Tivoli. OS Deployment V2.0

User's Guide

IBM®

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IBM Tivoli.

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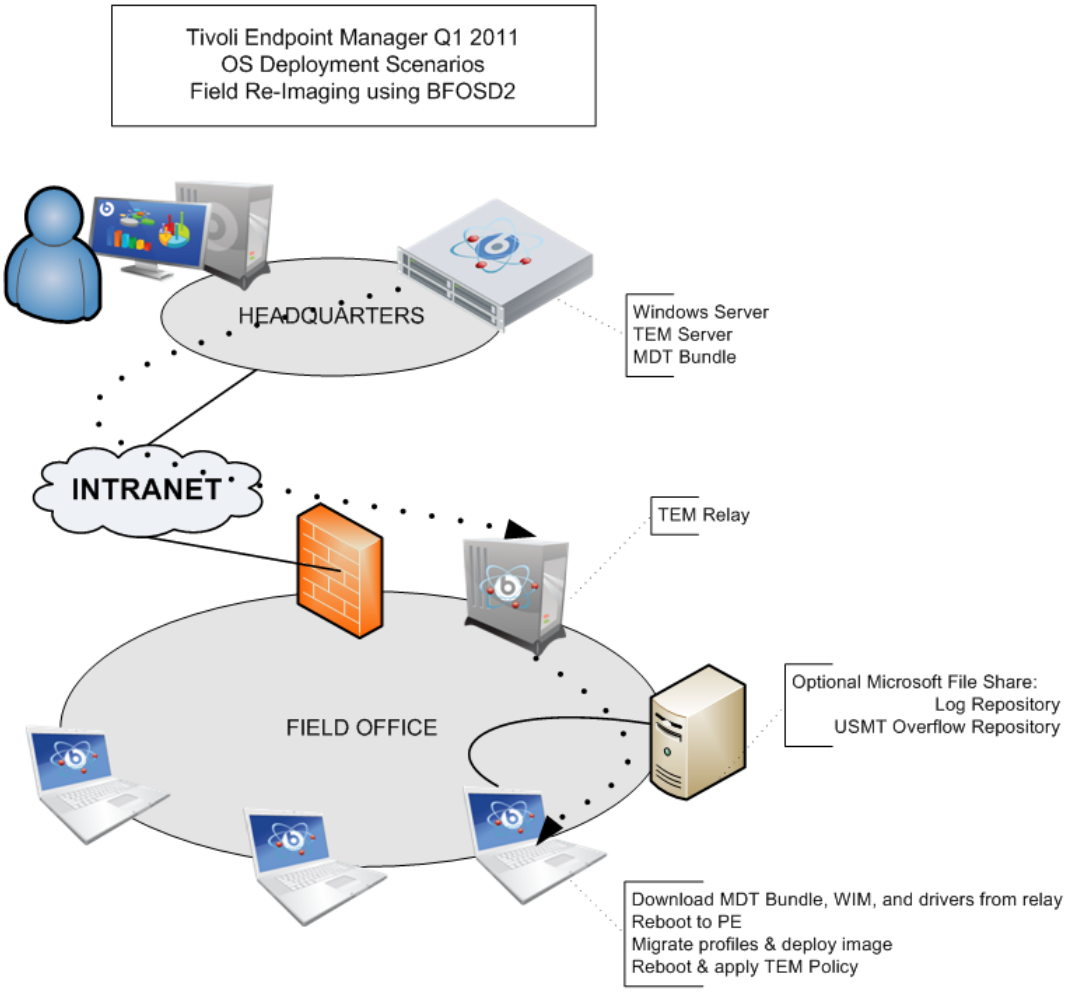
Part One

Introduction

Tivoli Endpoint Manager OS Deployment, which is part of the Lifecycle Management suite, provides a consolidated, comprehensive solution to quickly deploy new workstations and servers throughout a network from a single, centralized location. This solution saves time and money, enforces a standardized and approved image, and reduces risks associated with non-compliant or insecure configurations.

OS Deployment enables complete OS provisioning and system re-imaging capabilities. The solution was created to deploy a fully-configured operating system to multiple computers across an enterprise. Using innovative image deployment technology, Tivoli Endpoint Manager OS Deployment is ideal for rapid, hardware-independent migrations and flexible, centralized image refresh.

The graphic below depicts a high-level view of how the OS Deployment process works.



System requirements

OS Deployment requires Tivoli Endpoint Manager version 8.0 or greater and supports the following operating systems:

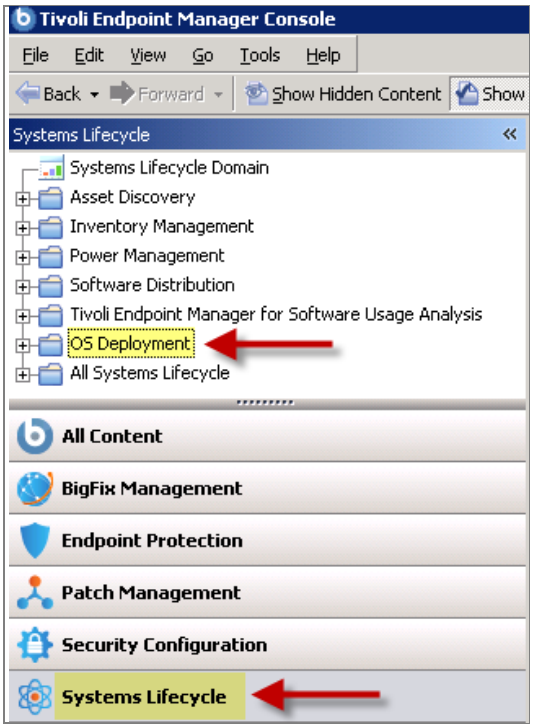
- Microsoft Windows 7 (x86, x64)
- Microsoft Windows Vista (x86, x64)
- Microsoft Windows XP Professional SP3
- Microsoft Windows XP Professional SP3 x64 Edition

> **Note:** *Prepare a Server 2008 or Windows 7 system with the prerequisites for the Microsoft Development Toolkit (MDT) 2010 update 1 and the Windows Automated Installation Kit (WAIK). This system is used as a temporary setup tool.*

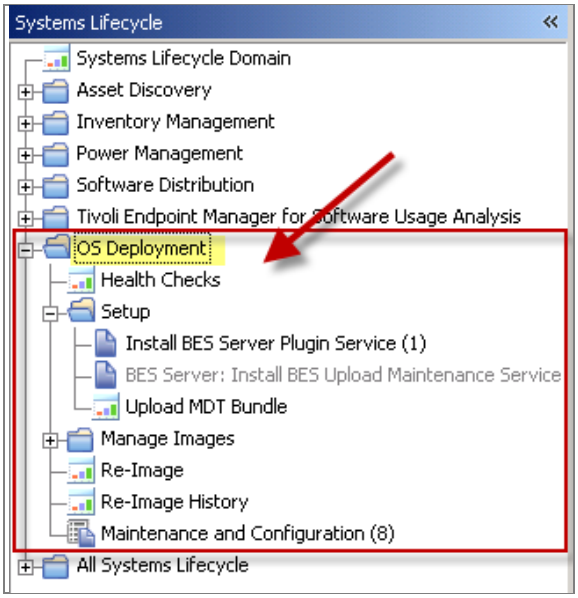
For general system requirements, see the System Requirements section of the Tivoli Endpoint Manager Console Operator's Guide.

