix download will fail.

- To install an interim fix through the BigFix released content, complete the following steps:

1. From the BigFix console, click **All Patch Management > Fixlets and Tasks > By Site > Patches for AIX**.

A list of Fixlets is displayed.

2. Select a Fixlet to deploy an interim fix installation from the list.

You can filter the Fixlet and Task list by using any of these categories: *Interim Fix - HIPER* or *Interim Fix - Security Advisory*.

The Fixlet title for all interim fixes is formatted as follows (in one line):

```
AIX <version number for OS specific ifix>: Interim Fix -
<HIPER or Security Advisory>: <Vulnerability name>
(<interim fix file name in .epkg.Z>)
```

For example, AIX 7.1: Interim Fix - Security Advisory: Vulnerability in NTPv3 affects AIX (IV74262s6a.150714.epkg.Z).

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

- To deploy patches through custom content, you must create the Fixlet or a custom action by using the **AIX Interim Fix Wizard**.

For more information about how to use the wizard, see [Creating Fixlets for interim fixes \(on page 42\)](#).

To view the results of the deployment, activate the **AIX Interim Fixes** analysis (ID #43). This analysis displays the installed interim fixes on a per-system basis.

Uninstalling all interim fixes

Interim fixes lock their target filesets to prevent any changes to the filesets while the interim fix is installed.

- To uninstall all interim fixes by using the **Uninstall All Interim Fixes** Fixlet, complete the following steps:
 1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > Maintenance**.
 2. Click **Uninstall All Interim Fixes** (ID #63).
 3. Deploy the action.
- To uninstall all interim fixes by using the **AIX Interim Fix Management Wizard**, complete the following steps:
 1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Interim Fix Management Wizard**.
 2. Click **Uninstall**.
 3. Click **Uninstall all interim fixes**.

4. Click **Finish**.
5. Deploy the action.



Note: You can use the **AIX Interim Fix Management Wizard** also to remove individual interim fixes.

Creating Fixlets for firmware updates

You can use the AIX Deployment Wizard to deploy packages for firmware updates, which are also known as microcode updates, on endpoints that are not managed by IBM Hardware Management Console (HMC). These updates can be in either `.rpm` or `.iso` format.

To deploy firmware updates from the AIX Deployment Wizard, you must first obtain the updates that you want from Fix Central.



Note: Currently, BigFix does not provide any tools to help download firmware updates.

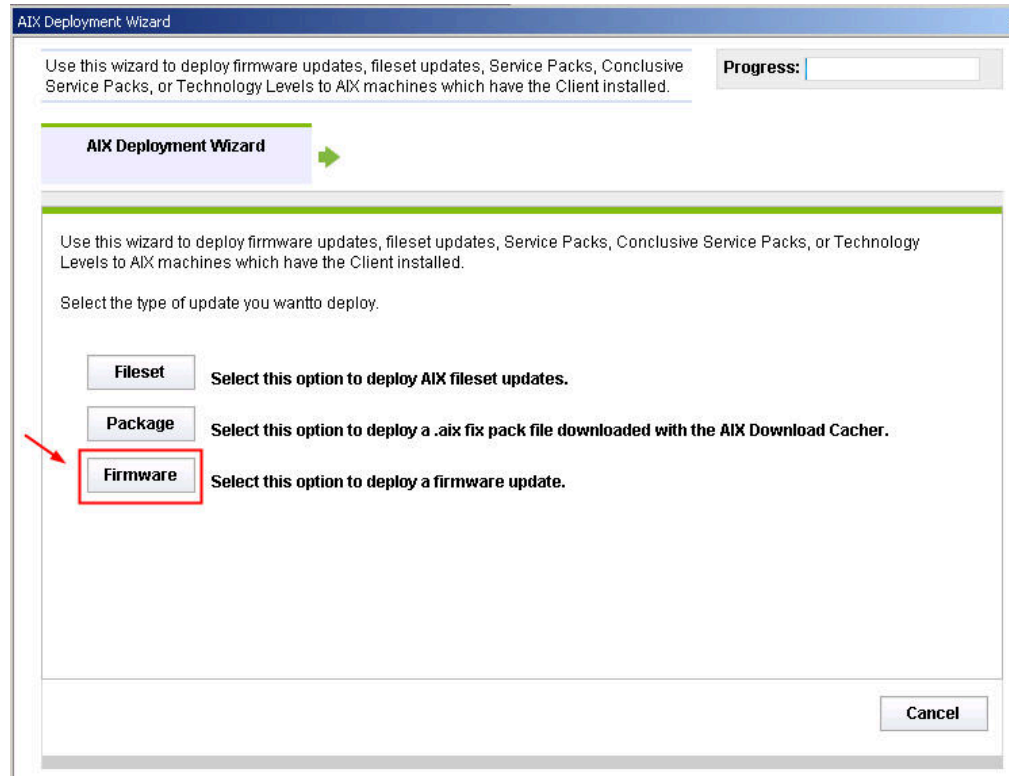


CAUTION: Do not rename any of the downloaded files. The AIX Deployment Wizard uses the file name when it attempts to parse the new firmware version information.

Firmware updates are applied to the hardware firmware. The resulted one-time action or Fixlet from this task can be used to deploy firmware updates only on endpoints that are not managed by HMC. If a system is managed by HMC, you must apply the firmware through the management console.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Deployment Wizard**.
2. Click **Firmware**.

Figure 13. Firmware option in the AIX Deployment Wizard



3. Enter the location of the AIX package that you want to deploy.
4. Select the check box if you want to create a one-time action rather than a reusable Fixlet.
5. After you set the necessary parameters, click **Finish**.

After completion, the generated one-time action or Fixlet displays in the BigFix console. You can use it to deploy the AIX firmware update to the relevant computers.

Activate the **AIX Firmware Level** analysis, which reports the permanent and temporary firmware versions and the system version that it is running on (temporary or permanent).

Related information

[Deploying firmware updates \(on page 45\)](#)

Deploying firmware updates

You can deploy firmware updates, also known as microcode updates, by using the custom content that was created by the AIX Deployment Wizard.

Run the **Determine Firmware Level** task and enable the **AIX Firmware Level** analysis (ID # 74) on all target AIX systems. The task collects firmware version information, which is used to identify the relevant systems. This task

remains relevant to all AIX systems, providing the option to update system firmware information as often as might be required. No firmware related content becomes relevant until you run this task.



Note: The firmware information is updated automatically as part of each BigFix® generated firmware deployment. You do not need to run the **Determine Firmware Level** task after deploying firmware updates with BigFix content.

After creating a one-time action or Fixlet for a firmware update, you deploy it to the relevant computers. For information about creating custom content, see [Creating Fixlets for firmware updates \(on page 44\)](#).

1. From the BigFix console, navigate to where the custom content is located.
2. Select a firmware update Fixlet.
3. Review the text in the **Description** tab.
4. Click the appropriate link in the Actions box to start the deployment.

Firmware updates are deployed to the temporary side of the service processor.

Use the **Restart Computer** task (ID# 62) to restart the system, and then verify the installation of the fix. After you verify that the installation of the firmware version is successful, commit the firmware fix by using the **Commit Firmware Fix Permanently** Fixlet. This action might take several minutes to run.



Attention: When an update is committed to the permanent side, it cannot be undone.



Note: Rejecting a firmware update requires physical interaction with the target servers and cannot be performed using BigFix.

Creating Fixlets for AIX fileset updates

You can use the AIX Deployment Wizard to deploy fileset updates and program temporary fixes (PTFs).

Before you use the wizard to deploy fileset updates, obtain the filesets that you want from the IBM website.



Note: The fileset names must be unique and not contain mixed cases. If the files contain the same name with mixed cases, you must rename these files before importing them into the wizard.

You can access the AIX fixes from the following link: <http://www-933.ibm.com/support/fixcentral/?productGroup0=ibm/systemp&productGroup1=ibm/aix>

For detailed instructions about using the IBM software support website, see the following technote: <http://www-01.ibm.com/support/docview.wss?uid=swg21505749>.

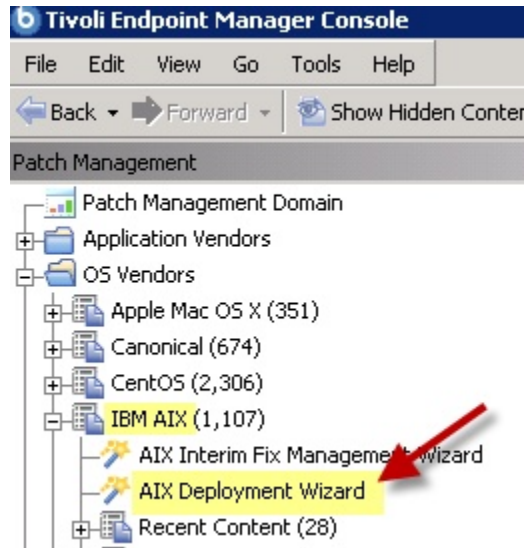
To deploy PTFs, you must identify the technology level for which you are downloading the PTF to reduce the size of your download.

AIX service pack and technology level updates are developed, tested, and released as fix pack bundles. They are intended to be installed as full bundles rather than as individual filesets.

You can use `.bff` files to create Fixlets for fileset updates or PTFs. Some AIX fixes might have a different format. For example, the fix packs for IBM SDK, Java Technology Edition uses the `.sdk` format. To allow the AIX Deployment Wizard to use the fix, rename its extension to `.bff` file. For example, rename `Java6.sdk` to `Java6.sdk.6.0.0.495.bff`.

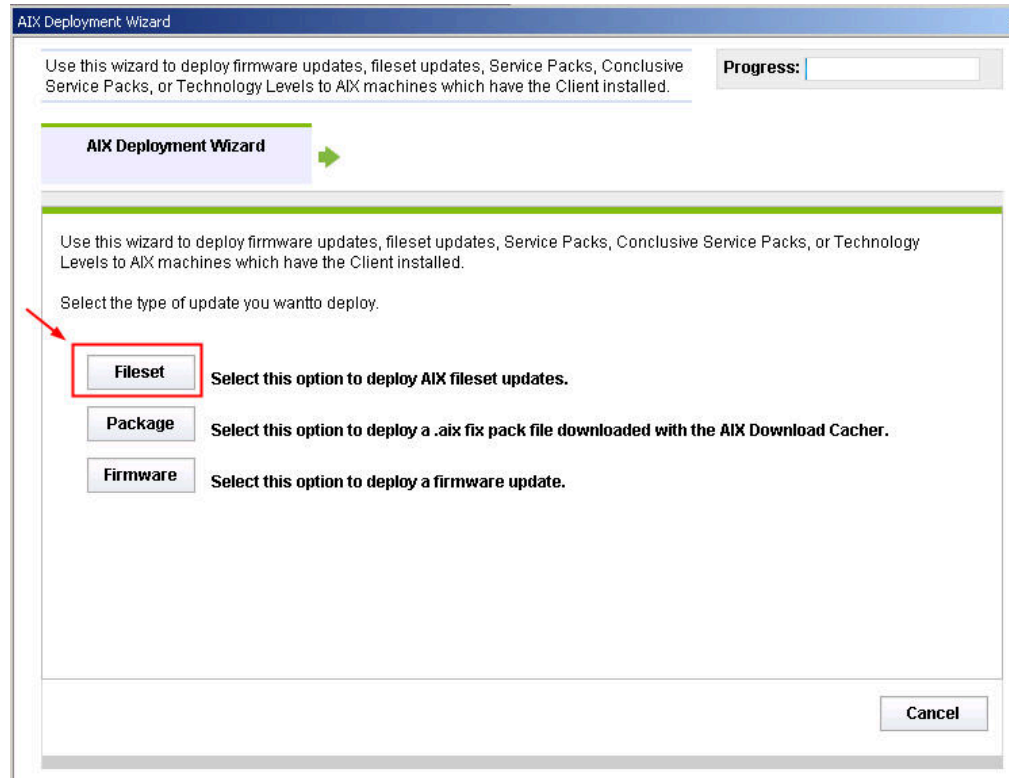
1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Deployment Wizard**.

Figure 14. The AIX Deployment Wizard from the navigation tree



2. Click **Fileset** to deploy AIX fileset updates.

Figure 15. Fileset option in the AIX Deployment Wizard



3. Enter the location of the filesets.

You can provide this information by using the following options:

- Download from URL



Note: Ensure that you have sufficient amount of disk space on the /var partition to accommodate large files. Use the available tasks to set any size or space limitations. For more information, see [Fix pack download configuration \(on page 38\)](#).

- File (for a single fileset)
- Folder (for multiple filesets)
- Network File System (NFS) path



Note: For more information about running basic NFS configuration, see [Network File System support \(on page 12\)](#).

4. Click **Next**.

5. Select the relevant platforms and customize the text fields as necessary.

6. Select the appropriate check box to update only the filesets that are already installed on the endpoint, which are available in the source media.

The `install_all_updates` command is used to perform the update.

Filesets that are present on the media source, but are not installed on the endpoint will not be considered for the update except in following situations:

- The new filesets are installed as requisites of other filesets.
- The `/var/adm/ras/bosinst.data` filesets `ALL_DEVICES_KERNELS` to `yes`.



Note: If the check box is not selected, the wizard will update all the latest filesets that are included in the media source with the `geninstall` command.

7. Select the appropriate check box to remove all the interim fixes that are installed on the endpoint before deploying the fileset updates.



Note: Starting in AIX 5.3 TL 10 and AIX 6.1 TL 3, interim fixes are removed from the system when the PTF that you are installing already provides the official fix for the issue. However, there might be exceptions when the interim fixes are not removed. In such cases, use the option to remove all the interim fixes before deploying the updates.

8. Select the appropriate check box to create a one-time action rather than a reusable Fixlet.

9. **Optional:** Select the appropriate check box to create a preview-only action.

This preview runs the pre-installed verification checks. The results of those checks are available in the **AIX Pre-Install Verification Results** analysis.

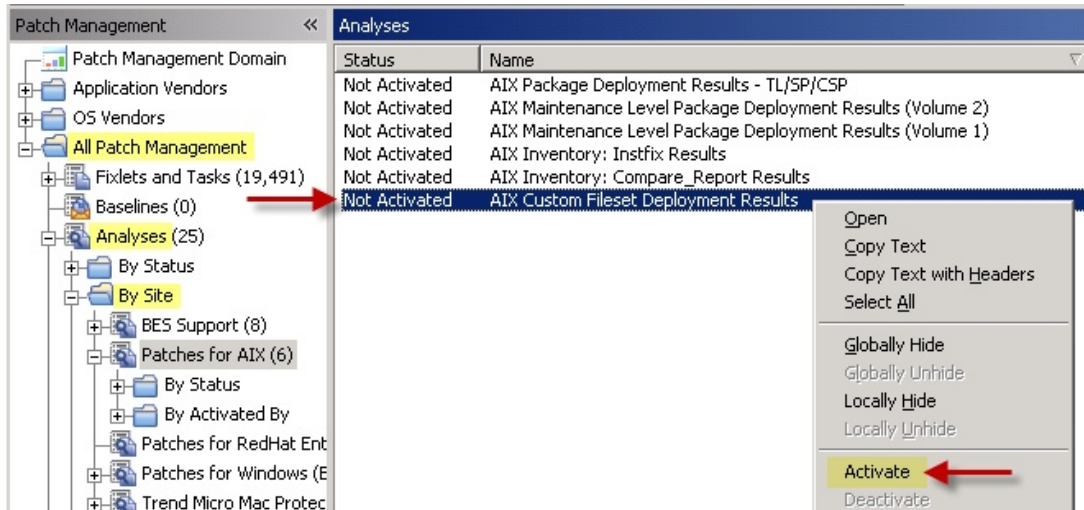
10. After you set the necessary parameters, click **Finish**.

