

Microsoft

(70-624)

Windows Vista & Office 2007

Desktop Deployment

 Smarter
Training

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- Deploying the 2007 Microsoft Office System
- Configuring Windows Vista automated installation settings
- Deploying Windows Vista
- Application Compatibility toolkit
- And more!

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Deploying Windows Vista and Office 2007 Desktops (70-624) LearnSmart Exam Manual

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Product ID: 010924
Production Date: July 18, 2011

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1-800-418-6789
solutions@learnsmartsystems.com

International Contact Information

International: +1 (813) 769-0920

United Kingdom: (0) 20 8816 8036

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Abstract

This Exam Manual is designed to familiarize you with the necessary information you will need to know in order to pass the Microsoft 70-624 exam on Windows Vista and Microsoft office deployment. The primary purpose of this tool is to serve as a supplementary training product that you can use in conjunction with other training tools, such as LearnSmart Video Training or LearnSmart Practice Exams. It is not entirely comprehensive, but is instead designed to be quick, efficient, and to concentrate on the most difficult portions of the exam. After reading this Exam Manual, you should ask yourself how much you knew about the exam before you looked through it. If the answer is a lot, then you are probably prepared for the exam and can test yourself with a practice test. If not, then you need to concentrate more time studying and to reread the Exam Manual once again.

What to Know

The Microsoft 70-624 is one of the newest exams available on the Microsoft Windows Vista platform. Consequently, both the technology involved with the Microsoft exam has changed and the technology involved within the actual test differs as well. This exam is highly concentrated on specific questions involved with Vista technology, the difference between Vista and Microsoft, and what you need to know to be an effective Vista and Office technology specialist. Thus, it behooves you to spend a *lot* of time studying the *technology* of the test, and not necessarily the procedure. Much of the exam is going to be concentrated on the features of the Vista and Office platforms, not just what you can do with them. Be prepared!

Tips

The best thing you can do to prepare for this exam is get as much experience with Windows Vista and Office is possible. This means that you'll need to purchase a copy of Windows Vista and get a very fast, very reliable computer. Vista is extremely demanding and if you want to know and understand the features very well, you'll need to have something that can turn them on and not stutter or struggle. Additionally, make sure that you take at least one practice test. They're available from LearnSmart and are the single best preparation tool available on the market. Good luck!

Deploying the 2007 Microsoft Office System

Installing and deploying Microsoft Office 2007 is not like installing and deploying previous versions of Office. Previous versions had one .MSI (Microsoft Installer) package to deal with. In Office 2007, however, there are at least two components, a language-neutral core package and one or more language-specific components, depending on the packages you want to install. These can all be configured by editing specific XML files.

Configuring Office Settings and Components

To start the installation and configuration process, you have to create a network installation point. A network installation point is simply a share that is made available to your users or to System Management Server (SMS) that contains all of the files necessary to install 2007 Microsoft Office. Unlike previous versions of Office, you cannot use `setup /a` to create an administrative installation point. Now, you have to manually copy the files to the prescribed location.

Before you set out to install Office, you can use the Office Customization Tool (OCT) to create a Setup customization file. This file will customize the Office installation and change the default ways that Office would normally be installed. It is similar to the Windows Installer Transform (MST) files in previous versions of Office. You can define which products will be installed locally, which will be installed the first time they are used, and which will not be installed. You can hide or lock features so that if a user runs Setup interactively, he or she cannot make changes to what you have configured.

To start the OCT, go to the network installation point and run `setup.exe /admin`, select the product you want to configure, and choose OK. You can then choose what features you want installed in what state. You can specify the path and the file name for the Setup configuration file, and finish by saving it. This file is the Setup customization or MSP file. When Setup is run, it will use customization files it finds in the Updates folder and apply the settings.

The installation options are:

Option	Description
Run from my computer	Setup copies the files, and writes registry entries, defines shortcuts, and stores all information on the destination computer's hard disk. The feature or application will run from the user's computer.
Run all from my computer	The same as Run from my computer, except everything runs from your computer, including child features.
Installed on first use	When a user first tries to run the application or feature, Setup will retrieve all the necessary files from the local installation source and install the product. Some applications do not support this option.
Not available	The components of the program and all child processes are not installed on the computer.
Hidden	The program and all its child programs do not appear during an interactive setup. Setup uses the default installation state or the state set in the customization file.
Locked	The program installation settings cannot be changed during an interactive installation or maintenance mode.

Normally, the MSP file is saved in the Updates folder, although it can be moved to a different location. If you have done that, the location must be specified in the config.xml file as part of the SUpdateLocation attribute of the SetupUpdates element.

The Setup customization file can be used for more than just the initial installation. It can also be used to alter an existing installation. Some options are only available during a new installation of Office.

The OCT breaks the installation down into four sections: setup, features, additional content, and Outlook.

Setup

The setup part of OCT can define the default location of the installation and the default organization name, set up additional network installation resources, provide the product key, allow acceptance of the end user license agreement, and determine which display level to use, what to do with previous versions of Office, whether there are any custom programs to run during the installation, which security settings to use, and which setup properties to use.

Features

This section determines which Office features will be installed on the user's computer. You are using this to change the installation state discussed above for both the parent feature and its children.

Additional Content

This section is used to add or remove custom files, registry entries, and shortcuts during the installation.

Outlook

The Outlook section is used to define the way Outlook 2007's profile is implemented and to define options for communication between Outlook 2007 and Microsoft Exchange 2007. When the Outlook profile is defined, the administrator can customize which values in the registry will define user-specific information. Although a user might have multiple Outlook profiles, only one profile can be configured in the Setup customization file. The following are the options for the Outlook section:

Setting	Description
Use existing profile	Use the profile already in place or prompt the user to create a profile the first time Outlook starts.
Modify profile	Modify the default profile or define changes to profiles that you name. If neither exists, Outlook will create a profile based on the setting you choose.
New profile	A new profile is created and it is the default profile. A name must be entered in the Profile Name box.
Apply PRF	An Outlook Profile file (PRF) will be imported and used to define the new default profile.

Of course, with Outlook, there is the backend of an Exchange Server connection. The settings you can configure include Do Not Configure an Exchange Server Connection, which prompts the user for information the first time Outlook starts, or Configure an Exchange Server Connection. In this case, you can configure the user name, using a specific value or the %USERNAME% variable; you can enter the name of the Exchange Server that will be available to users and decide if you are going to overwrite existing settings.

You can also configure Cached Exchange Mode, having the option to Not Configure Cached Exchange Mode, or Configure Cached Exchange Mode to create an OST file or use an existing OST file. In addition, you can use the customized setup to add additional Outlook email accounts to the user's profile, and set options for POP3, LDAP, IMAP, Hotmail, PST, Unicode PST, Outlook Address Book, Personal Address Book, and Exchange information.

Installing Office 2007

Installing Office requires the administrator to copy all the necessary installation files to a share point somewhere on the network, and make this share point available to all the users who are installing Office. This can be done so the users can access it directly, or 2007 Microsoft Office can be deployed using SMS or policies. This section talks about what happens during the Office installation from the Office perspective.

Note: In previous versions of Office you could run setup.exe /a to create an administrative installation point. This feature is *not* available in Office 2007.

The setup process consists of the following:

Running setup.exe

Setup.exe kicks off the installation process. Setup is located in the root directory of the network installation point. It can be run once for each Office product that is installed. When run, it checks for Office products to be installed. If it finds more than one, it will present the user with a choice of which product to install.

This process can be bypassed if setup.exe is pointed to the config.xml file, also located in the root folder of the installation point. From the command line, installing Office 2007 Standard edition would look like this:

```
\\servername\sharename\Office12\setup.exe /config \\servername\sharename\Office12\Standard.WW\Config.xml
```

Note: This command must all be on the same line. Office12 is also the root of the installation share.

There are a few other switches that can be used with setup.exe:

Switch	Purpose
/admin	Starts running the Office Customization Tool, which is used to create a custom Setup file called an MSP file.
/adminfile <i>[path]</i>	This switch can only be used as part of the initial installation process. Once the custom Setup file is created, you use this switch to include the file as part of the installation process. The path can point to a specific file or just to a folder where the customization files are stored. The default location for this file is the Updates folder. If the path points just to the Updates folder, the appropriate customization file for that version of Office will be used. If there are multiple customization files for that version of Office, those files must be stored in a different folder and the file must be specified at the command line.
/config	Points to the config.xml file (either default or custom) to use during Setup. This file is usually stored in the core product folder, and it directs Setup regarding how to install that product. This file can be edited to customize the installation.
/modify <i>[productid]</i>	Setup can use the modified config.xml file to run in maintenance mode, which will allow you to make changes to an already existing installation of Office. The productid is found in the setup.xml file for the product that will be modified. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.
/repair <i>[productid]</i>	As the switch implies, this will repair an installation. /repair uses the productid that is found in the setup.xml file for the product that will be repaired. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.
/uninstall <i>[productid]</i>	Removes the product from a destination computer. Can be used at the command line with /config. Uninstall uses the productid that is found in the setup.xml file for the product that will be uninstalled. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.

Checking for Prerequisites

The installation prerequisites checked include minimum operating system and administrative rights. The user that is doing the installation must be an administrator of the destination computer, or Microsoft System Management Server must be used to run the installation with administrator privileges.

Reading Data from an XML File

Multiple XML files can be consulted as part of the installation process. These include `setup.xml`, the XML file for each package, a custom `setup.xml` file, and the `config.xml` file. Each folder on the network installation share has both a `setup.xml` and a `package.xml` file. The `package.xml` file for Office Standard 2007, for example, would be called `standardww.xml`. Using these files, Setup can identify the product and languages available for that product, match the language-neutral and language-specific elements to create a complete feature, build the feature tree, and collect the MSI files that are going to be needed to complete the installation.

The custom installation file or the MSP file has any modifications for the installation, including those customizations that handle how the installation process is going to be run. If there is no custom file listed either on the command line or as part of the `config.xml` file, Setup will look in the Updates folder just to be sure there is no `custom.xml` file for the product being installed. Setup takes the information in the custom file and uses it to determine things like whether the product should be installed quietly or which features will show up in the feature tree. As you would expect, the `custom.xml` file settings overwrite default information in the `setup.xml` and `package.xml` files.

Finally, each product installation share point will contain a `config.xml` file that tells Setup to install that particular product. This file can be edited to customize the process, so you can include the products or languages you want installed. The `config.xml` settings take precedence over customization files and default settings in `setup.xml` or `package.xml` files.

Building the Feature Tree

Setup uses the information contained in the XML files to create a single feature tree that includes all the available applications and features in the product. You view the feature tree and specify which applications and features to install on users' computers by using the Office Customization Tool. If you allow users to run Setup interactively, they view the feature tree with your modifications in the Setup user interface.

Creating a Local Installation Source on the Destination Computer

When Setup is run, 2007 Microsoft Office will create a local installation source on the destination computer. The location will vary, depending on the amount of free space you have on each disk. The source folder is created in a hidden folder, `\MSOCache\AllUsers\`. The installation source is created by a program called Office Source Engine (`Ose.exe`). Setup copies the files from the installation share to this hidden folder and then Setup uses the Windows Installer to install Office from the local source. This is helpful because with access to a local copy of the source files, Setup can repair, reinstall, or add Office features without requiring access to a CD or network access point. When users are applying updates, they will not be prompted for a network access point or a CD to complete the process, and installation can be done in a two-step process to manage network resources.

Installing Office

Once creation of the local installation is complete, 2007 Microsoft Office is installed from that location. To reduce the network load, Microsoft suggests running Setup once to distribute the local installation files to the users, and then coming back and running Setup again to finish off the installation.

When the local installation starts, Setup begins checking for required disk space and making sure all dependencies are met. The Windows Installer then installs the correct set of MSI files from the user's computer from the local installation source. The progress bar can be displayed to the user during this process. The progress bar will also be visible while applying customizations and updates.

Applying the Customization File

When previous versions of Office were installed, customization was done using a Windows Installer Transform file (MST). Now, it is done by referencing XML data files. The customization can tweak default user settings, which features are installed, application of Outlook profiles, or other user-specific customization changes.

Each customization file is designed to work with a specific product. If there is a customization file present for a product you did not install, obviously, it would not be applied. If there are multiple customization files for the same product in the Updates folder, then all the files will be applied, in alphabetical order.

As a best practice, if you create multiple configuration files for different groups of users, Microsoft suggests storing them in a location other than the Updates location and using the /adminfile option to specify the appropriate file.

Applying Updates to Software

Once the installation and customization are complete, Setup looks in the Updates folder on the installation point for software updates defined in an MSP file. These updates are sent out by Microsoft. Software updates can also be applied as part of the initial installation process, making the process seem to be a single event. This makes sure the user has the most up-to-date version of the product.