Navigation tree overview

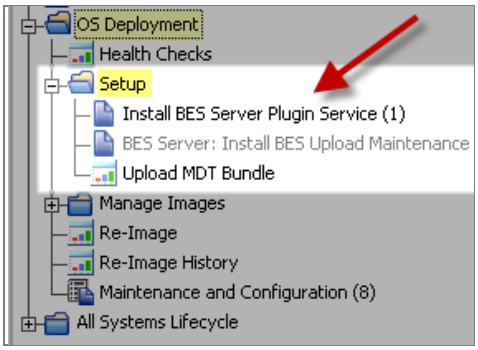
The OS Deployment navigation tree, which is accessed from the Tivoli Endpoint Manager Console, is your primary tool for migrating desktops, capturing, and re-imaging. To access the navigation tree, open the Tivoli Endpoint Manager Console and click the *Systems Lifecycle* "domain" at the bottom of the domain panel.



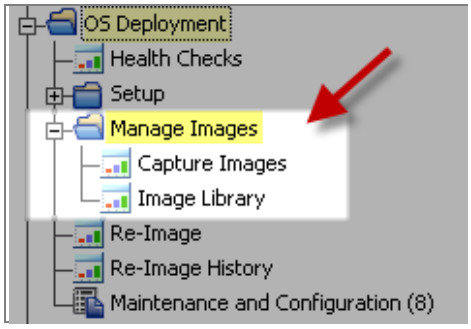
Click the *OS Deployment* site, shown in the top of the navigation tree, to expand the contents. Located on the left side of your Console, the navigation tree organizes OS Deployment content into Setup and Manage Images nodes, as well as Fixlets, tasks, and dashboards.



The Setup node expands to reveal Fixlets for installing the BES Server Plug-in and Upload Maintenance services, and a separate dashboard for uploading the MDT Bundle.



The Manage Images node includes the Capture Images and Image Library dashboards.



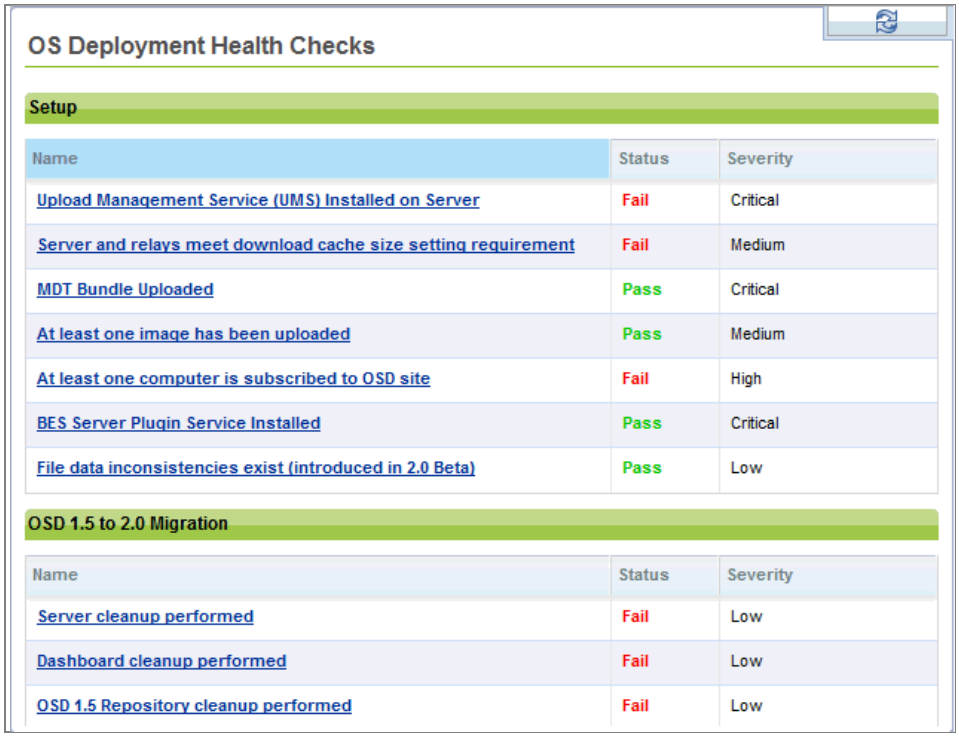
New features

OS Deployment version 2.0 includes a number of new features and functionality upgrades:

- Health Checks Dashboard – A summary of the overall health of your deployment, including a list of tasks you might need to address within your deployment.
- Image Library – An integration of the Activate Image and Manage Image dashboards from version 1.5, with added functionality to pre-cache images and modify image information.
- Re-Image History Dashboard – A new dashboard that displays in-progress or completed reimage jobs.
- SMB shares are no longer required for OS re-imaging.
- Images can now be stored in any share location and no longer require repositories. When uploaded, images can be pre-cached to any relay as part of deployment preparation.
- The simplified UI utilizes Take Action Dialogs instead of the dashboard UI for initiating tasks.
- OS Deployment now supports capture and deployment of Windows Vista.

Health Checks dashboard

The Health Checks dashboard monitors the health of your deployment by identifying tasks, task severity, and status. Tasks are organized into *Setup* and *Migration* categories.



OS Deployment Health Checks

Setup

Name	Status	Severity
Upload Management Service (UMS) Installed on Server	Fail	Critical
Server and relays meet download cache size setting requirement	Fail	Medium
MDT Bundle Uploaded	Pass	Critical
At least one image has been uploaded	Pass	Medium
At least one computer is subscribed to OSD site	Fail	High
BES Server Plugin Service Installed	Pass	Critical
File data inconsistencies exist (introduced in 2.0 Beta)	Pass	Low

OSD 1.5 to 2.0 Migration

Name	Status	Severity
Server cleanup performed	Fail	Low
Dashboard cleanup performed	Fail	Low
OSD 1.5 Repository cleanup performed	Fail	Low

For any tasks showing a *Fail* status, click the name of the item and click in the Actions box of the task or Fixlet window to deploy the appropriate action.