After completion, the generated one-time action or Fixlet displays in the BigFix console. You can use it to deploy the AIX update to the relevant computers.

To view detailed information about the results of deploying your AIX fileset update, activate the **AIX Custom Fileset Deployment Results** analysis (ID #22).

Click **All Patch Management > Analyses > By Site > Patches for AIX > AIX Custom Fileset Deployment Results > Activate**.

Figure 16. Activating the AIX Custom Fileset Deployment Results analysis



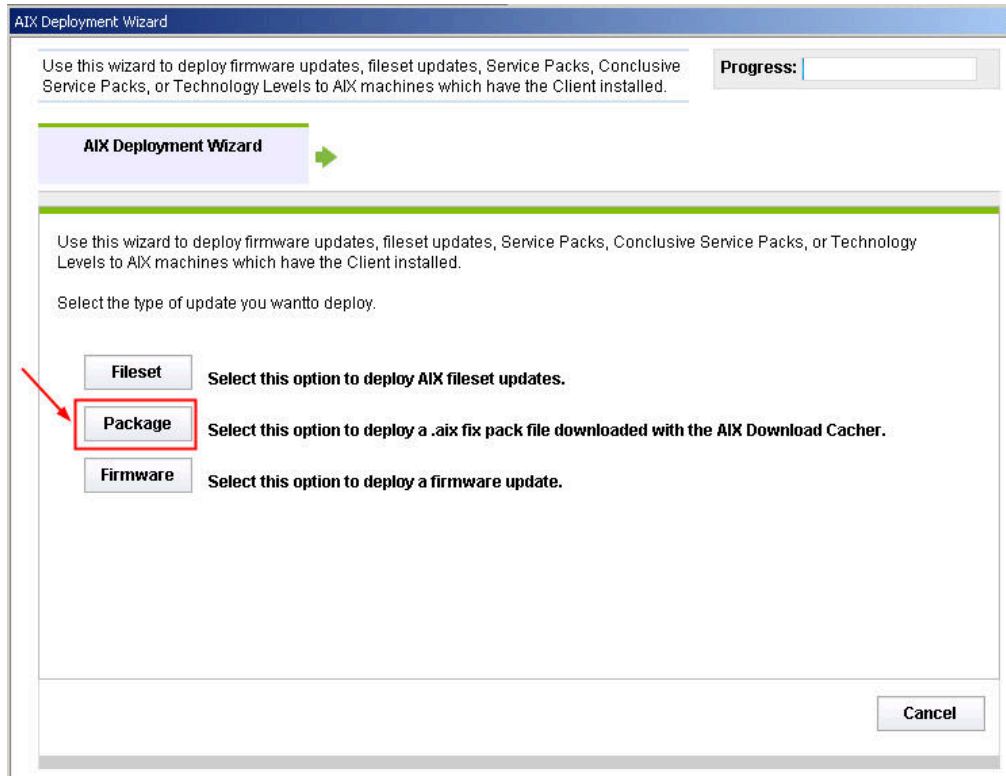
Creating Fixlets for AIX package updates

You can use the AIX Deployment Wizard to deploy packages for service packs, including service packs, and technology levels.

Before you use the wizard to deploy package updates, obtain the updates that you want from the IBM website by using the download cacher. For more information, see [Using the AIX download cacher \(on page 34\)](#).

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Deployment Wizard**.
2. Click **Package**.

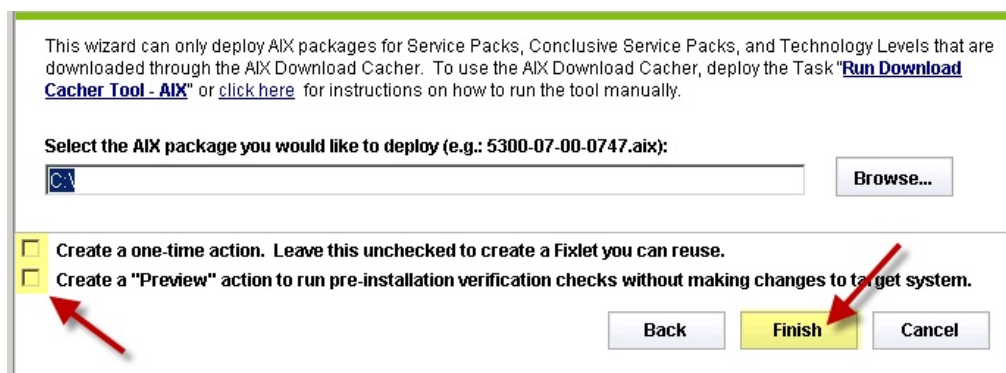
Figure 17. Package option in the AIX Deployment Wizard



3. Enter the location of the AIX package that you want to deploy.
4. Select the check the box if you want to create a one-time action rather than a reusable Fixlet.
5. **Optional:** You can also select the other check box to create a preview-only action.

This preview runs the pre-installed verification checks. The results of those checks are available in the **AIX Pre-Install Verification Results** analysis.
6. After you set the necessary parameters, click **Finish**.

Figure 18. Finishing the configuration for AIX package updates



After completion, the generated one-time action or Fixlet displays in the BigFix console. You can use it to deploy the AIX update to the relevant computers.

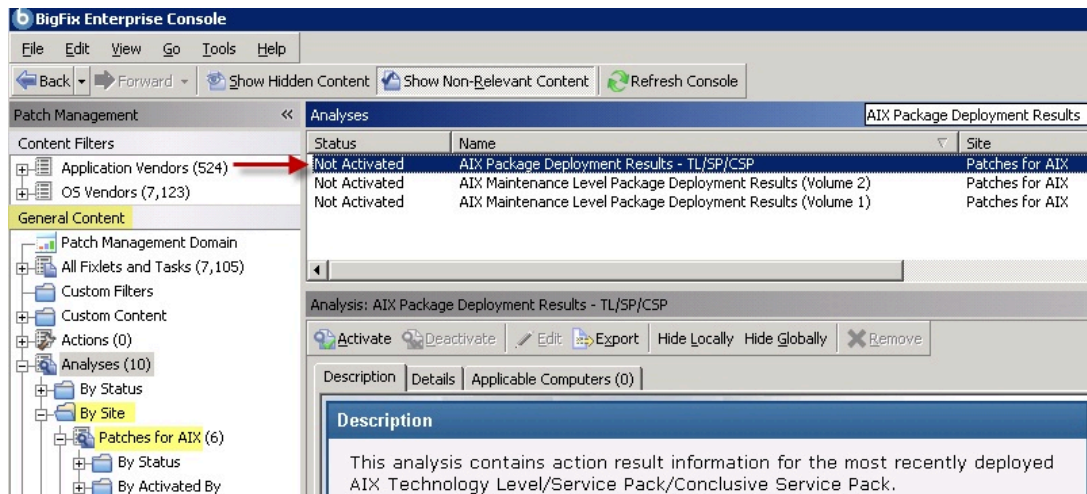


Note: Ensure that you have sufficient amount of disk space on the /var partition to accommodate large files. Use the available tasks to set any size or space limitations. For more information, see [Fix pack download configuration \(on page 38\)](#).

To view the detailed information about the results of deploying your AIX package update, activate the **AIX Package Deployment Results - TL/SP/CSP analysis**.

Click **All Patch Management > Analyses > By Site > Patches for AIX > AIX Package Deployment Results - TL/SP/CSP > Activate**.

Figure 19. Activating the AIX Package Deployment Results - TL/SP/CSP analysis



Alternate disk utility overview

Use the AIX Advanced Deployment Wizard to deploy technology level and service pack fix packs to a new or existing alternate disk clone.

Before running any alternate disk tasks, ensure that a secondary disk to clone the current disk exists.

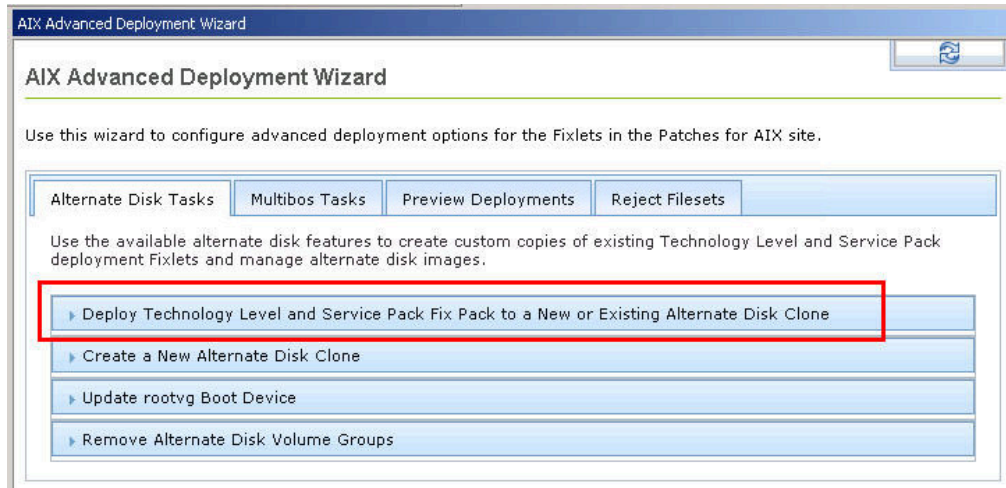
You can deploy technology level and service pack updates through alternate disk operations either from using the internet download method or through an NFS mount.

Deploying technology levels and service packs to a new or existing alternate disk clone

Use the AIX Advanced Deployment Wizard to create a new clone of the current running system to an alternate disk and deploy the updates to the newly created clone. Deploying updates to a copy of the running system allows updates to run without extended periods of downtime. It also allows for a backup of the system's current state that can be quickly restored.

- Prior to a Technology Level upgrade or a Service Pack update, install the expect package (5.42 or higher) or the expect.base fileset for AIX 6.1. You can obtain the package from the AIX toolbox download site: https://help.hcltechsw.com/bigfix/9.5/patch/Patch/Patch_AIX/t_deploying_tl_and_sp.html.
 - Before you access the AIX Advanced Deployment Wizard to create a new clone of the current running system to an alternate disk, you must run the **Deploy AIX StartUp/Shutdown script for alt disk reboot** task (ID # 84). By running this task, the scripts (`SZCopyAltDiskBESDATA` and `KZCopyAltDiskBESDATA`), which are responsible for copying the BESClient data to the alternate disk, are created in the `/etc/rc.d/rc2.d` folder. These scripts are crucial for alternate disk patching.
 - Alternate disk cloning deployments require that an alternate disk is available to the system. When deploying to a new alternate disk clone, the alternate disk must not have any volume groups assigned to it.
1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
 2. Under the **Alternate Disk Operations** tab, click **Deploy Technology Level and Service Pack Fix Pack to a New or Existing Alternate Disk Clone** to expand the deployment options pane.

Figure 20. Deploy technology level and service pack fix pack to a new or existing alternate disk clone



3. Select the major version, technology level, and service pack of the operating system level that you want to deploy to the alternate disk location.

Figure 21. Available options

▼ Deploy Technology Level and Service Pack Fix Pack to a New or Existing Alternate Disk Clone

Use these options to generate a custom Fixlet that creates an alternate disk clone of the current operating system on the target disk and deploys the desired fix pack to the cloned disk.

Note: The "auto" option for selecting a target alternate disk utilizes the first disk with no assigned volume groups as determined by the lspv command.

<p>Target OS Level</p> <p>Major OS Level -- ▾</p> <p>Technology Level -- ▾</p> <p>Service Pack -- ▾</p>	<p>Deployment Options</p> <p>Deploy to new or existing alternate disk clone Create a new alternate disk clone ▾</p> <p>Name of target alternate disk auto</p> <p>Reboot to alternate disk after deployment yes ▾</p>
---	--

Break existing mirror

Create Action

4. Select the option to either create a new alternate disk clone or use an existing clone image.
5. Enter the name of the existing rootvg clone image or the name of the alternate disk where the new clone is created.

**Note:**

- If you set this option to **auto**, the generated content attempts to use the first disk that has no assigned volume group, which is determined by the lspv command. The auto option is only valid when creating a new alternate disk clone.
- When the **auto** option is used with the **Break existing mirror** check box selected, the **auto** function will use the mirrored disk as the alt disk.

6. Verify that the reboot option is at the preferred setting.



Note: If you set this option to not reboot after patches are deployed, you can use the **AIX: Restart Computer** task (ID # 62) to manually reboot the endpoints. This task uses the `trap '15; shutdown -Fr` command. You can use this task to reboot multiple endpoints at the same time.

7. If you want to create a new alternate disk clone, verify that **Break existing mirror** is selected. This setting breaks the mirrors for failback purposes.
8. **Optional:** Select the check box to create a one-time action rather than a reusable Fixlet.
9. Click **Create Action**.
10. Deploy the action.

After verifying that the disk was successfully patched, you can use the **Re-mirror disk back to rootvg** task (ID # 83) to bring the patched disk back to rootvg and start synchronization.

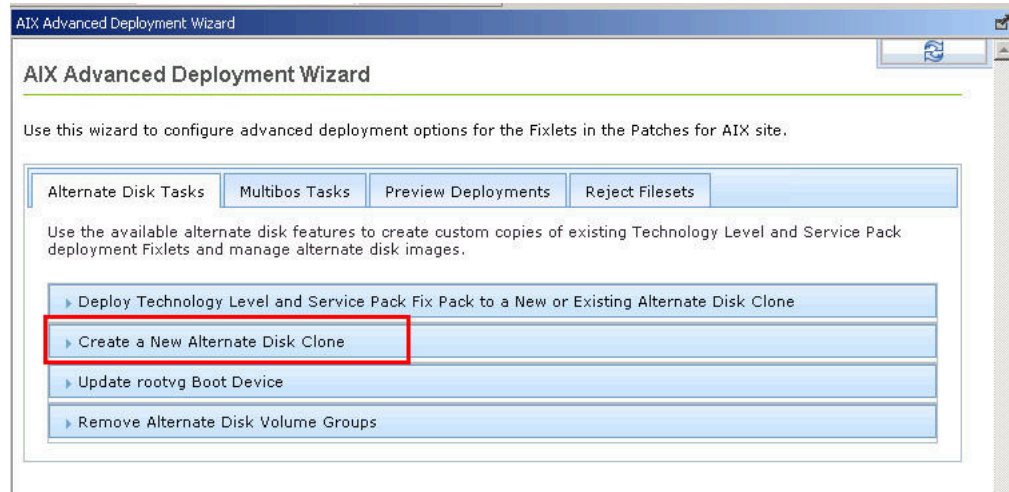
Creating a new alternate disk clone

Use the AIX Advanced Deployment Wizard to create an alternate disk clone of the current rootvg on targeted AIX systems.

Alternate disk cloning deployments require that an alternate disk is available to the system. This alternate disk cannot have any volume groups assigned to it.