Migrating from Earlier Versions of Office

When it comes time to roll out 2007 Microsoft Office, some issues may crop up that should be addressed before the implementation.

File Format

The default file formats for Word 2007, Excel 2007, and PowerPoint 2007 have changed to XML. If all versions of Office cannot be updated at the same time, there may be some compatibility issues until the roll-out is complete. The format change, according to Microsoft, allows for a more rapid creation of documents using different data sources, provides for easier data mining, reduces file size, and improves data recovery in corrupted files.

To ease the transition, users can save files in "compatibility mode," which will make files compatible with earlier Office releases. In addition, updates are available for previous versions of Office back to Office 2000, to allow users to read, edit, and save files in the new XML format. There are also converters available. Use the Office Migration Planning Manager (OMPM) to help you determine how much impact the change will have. OMPM also allows for the bulk conversion of files. The OMPM is available for download from www.microsoft.com.

Security

Another new feature of 2007 Office is the Trust Center, which has all security settings for Office applications in a single location. There is also a document action bar that is used in place of the security prompt that used to come up when the file opened. By default, Office will block any content it deems to be potentially dangerous without a prompt, meaning the user will not have to make security decisions when the file first opens. If content is blocked, the document action bar will appear to tell the user what happened.

Settings in the Trust Center have also changed to be more user friendly and more flexible.

User Interface

One of the bigger changes in Word, Excel, Access, PowerPoint, and Outlook is the switch from the traditional menu bar in previous versions to a new ribbon interface. The ribbon interface is divided into tabs, and commands are then organized within each tab. According to Microsoft, the change improves a user's ability to use and find features in the 2007 Office release. Plan on educating users to help them adapt to the change. Although most of the commands will work as in the past, users may need to change macros because of the new interface.

Object Model

The object model has changed with the 2007 Office release. Applications should be tested to make sure they are compatible with 2007 Office. Some object model features have been added, changed, or removed. Test all applications for compatibility issues.

Outlook 2007

In Office Outlook 2007, changes have been made to Calendaring, Tasks, and other features. One noticeable change is that security options while connected to an Exchange Server are handled by a Group Policy instead of an Exchange Security Form.

Configuring Windows Vista Automated Installation Settings

You can configure the automated installation settings by using the Windows Automated Installation Kit (WAIK), which is available for free download from Microsoft. The download is in the form of an ISO file that then needs to be burned to DVD. Once on the DVD, you can use the Setup wizard to install the WAIK on an administrative workstation. The WAIK installation includes a software development kit, documentation, a link to access a Windows Preinstallation Environment (Windows PE), and the Windows System Image Manager (SIM).

The Microsoft suggested deployment scenario for Windows Vista is to follow these steps:

1. Build a lab environment.
2. Create an answer file by using the Windows System Image Manager.
3. Build a master installation by using the product DVD and your answer file.
4. Create an image of the master installation by using the Windows Preinstallation Environment and ImageX technologies.
5. Deploy the image from a network share onto a destination computer using Windows PE and ImageX.

This section deals with building an answer file. The main method of creating the answer file is by using the Windows SIM, shown in *Figure 1*.

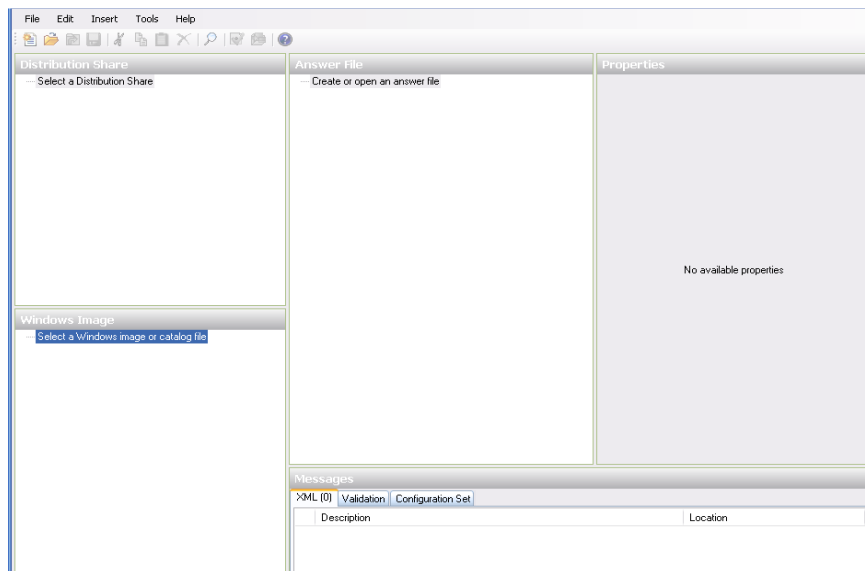


Figure 1

The SIM provides a workspace where you can work with the share created to distribute images, create an answer file, and customize appropriate properties, and link that to either an image file or a Windows catalog. A Windows catalog is a binary file with the extension .CLG. It contains the state of all the settings and packages within a Windows image. The first step in the customization process is to build a new catalog, and then add a new blank answer file. Before you can begin, however, you must have a set of default settings to work with.

This can be obtained from a Windows Vista installation DVD by doing the following:

1. Copy the install.wim file from the \sources directory to the workstation that has SIM installed.
2. Once the install.wim file has been copied, you can open SIM and from the File menu choose Select Windows Image. From the dialog box that opens, navigate to the location of the install.wim file and click Open.
3. Select the appropriate version of Windows Vista. You will get an error message that says the catalog file cannot be found, but clicking Next builds a new catalog.
4. From the File menu, choose New Answer File.
5. At this point, in the Windows Image pane, open the node you want to customize.

In *Figure 2*, the Components node has been opened and several settings have been moved over to the appropriate configuration pass. A configuration pass is one phase of the setup Windows Vista uses. Different parts of the operating system are installed and configured during different passes. Settings can be changed during one or several passes.

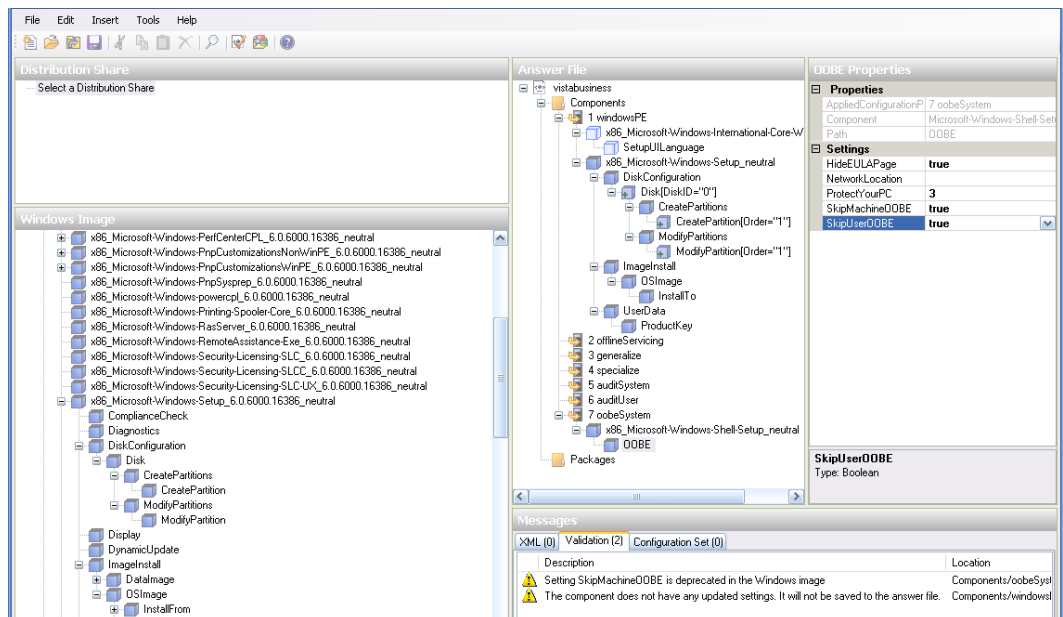


Figure 2

6. At this point, the components that are going to be altered have been moved to the Answer File window, but settings have not been specified. To change a setting, from the Answer File window, select a component. When you choose the component, you will have the opportunity to enter a setting, or you can choose from the drop-down menu, which has all the choices you can make.
7. Once you have entered all the changes you want to make to the default installation, choose Validate Answer Files from the Tools menu. The settings of the potential values in the answer file are checked against the available settings in the Windows image. If there are errors, they are presented for correction. If the file validates, a “success” message will appear, and you can save the answer file to some sort of removable medium. The file should be saved with the name autounattend.xml. It should be saved to the root of a USB flash drive.

Creating a Base Installation

Once the answer file has been generated, it can be put to work to create a base installation of a PC, which will then be imaged. The process of creating the base installation is straightforward.

1. Build the hardware.
2. Install Windows from the product DVD and the answer file. This is done by attaching the UFD or inserting the floppy and booting the PC to the DVD. Windows will search all removable media for the file autounattend.xml, and use those settings for the installation.
3. Verify the installation, and customize as necessary.
4. Generalize and shut down the PC by running the command `c:\windows\system32\sysprep\sysprep.exe /oobe/generalize /shutdown`.
5. Sysprep will prepare the PC for taking an image by cleaning up personalized settings and log files.

Creating an Image

Once Sysprep is complete, the machine can be used to create an image. The image process can be completed using ImageX and Windows PE. ImageX is a command line tool that will capture, modify, or deploy a file-based disk image. Windows PE will allow you to capture or deploy an image. ImageX can be run from inside Windows PE. To complete this process:

1. Create a bootable Windows PE medium.
2. Boot the base installation using the Windows PE medium.
3. Use ImageX to capture the image.
4. Store the image to a network share.

Deploying the Image

After the image has been captured, it can be deployed by following these steps:

1. Build the computer.
2. Boot the computer using the Windows PE medium.
3. Format the hard drive.
4. Connect to the share and copy the image down to the hard drive.
5. Apply the image using ImageX.

Best Practices

According to Microsoft, best practices for working with answer files include:

- Validate the answer file using the SIM.
- Avoid settings that are unnecessary.
- Understand the different configuration passes.
- Avoid creating an element that is empty.
- Use a data image rather than an \$OEM\$ image.
- Use only Microsoft-supported tools to update a Windows image.
- Specify language settings.
- Use sysprep /generalize to clean up account information.

Managing Windows Vista Catalogs

The SIM uses both the Windows image files (.WIM) and catalog (.CLG) files to show all of the settings that can be customized in an unattended answer file. This includes both components and packages.

The Windows image file has one or more compressed Windows images. Each image has a list of all the components, settings, and packages that can be used with that image. Windows image files, however, can only be opened by someone with administrative privileges on the computer, and they can only be opened by one person at a time. Also, the image files may contain multiple versions of Vista, therefore they can be very large (i.e., several gigabytes in size). The settings in image files can change as the versions and support packs change. The SIM will let you create the answer file, modify the settings, add new settings, or remove settings. The image file can also change when packages are added, configured, or removed. When you run Setup and the answer file is applied, the new changes are applied. If you use ImageX to recapture an image, the new settings and the new configurations become the default. When the image changes, then the catalog file must be changed.

The catalog file is a binary file used to store the state of the settings and packages in an image. Once the catalog has been generated, it looks into the Windows image for a list of all the settings that the image has available. These settings may differ among the different versions of Vista. Catalog files should be re-created whenever a Windows image has been updated.

The Windows Vista installation DVD has catalog files for each Windows image inside the file `install.wim`. Each catalog file contains a list of all the component settings and the current settings, as well as Windows features and the states of various packages.

Catalog files are much smaller than the image files; traditionally they are less than 1 MB. They are easier than image files to copy and use with removable media or from a network share. Multiple people can create answer files at the same time from a single catalog file, and the user that is doing the creation does not have to be an administrator.

Creating or Re-creating a Catalog

To create or re-create a catalog file, do the following:

1. From the Windows SIM, open a Windows image file.
2. From the Tools menu, choose Create Catalog. This will prompt you to open a Windows image file.
3. If the image file has more than one version image, you will get a dialog asking you to Select an Image. Choose the image type and click OK, and the catalog file will be created in the same folder as the .WIM file you selected.