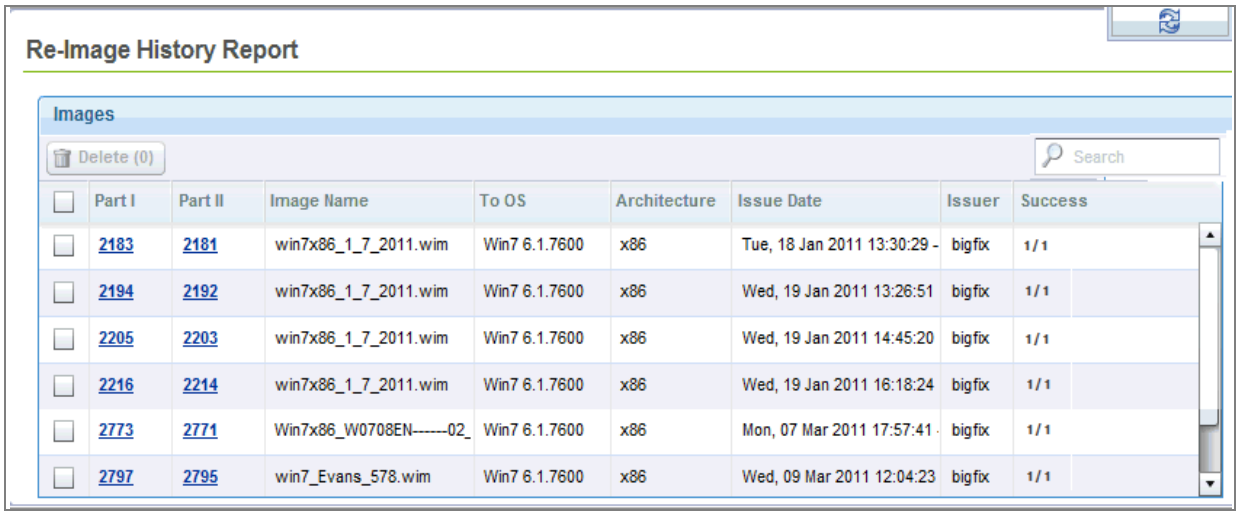
Note: *If you are migrating from OS Deployment version 1.5 to version 2.0, see the OS Deployment 1.5 to 2.0 Migration section of the Health Checks dashboard.*

OSD 1.5 to 2.0 Migration

Name	Status	Severity
Server cleanup performed	Pass	Low
Dashboard cleanup performed	Pass	Low
OSD 1.5 Repository cleanup performed	Pass	Low

Re-Image History dashboard

The Re-Image History dashboard, located under Manage Images in the navigation tree, displays the status of your re-image tasks.



Preparation

The Tivoli Endpoint Manager OS Deployment solution uses the Microsoft Deployment Toolkit (MDT) 2010 Update 1 to provide system preparation, image capture, driver insertion, and image deployment services.

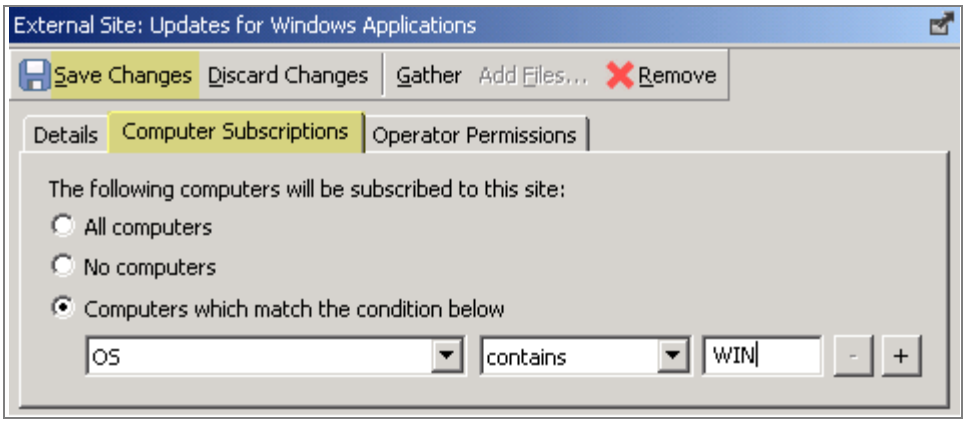
To prepare a system for use, the administrator must use MDT to produce a bundle of tools and resources called the MDT Deployment Bundle.

Using OS Deployment involves the following steps:

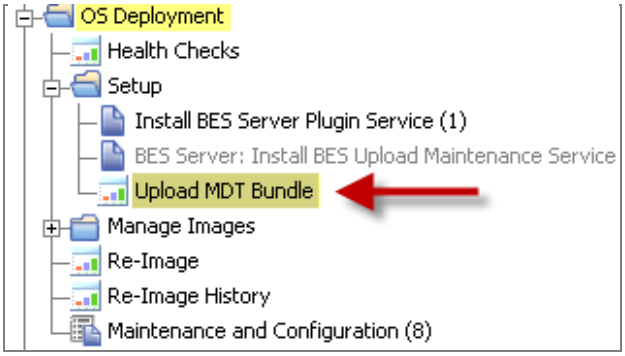
1. Build the MDT bundle with the Bundle Creator tool.
2. Subscribe to the *OS Deployment* site and subscribe computers.
3. Perform the tasks listed in the Setup node of the navigation tree:
   - *Install BES Server Plugin Service*
   - *Install BES Upload Maintenance Service*
   - *Upload MDT Bundle*
4. Capture an image through the Capture Images wizard and import images from the Image Library.
5. Deploy images to workstations using the Re-Image wizard

Click **here** to access and download the MDT Bundle Creator tool. Follow the instructions, and then return to this document.

Next, subscribe to the *OS Deployment* site and subscribe computers. From the External Site window, click the Computer Subscriptions tab, select computer subscription criteria, and click *Save Changes*. This step installs the site to your Console. When installed, the server can upload the offline deployment bundle.



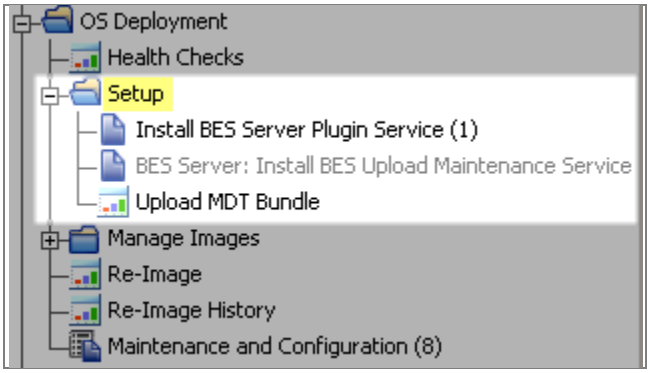
When you have completed these preparation steps, upload the deployment bundle directory by clicking *Upload MDT Bundle* from the Setup node in the navigation tree.