1. From the BigFix console, click **All Patch Management > Wizards > Patches for AIX > AIX Advanced Deployment Wizard**.
2. Under the **Alternate Disk Tasks** tab, click **Create a New Alternate Disk Clone** to expand the deployment options pane.

Figure 22. Create a New Alternate Disk Clone



3. Enter a name for the new alternate disk volume group.

Figure 23. Available options

The screenshot shows the 'Create a New Alternate Disk Clone' options pane. At the top, there is a title bar with a dropdown arrow and the text 'Create a New Alternate Disk Clone'. Below the title bar is a descriptive text: 'Use this action to create an alternate disk clone of the current rootvg on targeted AIX systems.' Below this text is a **Note**: 'Enabling the "Reboot to newly created clone" option will add the device with the target volume group as the first boot device in the boot list.' Below the note are three input fields: 'Name of new alternate disk volume group' with the value 'altinst_rootvg', 'List of files or directories to be excluded from alternate disk clone' which is empty, and 'Reboot to newly created clone?' with a dropdown menu set to 'yes'. At the bottom of the pane is a 'Create Action' button.

4. Enter the files or directories that are to be excluded from the alternate disk clone.
5. Verify that the reboot option is at the preferred setting.

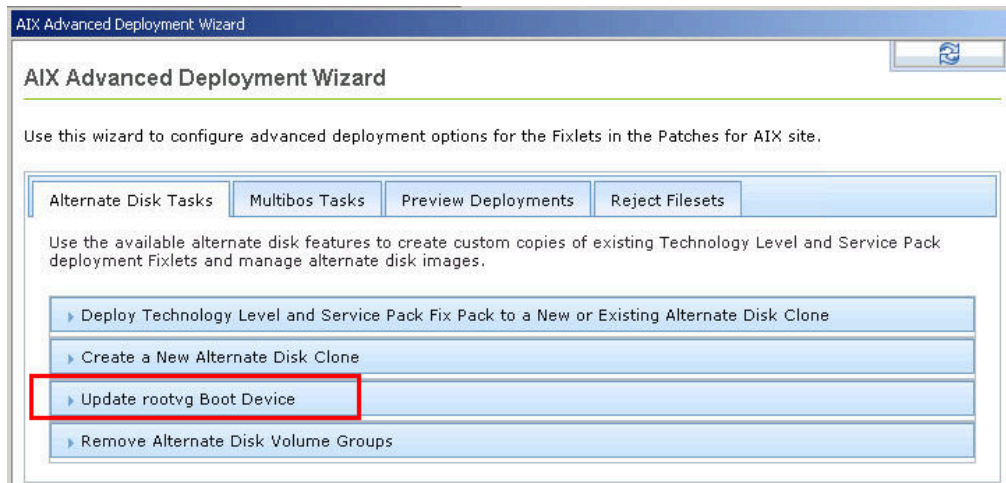
6. Click **Create Action**.
7. Deploy the action.

Updating the rootvg boot device

You can use the AIX Advanced Deployment Wizard to update the rootvg boot device to identify where the boot device of the current running system is located in the list of boot devices. When the device is located, the new boot device is inserted before the current device in the boot list unless stated otherwise. The wizard provides options if you want to replace the boot list to contain only the new device that you specified.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Alternate Disk Tasks** tab, click **Update rootvg Boot Device** to expand the bootlist modification options pane.

Figure 24. Update rootvg boot device



3. Enter the name of the new boot device or the name of the new volume group that you want to use instead of the current rootvg boot device.



Note: You can enter boot device attributes with the new boot devices. For example: `cd0 hdisk1 net gateway=123.45.67.1 bserver=123.45.67.10 client=123.45.67.89.`

Figure 25. Options to modify the list of possible boot devices

Update rootvg Boot Device

Use the following options to modify the list of possible boot devices.

Note: Boot device attributes can be entered with the new boot devices. For example: "cd0 hdisk1 net gateway=123.45.67.1 bserver=123.45.67.10 client=123.45.67.89".

New boot devices:

Boot list mode:

New boot device integration method:

Reboot target systems after updating the boot list?:

Create a one-time action. Leave this check box clear to create a Fixlet that you can reuse.

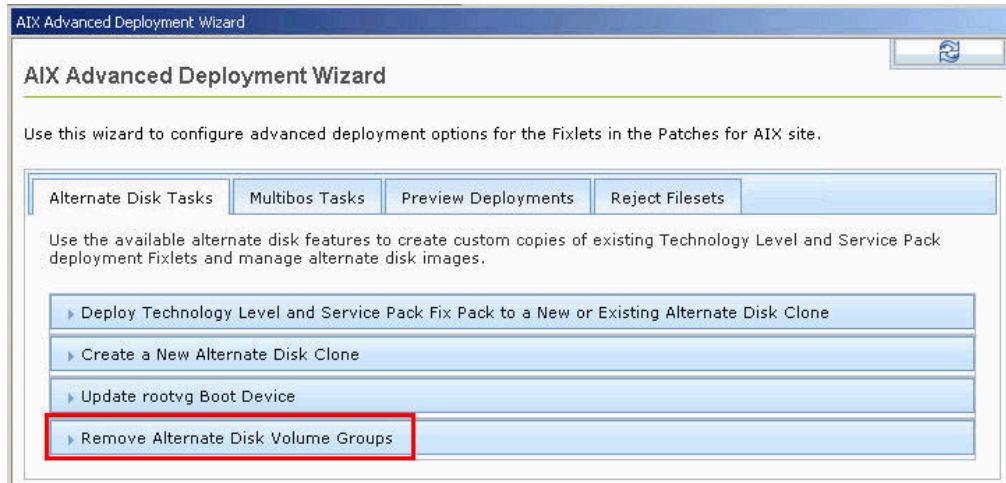
4. Select the mode that you want to use for the boot list.
5. Specify whether you want to replace the existing boot list or use the existing one. You can have the new devices either at the beginning or end of the boot list.
6. Verify that the reboot option is at the preferred setting.
7. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
8. Click **Create Action**.
9. Deploy the action.

Removing alternate disk volume groups

You can choose to delete unwanted volume groups from their alternate disk locations. This also removes the volume group definitions from the ODM database and removes the entry from the boot list.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Alternate Disk Tasks** tab, click **Remove Alternate Disk Volume Groups** to expand the options pane.

Figure 26. Remove Alternate Disk Volume Groups

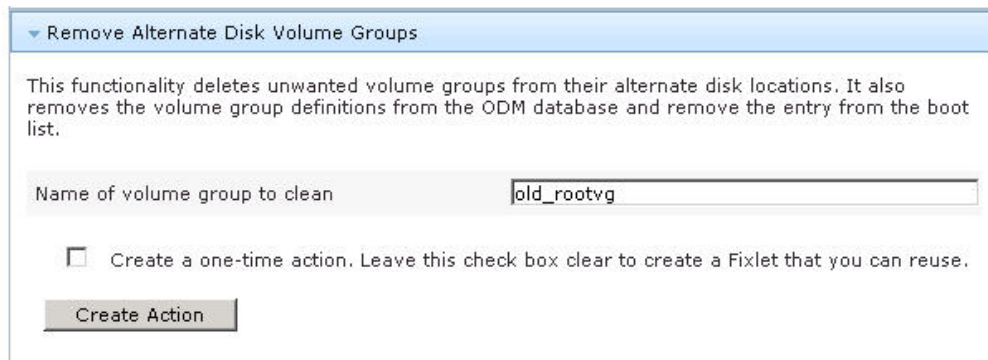


3. Enter the name of the volume group that you want to remove.



Note: If you do not specify a name, the `altinst_rootvg` volume group is removed.

Figure 27. Delete unwanted volume groups



4. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
5. Click **Create Action**.
6. Deploy the action.

Multibos utility overview

Use the AIX Advanced Deployment Wizard to deploy technology level and service pack fix packs to a new or an existing standby BOS.

The current rootvg must have enough space for a new BOS logical volume to run multibos tasks.

You can deploy technology level and service pack updates through multibos operations either from using the internet download method or through an NFS mount.

Creating a new BOS and deploying patches

Use the AIX Advanced Deployment Wizard to create a new standby Base Operating System (BOS) and deploy updates to it from a single action. Deploying technology level and service pack updates to the standby BOS allows such updates to run without extended periods of downtime. Using a standby BOS also allows for a backup of the system's current state that can be quickly restored.

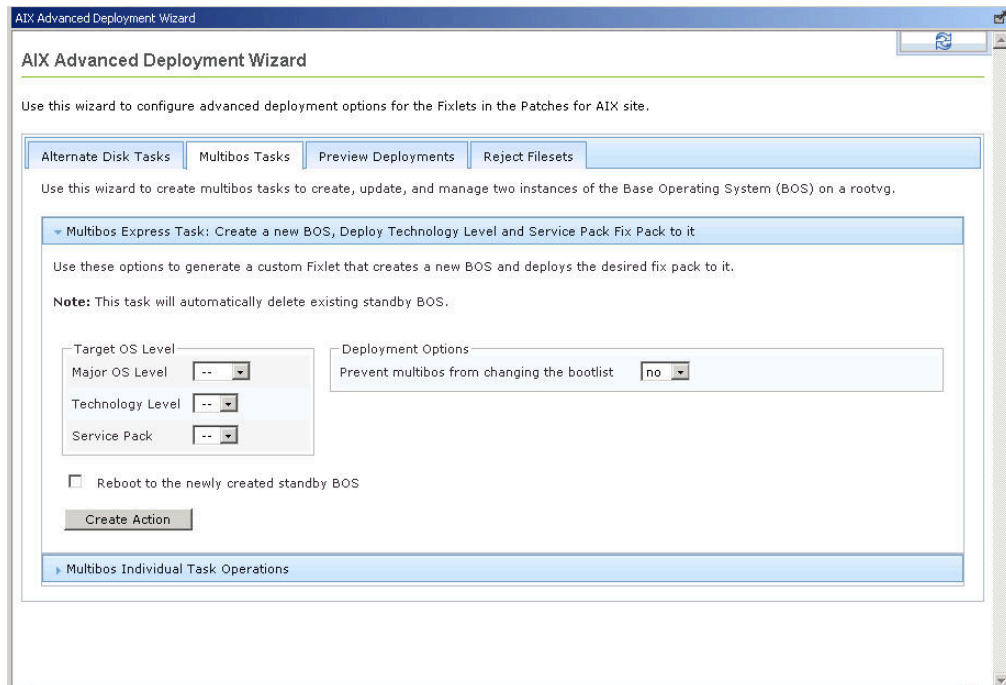
- Run the **Deploy AIX StartUp/Shutdown script for multibos reboot** task (ID # 92). By running this task, the scripts (`KZCopyMultibosBESDATA` and `SZCopyMultibosBESDATA`), which are responsible for copying the BESClient data to the standby BOS, are created in the `/etc/rc.d/rc2.d` folder. These scripts are crucial for multibos patching.
- Prior to a Technology Level upgrade or a Service Pack update, install the expect package for AIX 5.42 or higher (expect.base for AIX 6.1). You can obtain the package from the AIX toolbox download site: http://www.ibm.com/support/knowledgecenter/SS6MER_9.5.0/com.ibm.bigfix.patch.doc/Patch/Patch_AIX/t_deploying_tl_and_sp.html.
- Ensure that you have sufficient amount of disk space on the `/var` partition to accommodate large files. Use the available tasks to set any size or space limitations. For more information, see [Fix pack download configuration](#).
- Complete one of the following tasks:
 - If you want to deploy patches through the internet download option, register the AIX Download Plug-in. For more information, see [Registering the AIX download plug-in](#).
 - If you want to deploy patches from an accessible Network File System (NFS) mount, enable the NFS service and configure the NFS shares. For more information, see [Network File System support](#).

Creating a new BOS through the Multibos Express Task automatically deletes the existing standby BOS, runs a preview of the standby BOS creation, and then creates the actual standby BOS.

The express task also removes all the interim fixes on the standby BOS before deploying the technology level and service pack updates. It runs a preview of the deployment before deploying the updates to the endpoints. It also verifies the OS version on the standby BOS after the updates are deployed.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Multibos Tasks** tab, click **Multibos Express Task: Create a new BOS, Deploy Technology Level and Service Pack Fix Pack to it** to expand the options pane.

Figure 28. Multibos Express Task



3. Select the major version, technology level, and service pack of the operating system level that you want to deploy to the standby BOS.
4. Specify whether to prevent multibos from changing the bootlist.
5. Verify that the reboot option is at the preferred setting.
6. Click **Create Action**.
7. Deploy the action.

Creating a new BOS

Use the AIX Advanced Deployment Wizard to create a standby Base Operating System (BOS) from the active BOS that is on the same volume group (rootvg).

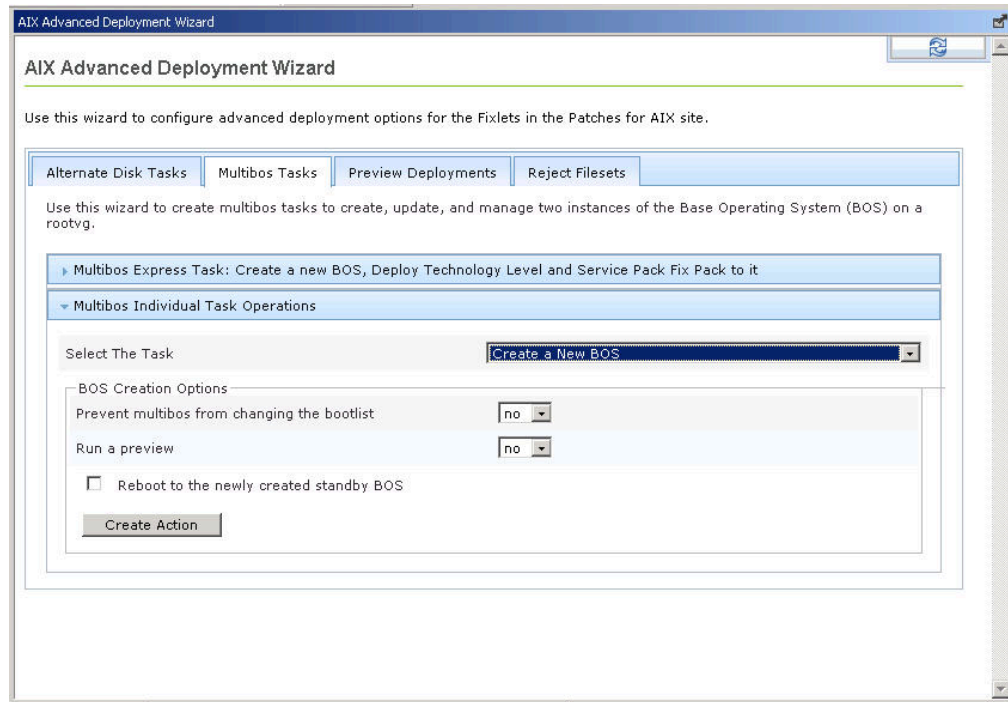
You must run the **Deploy AIX StartUp/Shutdown script for multibos reboot** task (ID # 92). By running this task, the scripts (`KZCopyMultibosBESDATA` and `SZCopyMultibosBESDATA`), which are responsible for copying the BESClient data to the standby BOS, are created in the `/etc/rc.d/rc2.d` folder. These scripts are crucial for multibos patching.