Adding Device Drivers to Windows Vista Installations

You can add additional device drivers to a Vista installation by using an answer file. In the answer file, you specify the path to a network share where all the device drivers have been copied. The path should be supplied as part of the pass that will install the device. The three passes where device drivers are installed are the `windowsPE` pass, the `offlineServicing` pass, and the `auditSystem` configuration pass. If you are adding drivers from the `windowsPE` and `offlineServicing` passes, you can add out-of-the-box drivers before the system starts. This way, you can add boot-critical drivers to the Windows image. Adding drivers for the `auditSystem` pass lets you add drivers for audit mode.

Adding Drivers During Windows PE

You can use SIM to create an answer file that contains the path to the share where the device drivers are stored.

1. Add the `Microsoft-Windows-PnpCustomizationsWinPE` component to your answer file in the `windowsPE` configuration pass.
2. Open the `Microsoft-Windows-PnpCustomizationsWinPE` node and right-click `DevicePaths`; choose `Insert New PathAndCredentials`. Add this for each path you will need to access. Specify both the path and the credentials necessary to access the share.
3. Save the answer file and close SIM.
4. Run Windows Setup and give it the name of the answer file.

Adding Drivers During Audit Mode

To add device drivers during audit mode, do the following:

1. Locate the device driver .INF files that are going to be installed during the audit mode.
2. Add the Microsoft-Windows-PnpCustomizationsNonWinPE component to your answer file in the windowsPE configuration pass.
3. Open the Microsoft-Windows-PnpCustomizationsNonWinPE node and right-click DevicePaths; choose Insert New PathAndCredentials. Add this for each path you will need to access. Specify both the path and the credentials necessary to access the share.
4. Save the answer file and close SIM.
5. Run Windows Setup and give it the name of the answer file.
6. After Setup completes, log on to Windows and run audit mode by using Sysprep with the /audit and /reboot switches.

Adding Device Drivers to an Offline Windows Image

To add device drivers to an offline Windows image, do the following:

1. Locate the device driver .INF files that are going to be installed during the audit mode.
2. Use SIM to create an answer file that contains the path to the share where the device drivers are stored.
3. Add the Microsoft-Windows-PnpCustomizationsNonWinPE component to your answer file in the windowsPE configuration pass.
4. Open the Microsoft-Windows-PnpCustomizationsNonWinPE node and right-click DevicePaths; choose Insert New PathAndCredentials. Add this for each path you will need to access. Specify both the path and the credentials necessary to access the share.
5. Save the answer file and close SIM.
6. Mount the Windows image that you are going to change by using ImageX.
7. Enable logging of device driver installations actions in a separate file.
8. Use Package Manager to apply the unattended installation answer file to the mounted image.
9. Specify the location for the log file.
10. Check the mounted %WINDIR%\inf\ folder to make sure the .INF files were installed.
11. Unmount the .WIM file and commit the changes.

Managing Windows Components

According to Microsoft, a Windows component is, "A part of the Windows operating system that specifies the files, resources, and settings for a specific Windows feature, or part of a Windows feature. Some components include Windows unattended installation settings, which can be used by OEMs and corporations for customization." As you can see from *Figure 3*, there are multiple components available for each answer file.

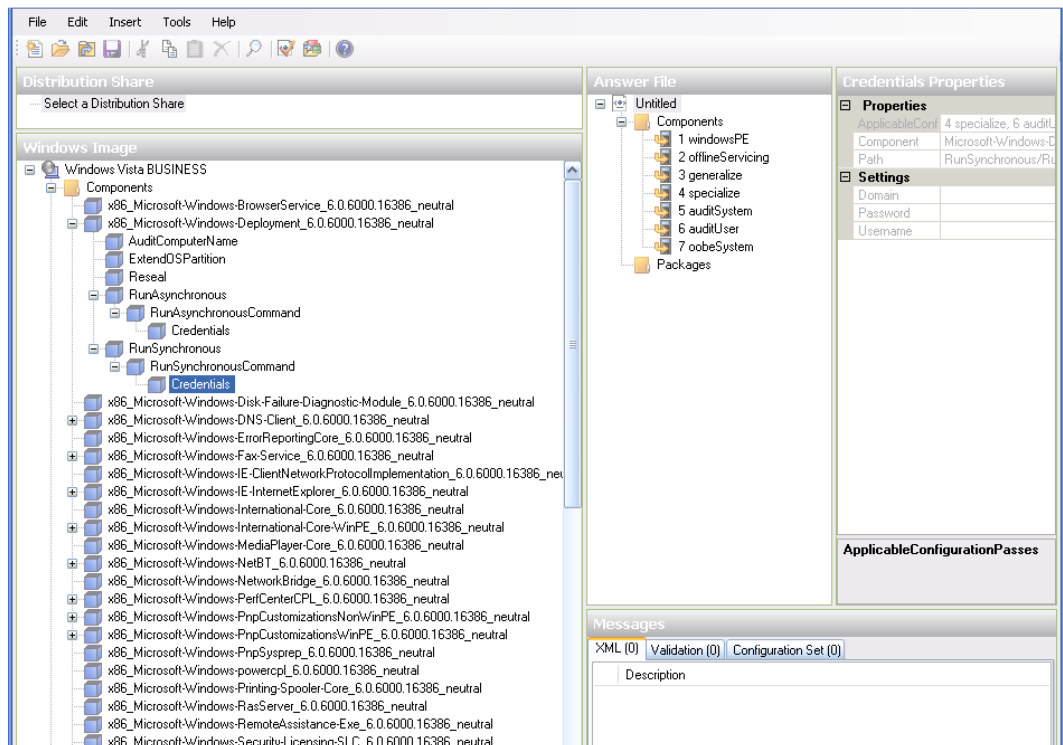


Figure 3

Also, if you look in the upper right hand corner, in the Credentials Properties Window, you will notice that each component is made up of properties and settings. The settings are the configurable part of the component, and will vary with each component.

Properties are nonconfigurable. They will display differently when they have been added to an answer file.

There are four component properties:

- The `AppliedConfigurationPass` is the configuration pass that the child settings are applied to.
- The `Component` property is the uppermost `ComponentSetting` object that this setting belongs to.
- The `Path` property is the path to the component.
- The `Enabled` property, not shown in this example, indicates whether the component has been installed.

The component ID is a unique identifier that describes the component of the operating system. The ID will contain Language, Name, Processor Architecture, PublicKey Token, Version, and Version Scope. Processor Architecture can be x86, ia64, amd64, wow64, or msil. The Version is the version of the component or package, and the Version Scope has two possible values: SxS or nonSxS.

To add a component to an answer file:

1. In the Windows Image pane of SIM, locate the component to be added to the answer file.
2. Right-click the component to select the configuration pass.

The component is then added to the answer file in the specified configuration pass.

Configuring and Manipulating WIM Images

Even though an image has been taken and saved, you may still need to make changes to it. Three packages can be used to service these images—the Windows Package Manager, OCSetup, and the Windows Update Standalone installer. Each of these tools is a command line tool that can be used to install or uninstall packages. Package Manager works only with packages, and OCSetup works only with files that have an .MSI extension, while handing off packages to the Package Manager automatically. The Windows Update Standalone installer installs service packs and other updates that have been delivered as an .MSU file.

You can use Package Manager and OCSetup to install or remove packages or enable and disable Windows features, but you must be working on a Windows image that is present on the local computer. You cannot add, remove, or replace system files manually. Both Package Manager and OCSetup can also take an unattended installation answer file as input for the installation or removal. Package Manager can also use the answer file for enabling or disabling features.

Package Manager Options

The command line options for Package Manager are:

```
Pkgmgr.exe [/?] [/h] [/help] [/l:filename] [/ip] [/iu:Windows_feature_name] [/m:package_directory] [/n:answer_file] [/norestart] [/o:system_drive_path;offline_Windows_directory_path] [/p:package_name] [/quiet] [/s:sandbox_directory] [/up:package_name] [/uu:Windows_feature_name]
```

Option	Description
<i>/?</i> , <i>/h</i> , <i>/help</i>	Displays help when run with no options. Can be used either online or offline.
<i>/l:filename</i>	Specifies the log file. Can be used offline or online. By default logs are stored in %WINDIR%\logs\cbs\cbs.log. Setupact.log is a full log and setuperr.log logs errors. The switch does not work when installing from read-only media like a Windows PE CD.
<i>/ip</i>	Installs package. Package name is case sensitive. Requires the package name with <i>/m</i> or <i>/p</i> . Packages can be combined in one command and separated by semicolons.
<i>/iu:Windows_feature_name</i>	Specifies a feature to enable. Multiple features can be enabled from one command; each must be separated by a semicolon. Can be used online or offline.
<i>/m:package_directory</i>	Specifies the directory with the package manifest and payload. Additional directories can be specified after a semicolon. Can be used offline. Required for the <i>/up</i> option.
<i>/n:answer_file</i>	Specifies the name of the unattended answer file. All unattended installations require the <i>/n</i> option.
<i>/norestart</i>	Suppresses reboot. Can be used with the <i>/quiet</i> option.
<i>/o:system_drive_path;</i> <i>Offline_Windows_directory_path</i>	Specifies offline installation. <i>System_drive_path</i> specifies the location of the boot manager and <i>offline_directory_path</i> specifies the full path to the offline Windows directory as seen from the current computer.
<i>/p:package_name</i>	Installs the entire package. Can be used offline.
<i>/quiet</i>	Runs in quiet mode.
<i>/s:sandbox_directory</i>	Specifies the directory used to extract the file. This option is required when installing from the network.
<i>/up:package_name</i>	Uninstalls packages. Requires packages to be specified with the <i>/m</i> option or the <i>/p</i> option.
<i>/uu: Windows_feature_name</i>	Specifies the Windows feature to disable. At least one Windows feature name must be specified. Multiple features can be disabled at the same time, but they must be separated by semicolons. Works the same way as the <i>/iu</i> option.

OCSetup Command Line Options

You must set the command prompt to run as administrator before using this command, even if you are logged in as administrator.

The command line options for OCSetup are:

`Ocsetup.exe [/?] [/h] [/help] component [/log:file] [/norestart] [/passive] [/quiet] [/unattendfile:file] [/uninstall] [/x:parameter]`

Parameter	Description
<code>/?</code> , <code>/h</code> , <code>/help</code>	Displays help for all options when run with or without an option.
<i>component</i>	The name of the component to be installed or uninstalled. The component name is case sensitive.
<code>/log: <i>file</i></code>	Specifies the location of the log file.
<code>/norestart</code>	The computer is not rebooted, even if required after the installation.
<code>/passive</code>	Unattended mode. A progress bar is displayed.
<code>/quiet</code>	Quiet mode. No user interaction.
<code>/unattendfile: <i>file</i></code>	The file contains the overrides or additions to the normal configuration settings. It implies the use of passive mode.
<code>/uninstall</code>	Uninstalls the component or feature.
<code>/x: <i>parameter</i></code>	Additional configuration parameters to be applied when installing the component.

Deploying Windows Vista

Rolling out Windows Vista Using Business Desktop Deployment 2007 (BDD)

According to Microsoft there are three ways to deploy Windows Vista to the desktop:

- Manual: Walk to each desktop and deploy using install media or server-based installation.
- Light Touch Installation (LTI): Involves a minimum amount of intervention by the operator.
- Zero Touch Installation (ZTI): Involves no intervention by the operator; everything is script driven.

Prerequisites

Prior to beginning either an LTI or a ZTI, you should be familiar with:

- The User State Migration Tool (USMT) 3.0
- Microsoft Operations Manager (MOM) 5.0
- The configuration of Windows Deployment Server or Servers (Windows DS)
- Windows Server 2003 SP1 or later
- How to use the Windows Preinstallation Environment (Windows PE) 2.0
- How to use the Application Compatibility Tool (ACT) 5.0
- The network infrastructure, including the installation and configuration of routers, switches, and firewalls
- How DNS, DHCP, and WINS are currently deployed
- How Active Directory is deployed
- How to do server capacity planning for different implementations
- How to create desktop images
- How to automate the application installation process

Deploying Windows Vista Using LTI

Using the Light Touch Installation method is a process. You need to complete certain steps in order. According to Microsoft, that order is:

1. Check for the prerequisite infrastructure.
2. Decide on the appropriate deployment processing rules.
3. Update the environment.
4. Set up access to resources.
5. Configure a Windows Deployment Server (Windows DS) that will start the Windows Preinstallation Environment (Windows PE).
6. Start the Deployment Wizard.
7. Update deployment points.

Each of these steps is discussed further in the following sections.

Check the Infrastructure

The steps are a logical sequence. First, you check for the requisite infrastructure. You are going to be storing images of desktop systems, and these images are going to take a lot of room. You must ensure there is enough storage space to hold all the deployment images. When making this determination, remember:

- If the desktop operating system that is going to be deployed is Windows XP, each unique Hardware Abstraction Layer requires a unique image. If you do not have a corporate standard desktop, you will need a separate image for each hardware configuration.
- You will need space for a copy of the Windows Vista installation files.
- If you work in an international environment or a multilingual environment you will need space for each different language version of the OS you are going to deploy.