Part Two

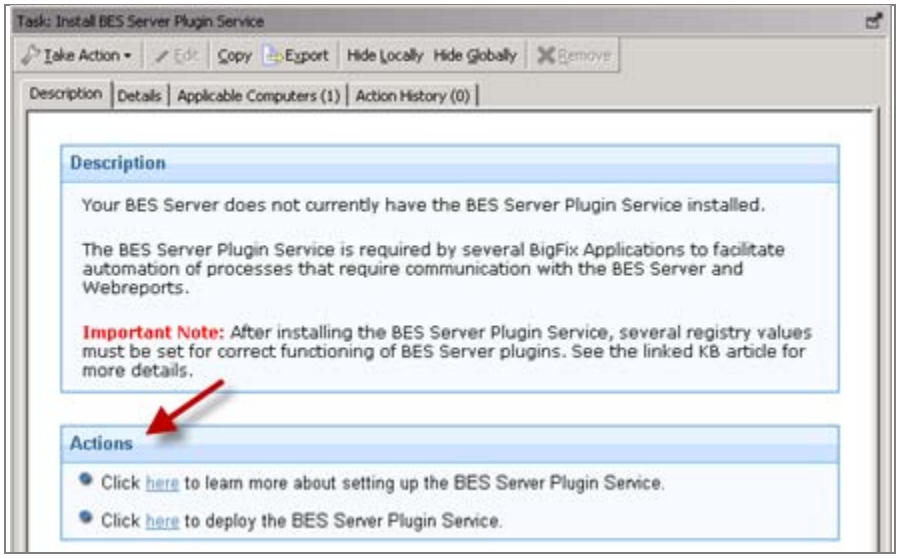
Setup

The *Setup* node in the navigation tree allows you to access reports, dashboards, and wizards that you use to manage repositories and images and set parameters for their future use within your deployment.



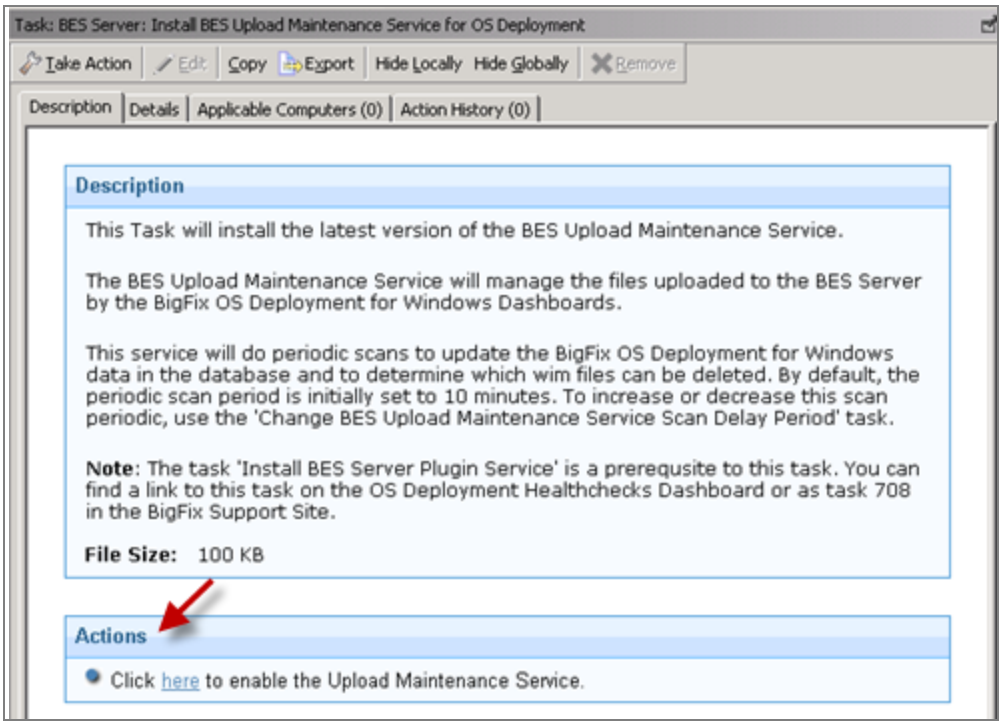
Install BES Server Plugin Service

The BES Server Plugin Service task enables the Upload Maintenance Service. From the navigation tree, click the task and, when the Fixlet window opens, click in the Actions box to deploy the plugin.



Install BES Upload Maintenance Service

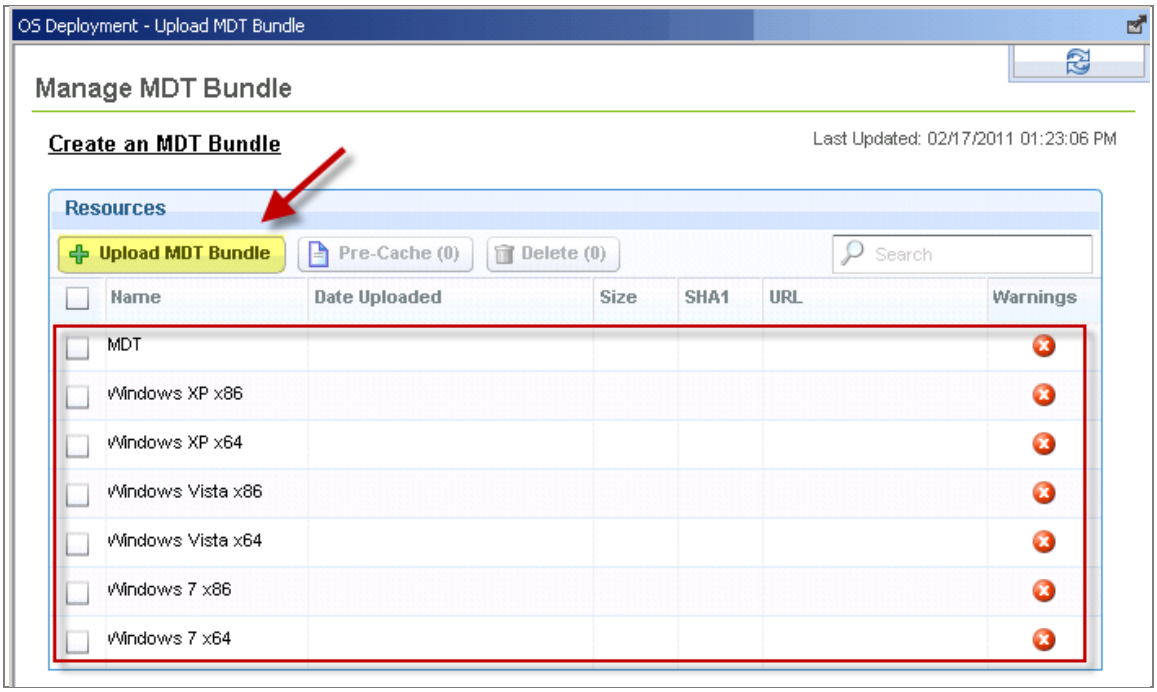
The BES Upload Maintenance Service manages files uploaded to the BES server. From the navigation tree, click the task and then click in the Actions box of the task window to deploy the service.