The individual multibos operation to create a new BOS runs a preview of the creation before it creates the BOS.

The multibos create command that is used in this operation, by default, changes the boot list by adding the standby BOS to the beginning. The BOS filesystems (`/`, `/var`, `/opt`, and `/home` directories), associated log devices, and the boot logical volume are copied to the new standby BOS.

1. From the BigFix console, click **All Patch Management > Wizards > Patches for AIX > AIX Advanced Deployment Wizard**.
2. Under the **Multibos Tasks** tab, click **Multibos Individual Task Operations** to expand the individual task selection options pane.
3. Select **Create a New BOS**.

Figure 29. Creating a standby BOS



4. Specify whether you want to change the boot list with the new standby BOS.
5. Verify that the preview option is at the preferred setting.
6. Verify that the reboot option is at the preferred setting.
7. Click **Create Action**.
8. Deploy the action.

Deploying technology levels and service packs to a standby BOS

Use the AIX Advanced Deployment Wizard to deploy technology level and service pack updates to an existing standby BOS.

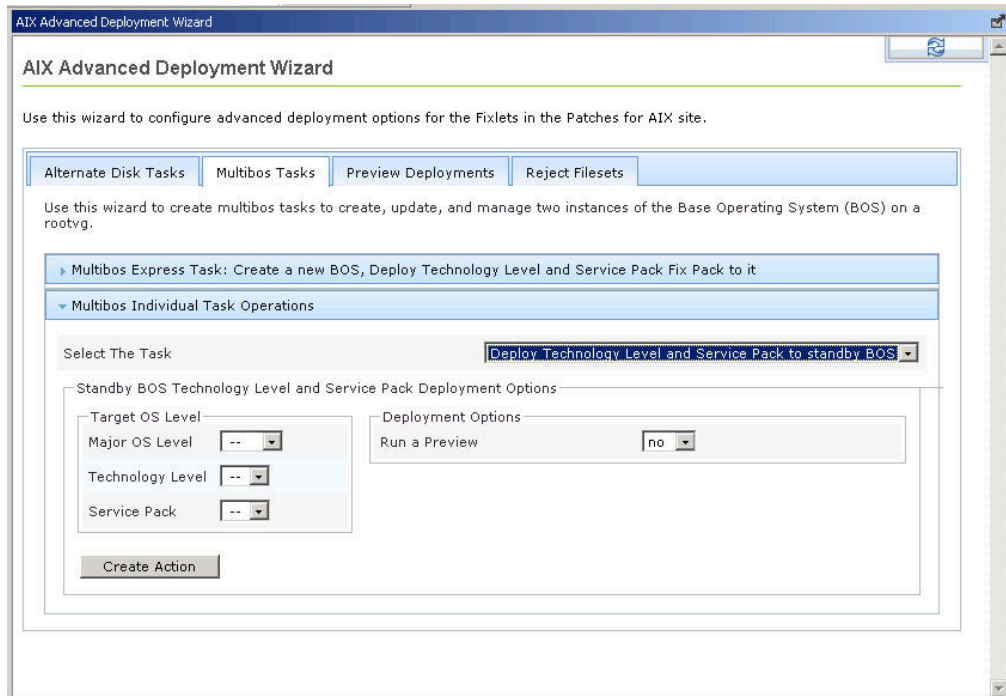
- Prior to a Technology Level upgrade or a Service Pack update, install the expect package (5.42 or higher) or the expect.base fileset for AIX 6.1. You can obtain the package from the AIX toolbox download site: http://www.ibm.com/support/knowledgecenter/SS6MER_9.5.0/com.ibm.bigfix.patch.doc/Patch/Patch_AIX/t_deploying_tl_and_sp.html.
- Ensure that you have sufficient amount of disk space on the `/var` partition to accommodate large files. Use the available tasks to set any size or space limitations. For more information, see [Fix pack download configuration](#).

- Complete one of the following tasks:
 - If you want to deploy patches through the internet download option, register the AIX Download Plug-in. For more information, see [Registering the AIX download plug-in](#).
 - If you want to deploy patches from an accessible Network File System (NFS) mount, enable the NFS service and configure the NFS shares. For more information, see [Network File System support](#).

The individual multibos operation to deploy the technology level and service pack updates removes all the interim fixes on the standby BOS before deploying the updates. It runs a preview of the deployment before deploying the updates to the endpoints. It also verifies the OS version on the standby BOS after the updates are deployed.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Multibos Tasks** tab, click **Multibos Individual Task Operations** to expand the options pane.
3. Select **Deploy Technology Level and Service Pack to the standby BOS**.

Figure 30. Deploying Technology Level and Service Pack to the standby BOS



4. Select the major version, technology level, and service pack of the operating system level that you want to deploy to the standby BOS.
5. Verify that the preview option is at the preferred setting.
6. Click **Create Action**.
7. Deploy the action.

Updating the rootvg boot logical volume

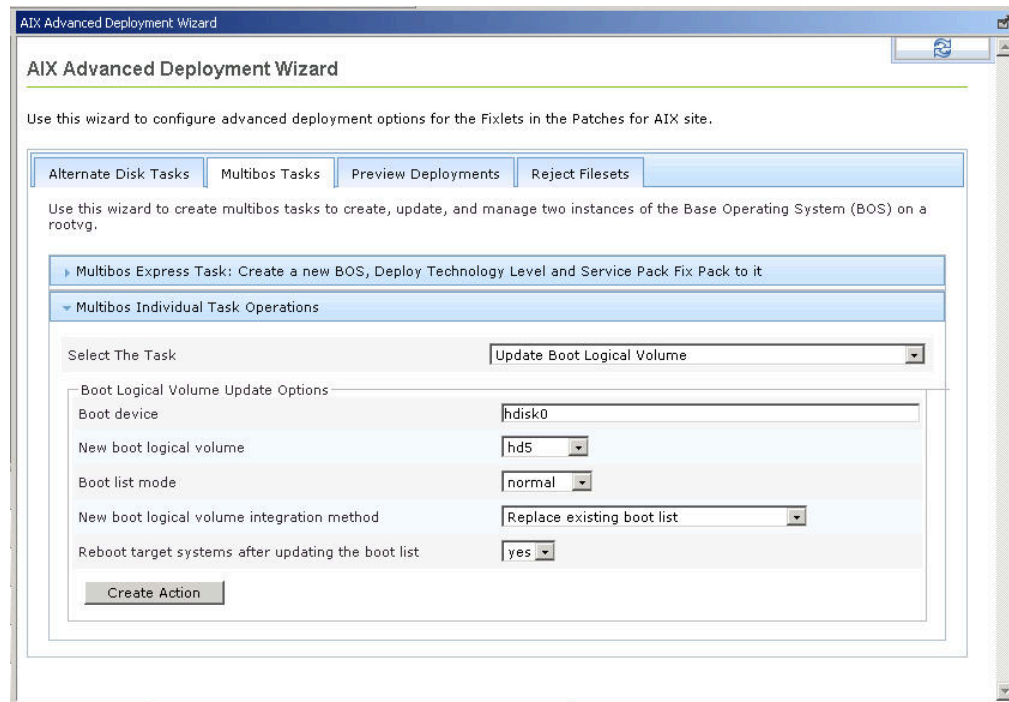
Use the AIX Advanced Deployment Wizard to update the order of the boot device and boot logical volume (BLV) in the boot list. You can also set to replace the boot list with only the new BLV that you specified.

You must run the **Deploy AIX StartUp/Shutdown script for multibos reboot** task (ID # 92). By running this task, the scripts (`KZCopyMultibosBESDATA` and `SZCopyMultibosBESDATA`), which are responsible for copying the BESClient data to the standby BOS, are created in the `/etc/rc.d/rc2.d` folder. These scripts are crucial for multibos patching.

The individual multibos operation to update the boot list can replace the existing boot list or add the new BLV to the beginning or end of the boot list, depending on what you specify.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Multibos Tasks** tab, click **Multibos Individual Task Operations** to expand the individual task selection options pane.
3. Select **Update Boot Logical Volume**.

Figure 31. Updating the rootvg boot logical volume



4. Enter the name of the boot device that you want to use.
For example, `hdisk0` or `hdisk2`.
5. Select the new boot logical volume.
For example, `bos_hd5` or `hd5`.
6. Select the mode that you want to use for the boot list.

The choices are as follows:

normal

Alters the normal list of possible boot devices for when the system is booted in normal mode.

service

Alters the service list of possible boot devices for when the system is booted in service mode.

both

Alters both the normal boot list and the service boot list to contain the same list of devices.

prevboot

Uses the last device from which the system booted.

7. Specify whether you want to replace the existing boot list or use the existing one. You can have the new volume group either at the beginning or end of the boot list.
8. Verify that the reboot option is at the preferred setting.



Note: Before rebooting, you must run the **Deploy AIX StartUp/Shutdown script for multibos reboot** task (ID #92).

9. Click **Create Action**.
10. Deploy the action.

Removing a standby BOS

Use the AIX Advanced Deployment Wizard to delete an unwanted standby BOS from a volume group. This operation also removes the related file systems and boot references.

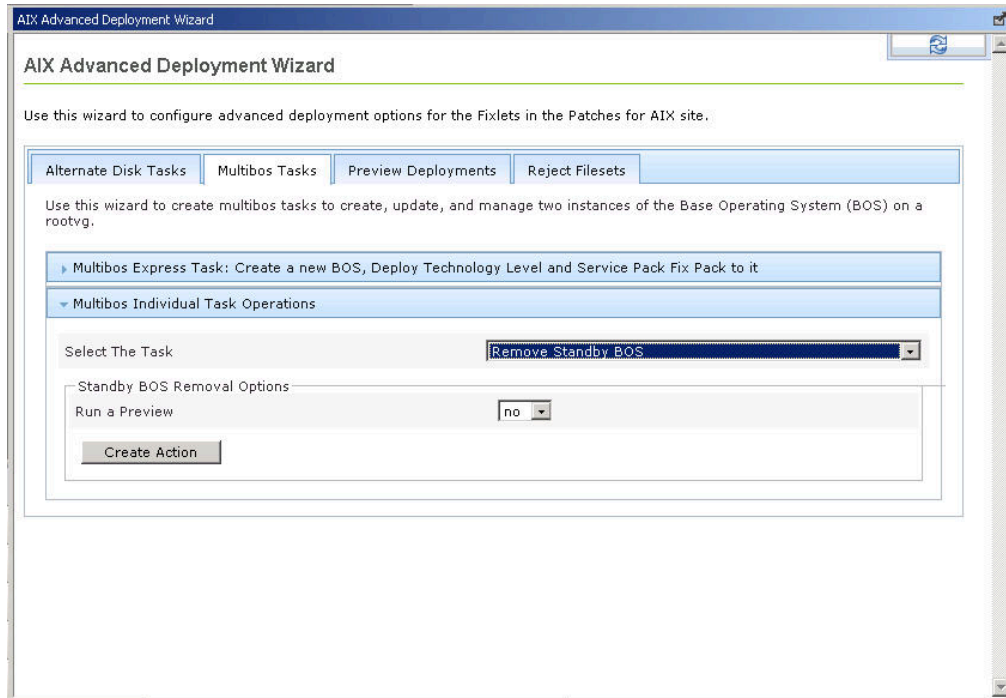
The created action uses the remove operation with the `-R` flag.

- All boot references to the standby BLV are removed.
- The boot list is set to the active BLV.
- Any mounted standby BLVs are unmounted.
- Standby BOS are removed.

You can include a preview of the removal of the standby BOS to retrieve information about the action that will be taken, but will not perform actual changes.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Under the **Multibos Tasks** tab, click **Multibos Individual Task Operations** to expand the individual task selection options pane.
3. Select **Remove Standby BOS**.

Figure 32. Removing a standby BOS



4. Verify that the preview option is at the preferred setting.
5. Click **Create Action**.
6. Deploy the action.

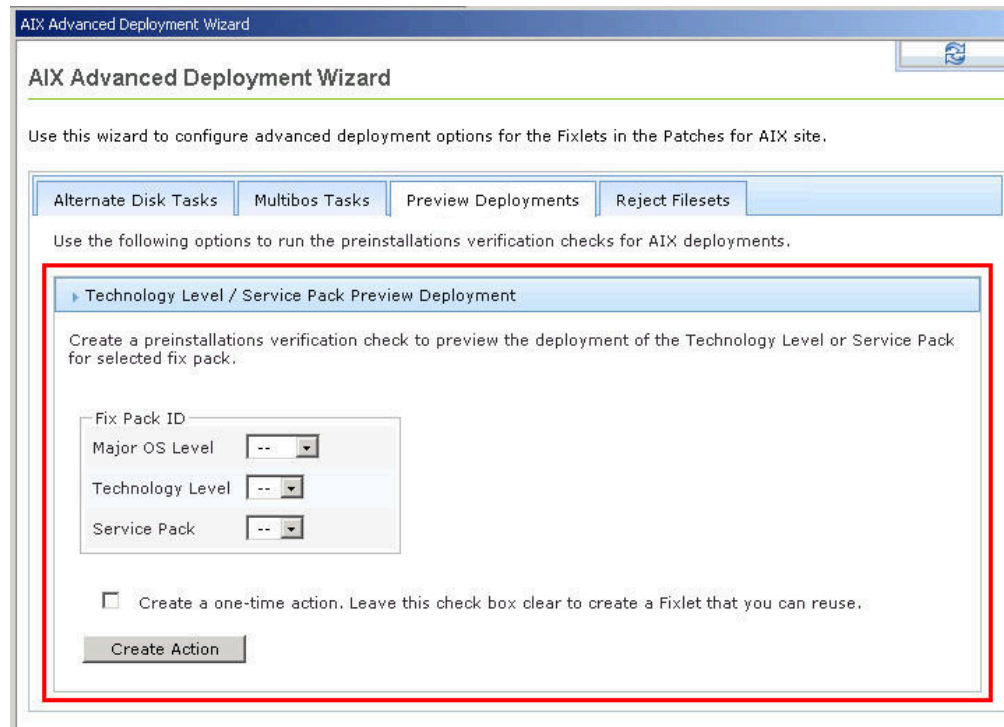
Creating preinstallation verification checks

Use the AIX Advanced Deployment Wizard to create Fixlets that check the preinstallation requirements of a selected fix pack against the endpoints in your environment.

Create a check Fixlet to run an installation preview of the technology level or service pack patches for the selected fix pack. These checks allow you to perform a test run of the installation, providing you with information about the commands that are used and what filesets are installed on the system. If anything goes wrong, the error does not affect your running system.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click the **Preview Deployments** tab.
3. Under the **Technology Level or Service Pack Preview Deployment** pane, select the major operating system level, technology level, and service pack of the fix pack that you want to verify.

Figure 33. Preview deployments



4. Select the check box to create a one-time action rather than to create a reusable Fixlet.
5. Click **Create Action**.
6. Deploy the action.

Rejecting applied filesets

You can use the AIX Advanced Deployment Wizard to create tasks to reject filesets that are in the applied state and restore the previous version of the update. You can reject individual filesets or all the filesets for a specific fix pack. You can run a preview of the action to ensure that it completes successfully without rejecting any filesets. You can also specify whether you want to reject filesets that have dependencies and do not meet the rejection checks.