Determine Appropriate Deployment Processing Rules

Users don't just want a new operating system on their computer. They want to make sure the desktop will have the same look and feel after the upgrade that it did before. That may include things like data files and personal settings. This information is referred to as the User State Migration Data (USMD), and it will take up storage space. Before starting the rollout, you should estimate how much disk space will be required.

One tool that can be used to simplify the process is the User State Migration Tool 3.0 (USMT), which is available for download from Microsoft. The USMT copies files and settings during the deployment of either Windows XP or Windows Vista. The tool can be used for an unattended migration and to migrate settings and files from computers that have multiple users. Depending on your needs, when the data is stored for later retrieval, it can be encrypted and compressed.

USMT is made up of two tools: *ScanState* and *LoadState*. *ScanState* creates the store from the source files; *LoadState* restores the information after the upgrade has been completed.

ScanState and *LoadState* operate based on rules that are contained in XML files. The XML files are named *MigApp.xml*, *MigUser.xml*, and *MigSys.xml*. In order to change the behavior of the USMT, all you have to do is edit the default XML files and create custom XML files. If necessary, you can provide XML rules directly from the command line, but the best practice is to edit the XML files to fit your situation.

Running *ScanState* with a /p option will help you determine how much space will be needed to store the USMD, or you can view the amount of data in the user profile folder.

Now that you have the information on the amount of space needed, other decisions can be made, such as where to store the temporary USMD. Be sure to leave room to store deployment logs, computer backups, specialty applications, and, if necessary, operating system source files.

The Windows Deployment Server (Windows DS)

The Windows DS is used to push out Vista or the Windows Preinstallation Environment (PE) to computers with LAN connections to the DS server, new computers, or computers that will be upgraded or replaced. This process usually involves pushing out an image to the target computers. This image can be created using the Deployment Workbench, which is part of Windows Business Desktop Deployment 2007.

Before the images can be deployed, it is necessary to check the target computers. In order for the image deployment to be successful, the computers must be running Windows 2000 Professional SP4 to Windows XP SP2 or later. In addition, the following products must be installed and running:

- Windows Script Host 5.6 or later
- MSXML Services version 3.0
- MDAC version 2.0

System resources must be checked to make sure the system meets the minimum hardware requirements, and there should be rules in place to determine whether to use 32-bit or 64-bit installations.

Because these images are going to be pushed down to the target computers over the network, bandwidth should be checked. Typical images could be between 500 MB and 4 GB. Each workstation should have a stable connection to the server hosting the images, and the servers must have shares and permissions configured for access to the USMD.

Update the Environment

This is the part of the process where you make sure that you have all of your tools ready to use. This includes:

- Installing Business Desktop Deployment (BDD) 2007 and the User State Migration Tool (USMT) 3.0
- Establishing a BDD deployment point that will be easily accessible to target computers
- Adding any additional applications or upgrades that will need to be deployed
- Adding any additional operating systems, other than Windows Vista, that may need to be deployed
- Updating or adding drivers that are compatible with the operating systems you are going to deploy

Set Up Access to Resources

To push out images and restore user state migration data, the deployment services must be able to get access to the storage areas. In order to do that, shares must be created. Microsoft suggests creating a share point that can store USMD during the deployment. Additional shares should be created for the storage of log files.

The permissions on these shares should be set so that only the computer that creates the USMD and creates the logs will have access to the share.

Additional resources that may be necessary could include access to an application or a database server, depending on the environment.

Configure a Windows Deployment Server That Will Start the Windows Preinstallation Environment

Conceptually, the process works this way: A computer comes online and checks to see if it needs to be upgraded. If the computer does not have a current operating system, it will use a PE boot image to bring the computer up and check for upgrades.

If the computer needs to be upgraded, the Windows Deployment Server will push the image to the target computer, according to the rules defined.

The deployment server can operate in three different modes:

- Legacy mode: Supports only the legacy Remote Installation Services (RIS) environment.
- Mixed mode: Supports both RIS and DS.
- Native mode: Only supports DS. Native mode is not compatible with the SMS 2003 Operating System Deployment Feature Pack or Zero Touch Installations. It only supports Windows PE and images created and stored as WIM files. WIM files are created from BDD 2007 and are Windows Imaging Format, which creates images that are file-based rather than sector-based. WIM files are highly compressed, taking up about one-third of the space the original occupied.

Obviously, these images need to be placed on the deployment server. The deployment server will:

- Install images in the WIM format, as well as the older RIPREP (Remote Installation Preparation) and RISetup formats.
- Boot images for Windows PE including Setup images, Capturing images, and Discover images.

Computer accounts can be created in Active Directory for the potential target computers, otherwise called known computers. When a computer comes online booting using the Preboot Execution Environment (PXE), the computer first checks to see if there is anything special it needs to do. On a PXE boot from a target workstation, the Deployment Server can work with either known or unknown computers. The primary difference between the two is that with a known computer, the operating system can be updated with little or nothing else disturbed. An unknown computer, on the other hand, can only receive an image, wiping out anything that had previously been stored on the computer.

Start the Deployment Wizard

At this point, it's time to start deploying operating systems or images. First, the Deployment wizard must be started. For a Light Touch Installation, the wizard is started by running a Visual Basic script, `litetouch.vbs`. This script can be started either manually by accessing a share and running the script or through the DS by starting the Windows PE and then running the `litetouch.vbs` script.

The Deployment wizard will let you upgrade a computer, replace a computer, configure a new computer, or refresh the computer. Each deployment uses a different process.

In order for the deployments to work, the target computer cannot contain the `C:\MININT` or `C:_SMSTask-Sequence` folders.

Update Deployment Points

Because computers will always do what we tell them to do and not necessarily what we want them to do, after rolling out the first set of desktops, you may need to make modifications to the process. This is the point where the results of the first rollout are analyzed and modifications are made.

Deploying Windows Vista Using ZTI

Just as the Light Touch Installation method is a process, so is the Zero Touch Installation. There are five steps that should be completed in order. According to Microsoft that order is:

1. Ensure the appropriate infrastructure exists to support ZTI.
2. Prepare the deployment environment.
3. Configure resource access and the ZTI operating system image.
4. Create the ZTI OS image installation CD.
5. Deploy the operating system images to the client computers.

Ensure the Appropriate Infrastructure Exists to Support ZTI

The infrastructure is a little more complex for Zero Touch than it is for Light Touch. The things you must have installed include:

- SMS 2003 with the OSD Feature Pack Update.
- Windows Deployment Services in Windows Server 2003.
- SQL 2000.
- These products must be configured to support ZTI. With Microsoft Operations Manager 2005, you can monitor the ZTI process with the Zero Touch Installation Management Pack (ZTIMP).

Prepare the Deployment Environment

To ensure the deployment environment is ready, you have to install and configure the products listed in step one, so you:

- Install the SMS Feature Pack.
- Install and configure BDD 2007.
- Create BDD deployment points.
- Install the appropriate support files.
- Install and configure the BDD Reporting.

Configure Resource Access and the ZTI Operating System Image

Each known workstation will use the SMS client to connect to the distribution point shares and the other shared folders. In order for that to happen, accounts must be created in SMS for the client to use. SMS clients should be configured to access these accounts, the shared folders must be created, permissions should be configured on these folders, and access to other resources provided.

Like LTI, ZTI uses scripts, and the SMS Administrator console can be used to configure the script for each operating system. The installation phases are defined as part of the OSD Feature Pack.

Disk space will be at a premium if you have multiple images. You can use the Solution Accelerator for the BDD to see how to reduce the number of images.

Create the ZTI OS Image Installation CD

If the computer needs to be booted from a CD, rather than using PXE, the ZTI script should be included on the installation image CD. The preconfigured script name is `ZeroTouchInstallation.vbs`, and the Visual Basic script acquires the operating system image from SMS.

The Windows PE boot image can also be created using the Operating System Deployment (OSD) Feature Pack. The image cannot be customized, however, and does not include WMI files. If you need to customize the PE boot image use the computer imaging system by clicking on `BDD Standard\Computer Imaging System\Control\Config.hta`. Or you can use your own process.

Deploy the Operating System Images to the Client Computers

Just like with the LTI, you must make sure that the `C:\MININT` and `C:_SMSTaskSequence` folders do not exist. After that, you can use SMS Administer Console to go to the OSDIMAGE and determine which distribution points will be accessed, then you can determine which applications will be advertised and finally choose a target collection of workstations that will be used with the image.

Customizing Windows PE

Your first question might be “What exactly is Windows Preinstallation Environment?” Think MS-DOS boot disk with attitude. It gives an alternative operating system to work in during the deployment process, for testing, diagnostics, and the system recovery process. Rather than the full-blown operating system, it is a minimal system based on the Windows XP Professional and Windows Server 2003 kernels. With it you can run Windows Setup, run a network client to get access to network-based operating system installations, run scripts, and validate hardware drivers.

It can be configured to boot from USB flash drives, DVDs, CDs, the network using the PXE remote boot process, and remote install servers.

To set up a Windows PE environment to create an operating system build, follow this process:

1. From a technician computer that has either the Windows OEM Preinstallation Kit (OPK) or the Automated Installation Kit (AIK) installed, start the Windows PE Tools Command Prompt.
2. From the command prompt run the script `copype.cmd` with two arguments: architecture (x86 or amd64) and destination. An example of the command would be `copype x86 c:\winpe_x86`. The script is written to create a directory structure and copy all the necessary files for that architecture to boot.
3. Mount the base Windows PE image (`Winpe.wim`) to the `\mount` directory. This is done using the command `imagex`. The command would be `imagex /mountrw c:\winpe_x86\winpe.wim 1 c:\winpe_x86\mount`.
4. Using the PEIMG tool with the `/install` option, create a base image with whatever additional services, drivers, or language packs you need beyond what is included in the Windows base image. Pages that can be installed include:
 - ▶ Support for HTML applications (WinPE-HTA-Package)
 - ▶ Support for the Microsoft Data Access Component (WinPE-HDAC-Package)
 - ▶ Support for the Windows Recovery Environment component (WinPE-SRT-Package)
 - ▶ Support for the Microsoft XML (MSXML) parser (WinPE-XML-Package)

5. If necessary, add additional customization using these tools:
 - ▶ ImageX, which captures and applies images.
 - ▶ Package Manager (pkgmgr.exe), which services the WIM files offline.
6. Prepare the image using the PEIMG /prep command. This command removes unnecessary packages from the image in an effort to minimize the image size.
7. Commit the images to the Windows base image. First unmount the image, and then commit the changes (imagex /unmount c:\winpe_x86\mount /commit).
8. Replace the default boot.WIM file (copy c:\winpe_x86\winpe.wim c:\winpe_86\ISO\sources\boot.wim).
9. Create an ISO image using the oscdimg command. An example would be:
oscdimg -n -bc:\winpe_x86\etfsboot.com c:\winpe_x86\ISO c:\winpe_x86\winpe_x86.iso.
10. Burn the image to a bootable CD or create a bootable USB Flash Drive (UFD).

Troubleshooting

There are three areas to troubleshooting: general deployment problems, failed new computer scenarios, and using the deployment process flowcharts.

Troubleshooting General Deployment Problems

The general problems can be broken down into SQL Server connection errors, problems that are related to BitLocker, SMS-related problems, and PXE boot-related issues with the Windows Deployment Server.

SQL Server Connection Errors

As part of the deployment process, you can obtain information from either the SQL Server 2000 or SQL Server 2005 database. If the connection to the SQL server breaks, the installation will fail. Connection Broken errors are caused by not enabling named pipes connections. To solve the problem, enable named pipes in either SQL Server 2000 or SQL Server 2005.

Problems with BitLocker

If BitLocker Drive Encryption is deployed in an LTI scenario in BDD 2007, the target computer must have a specific configuration in place. If the target computer is not configured properly, USB devices, CD or DVD drives, or other removable media will appear as multiple drive letters, and the C: volume will be shrunk to provide sufficient unallocated space.