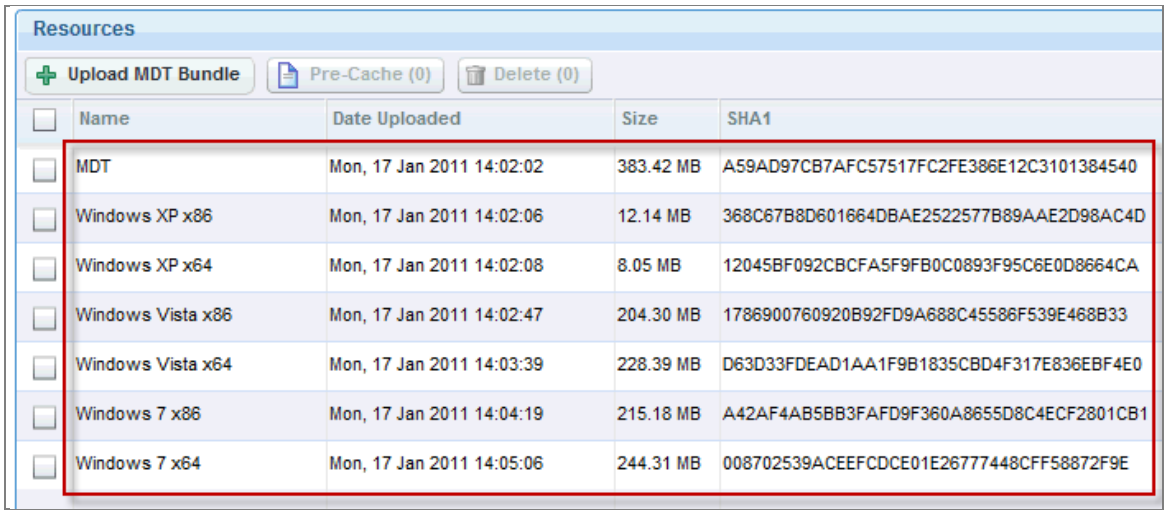


Upload the MDT Bundle

The Upload MDT Bundle tool gives Tivoli Endpoint Manager access to the previously-created MDT resource bundle. If you have not yet produced your MDT deployment bundle, see the Preparation section of this publication. Upload the deployment bundle directory using the *Upload MDT Resources Wizard* in the *Setup* node of the dashboard. Browse to the deployment bundle directory location on your computer. Only upload the “MDTBundle\Content\Deploy” folder from this directory.

Click *Upload* to upload the directory to the Tivoli Endpoint Manager server. Complete the upload process using the Console on the Tivoli Endpoint Manager server.

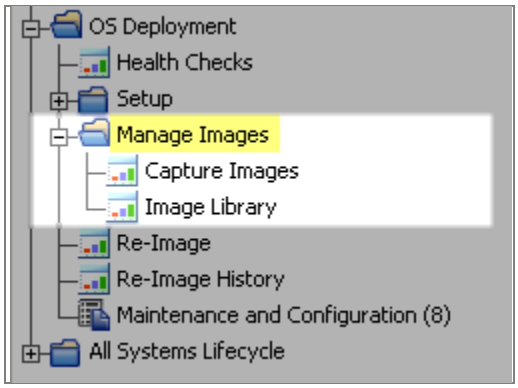

OS Deployment - Upload MDT Bundle
Manage MDT Bundle
Create an MDT Bundle
Last Updated: 02/17/2011 01:23:06 PM
Resources
Upload MDT Bundle
Pre-Cache (0)
Delete (0)
Search
Name
Date Uploaded
Size
SHA1
URL
Warnings
MDT
Windows XP x86
Windows XP x64
Windows Vista x86
Windows Vista x64
Windows 7 x86
Windows 7 x64


Resources
Upload MDT Bundle
Pre-Cache (0)
Delete (0)
Name
Date Uploaded
Size
SHA1
MDT
Mon, 17 Jan 2011 14:02:02
383.42 MB
A59AD97CB7AFC57517FC2FE386E12C3101384540
Windows XP x86
Mon, 17 Jan 2011 14:02:06
12.14 MB
368C67B8D601664DBAE2522577B89AAE2D98AC4D
Windows XP x64
Mon, 17 Jan 2011 14:02:08
8.05 MB
12045BF092CBCFA5F9FB0C0893F95C6E0D8664CA
Windows Vista x86
Mon, 17 Jan 2011 14:02:47
204.30 MB
1786900760920B92FD9A688C45586F539E468B33
Windows Vista x64
Mon, 17 Jan 2011 14:03:39
228.39 MB
D63D33FDEAD1AA1F9B1835CBD4F317E836EBF4E0
Windows 7 x86
Mon, 17 Jan 2011 14:04:19
215.18 MB
A42AF4AB5BB3FAFD9F360A8655D8C4ECF2801CB1
Windows 7 x64
Mon, 17 Jan 2011 14:05:06
244.31 MB
008702539ACEEFCDCE01E26777448CFF58872F9E

Part Three

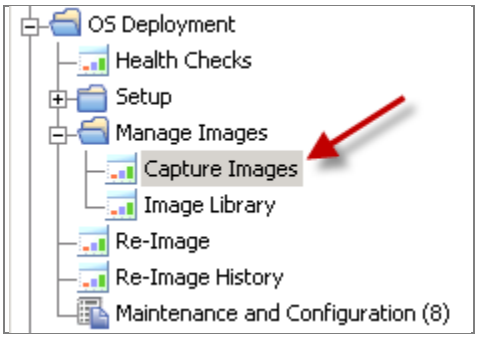
Manage Images

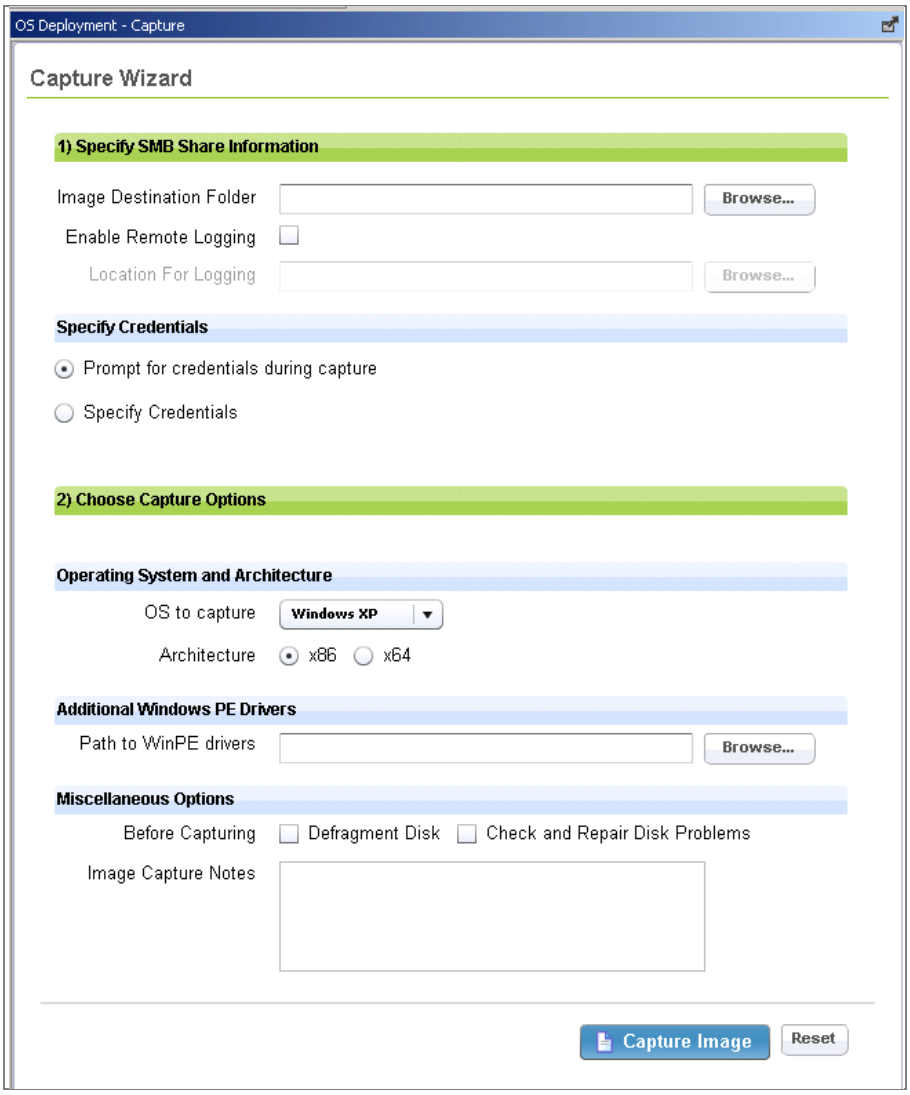
The *Manage Images* node in the navigation tree captures and manages the images in your Image Library.