Before you can reject any fileset, you must activate the **AIX Fileset Inventory Result** (ID #80) analysis.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click **Reject Filesets**.
3. Click **Refresh Filesets Inventory** to run the **AIX: Generate Fileset Inventory Report** task (ID #81) and retrieve the history of installed filesets and current fileset inventory.

The information that is retrieved from the endpoints is stored in the following directories:

- `/var/opt/BESClient/_BESData/_AIXInventory/FilsetHistory.inv`
- `/var/opt/BESClient/_BESData/_AIXInventory/CurrentFileset.inv`

The **AIX Fileset Inventory Result** analysis uses these files to display the filesets that can be rejected.

4. Use any of the following methods to reject applied filesets:
 - Rejecting individual applied filesets
 - a. Click **Reject Individual Applied Filesets**. The wizard displays a list of endpoints with information about when they were last updated and the number of filesets that can be rejected.
 - b. Select one or more endpoints that contain the applied fileset that you want to reject. The applied filesets for the selected endpoints are listed with the corresponding version number.
 - c. To filter the fileset list according to the installation date, specify the dates in the provided fields.
 - d. Select one or more applied filesets for rejection.
 - Rejecting applied filesets by fix pack
 - a. Click **Reject Applied Filesets by Fix Pack**. The wizard displays a list of endpoints with information about when they were last updated and the number of fix packs that can be rejected.
 - b. Select one or more endpoints to view the fix packs that you are allowed to reject.
 - c. Select a fix pack that contains all the filesets that you want to reject.
 5. **Optional:** Click **Create a preview rejection task** to flag this task as a preview task.
Use this option to create a task that runs a preview of the rejection action for the selected filesets or fix packs. With this option, you can check for potential issues with dependencies and other factors that prevent the rejection of filesets.
 6. **Optional:** Click **Reject filesets even if they do not pass the pre-rejection checks**.
Use this option to continue with the rejection action even if the selected filesets or fix packs do not comply with the rejection requirements.
-  **Note:** If you do not select this option, the default behavior of the task is to stop when an issue is encountered. By selecting the option **Reject filesets even if they do not pass the pre-rejection checks**, the action continues even when the selected filesets have dependencies.
7. Click **Create Action**.
 8. Deploy the action.

To verify that the filesets were rejected successfully, you can use the **AIX Preview Reject Filesets Result** analysis (ID #82) or the **AIX Deployment Health Check Dashboard**.

NFS Repository Management overview

To help manage technology level or service pack fix packs on a remote disk space, BigFix Patch offers the NFS (Network File System) Repository Management feature on the AIX Advanced Deployment Wizard.

Technology level or service pack updates are large and not all endpoints have sufficient disk space on the `/var/opt/BESClient` directory to store and process these updates. The NFS Repository Management feature helps you to manage these fix packs on NFS repositories. You can select any existing directory that is on a targeted AIX endpoint and register it as an NFS repository. Registration enables the NFS service on the endpoint and flags the endpoint as a viable location to store the fix packs.

The NFS Repository Management feature provides the following capabilities:

- Download and cache relevant technology level or service pack fix packs for each registered NFS repository.
- Verify the cached fix packs on a registered NFS repository to check for any inconsistencies, such as sha1 values, against the source filesets from Fix Central.
- Delete the cached fix packs that are no longer of use to clear up the disk space on the NFS repository for relevant fix packs to be used during patching.

Registering AIX NFS repositories

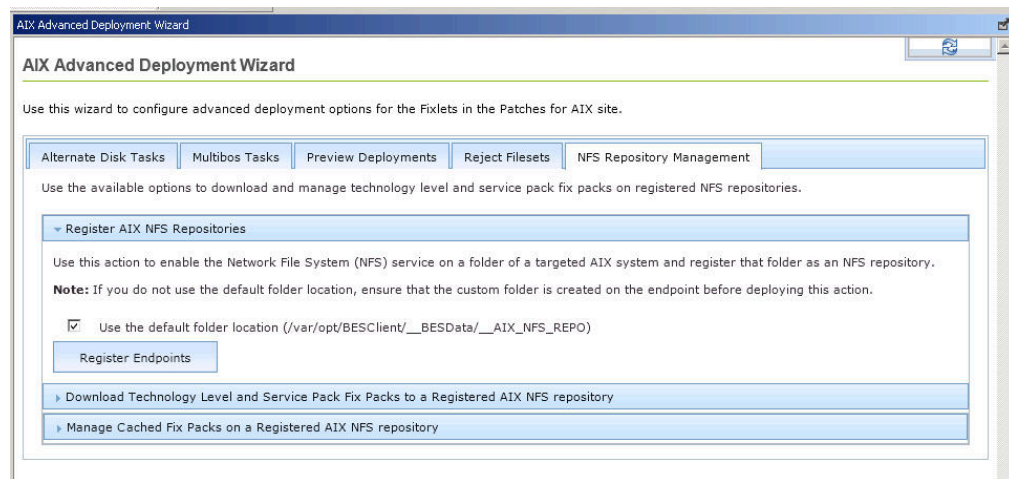
Use the AIX Advanced Deployment Wizard to register the directory of a targeted AIX endpoint as an NFS repository. Registration is required to be able to use the AIX NFS Repository Management feature in the wizard to download and manage the technology level and service pack fix packs on an NFS repository. You can register only one location on an endpoint as an NFS repository.

- Activate the **AIX Registered NFS Server Information** analysis.
- Ensure that the BigFix server and endpoints have sufficient disk space to store the necessary filesets. For more information on suggested disk spaces sizes, see *Best Practices: Patching AIX System Using BigFix* from the [BigFix developerWorks](#).

The task that is created by the wizard enables the Network File System (NFS) service on the default folder location or user specified location of the targeted AIX systems.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click **NFS Repository Management**.
3. Click **Register AIX NFS Repositories**.

Figure 34. Registering AIX NFS Repositories



4. If you do not want to use the default folder location, which is `/var/opt/BESClient/___BESData/___AIX_NFS_REPO`, as the directory to be the NFS share, deselect the related check box.

5. Click **Register Endpoints** to select the target endpoints.

If you deselected the default folder location check box, you are prompted to enter an existing directory on the endpoint that you want to register.



Note: The directory must already exist on the endpoint before deploying the action. It also must contain folder permissions to use NFS.



Note: The NFS Repository Management can not be used with NFS authentication.

6. Select the target endpoints and click **OK**.

7. Deploy the action.

Refresh the wizard when the action completes.

Downloading technology level and service pack fix packs to an NFS repository

Use the AIX Advanced Deployment Wizard to download technology level and service pack fix packs on an NFS repository. Pre-caching the fixes that you want to deploy to your endpoints on an NFS share can help you save time during deployment.

You must complete the following:

- Activate the **AIX Registered NFS Server Information** analysis.
- Ensure that the BigFix server and endpoints have sufficient disk space to store the necessary filesets. For more information on suggested disk spaces sizes, see *Best Practices: Patching AIX System Using BigFix* from the [BigFix developerWorks](#).
- Enable the NFS service and register a targeted AIX endpoint as an NFS repository by using the appropriate registration option in the AIX Advanced Deployment Wizard. For more information, see [Registering AIX NFS repositories \(on page 68\)](#).
- Register the AIX download plug-in. For more information, see [Registering the AIX download plug-in \(on page 23\)](#).

The task that is created by the wizard downloads the specified fix packs, generates an initial `.toc` file, and stored them all in the selected NFS repository.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click **NFS Repository Management**.
3. Click **Download Technology Level and Service Pack Fix Packs to an NFS Repository**.

You can view information about the registered NFS repositories and the fix packs that are available for download. Installed fix packs do not appear in the list.

Figure 35. Download fix packs to a registered AIX NFS repository

Use the available options to download and manage technology level and service pack fix packs on registered NFS repositories.

Register AIX NFS Repositories

Download Technology Level and Service Pack Fix Packs to a Registered AIX NFS repository

Use the following options to select one or more service packs to download into a registered NFS repository.

OS Level Filter

Major OS Level: 7100

Technology Level: 01

Server Name	IP Address	Available Space	Fix Pack
aix7100multibos		14382MB	<input type="checkbox"/> 7100-01-00-1140
AIX7100-03		53MB	<input type="checkbox"/> 7100-01-00-1140 with Technology Level
			<input type="checkbox"/> 7100-01-01-1141
			<input type="checkbox"/> 7100-01-01-1141 with Technology Level
			<input type="checkbox"/> 7100-01-02-1150
			<input type="checkbox"/> 7100-01-02-1150 with Technology Level
			<input type="checkbox"/> 7100-01-03-1207
			<input type="checkbox"/> 7100-01-03-1207 with Technology Level
			<input type="checkbox"/> 7100-01-04-1216
			<input type="checkbox"/> 7100-01-04-1216 with Technology Level
			<input type="checkbox"/> 7100-01-05-1228
			<input type="checkbox"/> 7100-01-05-1228 with Technology Level
			<input type="checkbox"/> 7100-01-06-1241
			<input type="checkbox"/> 7100-01-06-1241 with Technology Level
			<input type="checkbox"/> 7100-01-07-1316
			<input type="checkbox"/> 7100-01-07-1316 with Technology Level
			<input type="checkbox"/> 7100-01-08-1334

Create Action

4. Select an NFS repository where the fix packs are to be stored.
You can select only one NFS repository for each action.
5. Select the fix packs that you want to download.
You can use the operating system level filters to customize the fix pack list view.
6. Click **Create Action** and select the target endpoints.
7. Select the target endpoints and click **OK**.
A one-time action Fixlet is created.
8. Deploy the action.



Note: When prompted to select the target endpoints, use the same endpoint that you selected in step

4.

Verifying cached fix packs on an NFS repository

Use the AIX Advanced Deployment Wizard to verify if the cached technology level and service pack fix packs on an NFS repository matches the source filesets from Fix Central.

ou must complete the following:

- Activate the **AIX Registered NFS Server Information** analysis.
- Enable the NFS service and register a targeted AIX endpoint as an NFS repository by using the appropriate registration option in the AIX Advanced Deployment Wizard. For more information, see [Registering AIX NFS repositories \(on page 68\)](#).
- Register the AIX download plug-in. For more information, see [Registering the AIX download plug-in \(on page 23\)](#).

The task that is created by the wizard checks for any inconsistencies, such as sha1 values, of the cached fix packs against Fix Central, then downloads those updates to the selected NFS repository. The task also generates a `.toc` file and stored it in the NFS repository.

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click **NFS Repository Management**.
3. Click **Manage Cached Fix Packs on a Registered AIX NFS Repository**.
4. Select **Verify cached fix packs**

You can view information about the registered NFS repositories and the fix packs that are stored on each repository, as well the actual location of the NFS folder.



Note: You can copy the NFS Path and paste it in the dialog during the deployment of a fix pack on NFS mount.

Figure 36. Verifying cached fix packs on a registered AIX NFS repository

AIX Advanced Deployment Wizard

Use the available options to download and manage technology level and service pack fix packs on registered NFS repositories.

- Register AIX NFS Repositories
- Download Technology Level and Service Pack Fix Packs to a Registered AIX NFS repository
- Manage Cached Fix Packs on a Registered AIX NFS repository

Use the following options to verify the integrity of the cached fix packs or delete the fix packs that are cached on the endpoints.

Select Task:

OS Level Filter

Major OS Level:

Technology Level:

Server Name	IP Address	Available Space	<input type="checkbox"/>	Fix Pack	NFS Path
aix7100multibos	...	14382MB	<input type="checkbox"/>	7200-00-02-1614	...:/var/opt/BESClie...
AIX7100-03	...	53MB			

- Select an NFS repository that you want to manage.
You can select only one NFS repository for each action.
- Select the fix packs to check.
You can use the operating system level filters to customize the fix pack list view.
- Click **Create Action** and select the target endpoints.
- Select the target endpoints and click **OK**.
A one-time action Fixlet is created.
- Deploy the action.



Note: When prompted to select the target endpoints, use the same endpoint that you selected in step 4.

Deleting cached fix packs from an NFS repository

Use the AIX Advanced Deployment Wizard to delete cached technology level and service pack fix packs on an NFS repository to free up disk space.

You must complete the following:

- Activate the **AIX Registered NFS Server Information** analysis.
- Enable the NFS service and register a targeted AIX endpoint as an NFS repository by using the appropriate registration option in the AIX Advanced Deployment Wizard. For more information, see [Registering AIX NFS repositories \(on page 68\)](#).

1. From the BigFix console, click **Patch Management > OS Vendors > IBM AIX > AIX Advanced Deployment Wizard**.
2. Click **NFS Repository Management**.
3. Click **Manage Cached Fix Packs on a Registered AIX NFS Repository**.
4. Select **Delete cached fix packs**

You can view information about the registered NFS repositories and the fix packs that are stored on each repository, as well the actual location of the NFS folder.

Figure 37. Deleting cached fix packs on a registered AIX NFS repository

AIX Advanced Deployment Wizard

Use the available options to download and manage technology level and service pack fix packs on registered NFS repositories.

- Register AIX NFS Repositories
- Download Technology Level and Service Pack Fix Packs to a Registered AIX NFS repository
- Manage Cached Fix Packs on a Registered AIX NFS repository

Use the following options to verify the integrity of the cached fix packs or delete the fix packs that are cached on the endpoints.

Select Task:

OS Level Filter

Major OS Level:

Technology Level:

Server Name	IP Address	Available Space	Fix Pack	NFS Path
aix7100multibos		14382MB	<input type="checkbox"/>	
AIX7100-03		53MB	<input type="checkbox"/>	7200-00-02-1614 /var/opt/BESClie...

5. Select an NFS repository that you want to manage.
You can select only one NFS repository for each action.
6. Select the fix packs that you want to delete.
You can use the operating system level filters to customize the fix pack list view.
7. Click **Create Action** and select the target endpoints.
8. Select the target endpoints and click **OK**.

A one-time action Fixlet is created.

9. Deploy the action.



Note: When prompted to select the target endpoints, use the same endpoint that you selected in step 4.

Unregistering AIX NFS repositories

To unregister the directory of a targeted AIX endpoint as an NFS repository, use the **AIX: Unregister Endpoint Folder as an NFS Repository** task (ID #94). This task does not delete the downloaded fix packs and the folder where they are stored.

Individual AIX fileset updates

Deploy AIX technology level and service pack updates as a full fix pack bundle and not as individual filesets. Updating individual filesets might cause unexpected results.

If you still want to update individual filesets, download the `.bff` file that you want to deploy. Then use the fileset option of the AIX Deployment Wizard to generate the necessary Fixlet. For more information, see the steps in [Creating Fixlets for AIX fileset updates \(on page 46\)](#).

Supersedence

Please refer to Supersedence for Non-Windows to know more about the supersedence.

Troubleshooting Failed OS Updates

Learn which common factors affect the outcome of a deployment.

The most common reasons for failure include:

- Filesets that are locked by interim fixes.
- Missing filesets from a local NFS repository.
- An outdated table of contents (`.toc`) file in the repository.

In each case, begin troubleshooting by generating a list of filesets that are lower than the latest levels of the service packs recognized by the AIX operating system.

Use the `instfix` command to identify filesets that are not at the latest level. The following command processes all known service packs and provides details for any packages with known updates.