SMS-Related Problems

According to Microsoft, the following problems could occur regarding SMS:

Symptom	Possible Problem	Resolution
Target computers aren't getting the SMS OSD Feature Pack package advertisement.	Target computers are not included in the right SMS collection.	Make sure the target computers are in the SMS collection used during the distribution of the SMS OSD Feature Pack package.
ZTI scripts do not run properly.	Target computer may not meet hardware and software requirements.	Check hardware and software specifications.
ZTI scripts do not run properly.	Appropriate permissions may not be set on MigData, logs, or distribution point shares.	Log on as the appropriate account holder and attempt to access files in the share.
Update packages and programs are not appearing on the distribution point.	Scheduled distribution of updates to packages and programs may be taking longer than you require.	Manually update the distribution points by using SMS 2003 Administrator.
Refresh computer scenarios are incorrectly performed as replace computer scenarios.	OldComputer.tag file exists on an SMS deployment point. This is because the OldComputer folder is incorrectly added to one of the OSD custom action file lists.	Search for the OldComputer.tag file on an SMS deployment point and delete the file on SMS packages that are targeted for refresh computer scenarios.

Troubleshooting PXE Boot-Related Issues in Windows DS

When the computer starts it broadcasts a Dynamic Host Configuration Protocol (DHCP) discover packet including a PXE implementation. The boot server (if available) sends an offer that has the IP address of the boot server. The client uses Trivial File Transfer Protocol (TFTP) to download an executable from the boot server. Once the image has been downloaded, it is executed at the client, and the client has an operating system to use.

Some ways to bypass or solve problems associated with the process include the following:

- Make sure that Windows PE logging is disabled on the Distribution Server.
- Make sure DHCP is configured properly, meaning that routers will need to be configured so that the DHCP server and the Windows DS server both receive the broadcast requests. This may involve allowing DHCP Forwarding.
- To improve PXE address assignment response time, review whether the network card and the switch/router are operating at the same speed. Also, is the IP address of the Windows DS server in the IP Helper file on the router you are connecting through? If the IP Helper file contains a long list of addresses, you may want to move the address of the Windows DS server closer to the top. Finally, you can disable the setupapi.log on the Windows DS server.

Troubleshooting the New Computer Setup

Some things to look for if the installation of a new computer fails:

- Were log files copied to a shared folder? If there is an error message saying the log files do not exist, the SMS OSD Feature Pack may not have the proper credentials.
- Are there issues with the User State Migration Tools (USMT)? Check the ZTI log files. They list at least the first 100 errors.
- Do the issues occur with the ZeroTouchInstallation.vbs script? Check the log files. Here are common error codes:

Error Code	Description
5000	The Windows Script Host (WSH) is not installed.
5001	The version of WSH is prior to 5.6.
5002	The script could not create a WScript shell object. WSH needs to be reinstalled.
5003	The script could not create a WScript network object. WSH needs to be reinstalled.
5004	The script could not create a ScriptingFileSystemObject object. WSH needs to be reinstalled.
5005	The script could not initialize the WshShell. WSH needs to be reinstalled.
5006	No named parameters were passed to the script.

Troubleshooting Using Deployment Process Flowcharts

For more information about the deployment process, see http://www.microsoft.com/technet/desktopdeployment/bdd/2007/DepConfig_8.msp. For each of the deployment phases, there is a corresponding set of flowcharts, as follows:

- Validation
- State capture
- Preinstall
- Install
- Postinstall
- State restore

Using Business Desktop Deployment Workbench

Installing Business Desktop Deployment (BDD)

The installation process for the BDD Workbench is straightforward. Download the utility and click to start the installation wizard. The first thing the wizard will do is check for unresolved dependencies.

The minimum requirements for installing BDD Workbench are:

- Windows XP, Windows XP 64 bit, Windows XP SP1, Windows XP SP2, Windows Vista, or Windows Server 2003.
 - ▶ Client operating systems: Windows Vista Business, Enterprise, or Ultimate; Windows XP Professional; or Windows XP Tablet PC Edition
 - ▶ Server operating system: Windows Server 2003 SP1 with Windows Deployment Services (DS) and Active Directory
- Microsoft Word or a Word reader is necessary to open the documentation.
- MMC 3.0 is needed to actually run the Workbench and view the documentation on Windows Server 2003 or Windows XP.
- Windows Script Host (WSH) 5.6.
- The tools portion needs several Windows Vista deployment tools, including:
 - ▶ Windows Automated Installation Kit
 - ▶ Application Compatibility Toolkit 5.0
 - ▶ User State Migration Toolkit 3.0
 - ▶ MSXML 6.0

If the installation process does not find one of the components, it may come to a halt until the deficiency is corrected.

Once installed and configured, the BDD Workbench will appear as shown in *Figure 4*:

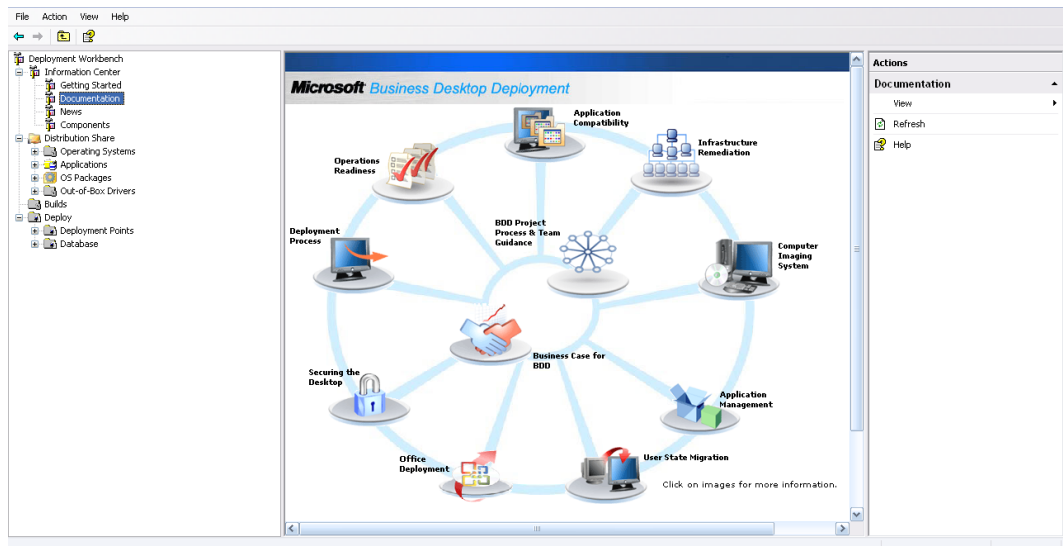


Figure 4

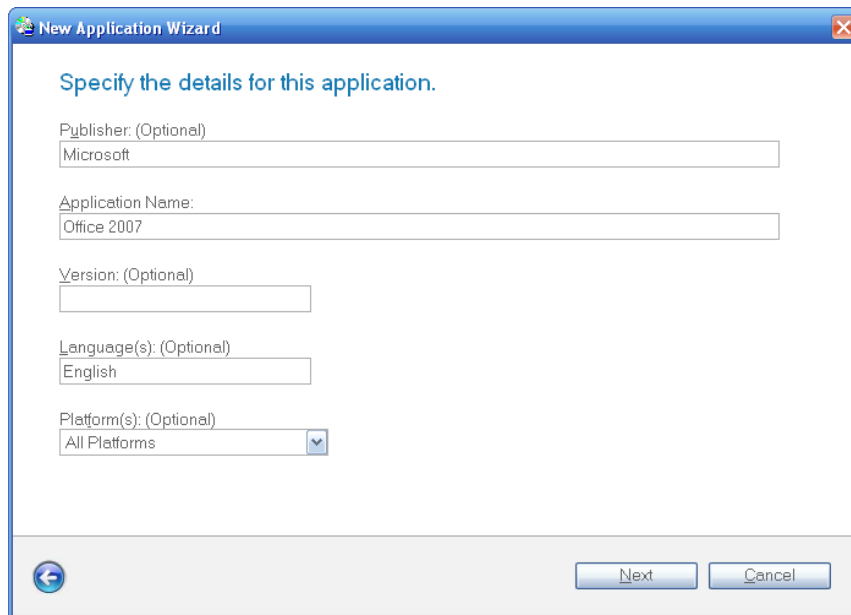
The top section in the left pane, the Information Center, is a documentation library. The Getting Started link lays out what to do before and after installing the BDD. The Documentation section (which appears in the figure) lists documentation for each step of the deployment process. The News section points to updated information online, and the Components section examines your computer to find out which of the deployment tools you already have installed.

Configuring a Distribution Point in BDD 2007 Workbench

Distribution points are simply shares created on computers to pass out files or applications. In this case, when the distribution point will be housing the source files for Microsoft Office 2007, creating the distribution point could be as simple as creating a share and then copying all the source files from the installation DVD to the share.

To create a new distribution point using BDD, do the following:

1. Open BDD and then expand the Distribution Point container.
2. You are presented with containers for Operating Systems, Applications, OS Packages, and Out-of-Box Drivers. Since the distribution point will be used to deploy Office 2007, choose Applications.
3. You are then prompted to choose between an Application With Source Files, Application Without Source Files, or Elsewhere on the Network. Select Application With Source Files to get the screen shown in *Figure 5*. With this screen, the only component that is mandatory is the name of the application.



New Application Wizard

Specify the details for this application.

Publisher: (Optional)
Microsoft

Application Name:
Office 2007

Version: (Optional)

Language(s): (Optional)
English

Platform(s): (Optional)
All Platforms

Next Cancel

Figure 5

4. The next screen prompts for the location of the source files. Usually this is the local CD/DVD drive, but it could be another network share. The files can be copied or moved from this location to the destination location.
5. Next, you are prompted for the name of the distribution directory to be created. The default name is the name of the application, including the name of the publisher.
6. Next, you are prompted to provide more details about the installation, including the command line, the name of the file, and any switches that will be called to start the installation. Clicking Add starts the processing and starts copying. After the distribution point has been created and the files copied, BDD looks like what's shown in *Figure 6*.

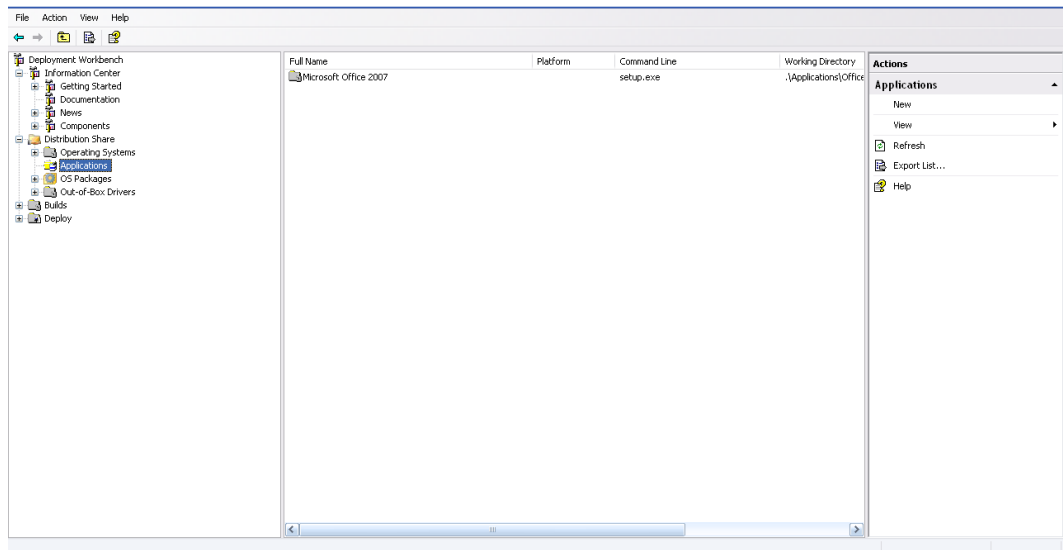


Figure 6

Creating a Reference Computer Image

The goal of creating a reference computer image is to create a common image that can be deployed to any computer in the company at any time; after the image is in place, it can be customized quickly to provide the users the services and applications they require. In a perfect world, your organization would have a standardized desktop hardware environment and you would require only one image. That is in a perfect world. In the real world, most companies have many different hardware platforms that require multiple images to be created, stored, maintained, and deployed.

These images can be broken down into thick images, thin images, or hybrid images.

Thick Image

These images contain not only the operating system, but also core applications, language packages, and other files. These files all have to be installed and updated before the image is taken of the computer. This is the way most companies deploy images.

The advantage of using a thick image is simplicity. When it is deployed, there is only one image that needs to be pushed down to the destination computer. Thick images do not take as much time to develop because you are not using any advanced scripting techniques that need to be written and tested. Finally, once the image is deployed, the first time the workstation starts, everything is ready to go.

There are also some disadvantages to thick images. These include maintenance, storage, and network costs. An example would be that if an application on a thick image needed to be updated, the system would require rebuilding, retesting, and redistributing of the image.