Capture Images

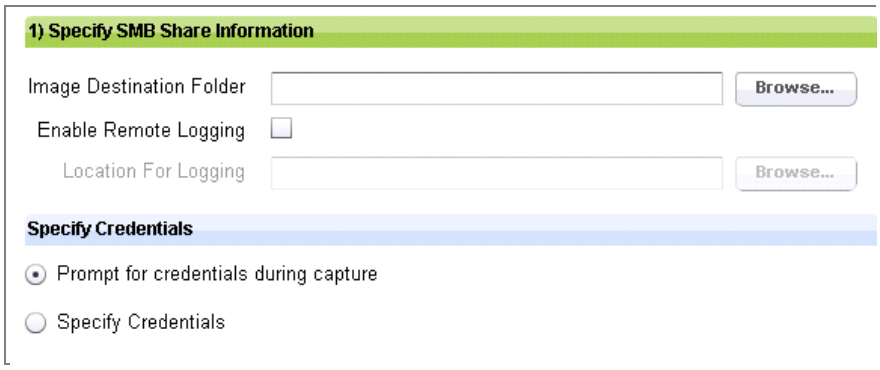
From the *Capture Image* wizard, you can specify SMB share information and choose capture options. Access it from the *Manage Image* node in the navigation tree.





Specify SMB Share Information

From this section of the Capture Image wizard, you can set image destination, remote logging, and the credentials used to access the share location.



The "Prompt for credentials during capture" option is selected by default, which causes a prompt to be shown on the endpoint requesting credentials. This occurs just before the .wim file is saved. You can also choose the "Specify Credentials" option to specify the appropriate credentials required to access the "Image Destination Folder" and, if applicable, the Remote Logging location.

> **Note:** *If you specify both Image Destination Folder and Remote Logging, the credentials must be the same.*

Choose Capture Options

From this section of the Capture Images wizard, you can select an operating system and architecture for your capture, locate Windows PE drivers, defragment or check disk prior to capturing, and record specific capture notes.

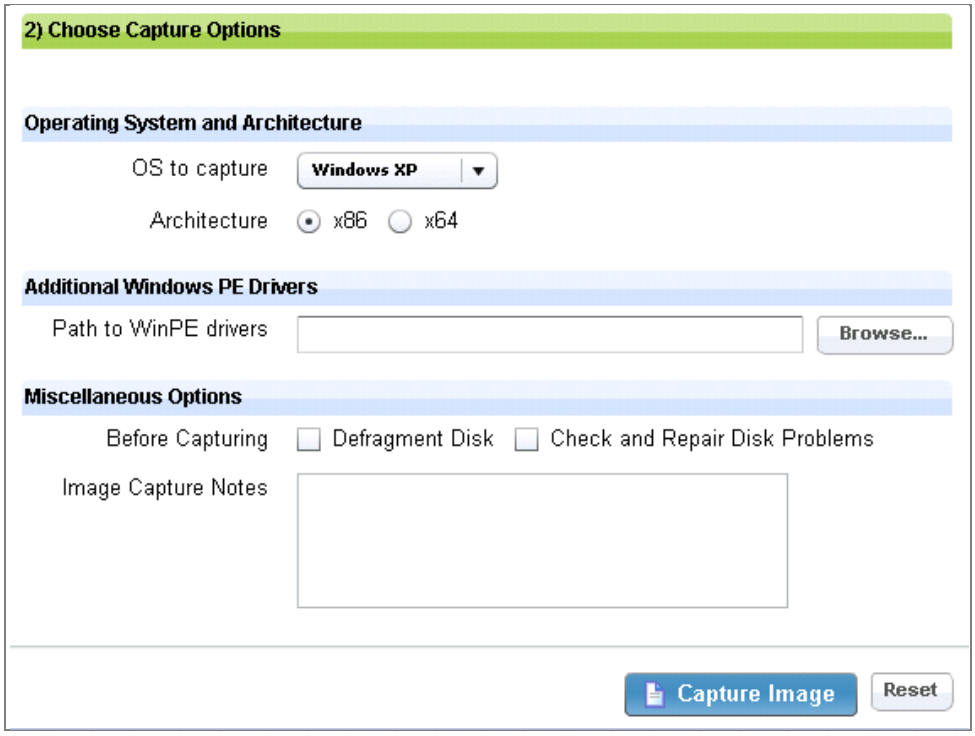
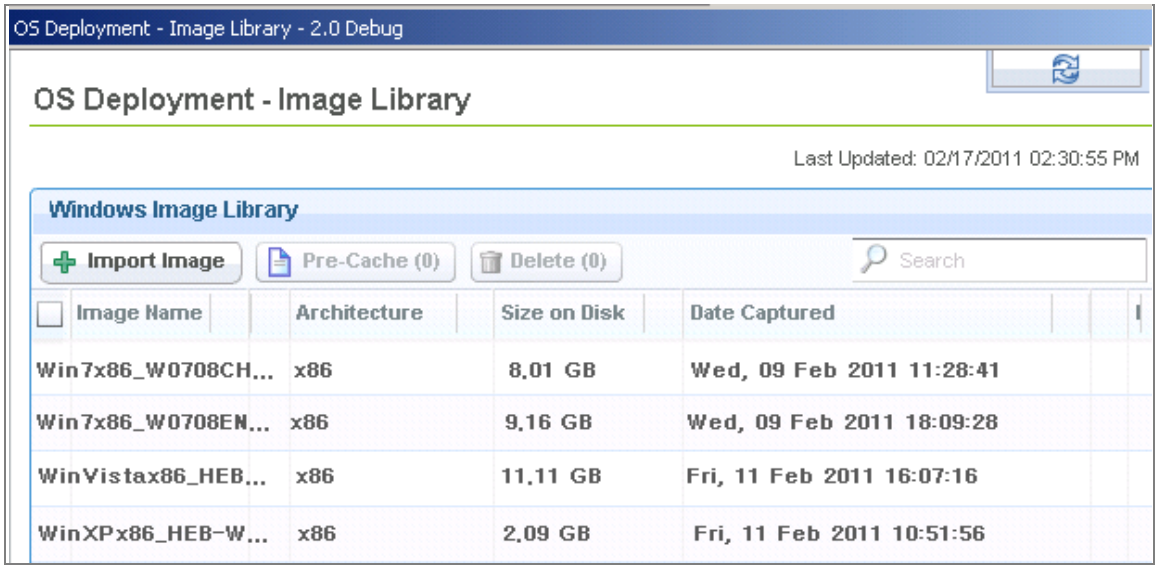
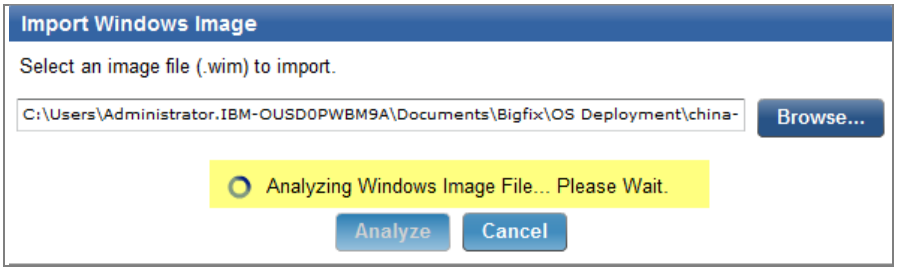