An example command includes the following format:

```
for LEVEL in `instfix -i | grep SP | grep "Not all" | awk '{print $5}'`;
do instfix -ciqk $LEVEL | grep :-:; done
```

The output of this example is in the following format:

```
<Service Pack>:<Package Name>:<Installed Version>:<Expected Version>:
<Version Status (+,=,-)>:<Package Description>
```

An example output includes the following format:

```
61-04-111140_SP:perfagent.tools:6.1.4.11:6.1.6.16::-:AIX 6100-04-11 Service Pack
```

With the results of the `instfix` command, you can check locked filesets by using the **AIX Interim Fix** analysis. Remove interim fixes with the **Uninstall All Interim Fixes** task.

If no locked filesets are identified and a local NFS repository is used, the following command can identify filesets that are missing from the `.toc` file of the local repository. In the following example, the version adds zeros to maintain the format of `xx.xx.xxxx.xxxx`.

```
grep -n "<Package Name> <Package Version>" /path/to/.toc
```

An example command includes the following format:

```
grep -n "perfagent.tools 06.01.0004.0011" /AIX/Repo/OS_6100/.toc
```

If filesets are missing from the `.toc` file, but the fileset exists in the repository, you can rebuild the `.toc` file by using the **Generate Fileset Repository TOC File** task. If files are missing, run the AIX Download Cacher Tool through the **Run Download Cacher - AIX** task. When prompted, specify the path to the repository. For more information about using the AIX Download Cacher, see <http://www-01.ibm.com/support/docview.wss?uid=swg21506031>.

Supersedence

Please refer to Supersedence for Non-Windows to know more about the supersedence.

Chapter 5. Network Installation Management (NIM) integration

BigFix provides an alternative solution for updating and managing multiple AIX system through Network Installation Management (NIM). BigFix supports the NIM patch management features in this release.

You can use NIM from the BigFix console to remotely manage AIX installations and updates in multiple AIX systems in your environment.

For more information about NIM, see the *IBM AIX Information Center*. The AIX information centers are version-specific. To see the list of available AIX information centers, see the IBM AIX resources at: <http://www-03.ibm.com/systems/power/software/aix/resources.html>

The **Patches for AIX** site provides dashboards that you can use to install, configure, and manage your NIM environment. For more information about these dashboard, see [NIM dashboards overview \(on page 76\)](#).

NIM dashboards overview

BigFix® provides dashboards to install, configure, and manage your NIM environment.

You must subscribe to the **Patches for AIX** site to access these dashboards from the **Dashboards** node of the said site.

NIM Installation and Setup Dashboard

Use the NIM Installation and Setup Dashboard to install NIM filesets and to configure the NIM master and the NIM client.

You can use the dashboard to complete the following NIM tasks:

- Install the filesets that are required to create a NIM master or a NIM client.
- Configure the NIM master.
- Initialize the NIM master and the NIM client.
- Define and configure the NIM resources.
- Define the NIM clients to the NIM master.

NIM Management Dashboard

The NIM Management Dashboard is designed primarily to help you use an existing NIM environment. The dashboard helps you to create content to update the NIM lpp_source resources, which can then be used to update the SPOT resources, NIM master, and NIM client systems.

The dashboard also provides a small collection of general NIM maintenance tasks that you can use. The following tasks are available:

- Rebuild the NIM master configuration file.
- Rebuild the NIM client configuration file.
- Synchronize the date and time of the NIM master and NIM client.
- Enable or disable the push permissions on the NIM masters.



Note: The primary NIM operations that are generated from this dashboard have their standard output (STDOUT) and standard error output (STDERR) stored in a text file. The time stamp and ID of the action that is running the command is also stored in the text file. These files can be found at *<Path to Endpoint Manager Data Directory>__NIM_Logs/NIM_Operations_<yyyymmdd>.log*. For example, */var/opt/BESClient/__BESData/__NIM_Logs/NIM_Operations_20130520.log*.

Setting up a new NIM environment

To best utilize the NIM integration features, use the NIM Installation and Setup Dashboard when you install the NIM master, NIM clients, and NIM lpp_source resource.

Set up a new NIM environment through the NIM Installation and Setup Dashboard in four steps.

1. [Install NIM filesets \(on page 77\)](#).
2. [Configure the NIM master \(on page 78\)](#).
3. [Configure the NIM client \(on page 81\)](#).
4. [Initialize the NIM client \(on page 83\)](#).

Installing NIM filesets

Use the NIM Installation and Setup Dashboard to install the required filesets for the NIM master or the NIM client.


- Most recent AIX systems, by default, have the `bos.sysmgt.nim.client` fileset installed. No additional installations are required to establish a NIM client.
- The NIM master and client filesets are available from the `bos.sysmgt` Licensed Program Product source, which is provided in the AIX installation media.


1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Installation and Setup Dashboard**.
2. Click **NIM Fileset Installation** to display the fields under that header.

Figure 38. NIM fileset installation

3. Select the installation type.
4. Enter the source of the NIM installation files.
For example, cd0

You can use the NIM installation files from CD devices, local directories, or NFS sources.

 **Note:** The dashboard automatically detects the installation source type, whether the entered value is from a CD device, NFS source, or local directory.

 **Note:** If an NFS path is used as the source of the NIM installation files, an attempt to generate a new `.toc` file is made by using the `inutoc` command. If the remote path is in a read-only mode, the directory must be in a valid state for use by the `installp` command before the files can be used.

5. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
6. Click **Create Action**.
7. Deploy the action.

The following filesets are installed on the target AIX systems:

NIM master

- `bos.sysmgmt.nim.master`
- `bos.sysmgmt.nim.client`
- `bos.sysmgmt.nim.spot`

NIM client

`bos.sysmgmt.nim.client`

Configuring the NIM master

After you install the NIM master filesets, use the NIM Installation and Setup Dashboard to initialize the NIM master and set up the NIM resources. At initialization, a NIM master is designated with permissions to run commands remotely on the NIM clients that are registered to that NIM master.

- Ensure that you have sufficient disk space to store the lpp_source resources.
- The NIM master must be at the same operating system, technology level, and service pack levels, or higher, as the NIM clients in the NIM environment.
- Only one NIM master can exist within a NIM environment.
- NIM masters cannot be clients to any other NIM master.
- You can use any of the available methods to set up the NIM master and NIM resources:

Manual Setup

This method provides the greatest control over initializing the NIM environment, environment options, and NIM resources. It does not use any setup automation scripts on AIX.

If you want to have the greatest control over the NIM environment setup options, use this method. You might also want to use this method when the EZNIM or Basic Setup methods fail because of automation errors.

EZNIM

This method requires the least number of options to be selected. Most of the options and configurations are defined automatically by the native NIM configuration scripts on the AIX target system. The results of the setup script are saved to `/var/adm/ras/nim.setup`.

This option automatically attempts to install the NIM master filesets if they are missing.

Basic Setup

This method offers more control than the EZNIM option. Many of the underlying operations are automated by using the native NIM configuration scripts on the AIX target system.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Installation and Setup Dashboard**.
2. Click **NIM Master Configuration**.
3. Select a method to configure the NIM master and NIM resource.

Figure 39. NIM master configuration

NIM Filesets Installation	NIM Master Configuration	NIM Client Configuration						
<p>NIM masters are designated when a NIM environment is initialized. The NIM master is given permission to run commands remotely on the NIM clients registered to that master. Only one NIM Master can exist within a NIM environment. NIM masters cannot be clients to any other NIM master. The NIM master must also be at an equal or higher OS, TL, and SP level than the clients in the NIM environment.</p> <p>Three methods are provided for initializing and setting up a NIM environment.</p> <p>Manual Setup</p> <p>This method provides the greatest control over initializing the NIM environment, environment options, and NIM resources. This method does not use any setup automation scripts on AIX.</p> <p>EZNIM</p> <p>This method requires the least amount of options to be selected. Most of the options and configurations are defined automatically by the native NIM configuration scripts on the AIX target system. The results of the setup script are saved to "/var/adm/ras/nim.setup".</p> <p>Basic Startup</p> <p>This method offers more control than the EZNIM option, with many of the underlying operations automated by using the native NIM configuration scripts on the AIX target system.</p>								
<table border="1"> <tbody> <tr> <td>▶ Manual Setup of NIM Environment</td> <td></td> </tr> <tr> <td>▶ EZNIM Setup of NIM Environment</td> <td></td> </tr> <tr> <td>▶ Basic Setup of NIM Environment</td> <td></td> </tr> </tbody> </table>			▶ Manual Setup of NIM Environment		▶ EZNIM Setup of NIM Environment		▶ Basic Setup of NIM Environment	
▶ Manual Setup of NIM Environment								
▶ EZNIM Setup of NIM Environment								
▶ Basic Setup of NIM Environment								

- To use the manual setup method, complete the following steps:
 - a. Click **Manual Setup of NIM Environment**.
 - b. Install the NIM master filesets, if you did not yet do so.
 - c. Enter the information under the Initialize NIM Master Options section.
 - d. Configure the NIM resources that you want to use.
 - lpp_source resource
 - SPOT resource
 - root resource
 - dump resource
 - paging resource
 - home resource
 - share_home resource
 - tmp resource



Note: The lpp_source and SPOT resources are, by default, selected to be used.

- To use the EZNIM setup method, complete the following steps:
 - a. Click **EZNIM Setup of NIM Environment**.
 - b. Enter the software source to initialize the NIM environment. The source can be from a CD device, NFS source, or local directory. For example, `cd0`

- c. Enter the volume group for the NIM resources. For example, `rootvg`
 - d. Enter the file system for the NIM resources. For example, `/export/nim/eznim`
 - e. Optional: Select any of the available options.
- To use the basic setup method, complete the following steps:
 - a. Click **Basic Setup of NIM Environment**.
 - b. Enter the primary network interface for the NIM master. For example, `en0`
 - c. Enter the input device for the installation images. For example, `cd0`
 - d. Optional: Select the options from the appropriate drop-down lists for the following actions:
 - Remove all newly-added NIM definitions and filesystems when the basic setup operation fails.
 - Define the NIM system bundles and NIM bosinst_data.
 - Add a prefix level to the resource name.
 - Create diskless or dataless machine resources.
 - e. Configure the options for the lpp_source resource.
 - f. Configure the options SPOT resource.

For more information about the NIM parameters, see the *IBM AIX information center*.



Note: The AIX information centers are version-specific. To see the list of available AIX information centers, see the IBM AIX resources at: <http://www-03.ibm.com/systems/power/software/aix/resources.html>.

4. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
5. Click **Create Action**.
6. Deploy the action.

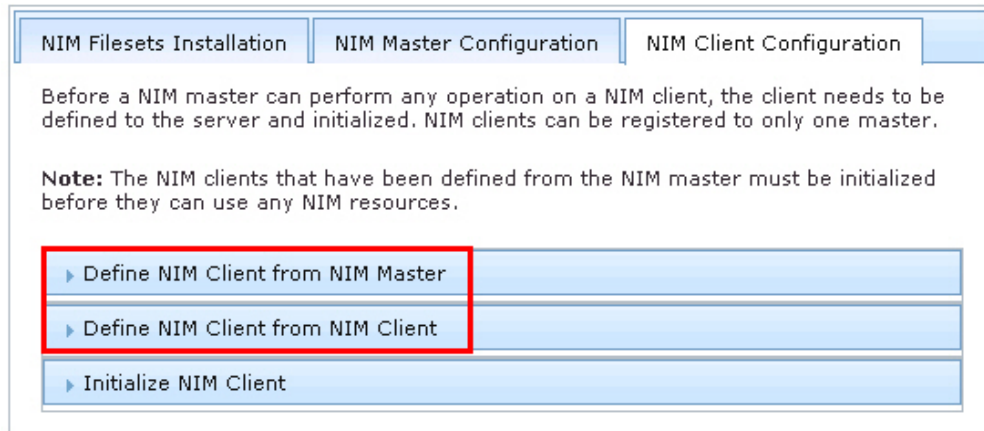
Configuring the NIM client


Use the NIM Installation and Setup Dashboard to define a NIM client to the NIM master. The NIM master cannot take any operation on a NIM client if the NIM client is not defined.

- Ensure that the required NIM client filesets are installed.
- When you define a NIM client to the NIM master, the NIM master must be able to resolve the host name of the NIM client and vice versa. If the host name is not resolved, you get only limited NIM functions.
- There are two ways to define NIM clients to a NIM master. The NIM master can define NIM clients to itself or, if allowed by the NIM environment, the NIM client can define itself to the NIM master.
- When you define a NIM client through the NIM master, the NIM master does not contact the NIM client. As a result the NIM client must be initialized separately. See [Initializing the NIM client \(on page 83\)](#).
- A NIM client can be registered to only one NIM master at a time.
- NIM masters cannot be clients to any other NIM master.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Installation and Setup Dashboard**.
2. Click **NIM Client Configuration**.
3. Select the method that you want to use to define the NIM client to the NIM master.

Figure 40. Ways to define the NIM client the NIM master



- If you want to define the NIM client from a NIM master, complete the following steps:
 - a. Click **Define NIM Client from NIM Master**.
 - b. Enter the machine name. For example, `clientname`
 - c. Enter the machine type. For example, `stand-alone`
 - d. Enter the hardware platform type. For example, `chrp`
 - e. Select the kernel to use to boot the network.
 - f. Select the communication protocol that is used by the NIM client.
 - g. Enter the required information for the primary network installation interface:
 - NIM network name. For example, `master_net`
 - Host name. For example, `client_hostname`
 - Cable type (for Ethernet only)
 - h. Optional: Enter extra network information:
 - Network speed setting
 - Network duplex setting
 - Network adapter hardware address. For example, `0`
 - Network adapter logical device name
 - i. Optional: Enter the IPL ROM emulation device.
 - j. Optional: Enter the CPU ID.
-  **Note:** You can also create a NIM network for the NIM client. If you choose to do so, you must provide the Subnet mask, default gateway that is used by the machine and master, network type, and Ethernet type.

- k. Optional: Enter the machine group.
- l. Optional: Enter any comments.
- If you want to define a new NIM client to the NIM environment from another NIM client, complete the following steps:
 - a. Click **Define NIM Client from NIM Client**.
 - b. Enter the machine name. For example, `clientname`
 - c. Enter the primary network installation interface. For example, `en0`
 - d. Enter the host name of the network installation master. For example, `master_hostname`
 - e. Optional: Enter the hardware platform type. For example, `chrp`
 - f. Optional: Select the kernel to use to boot the network.
 - g. Optional: Select the communication protocol that is used by the NIM client.
 - h. Optional: Enter any comments.

For more information about the NIM parameters, see the *IBM AIX information center*.



Note: The AIX information centers are version-specific. To see the list of available AIX information centers, see the IBM AIX resources at: <http://www-03.ibm.com/systems/power/software/aix/resources.html>.

4. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
5. Click **Create Action**.
6. Deploy the action.

The created action targets a NIM master and defines clients to that target system.

You must initialize the NIM clients that were defined through the NIM master so that the NIM clients can use the NIM resources. See [Initializing the NIM client \(on page 83\)](#).

Initializing the NIM client

Initialize a NIM client to generate the `/etc/niminfo` file that is required to work in a NIM environment and to use the NIM resources.

You might need to initialize the NIM client for the following reasons:

- The NIM client failed to register itself to the NIM master.
- The `/etc/niminfo` file on the NIM client is removed, corrupted, or in any other way rendered unusable.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Installation and Setup Dashboard**.
2. Click **NIM Client Configuration**.
3. Click **Initialize NIM Client** to display the fields under that header.