Thin Image

Thin images have few, if any, applications and language packages associated with the operating system image. The applications, utilities, and language packages are applied separately, after the operating system is in place. Installing these separately takes more time at the computer and more total bytes transferred over the network, but the transfer is spread out over a longer time.

The advantages to thin images are that they cost less to build, maintain, and test. Network and storage costs are also lower. The disadvantage is that they are more difficult to develop initially and require scripting and a software distribution infrastructure. Core applications and language packages are not available the first time the computer restarts. If you are going to use a thin image solution, Microsoft suggests you have SMS in place to act as your image deployment infrastructure.

Hybrid Image

As you might expect, the hybrid image is a combination of the thick and thin images. The disk image is configured to install applications and language packs on the first run, making it look like a thick image, but the applications are actually being installed from a network source. Hybrid images have the same advantages as thin images, but they are not as difficult to develop and do not need to have a software distribution infrastructure like SMS. Installation times are somewhat longer, however, which can raise some deployment costs.

The Build Process

Creating this image is the same as for the Light Touch Imaging (LTI), discussed earlier. It consists of these steps:

1. Prepare the distribution share by storing the operating system source files.
2. Create and configure the build. This will link the operating system with an unattended setup answer file (unattend.xml) and a sequence of tasks.
3. Create the deployment point, which has all settings necessary to connect to the share and install the build from it.
4. Update the deployment point and create Windows PE images that automatically connect to the deployment point and start the installation.
5. Start the destination computer using the PE image and install from the distribution share.

Managing XML Files in BDD Workbench

As mentioned above, the build merges the operating system source files with a configuration provided by a file called unattend.xml. We discussed how to create this file earlier. The XML file can be edited using the Windows SIM or by using the Deployment Manager. The process is called creating a build.

1. From Deployment Manager, open the console tree, right-click on Builds, and select New. The wizard to create the build starts by asking for routine identification information, as shown in *Figure 7*. As you can see, it is looking for a build identifier, the name of the build, and any comments you would like to make about it.

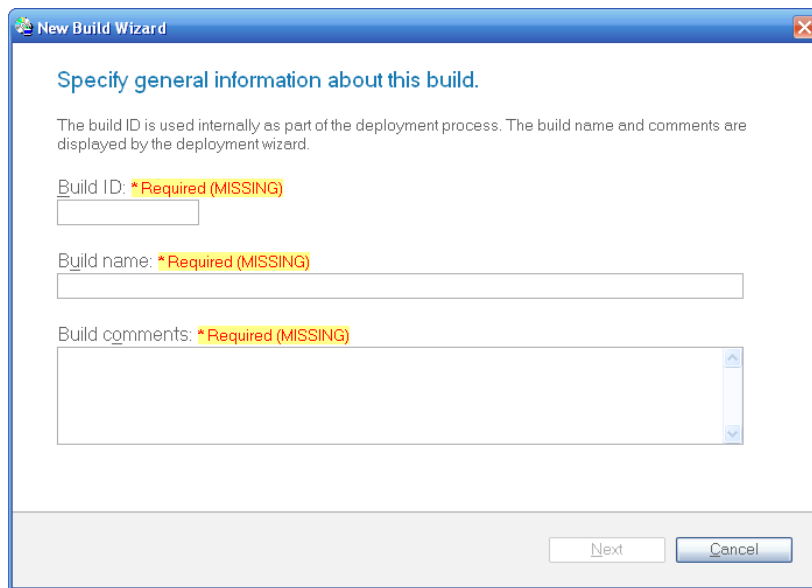
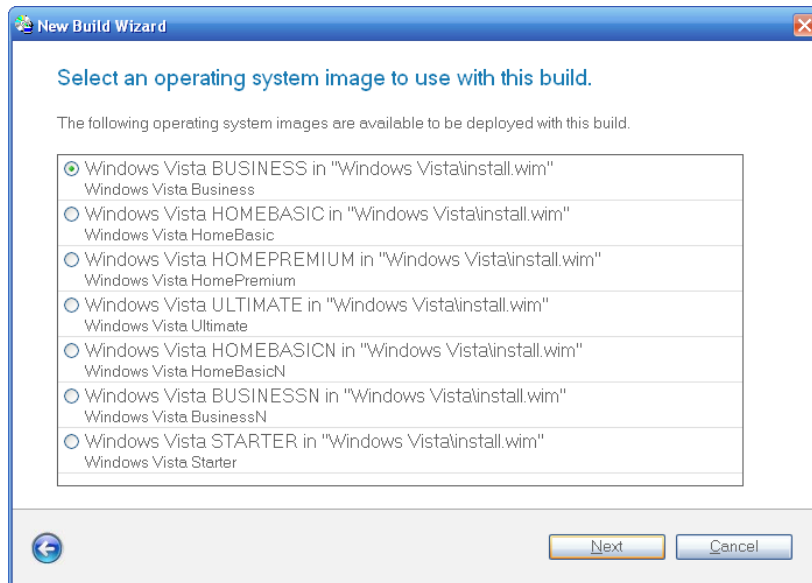


Figure 7

2. Once you click Next, you link this build to an operating system. BDD lists all the operating system builds you have installed to your BDD distribution point (see *Figure 8*).

**Figure 8**

3. The next screen lets you decide how you want to enter the product key: either as part of the build process, manually, or through the Volume License Agreement. Clicking Next gives you the opportunity to enter required information about who is installing the product, including Name, Company Name, and URL of the web site.
4. Next, you can choose to enter a default administrator password, or install without an administrator password. Once you click Next, the build is complete.
5. If you ever want to make changes to the XML file, you can click on Build, go to the settings page, and click on Edit XML. This will open Windows SIM and let you edit the XML file from there.

Automating Installation of the 2007 Microsoft Office System

Installing Office requires the administrator to copy all the necessary installation files to a share point somewhere on the network, and make this share point available to all the users who are installing Office. This can be done so the users can access it directly, or 2007 Microsoft Office can be deployed using SMS or policies. This section talks about what happens during the Office installation from the Office perspective.

Note: In previous versions of Office you could run `setup.exe /a` to create an administrative installation point. This feature is *not* available in Office 2007.

The setup process consists of the following steps.

Running setup.exe

Setup.exe kicks off the installation process. Setup is located in the root directory of the network installation point, and can be run once for each Office product that is installed. When run, it checks for Office products to be installed. If it finds more than one, it will present the user with a choice of which product needs to be installed.

This process can be bypassed if setup.exe is pointed to the config.xml file, also located in the root folder of the installation point. From the command line, installing Office 2007 Standard Edition would look like:

```
\\servername\sharename\Office12\setup.exe /config
\\servername\sharename\Office12\Standard.WW\Config.xml
```

Note: This command must all be on the same line. Office12 is also the root of the installation share.

A few other switches also can be used with setup.exe:

Switch	Purpose
/admin	Starts running the Office Customization Tool, which is used to create a custom Setup file called an MSP file.
/adminfile [path]	This switch can only be used as part of the initial installation process. Once the custom Setup file is created, you use this switch as part of the installation process. The path can point to a specific file or just to a folder where the customization files are stored. The default location for this file is the Updates folder. If the path points just to the Updates folder, the appropriate customization file for that version of Office will be used. If there are multiple customization files for that version of Office, those files must be stored in a different folder and the file must be specified at the command line.
/config	Points to the default or custom config.xml file to use during Setup. This file is usually stored in the core product folder, and it directs Setup on how to install that product. This file can be edited to customize the installation.
/modify [productid]	Setup can use the modified config.xml file to run in maintenance mode, which will allow you to make changes to an already existing installation of Office. The productid is found in the setup.xml file for the product that will be modified. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.
/repair [productid]	As the switch implies, this will repair an installation. /repair uses the productid found in the setup.xml file for the product that will be repaired. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.
/uninstall [productid]	Removes the product from a destination computer. Can be used at the command line with /config. Uninstall uses the productid found in the setup.xml file for the product that will be uninstalled. The setup.xml file is located in the root product folder on the network share. The productid is equal to the value of the ID attribute of the setup element.

Checking for Prerequisites

The installation prerequisites checked include minimum operating system and administrative rights. The user that is doing the installation must be an administrator of the destination computer or Microsoft System Management Server must be used to run the installation with administrator privileges.

Reading Data from an XML File

Multiple XML files can be consulted as part of the installation process. These include `setup.xml`, the XML file for each package, a custom `setup.xml` file, and the `config.xml` file. Each folder on the network installation share has both a `setup.xml` and a `package.xml` file. The `package.xml` file for Office Standard 2007, for example, would be called `standardww.xml`. Using these files, Setup can identify the product and languages available for that product, match the language-neutral and language-specific elements to create a complete feature, build the feature tree, and collect the MSI files that are going to be needed to complete the installation.

The custom installation file or the MSP file has any modifications for the installation, including those customizations that handle how the installation process is going to be run. If no custom file is listed either on the command line or as part of the `config.xml` file, Setup will look in the Updates folder just to be sure there is no `custom.xml` file for the product being installed. Setup takes the information in the custom file and uses it to determine things like whether the product should be installed quietly or which features will show up in the feature tree. As you would expect, the `custom.xml` file settings overwrite default information in the `setup.xml` and `package.xml` files.

Finally, each product installation share point will contain a `config.xml` file that tells Setup to install that particular product. This file can be edited to customize the process, to include whichever products or languages you want installed. The `config.xml` settings take precedence over customization files and default settings in `setup.xml` or `package.xml` files.

Building the Feature Tree

Setup uses the information contained in the XML files to create a single feature tree that includes all the available applications and features in the product. You view the feature tree and specify which applications and features to install on users' computers by using the Office Customization Tool. If you allow users to run Setup interactively, they view the feature tree with your modifications in the Setup user interface.

Creating a Local Installation Source on the Destination Computer

When Setup is run, 2007 Microsoft Office will create a local installation source on the destination computer. The source folder is created in a hidden folder, `\MSOCache\AllUsers\`. The installation source is created by a program called Office Source Engine (`Ose.exe`). Setup copies the files from the installation share to this hidden folder, and then uses the Windows Installer to install Office from the local source. This is helpful because with access to a local copy of the source files, Setup can repair, reinstall, or add Office features without requiring access to a CD or network access point. When users are applying updates, they will not be prompted for a network access point or a CD to complete the process, and installation can be done in a two-step process to manage network resources.

Installing Office

Once creation of the local installation is complete, 2007 Microsoft Office is installed from that location. To reduce the network load, Microsoft suggests running Setup once to distribute the local installation files to the users, and then coming back and running Setup again to finish off the installation.

When the local installation starts, Setup checks for required disk space and makes sure all dependencies are met. The Windows Installer then installs the correct set of MSI files from the user's computer from the local installation source. The progress bar can be displayed to the user during this process. The progress bar will also be visible while applying customizations and updates.

Applying the Customization File

When previous versions of Office were installed, customization was done using a Windows Installer Transform file (MST). Now, it is done by referencing XML data files. The customization can tweak default user settings, which features are installed, application of Outlook profiles, or other user-specific customization changes.

Each customization file is designed to work with a specific product. If there is a customization file present for a product you did not install, obviously, it would not be applied. If there are multiple customization files for the same product in the Updates folder, then all the files will be applied, in alphabetical order.

As a best practice, if you create multiple configuration files for different groups of users, Microsoft suggests storing them in a location other than the Updates location and using the /adminfile option to specify the appropriate file.

Applying Updates to Software

Once the installation and customization are complete, Setup looks at the Updates folder on the installation point for software updates defined in an MSP file. These updates are sent out by Microsoft. Software updates can also be applied as part of the initial installation process, making the process seem to be a single event. This makes sure the user has the most up-to-date version of the product.

Customizing and Maintaining a Windows PE Using BDD Workbench

You will remember from a previous discussion that Windows PE is a bootable medium that brings a computer up in the preinstallation environment, allowing the computer to connect to a distribution point and begin the installation process. Windows PE can be configured in several ways; one of those ways is through the BDD, as follows:

1. In order to create a media deployment point, open the BDD Workbench and create a new deployment point. Open the Deploy container, right-click on Deployment Points, and choose New. The New Deployment Point Wizard will open (*Figure 9*).