Image Library

The Image Library manages images by importing, pre-caching, deleting, or modifying the meta-data of your existing images. You can select an image from the list to either pre-cache or delete. To import a new image, click Import Image.



Browse to locate the image on your computer and click Analyze.



The analysis typically takes several minutes to complete. When completed, your newly-imported image is displayed in your Image Library list.

> ***Note:*** *If a .wim file does not contain a Tivoli Endpoint Manager agent, one is installed during the re-image process.*

Part Four

Re-Image

From the Re-Image and Re-Image History wizards, you can choose a source image and attach options for how that image is handled within your deployment. Click *Re-Image* from the navigation tree.

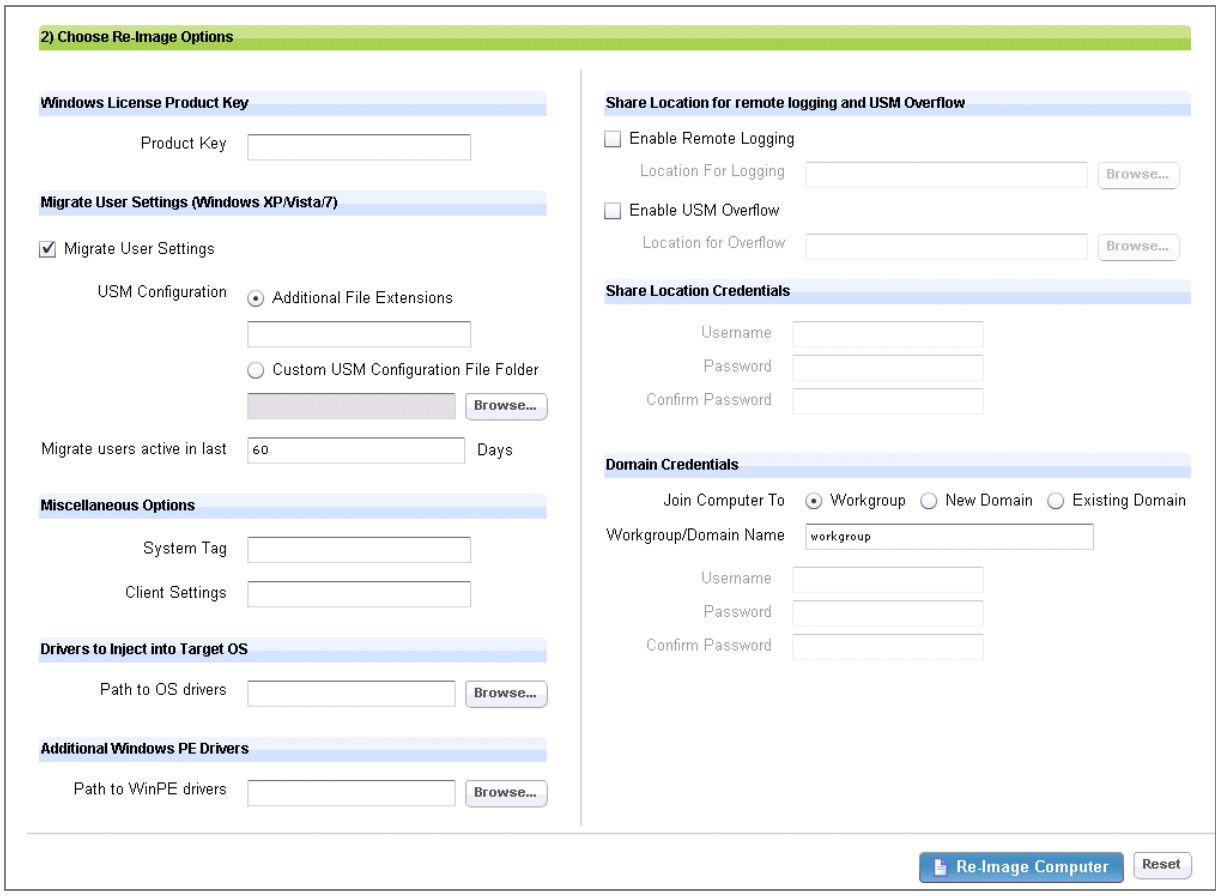
Choose a Source Image

Select a source image from the Image Name list in the wizard, or click *Refresh Images* if you have recently imported images.

You can use the *Search* box to search by a specific image name. Select an image by clicking the appropriate row in the table. If you deploy to multiple computers, copy the image to the nearest relay repository using the *Manage Image Repositories wizard*.

Choose Re-Image Options

The Re-Image Options part of the Re-Image wizard sets specific parameters, including migration settings, driver storage paths, network settings, and credentials. Scroll to the *Choose Re-Image Options* section. The subsections below provide specific details about each component of Re-Image Options.



Windows License Product Key

Enter a valid Windows license product key into this field. To deploy multiple copies of Windows, you need a volume key.

> **Note:** *Failure to specify a correct product key might result in a failed re-image job and put the computer in an unrecoverable state.*

Migrate User Settings

The *Migrate User Settings* capability captures multiple user profile directories from a system about to be re-imaged. In most cases, the profile data stays on the migrated system. However, if the migration is from Windows XP to Windows XP and the system does not have sufficient disk space to duplicate the migrated profiles, the data might overflow to a "USM Overflow Location" (SMB) and be restored to the system after the image task is complete.

> **Note:** *To avoid filling up your available storage on the specified USM Overflow location, perform multiple migrations.*

User State Migration behavior and capabilities might vary based on the original operating system, new operating system, or amount of storage space.