Figure 41. NIM client initialization

▼ Initialize NIM Client

Initializing a NIM client generates the `/etc/niminfo` file required for the client to participate in a NIM environment and make use of NIM resources. NIM clients should be initialized if the client did not self-register with the NIM master or if the `/etc/niminfo` file has been removed, corrupted, or in any other way rendered unusable.

Note: The "auto" option for assigning a NIM client name will use the value from running `hostname -s`. Target machines should be configured with a unique hostname before using this option.

Host Name of NIM Master *	<input style="width: 90%;" type="text" value="master1_hostname"/>
NIM Client Name *	<input style="width: 90%;" type="text" value="auto"/>

Create a one-time action. Leave this check box clear to create a Fixlet that you can reuse.

4. Enter the host name of the NIM master.

For example, `master1_hostname`

5. Enter the name of the NIM client that is defined on the NIM master.

For example, `clientname`



Note: To assign the NIM client name with the value that results from running the `hostname -s` command, enter `auto` as the NIM Client Name. Before you use the auto option, the target machines must be configured with a unique host name.

6. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.

7. Click **Create Action**.

8. Deploy the action.

Updating existing clients and resources

To use an existing NIM environment, update the clients and resources through the NIM Management Dashboard.

The NIM Management Dashboard allows all updates to be performed together in a single action or independently as separate actions.

1. [Update the NIM `lpp_source` resource \(on page 84\)](#).
2. [Update the NIM master \(on page 86\)](#).
3. [Update the NIM clients \(on page 87\)](#).

Updating the NIM `lpp_source` resource

The `lpp_source` resource is a directory with a collection of filesets that are used for the NIM update actions. Update the `lpp_source` resource to make the new installation files available to the NIM master and NIM clients.

New filesets must be downloaded before beginning the update action. New filesets can be downloaded from any of the following tools that are provided by IBM:

- AIX Download Cacher
- Fix Central
- Service Update Management Assistant (SUMA)

NIM resources cannot be modified while they are allocated to NIM machines. The generated actions deallocate the resource from all clients.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **Update NIM Components from NIM Master**.
4. Configure the settings according to the actions that you want to include in the generated Fixlet or one-time action.
5. Select to add packages to the existing NIM lpp_source resource from the appropriate option.
6. Enter the lpp_source resource name. For example, `lpp_source1`
7. Enter the source of the update packages. The packages can be from a CD device, local directory, or NFS path. For example, `cd0`
8. **Optional:** Enter the name of the packages. For example, `all`
9. **Optional:** Select whether to use lppmgr to remove the filtered images from the lpp_source resource, and set the lppmgr filter options.
10. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
11. Click **Create Action**.
12. Deploy the action.

Updating NIM SPOT resource

The NIM Management Dashboard helps you to create Fixlets that you can use to update the NIM SPOT resource through the NIM master.

- New filesets must be downloaded before beginning the update action. New filesets can be downloaded from any of the following tools that are provided by IBM:
 - AIX Download Cacher
 - Fix Central
 - Service Update Management Assistant (SUMA)
- NIM resources cannot be modified while they are allocated to NIM machines. The generated actions deallocate the resource from all clients.
- NIM client updates are initiated by the NIM master and do not directly report back to the Endpoint Manager console.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **Update NIM Components from NIM Master**.
4. Configure the settings according to the actions that you want to include in the generated Fixlet or one-time action.



Note: If you are adding new files, you must first update the lpp_source resource to be able to use it to update the SPOT resource, NIM master, and NIM client systems.



Note: If you are updating to a new technology or service pack level, the NIM master must be updated before or at the same time as the NIM clients.

5. Select to update the SPOT resource from the appropriate option.
6. Enter the lpp_source resource where the installation images are located.
7. Enter the names of the fixes that are to be installed.



Tip: To include all the fixes that are in the source location, enter `update_all`

8. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
9. Click **Create Action**.
10. Deploy the action.

Updating the NIM master

The operating system of the NIM master must always be at the same or later version than all NIM clients it manages. Attempts to update NIM clients to a version later than the NIM master would fail.

If you are adding new files, you must first update the lpp_source resource to be able to use it to update NIM master.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **Update NIM Components from NIM Master**.
4. Configure the settings according to the actions that you want to include in the generated Fixlet or one-time action.
5. Select to update the NIM master from the appropriate option.
6. Enter the lpp_source resource where the installation images are located.
7. **Optional:** If you want to set the updated filesets to a committed state, select the appropriate option.



Note: Filesets that are in the Applied state must be committed after confirmation to free disk space.

8. **Optional:** If you want to restart the system after the update, select the appropriate option.
9. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
10. Click **Create Action**.
11. Deploy the action.

Updating the NIM clients

Updating the NIM Client installs the latest filesets from the specified lpp_source resource on the NIM client.

- If you are adding new files, you must first update the lpp_source resource to be able to use it to update NIM client systems.
- Push updates to NIM clients from the NIM master. This method for updating client initiates the update procedure from the NIM master. Push permissions must be enabled on the NIM clients or this action fails. For more information, see [Enabling or disabling push permissions \(on page 90\)](#).

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **Update NIM Components from NIM Master**.
4. Configure the settings according to the actions that you want to include in the generated Fixlet or one-time action.
5. Select to update the NIM client from the appropriate option.
6. Enter the names of the NIM clients that you want to update. To include all the NIM clients in your NIM environment, enter `all`.



Tip: To include all the NIM clients in your NIM environment, enter `all`.

7. Enter the lpp_source resource where the installation images are located.
8. **Optional:** If you want to set the updated filesets to a committed state, select the appropriate option.



Note: Filesets that are in the Applied state must be committed after confirmation to free disk space.

9. **Optional:** If you want to restart the system after the update, select the appropriate option.
10. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
11. Click **Create Action**.
12. Deploy the action.

Optionally, NIM clients can initiate the installation process and pull the updates from the NIM master. Details on this process can be found in [Updating a system from a NIM client \(on page 88\)](#).

Updating a system from a NIM client

The NIM Management Dashboard helps you to create Fixlets that you can use to update an AIX system from a NIM client.

NIM machines can have only one lpp_source resource that is allocated to them at a time. The generated action deallocates any existing lpp_source resource allocations.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **Update Machine from NIM Client**.
4. Enter the lpp_source resource where the installation images are located.

Figure 42. Update a system from a NIM client

▼ Update Machine from NIM Client

Note: NIM resources cannot be modified while they are allocated to NIM machines. The generated actions deallocate the resource from all clients.

lpp_source resource with installation images *

Commit Updated Filesets

Create a one-time action. Leave this check box clear to create a Fixlet that you can reuse.

5. **Optional:** If you want to set the updated filesets to a committed state, select the appropriate option.



Note: Filesets that are in the Applied state must be committed after confirmation to free disk space.

6. **Optional:** If you want to restart the system after the update, select the appropriate option.
7. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
8. Click **Create Action**.
9. Deploy the action.

Rebuilding the NIM master configuration file

The NIM Management Dashboard provides a task to rebuild the `/etc/niminfo` file on the targeted NIM master servers.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **General NIM Management Operations**.
3. Click **Rebuild NIM Master Configuration File**.

4. Click **NIM Master: Rebuild niminfo Config File**.
5. Deploy the action.

Rebuilding the NIM client configuration file

The NIM Management Dashboard helps you create a Fixlet to connect to the NIM master to rebuild the `/etc/niminfo` file on a NIM client.

The NIM client must be configured on the target NIM master. If the NIM client is not configured on the target NIM master, the `/etc/niminfo` file is not generated.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **General NIM Management Operations**.
3. Click **Rebuild NIM Client Configuration File**.
4. Enter the host name of the NIM master.

Figure 43. Rebuild the NIM client configuration file

▼ Rebuild NIM Client Configuration File

Host Name of NIM Master *	master_hostname
NIM Client Name *	auto
NIM Communication Port	1058

Create a one-time action. Leave this check box clear to create a Fixlet that you can reuse.

Create Action

5. Enter the NIM client name.



Note: To assign the NIM client name with the value that results from running the `hostname -s` command, enter `auto` as the NIM Client Name. Before you use the `auto` option, the target machines must be configured with a unique host name.

6. **Optional:** Enter the NIM communication port.
7. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
8. Click **Create Action**.
9. Deploy the action.

Synchronizing the date and time

The NIM Management Dashboard provides a task to synchronize the date and time on the targeted NIM client systems with the NIM master that they are registered to.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **General NIM Management Operations**.
4. Click **Synchronize Date and Time**.
5. Click **NIM Client: Sync Date and Time with NIM Master**.
6. Deploy the action.

Enabling or disabling push permissions

The NIM Management Dashboard provides tasks that you can use to enable the NIM master to remotely run commands on the NIM client.

The permission option is set on a per-client basis. If push permissions are disabled, the NIM client can still use the allocated NIM resources, but the individual clients must start all commands.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Management Dashboard**.
2. Click **NIM Update Operations**.
3. Click **General NIM Management Operations**.
4. Click **Enable/Disable Push Permissions**.
5. Click the available tasks to enable or disable the NIM master push permissions on the target NIM client systems.
6. Deploy the action.

Adding new resources to an existing NIM environment

Use the NIM Master Configuration options of the NIM Installation and Setup Dashboard to add new resources to an existing NIM environment.

If new filesets are to be added to a new lpp_source resource, those filesets must be downloaded prior to adding the new resource. New filesets must be downloaded before beginning the update action. New filesets can be downloaded from any of the following tools that are provided by IBM:

- AIX Download Cacher
- Fix Central
- Service Update Management Assistant (SUMA)

Only one instance of a specified resource type, such as lpp_source, can be added per action. Separate actions are required to add multiple instances of a specified resource type.

1. From the BigFix console, click **All Patch Management > Dashboards > Patches for AIX > NIM Installation and Setup Dashboard**.
2. Click **NIM Master Configuration**.

3. Click **Manual Setup of NIM Environment**.
4. Select the resource to be added.
5. Set the options for the selected resource.
6. **Optional:** Select the check box to create a one-time action rather than to create a reusable Fixlet.
7. Click **Create Action**.
8. Deploy the action.

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. Troubleshooting

When problems occur when patching AIX endpoints, review the log files to determine what went wrong and how to correct the errors.

Log files

Enhanced logging with clearer error reporting and error handling to improve troubleshooting.

Download Plug-ins

The `AIXPlugin.log` file lists the results of the downloads related to the execution of the AIX Download Plug-in.

The log can be found in the following locations:

- On Windows systems: `%PROGRAM FILES%\BigFix Enterprise\BES Server\DownloadPlugins\AIXProtocol\logs`
- On Linux systems: `/var/opt/BESServer/DownloadPlugins/AIXProtocol/logs`

The `AIXPluginR2.log` file lists the results of the downloads related to the execution of the AIX Download Plug-in R2 for third-party applications. The amount of information depends on the logging level.

The log can be found in the following locations:

- On Windows systems: `%PROGRAM FILES%\BigFix Enterprise\BES Server\DownloadPlugins\AIXPluginR2Protocol\logs`
- On Linux systems: `/var/opt/BESServer/DownloadPlugins/AIXPluginR2Protocol/logs`

The log files for the following functions are as follows:

NIM operations

This is the log for all NIM operations that have been executed. You can access the log at `<Path to BigFix Data Directory>__NIM_Logs/NIM_Operations_<yyyymmdd>.log`. For example, `/var/opt/BESClient/__BESData/__NIM_Logs/NIM_Operations_20130520.log`.

Installation logs (Technology Level/Service Pack)

Lists all installation logs for Technology Level and Service Pack.

The log can be found at `/var/adm/ras/install_all_updates.log`. You can also find logs for a specific Technology Level/Service Pack at `/var/adm/ras/install_all_updates_<os_level>-<technology_level>-<service_pack>.log`.

Installation log (Interim Fix)

Lists installation logs for interim fixes.

The log can be found at `/var/opt/BESClient/___BESData/___iFixInstall/<ifix_number>.epkg.Z_result.log`.

AIX download cacher

Default log directory of the BigFix client on the target system.

Preview deployment

Logs for the preview deployment feature of the AIX Advanced Deployment Wizard.

The log can be found at `/var/opt/BESClient/___BESData/___MLPkgInstall/PreviewLog/preview_<os_level>-<technology_level>-<service_pack>-<build_date>`.

Fileset inventory

Log results for fileset inventory can be found at `/var/opt/BESClient/___BESData/___AIXInventory`.

Breaking mirrors

Log results for breaking mirrors can be found at `/var/adm/ras/altDiskNewDeploy.log`.

Re-mirroring mirrors

Log results for re-mirroring mirrors can be found at `/var/adm/ras/reMirror.log`.

Reboot

Log results of the reboot command for operating systems in an alternate disk environment.

The logs can be found at `/var/adm/ras/KZCopyAltDiskBESDATA.log` and `/var/adm/ras/SZCopyAltDiskBESDATA.log`.

Multibos

Log files (`/var/adm/ras/Multibos*.log`) of Multibos tasks are as follows:

- `MultibosExpress.log`: Lists the results of the Multibos Express task.
- `MultibosCreateClone.log`: Lists the results of the standby BOS creation task.
- `MultibosFixPackDeploy.log`: Lists the results of the standby BOS update task.
- `MultibosExpress_emgr.log` and `MultibosFixPackDeploy_emgr.log`: Lists the results of the removal of interim fixes on the standby BOS before installing the updates
- `MultibosDeleteClone.log`: Lists the results of the standby BOS removal action.

Download plug-in logging levels

The logging level determines the amount of detail that the AIX Download Plug-in R2 writes to the log files.

Set the logging level in the `%PROGRAM FILES%\BigFix Enterprise\BES Server\DownloadPlugins\AIXPluginR2Protocol\plugin.ini` file.



Note: Logging level values are case-sensitive.

The following logging levels are listed in order of increasing amount of information logged:

INFO

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

DEBUG

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



Note: Setting the logging level to DEBUG increases the amount of information to log, which might have an impact on performance. You must only increase the logging level to DEBUG when investigating an issue.

Proxy information

To ensure that the AIX download plug-in and download cacher tool can download fix packs or patches from Fix Central, bypass the sites listed in this [KB article](#) in your proxy applications and include them in your firewall exception.

Null error when configuring BigFix Patch download plug-ins

When the BigFix server and the BigFix client on the BigFix server do not have the same version, users might encounter a null error. The error occurs because BigFix server 8.x and 9.x versions handle encryption differently. The version of the client on the BigFix server is used to determine the BigFix server version and it is assumed that the version is the same for the BigFix server and the client on the BigFix server.

Ensure that the version of the BigFix server and BigFix client on the BigFix server match to avoid null errors when configuring the download plug-in. At a minimum, the version must be on the same major version level, for example 8.x or 9.x.

ActivePerl 5.18 library error

The following error may be encountered when the `/tmp` directory on the BigFix server is granted no exec permission:

```
Panic: '/usr/lib64/perl5/CORE/libperl.so' is not an ActivePerl 5.18 library
```

Therefore, ensure to set the `/tmp` directory with appropriate permissions.

PeerNext Feature on AIX

PeerNest feature on AIX allows to increase the disk storage space on non-passive PeerNest peers. For more information, see Peer to peer mode at https://help.hcltechsw.com/bigfix/9.5/platform/Platform/Config/c_P2P.html

Appendix C. Frequently asked questions

The questions and answers in this section can help you to better understand BigFix Patch for AIX®.