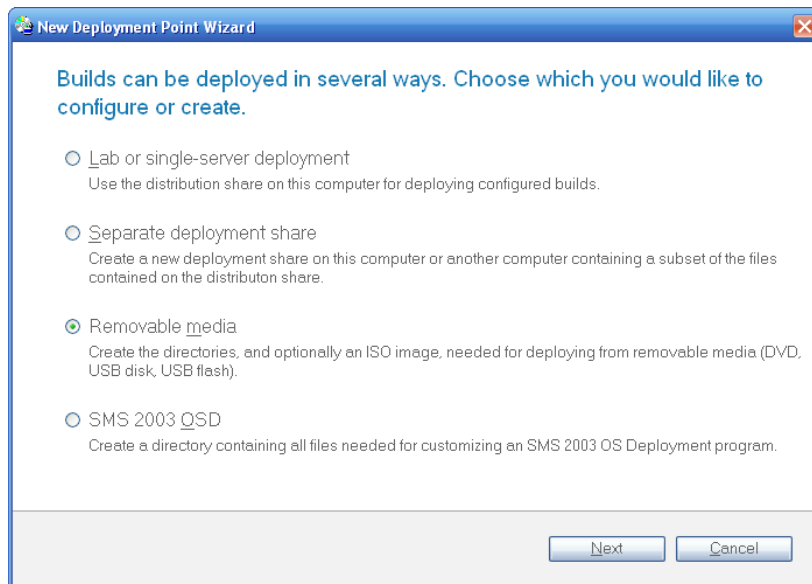


Figure 9

2. Because you need to work with Windows PE, you will choose Removable Media and click Next. The Default Media Deployment Point name is provided as Media, and you can click Next.
3. At this point, you have some choices to make. The first is whether the user should be allowed to select applications during the upgrade process. You can enable or disable the user's right to choose.
4. Next, you can enable or disable the user's right to set the administrator's password. The default is disabled. The next choice is to determine whether you are going to prompt the user for the product key. Again, it is an enable/disable situation.
5. The wizard then wants to know where you want the share created to hold all the necessary files. It defaults to a folder off the root of the C:\ drive, as you can see in *Figure 10*.

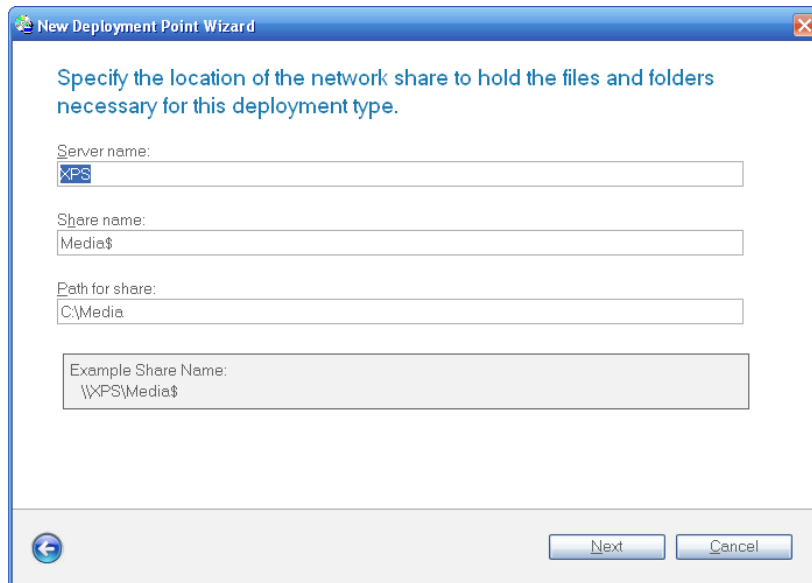


Figure 10

- Next, you can specify how the user data defaults are configured (see Figure 11).

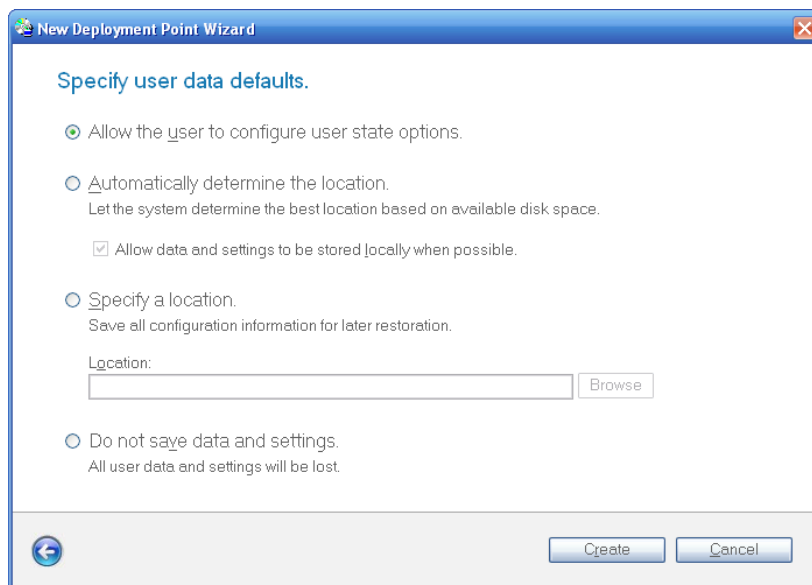


Figure 11

As you can see, you can:

- Allow your users to configure the user state data.
- Automatically determine the location, which lets BDD 2007 automatically determine where to save the user state data.
- Specify a location; an exact location is required.
- Not save data and settings.

After filling this page in, the deployment will be created. To edit or maintain it, simply right-click on the Media deployment point and click Properties. At that point you can click on the Windows PE tab (Figure 12) to make any necessary changes.

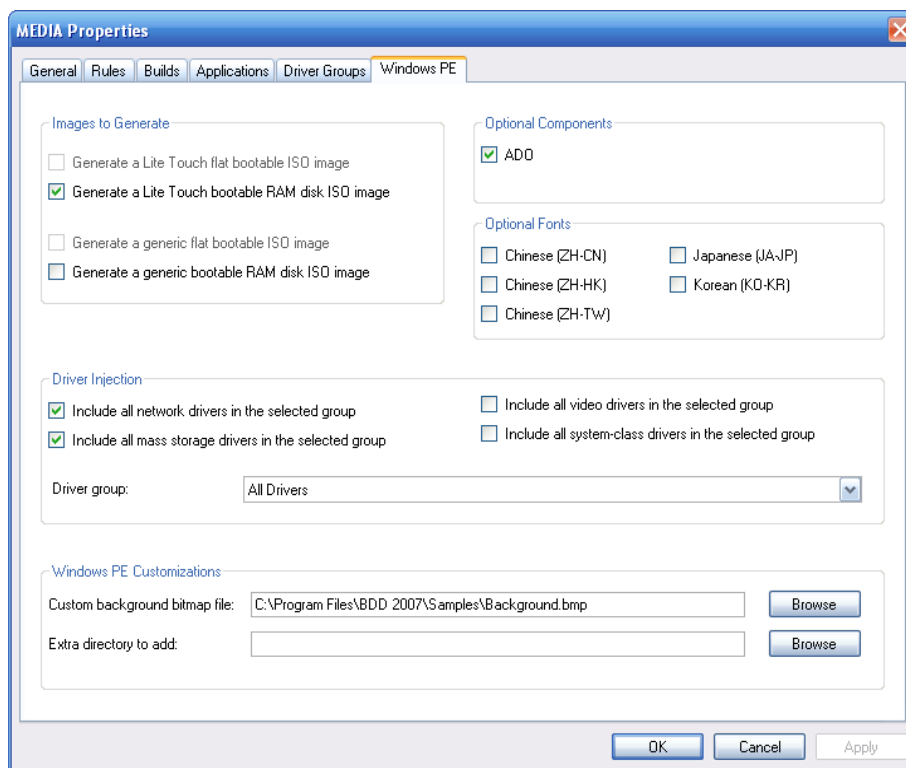


Figure 12

Application Compatibility Toolkit

Installing and Configuring ACT 5

The Application Compatibility Toolkit is available for download from

<http://www.microsoft.com/downloads/details.aspx?FamilyId=24DA89E9-B581-47B0-B45E-492DD6DA2971&displaylang=en>

The minimum hardware and software requirements for installing ACT 5 includes:

Operating System

- Windows XP SP2
- Windows 2000 SP4
- Windows Server 2003 SP1
- Windows Vista

Database Components

You must have one of the following database components available after installation of ACT:

SQL Server 2000, SQL Server 2005, or SQL Server 2005 Express Edition.

Other Software

You must also have Microsoft .NET Framework, version 1.1.

Hardware Requirements

You will need the following to install the various components of ACT 5:

ACT Components	Minimum Requirements	Recommended Requirements
Application Compatibility Manager client and ACT log Processing Service Servers	550 MHz processor and 256 MB of RAM	2.8 GHz processor with 2 GB of RAM
ACT client databases	1 GHz processor with 512 MB of RAM	2.8 GHz processor with 2 GB of RAM

The download is an .MSI file. You can choose to run it after you download or save the download for later execution. It is a straightforward installation.

1. Click on the MSI file.
2. Choose Run.
3. Click Next at the Welcome screen.
4. Accept the application license.
5. Choose where you would like ACT installed. The default folder is C:\Program Files\Microsoft Application Compatibility Toolkit 5\.
6. Click Next for access to the summary screen.
7. Click Install to install the product.
8. Click Finish.

The Application Compatibility Manager, the Application Compatibility Administrator, and Developer and Tester Tools are available after the installation.

You can use the Application Compatibility Manager to configure ACT, as well as to collect, organize, and analyze all of the compatibility information. When you start ACT for the first time, a wizard begins the configuration process. The process includes creating a SQL database to store an application inventory and to track the data on any issues you may have. The wizard also creates an ACT Log Share, where the log files from the client computers are written. Finally, it creates an ACT Log Processing Service account, which is a user account that has read and write access for the ACT Log Processing Service.

The next screen prompts for what you want to install. Is this installation going to be on a computer that will be used as the Enterprise configuration to collect data and view reports, or is it going to be a computer that will just access the database on a different computer to view reports? If the choice is made to install components for an Enterprise configuration, the wizard prompts for the location of the SQL database before continuing. Once connected to the SQL implementation, you provide the name of the database you want to create. After clicking Next, you provide the path and the share name for the location of the log files. These log files will be the result of the scans run on client computers, so all domain computers must have access to the share.

The next step is to define the account that the Logging Service will run under; this can be a local account or a domain user account. When you have finished providing the information, the service is created and the application starts.

If, after installation, changes need to be made to the configuration, choose the Change Settings dialog box in the Application Compatibility Manager. This will provide access to all the choices made during the installation. You can redefine the database, redefine the ACT Log Processing Service, decide whether to join an ACT community, and configure automatic updates.

Deploying ACT 5 Agents

Now that ACT has been installed, you are ready to start collecting data from client computers. In order to collect this data, you first need to create and deploy compatibility evaluators. You can create an evaluator through the Application Compatibility Manager. Once the evaluators are deployed they can be used by the toolkit and the ACT Data Collector to process the application data.

The different evaluators available are:

- **Inventory Collector:** Examines computers and returns information on the hardware configuration and the applications that are installed on the machine.
- **User Account Control Compatibility Evaluator (UACCE):** Evaluates compatibility issues caused by permission restrictions enforced by the User Account Control (UAC), which was formerly known as Limited User Accounts (LUA). With compatibility logging, the UACCE is able to warn of application permission issues and provide information on how to fix the problem so the new operating system can be deployed.
- **Update Compatibility Evaluator (UCE):** Checks compatibility and potential effects of a Windows operating system security update on the applications that have been installed. The UCE dynamically tracks application dependencies and is deployable to both your servers and client computers. It gathers information about the modules that have been loaded, which files were opened, and which registry entries have been accessed by the applications that are running on the computers. The information is written to an XML file and uploaded to the ACT database.
- **Internet Explorer Compatibility Evaluator (IECE):** Determines potential web application and web site issues that may occur due to the release of the new operating system. The IECE enables compatibility logging for Internet Explorer, parses logged issues, and creates a log file that is uploaded to the ACT log processing service.
- **Windows Vista Compatibility Evaluator:** Identifies issues with the Graphical Identification and Authentication (GINA) DLLs for services running and for any application components deprecated in the Windows Vista operating system.

The agents are created in the ACT Manager. To create the agent, start the Manager and select the Collect button, followed by selecting Data Collection Packages. From here you can either create a new package or edit an existing package. To create a new package, select File > New. At this point, you can choose to create a package that evaluated the deployment of a new operating system or service pack, update to a new version of Internet Explorer, or evaluate a Windows Update. You can specify when to monitor the data and for how long, and then choose where you want the data uploaded.

After making all the appropriate choices, you need to save the package in a location that has been shared. The agent is stored in an .MSI file format, which can then be distributed using SMS, logon scripts, or group policies. Once distributed and executed, the agents will begin to collect information and pass the log files back to the data collection area for processing.

To ensure the agents are running, you can check the Task Manager and look for the actdcsvc.exe process.