From / To	Windows XP	Windows Vista	Windows 7
Windows XP	Uses local storage space to copy profile; potential disk impact, might use local relay for compressed storage if computer has insufficient space (at cost of network impact)	Uses "hard link" to migrate profile locally, no disk or network impact	Uses "hard link" to migrate the profile locally, no disk impact, no network impact.
Windows Vista	Not supported	Uses "hard link" to migrate profile locally, no disk or network impact	Uses "hard link" to migrate the profile locally, no disk impact, no network impact.
Windows 7	Not Supported	Not Supported	Uses "hard link" to migrate the profile locally, no disk impact, no network impact.

Miscellaneous Options

The *Miscellaneous Options* section of Re-Image Options allows you to tag a system with role-specific baselines, for example, *Emeryville Office* or *Accounting Department*. You can install specific software applications relevant to those baselines, such as VPN for remote users or finance software for accounting personnel.

> **Note:** *During a system migration, pre-existing client settings are restored in the new operating system. This feature allows you to extend with new client settings.*

OS Deployment supports role-specific baselines that allow administrators to target deployments based on user-defined tags. You can set a baseline to use these tags. For example, if the newly-imaged system is tagged with "Location=Emeryville" and "Group=Accounting", then the baseline to support the accounting group in the Emeryville office uses the following relevance:

```
value of setting "Location" of client = "Emeryville"
AND
value of setting "Group" of client = "Accounting"
```

When systems are migrated from one operating system to another, OS Deployment retains the client settings that were set in the previous operating system.

The System Tag field allows you to set a flag to indicate to the Tivoli Endpoint Manager platform that this system has been freshly imaged. This is useful to "top off" baselines and enforce settings.

For more information about working with baselines, see the Tivoli Endpoint Manager Console Operator's Guide.

Driver Path

In the *Path to OS Drivers* field, browse to a folder containing the appropriate storage and network drivers for the targeted system. Driver installation is based on PNP ID matching. To deploy to hardware different from the original captured image, provide valid driver paths.

> **Note:** *The drivers in the specified folders are archived and uploaded to the Tivoli Endpoint Manager server, and that archive is downloaded to the endpoint at the time of deployment.*

Additional WinPE drivers (Optional)

During reimage, computers boot into WinPE to start the reimage process, which includes network and storage drivers. Computers might crash without appropriate WinPE storage drivers in place.

If computers do not have appropriate WinPE network drivers, they are unable to access the appropriate network resources. For example, VMware computers with vmxnet or BusLogic devices require vmxnet and vmscsi drivers to be specified in this field.

> **Note:** *The drivers in the specified folders are archived and uploaded to the Tivoli Endpoint Manager server, and that archive is downloaded to the endpoint at the time of deployment.*

Share Location

Remote Logging specifies a network location to which your log files are copied after capture or reimage. To use this feature, click the *Enable* box and browse to assign a logging location.

USM Overflow specifies a network location where user files are to be migrated if there is insufficient space on the endpoint. This occurs only during Windows XP to Windows XP migrations. To use this feature, click the *Enable* box and browse to assign an overflow location.

Share Location Credentials

Enter username and password credentials for users to access the shared location. If using both Remote Logging and USM Overflow, the credentials must be the same.

Domain Credentials

At the end of a deployment, a computer can be joined to a workgroup or to a new or existing domain.

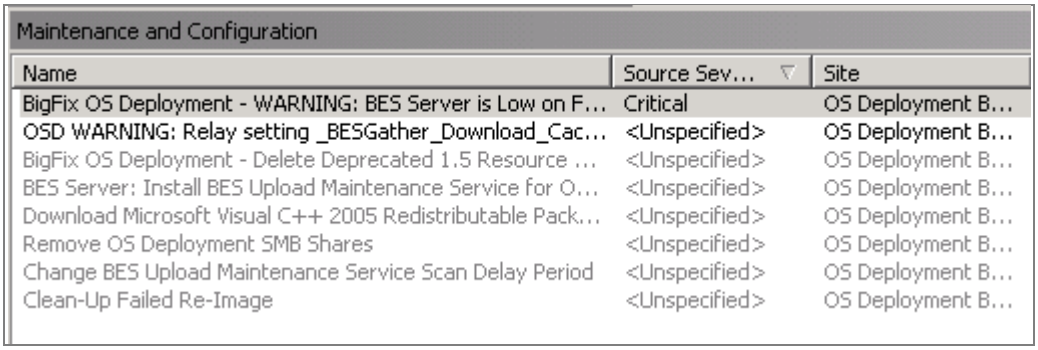
- *Workgroup* - To join a computer to a workgroup, enter the name of the workgroup.
- *New Domain* – To join a computer to a new domain, enter the name of the new domain and credentials with domain-joining privileges.
- *Existing Domain* – To migrate domain settings from the previous operating system, enter the appropriate domain-joining credentials.

> ***Note:*** *OU/LDAP settings cannot be specified for a workgroup or domain name. Domain-joining credentials can be specified as domain\username or username. If the domain is not specified as part of the username, the name of the domain you are joining to is used.*

Maintenance and Configuration

Maintenance and Configuration tasks indicate actions that you must take to maintain your deployment. If a Fixlet or task in the list is grayed-out, it is not relevant to any computers in your deployment.

Click *Maintenance and Configuration* from the navigation tree and select a task or Fixlet. For each Fixlet, click the name and then click in the Actions box of the Fixlet window to deploy the appropriate action.



Part Five

Support

Frequently asked questions

I have just upgraded to OS Deployment version 2.0 and I can't find images from my previous image repository.

To import your images into the new version, find each image on a share that you have access to, and then import it.

What should I do with the image repositories I created in OS Deployment version 1.5?

When you have fully migrated to OD Deployment version 2.0 and have imported the images you need, you can remove the version 1.5 image repositories using the *Remove OS Deployment SMB Shares* task.

What is the BES Server Plugin service?

The BES Server Plugin service facilitates communication between the Tivoli Endpoint Manager server and server side utilities such as the BES Upload Maintenance service. For more information about the BES Server Plugin service and detailed setup instructions, click **here** for the related Knowledge Base article.

What is the BES Upload Maintenance service and why does the Image Library page show my images as "Upload in Progress"?

The BES Upload Maintenance service is a utility that must be set up on the Tivoli Endpoint Manager server to manage file uploads. When the server utility is set up, file status is updated on the server automatically. You might need to refresh your console to see the updates.

What types of inputs can be entered in the "Domain Credentials" section?

You can use the following formats for Domain Username: USER or DOMAIN\USER. You can use the following format for Workgroup/Domain Name: WORKGROUP NAME or DOMAIN NAME (default OU/LDAP settings are applied and cannot be specified here)

How do I import a custom .wim file?

You can import from the Image Library dashboard under Manage Images in the navigation tree. You can manually input operating system, architecture, and size on disk.

> **Note:** *Size on disk in this case indicates the extracted size of the .wim file. This is typically about two and a half times the size of the actual .wim file.*

When can PE drivers be used?

PE drivers are injected into the PE .wim file in the operating system before the start of a migration.

Technical support

The Tivoli Endpoint Manager technical support site offers a number of specialized support options to help you learn, understand, and optimize your use of this product:

- Support Site
- Documentation
- Knowledge Base
- Forums and Communities

Part Six

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