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 would a patch complete successfully, but ultimately fail?

Under specific circumstances, a patch is successfully applied but the relevance conditions indicate that it is still needed in your deployment. 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?

Ensure that you applied the patch to the correct computers or manually download the patch.

Can I update a single fileset instead of performing full technology level or service pack updates?

Updates are developed and tested as bundles, and updating individual filesets might cause unexpected results. However, if you would still like to update individual filesets, you can do so by downloading the .bff file that you want to deploy and using the fileset option of the AIX Deployment Wizard to generate the necessary Fixlet.

What files can I use in the AIX Deployment Wizard to deploy fileset updates and program temporary fixes (PTFs)?

You can use .bff files to create Fixlets for fileset updates or PTFs. Some AIX fixes might have a different format. For example, the fix packs for SDK, Java Technology Edition uses the .sdk format. To allow the AIX Deployment Wizard to use the fix, rename its extension to .bff file. For example, rename `Java6.sdk` to `Java6.sdk.6.0.0.495.bff`.

Why did the update of my AIX system fail?

There are several reasons why an update can fail. The best place to start investigating is with the log files saved in `/var/adm/ras`.

Some of the more common reasons for failed updates are as follow:

Problem: Insufficient free space in the BES Data Directory (typically `/var/opt/BESClient/__Data/`)

Solution: Free space or expand the current partition using the `chfs -a` command

Problem: Warning that filesets are locked or in EFIXLOCKED state

Solution: Filesets can be locked as the result of installed Interim Fixes. Interim Fixes can be viewed either by using the **AIX Interim Fixes** analysis or by running the command `emgr -l`. It is recommended that all Interim Fixes be removed prior to deploying updates. Interim Fixes can be removed by using the **AIX Interim Fix Management Wizard**.

Problem: Error: `Installation failed due to BUILDDATE requisite failure`

Solution: If the build date of an installed fileset is more recent than the build date of the fileset being installed a warning is displayed and the entire update action might fail. To correct this, upgrade to a more recent technology level or service pack.

Why do NFS actions set the `nfs_use_reserved_ports` and `portchecker` values to 1?

Some Linux operating systems use reserved ports that are less than 1024. These settings are temporarily changed to a value of 1 to avoid failures in connecting to remote servers that use these ports.

What are the requirements for an AIX repository?

NFS installations use the Table of Contents (`.toc`) file in the repository to match packages with their corresponding file names. Use the **Generate Fileset Repository TOC File** task to generate a current `.toc` file.

Are there tools available to help build a repository?

Yes. The AIX Download Cacher provides two methods for building a repository:

--no-archive

Use this parameter to download files, without creating an archive `.aix` file, to the directory specified by the `--dir` parameter.

--repo <dir>

Use this parameter to save a copy of individual downloaded files to the repository specified by the `--repo` parameter.



Note: If the `--repo` parameter is used with the `--no-archive` parameter, the fix pack files are either:

- Copied from the repo directory to the output directory, which is specified by `--dir` parameter.
- Downloaded from the internet and saved to both the output directory and the repo directory.

Will any files that are missing from the AIX repository be automatically added during an NFS installation?

No. For NFS installation actions, all required files must exist in the specified NFS location.

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 AIX download plug-in \(on page 23\)](#).



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. .

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

Check if your download plug-in version is earlier than 2.0. If so, you are still using an old version of the download plug-in that stores credentials in clear text. To encrypt credentials, upgrade your download plug-in to version 2.0 or later from the Manage Download plug-ins dashboard in the Patching Support site.

Where can I find the AIX Patching log files?

Here is a list of the log files and their locations:

- AIX Download Cacher: Default log directory of the BigFix client on the target system.
- AIX Download Plug-in: `AIXProtocol/logs` directory of the default `DownloadPlugin` directory on the BigFix server (For example: `C:\Program Files (x86)\BigFix Enterprise\BES Server\DownloadPlugins\AIXProtocol\logs`).
- Installation Logs: `/var/adm/ras/` on the target system. Logs are unique for each operating system level.

I want to use the AIX Download Cacher to download packages for a fix pack, what must I specify in the command line?

You must enter the following command: `AIXDownloadCacher.exe --dir <path to output directory> --fixid <Fix Pack ID> [optional parameters]`

The `<Fix Pack ID>` can either be the AIX Fix Pack ID or the Interim Fix APAR ID of the package that is to be downloaded. For example, 6100-08-07-1524 or IZ93611.



Note: Ensure that the AIX Fix Pack ID contains the operating system level, technology level, service pack level, and build number. If at least one information is missing, the utility returns an invalid patch identifier error.

When should I create a repository for a single fix pack?

Create a repository for a single fix pack when you are using the technology level and service pack updates using the NFS actions. Issues might occur when the installer automatically attempts to install the latest version of any fileset that it finds in the source directory. For example, if you want to update a system to a specific technology level and service pack level, you must store it in its own isolated location to ensure that is not overridden by later versions.

What are the requirements for using an existing repository of filesets that is accessible on NFS mount?

All fix pack files must be in the NFS directory with a current `.toc` file. Each fix pack must be stored in its own dedicated share space.

How are the fix packs installed when I deploy technology level or service pack updates?

Fix packs are installed in an applied state that can later be rejected, if needed. Applied filesets must be committed after they are verified. They can be committed by using the **Commit Applied Filesets** task. Technology level updates cannot be rejected; attempting to do so might produce unexpected results.

Why did the OS level of my new NIM master change after I installed the NIM filesets?

The OS level is determined by comparing a list of installed filesets with a list of known APARs. When you install new filesets, the target system might become applicable to APARs that were not previously applicable. The OS level is changed to reflect these newly-applicable APARs.

What's the difference between installing the NIM master filesets from the "Install NIM Filesets" and "NIM Master Configuration" tabs?

There is no difference. The installation of the NIM master filesets is added to the **NIM Master Configuration** tab to simplify and consolidate the process of setting up a NIM master.

What happens if I previously installed the master filesets then chooses to install the master filesets during the manual NIM Master configuration?

The second installation attempt detects that filesets are already installed and exits without doing anything. However, if the second installation has a later version of the filesets, then an update is performed.

Can I configure a NIM master outside the dashboard and then configure the client from the dashboard?

Yes, this is possible. If you have preexisting NIM environments, you generate NIM content to manage existing clients or add new clients.

What is an IBM ID? Do I need one?

An IBM ID is a free, single ID and password that you can use across the ibm.com domain. Updates to operating systems and other software products are entitled only to customers under an applicable

warranty or support agreement. To this end, an IBM ID is required for the AIX download plug-in to successfully download updates.

What is an IBM Customer Number (ICN)?

ICNs are unique numbers that are assigned to customer agreements with IBM, including software maintenance agreements.

Why do I need to link my IBM ID to an IBM Customer Number (ICN)?

For a list of benefits of linking your ICNs and your IBM ID, see the announcement at <http://www-01.ibm.com/support/icn/>.

Where can I find the log for the preview deployment feature of the AIX Advanced Deployment Wizard?

You can find the log file with this format

`preview_<os_level>-<technology_level>-<service_pack>-<build_date>` in the directory `/var/opt/BESClient/___BESData/___MLPkgInstall/PreviewLog`. A new log file is generated for each fix pack ID, hence the existing log file gets overwritten.

Where can I find the log for the fileset inventory?

The log file for the fileset inventory action is in the directory `/var/opt/BESClient/___BESData/___AIXInventory`.

What are the commands used in breaking mirrors?

These are the commands used for breaking mirrors:

```
unmirrorvg rootvg $mirrorDisk
reducevg rootvg $mirrorDisk
chpv -c $mirrorDisk
chdev -l $mirrorDisk -a pv=clear
bootlist -m normal $bootDisk
```

What commands are executed by the Re-mirror disk back to rootvg task?

These are the commands used for re-mirroring disks:

```
chpv
chdev
extendvg
mirrorvg
bosboot
bootlist
```

Where can I find the log files for troubleshooting mirror management?

Check the following logs when troubleshooting issues with managing mirrors:

For breaking mirrors:

`/var/adm/ras/altDiskNewDeploy.log`

For re-mirroring disks:

`/var/adm/ras/reMirror.log`

Are there any logs that shows the results of the reboot command for operating systems in an alternate disk environment?

Yes, you can use the following logs:

- `/var/adm/ras/KZCopyAltDiskBESDATA.log`
- `/var/adm/ras/SZCopyAltDiskBESDATA.log`

What are the alternate disk related logs that I can use for troubleshooting?

The following log files can be found in the client folder in the directory `/var/adm/ras/`.

altDiskNewDeploy.log

Lists the results of deploying updates to new or existing alternate disk.

altDiskCreateClone.log

Lists the results of a new alternate disk creation.

What are the multibos related logs that I can use for troubleshooting?

When problems occur, you can determine what went wrong by viewing messages in the appropriate log files that provide information about how to correct errors.

The following log files can be found in the client folder in the directory `/var/adm/ras/`.

MultibosExpress.log

Lists the results of the Multibos Express task, which creates a new standby BOS and deploys patches, that is created from the AIX Advanced Deployment Wizard.

MultibosCreateClone.log

Lists the results of the standby BOS creation action that is created from the AIX Advanced Deployment Wizard.

MultibosFixPackDeploy.log

Lists the results of the standby BOS update action that is created from the AIX Advanced Deployment Wizard.

MultibosExpress_emgr.log

Lists the interim fixes that are to be removed on the standby BOS before the updates are installed using the express task.

MultibosFixPackDeploy_emgr.log

Lists the interim fixes that are to be removed on the standby BOS before the updates are installed using the BOS update action.

MultibosDeleteClone.log

Lists the results of the standby BOS removal action that is created from the AIX Advanced Deployment Wizard.

SZCopyMultibosBESDATA.log

Lists the logging information about the AIX startup script for the multibos reboot.

KZCopyMultibosBESDATA.log

Lists the logging information about the AIX shutdown script for the multibos reboot.

I want to upgrade my endpoints using multibos, what is the suggested way to do this in BigFix Patch?

1. Use the **Determine OS level** Fixlet (ID #6) to check the current technology level or service pack level of the endpoint.
2. Use the **AIX Advanced Deployment Wizard** to generate individual Fixlets for creating a standby BOS and for deploying patches to a standby BOS instance. This method provides you the flexibility to deploy the actions separately. You can also run a preview for each of the individual task to check if everything runs smoothly. To find more information about these options in the wizard, see [Standby BOS creation \(on page 60\)](#) and [Patch deployment \(on page 61\)](#).

Alternatively, you can use the express task in the **AIX Advanced Deployment Wizard** to complete both operations from a single action. For more information, see [Creating a new BOS and deploying patches \(on page 59\)](#).

3. Reboot to the standby BOS.



Note: Before rebooting, you must run the **Deploy AIX StartUp/Shutdown script for multibos reboot** task (ID #92).

You can use the **Restart Computer** task (ID #62) to complete this action.

Alternatively, you can use the **AIX Advanced Deployment Wizard** to create a task for this step. For more information, see [Updating the rootvg boot logical volume \(on page 63\)](#).

4. Check the OS level again to confirm the upgrade.

Can I preview the creation of the standby BOS instance?

Yes, the AIX Advanced Deployment Wizard provides an option to preview the operation first.

1. From the **AIX Advanced Deployment Wizard**, click the **Multibos Tasks** tab.
2. Click **Multibos Individual Task Operations** to expand the individual task selection options pane, and select **Create a New BOS**.
3. Set the **Run a preview** option to *yes*.

Can I run a preview of the patch deployment on a standby BOS?

Yes, a preview option is available from the **AIX Advanced Deployment Wizard**. For more information, see [Deploying technology levels and service packs to a standby BOS \(on page 61\)](#).

I want to upgrade the technology level on my endpoint using multibos, however I do not have a standby BOS yet. How do I create the standby BOS?

There are two methods to create a standby BOS from the **AIX Advanced Deployment Wizard**. You can either use any of the following methods:

- Create a standby BOS without deploying any patches, which provides you options to preview the creation operation. For more information, see [Creating a new BOS \(on page 60\)](#).
- Create a standby BOS and then deploy patches to that BOS instance. For more information, see [Creating a new BOS and deploying patches \(on page 59\)](#).

Can I automatically reboot to the standby BOS after creation?

Yes, this is possible. When creating a BOS from the **Multibos Individual Task Operations** of the **AIX Advanced Deployment Wizard**, you can set to reboot to the newly created standby BOS.

I need to back out of the update because the update procedure failed. What do I do?

To bring back the older AIX version before the update, set and verify the boot list back to the previous boot logical volume and boot to the original BOS instance.

1. From the **AIX Advanced Deployment Wizard**, click the **Multibos Tasks** tab.
2. Click **Multibos Individual Task Operations** and select **Update Boot Logical Volume**.
3. Set the boot list and verify that the boot logical volume is set to the previous BOS instance.

I created a Multibos Express Task to include a reboot of the standby BOS and deployed it to the endpoints, however the task reported back as "failed" after rebooting. What do I do?

To troubleshoot, complete the following steps:

1. Ensure that every step of the task is completed successfully.
2. Ensure that the `MultibosExpress.log` file, which can be found in the endpoint's directory `/var/adm/ras/`, does not contain any error.



Note: Before running any multibos operation, ensure that relevant interim fixes are installed on the endpoints. Otherwise, the multibos task might fail.

3. Check the `SZCopyMultibosBESDATA.log` file for any errors.

An APAR is reported on failures to mount the standby BOS. If you see a mounting failure in the log, similar to the following error, install the interim fix for the APAR.

```
mount: 0506-324 Cannot mount /dev/hd4 on /bos_inst:
The requested resource is busy.
multibos: 0645-007 ATTENTION: mount_dev() returned an unexpected result.
multibos: 0565-026 Error mounting file systems.
```

The TL and SP installation takes too long to complete. Is there a way to improve the performance?

BigFix sets 2% as the default CPU usage limit. If serious performance lag is identified, consider increasing the CPU usage limit by using the task **BES Client Setting: CPU Usage** on the **BES Support** site.

What is the possible cause for a patch download process to not complete for BigFix Red Hat servers?

The download queue size for the BigFix Red Hat server might be larger than 1024 KB, which prevents the download process from completing. The Linux setting 'Max file open limit'; is not accepted by the BigFix server, which limits the download queue to 1024 KB. You must update the BigFix server to version 9.2.7.54 or 9.5.0.51.

Why are there duplicate endpoints appearing in the console after deploying a multibos or alternate disk task?

The duplicate endpoints might appear in the console because the shutdown scripts are not running. Double-check if the following Fixlets were deployed:

- Fixlet 84: Deploy AIX Startup/Shutdown script for alt disk reboot
- Fixlet 92: Deploy AIX Startup/Shutdown script for multibos reboot

What is the turnaround time for BigFix patch content for AIX?

BigFix Patch for AIX content are made available five working days after an IBM advisory of an update or fix.

Is firmware upgrade for Power machines supported by BigFix?

BigFix supports firmware updates only on endpoints that are not managed by IBM Hardware Management Console (HMC). If a system is managed by HMC, you must apply the firmware through the management console.

You can use the **AIX Deployment Wizard** to deploy packages for firmware updates, on endpoints that are not managed by HMC.

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