Application Compatibility Reporting

ACT comes with the ability to create a custom report or use the quick reporting feature. The quick reporting feature allows you to see Operating System Reporting – Summary Report, Operating System Reporting – Application Report, Operating System Reporting – Computer Report, Operating System Reporting – Device Report, Operating System Reporting – Web Site Report, Update Impact – Summary Report, Update Impact – Application Report, and Update Impact Analyzer – Update Report.

Operating System Reporting – Summary Report

This is an organizational summary of inventoried data using the ACT compatibility evaluations, as shown in *Figure 13*.

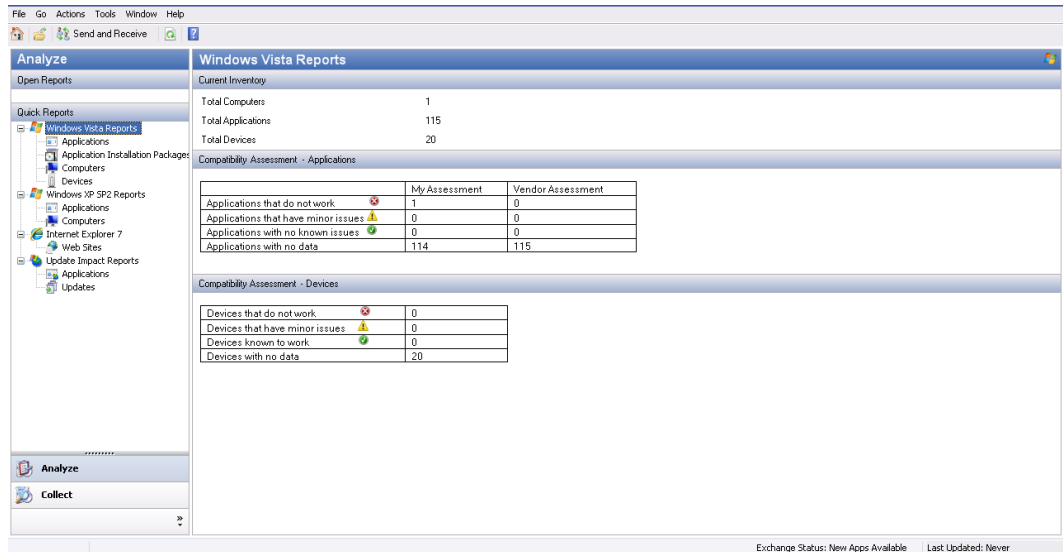


Figure 13

The features shown include:

Feature	Details
Current Inventory	<p>High-level overview of the application inventory. Included in the report are:</p> <ul style="list-style-type: none"> • Total Computers • Total Applications • Total Devices
Compatibility Assessment – Applications	<p>High-level overview of the application compatibility including data from My Assessment, Vendor Assessment, and Microsoft:</p> <ul style="list-style-type: none"> • Applications that do not work • Applications that have minor issues • Applications with no known issues • Applications with no data

Compatibility Assessment – Devices	<p>High-level overview of application compatibility including data on:</p> <ul style="list-style-type: none"> • Devices that do not work • Devices that have minor issues • Devices known to work • Devices with no data
------------------------------------	--

Operating System Reporting – Application Report

Reports on applications that have been inventoried using the ACT compatibility evaluators, as shown in Figure 14.

The screenshot shows the 'Windows Vista - Application Report' window. The window has a menu bar (File, Go, View, Actions, Filter, Tools, Window, Help) and a toolbar with icons for Send and Receive, Toggle Filter, and other functions. The main area is a table with columns: Application Name, Version, Company, My Assessment, Vendor Assessment, Community Assessment, Active Issues, and Computers. The table lists various applications such as Adobe Bridge 1.0, Adobe Dreamweaver CS3, Adobe ExtendScript Toolkit 1.0, Adobe Flash Player 9 ActiveX, Adobe Gamma, Adobe Illustrator CS2, Adobe LM Service, Adobe Production Studio, Adobe Reader 8, Adobe SVG Viewer 3.0, AdRem Free Remote Console for NetWare 2006, ANIWZCS2 Service, ANIWZCS2 Service Launcher (NT), ATI - Software Uninstall Utility, ATI Catalyst Control Center, ATI Display Driver, ATI External Event Utility for Windows, ATI MCE Control Panel, ATI Smart, Bonjour, brother Industries Ltd brsvc01a, Brownie, C-Maps Audio, CoffeeCup Flash Form Builder - Registered, CoffeeCup Flash Website Font, CoffeeCup Google SiteMapper, and CoffeeCup HTML Editor 2007. The 'Active Issues' column shows values of 0 or 1, and the 'Computers' column shows values of 0 or 1. A red 'X' icon is visible in the 'My Assessment' column for Adobe Production Studio.

Application Name	Version	Company	My Assessment	Vendor Assessment	Community Assessment	Active Issues	Computers
Adobe Bridge 1.0	1.0.3	Adobe Systems				0	1
Adobe Dreamweaver CS3	9.0	Adobe Systems L.				0	1
Adobe ExtendScript Toolkit 1.0	1.0.3	Adobe Systems				0	1
Adobe Flash Player 9 ActiveX	9.0	Adobe Systems				0	1
Adobe Gamma						0	1
Adobe Illustrator CS2						0	1
Adobe LM Service	2.67.10.1	Adobe Systems				0	1
Adobe Production Studio						0	1
Adobe Reader 8	8.0.0	Adobe Systems L.				0	1
Adobe SVG Viewer 3.0	3.0	Adobe Systems...				0	1
AdRem Free Remote Console for NetWare 2006	2006	AdRem Software				0	1
ANIWZCS2 Service						0	1
ANIWZCS2 Service Launcher (NT)	1.0.1.30507	Alpha Networks I.				1	1
ATI - Software Uninstall Utility	6.14.10.1014					0	1
ATI Catalyst Control Center	1.2.2451	ATI Technolog...				0	1
ATI Display Driver	8.301-060926a...					0	1
ATI External Event Utility for Windows	6.14.10.4146	ATI Technolog...				1	1
ATI MCE Control Panel	2.1.0	ATI Technolog...				0	1
ATI Smart	5.13.1.25					1	1
Bonjour	1.0.3.1	Apple Computer...				0	1
brother Industries Ltd brsvc01a	1.0.0.4	brother Industrie...				1	1
Brownie	1.0.0.0	Brother Industrie...				0	1
C-Maps Audio	1.0.4773.3	SigmaTel, Inc.				0	1
CoffeeCup Flash Form Builder - Registered						0	1
CoffeeCup Flash Website Font						0	1
CoffeeCup Google SiteMapper						0	1
CoffeeCup HTML Editor 2007						0	1

Figure 14

The available report features are:

Feature	Details
Application Inventory	Overview of the application inventory. You can customize to include or exclude columns, view compatibility issues by simply clicking on a row, and manage your application compatibility assessments. Also shown are application categories and the status of the deployment.
Compatibility Assessment	View your organization's assessment of a specific application. Assessment can be: <ul style="list-style-type: none"> • No data • Works • Works with minor issues or has solutions • Does not work
Priority	Views by priority ranking within your company. Priority can be: <ul style="list-style-type: none"> • Priority One – Business Critical • Priority Two – Important • Priority Three – Nice to Have • Priority Four – Unimportant • Unspecified
Deployment Status	Deployment status can be: <ul style="list-style-type: none"> • Not reviewed • Testing • Migrating • Ready to deploy • Will not deploy
Custom Category	You can create a custom category or subcategory.
Application Details	Application details include: <ul style="list-style-type: none"> • Issue details, which is a list of compatibility issues reported for the application. • Computer list, which is a list of computers that have the application installed. • Application details, which includes a list of executable files, installation files, information files, etc.

Operating System Reporting – Computer Report

This is a report of the computers inventoried. The report includes:

Features	Details
Computer Inventory	Overview of the computer inventory. You can customize to include or exclude columns, view compatibility issues by simply clicking on a row, and manage other compatibility assessments like computer categories and the status of the deployment.
Priority	Views by priority ranking within your company. Priority can be: <ul style="list-style-type: none"> • Priority One – Business Critical • Priority Two – Important • Priority Three – Nice to Have • Priority Four – Unimportant • Unspecified
Deployment Status	Deployment status can be: <ul style="list-style-type: none"> • Not reviewed • Testing • Migrating • Ready to deploy • Will not deploy
Custom Category	You can create a custom category or subcategory.
Computer Details	Computer details include: <ul style="list-style-type: none"> • Application list, which is a list of applications installed on the computer. • Device list, which is a list of devices the computer contains. • Computer details, which includes computer name, processor speed, RAM, etc.

Operating System Reporting – Device Report

This is a report on installed devices that have been inventoried using the ACT evaluators.

Feature	Details
Device Inventory	High-level overview of the device inventory. You can choose the columns to include or exclude, view compatibility issues, and manage other features like priority.
Compatibility Assessment	View a compatibility assessment provided by the authoritative sources for the device.
Priority	Views by priority ranking within your company. Priority can be: <ul style="list-style-type: none">• Priority One – Business Critical• Priority Two – Important• Priority Three – Nice to Have• Priority Four – Unimportant• Unspecified
Device Details	Computer details including the list of computers that have the device, and details on the device including manufacturer, model, etc.

Operating System Reporting – Web Site Report

This is a report covering the organization's web sites and web applications, inventoried using the Internet Explorer Compatibility Evaluator.

Feature	Details
Web Site Inventory	High-level overview of web sites and web applications.
Compatibility Assessment	View your organization's assessment of a specific web site or web application. Assessment can be: <ul style="list-style-type: none"> • No data • Works • Works with minor issues or has solutions • Does not work
Priority	Views by priority ranking within your company. Priority can be: <ul style="list-style-type: none"> • Priority One – Business Critical • Priority Two – Important • Priority Three – Nice to Have • Priority Four – Unimportant • Unspecified
Deployment Status	Deployment status can be: <ul style="list-style-type: none"> • Not reviewed • Testing • Migrating • Ready to deploy • Will not deploy
Custom Category	You can create a custom category or subcategory.
Web Site Details	Details of the web site or the web application.

Update Impact – Summary Report

This is an organizational summary as seen through the Update Compatibility Evaluator.

Feature	Details
Compatibility Assessment – Applications	<p>Overview of things impacted by a Windows Update, including:</p> <ul style="list-style-type: none"> • Total number of applications that could be impacted • Total number of applications with no data • Total number of applications not impacted • Total number of applications
Compatibility Assessment – Updates	<p>Overview of updates that may impact your applications, including:</p> <ul style="list-style-type: none"> • Total number of updates potentially impacting applications • Total number of updates not shown to impact applications • Total number of updates

Update Impact – Application Report

This is a report of applications inventoried by the Update Compatibility Evaluator.

Feature	Details
Application Inventory	<p>Overview of the application inventory. You can customize to include or exclude columns, view compatibility issues by simply clicking on a row, or manage your application's compatibility assessments.</p>
Priority	<p>Views by priority ranking within your company. Priority can be:</p> <ul style="list-style-type: none"> • Priority One – Business Critical • Priority Two – Important • Priority Three – Nice to Have • Priority Four – Unimportant • Unspecified
Custom Category	<p>You can create a custom category or subcategory.</p>
Application Details	<p>View application details including:</p> <ul style="list-style-type: none"> • Intersecting updates—updates that will impact one program that is linked to another application. • A list of computers that has the application installed. • A list of executables, the installation files, the information files, etc.

Update Impact Analyzer – Update Report

This is a report on specific Windows Updates.

Feature	Details
Update Inventory	Overview of available updates as downloaded from the Microsoft Compatibility Exchange.
My Severity	Your severity ranking of the update, which can be: <ul style="list-style-type: none">• Critical• Important• Moderate• Low
Deployment Status	Deployment status can be: <ul style="list-style-type: none">• Not reviewed• Testing• Migrating• Ready to deploy• Will not deploy
Custom Category	You can create a custom category or subcategory.
Update Details	Intersecting applications and details on each update.

Managing User State Migration

Upgrading User State from Windows XP to Windows Vista

Two tools can be used when a user is migrating to Windows Vista from Windows XP. In a home or small environment, when the migration is from one PC to another PC, migrations can use the PC Migration Assistant, which is a graphical interface into the migration environment. Remote or automated migrations are completed using the User State Migration Tool (USMT) version 3.0. USMT, unlike the PC Migration Assistant, is a command line utility that allows a script to be developed to automate corporate environments.

In order for either method to function with a high degree of success, there must be a standard operating environment (SOE) in place, meaning the hardware and software should be standardized across the enterprise. An SOE should be made up of:

- Standard hardware drivers
- Standard core operating system features
- Standard productivity applications
- Standard utilities
- Standard security features

If these are in place, the chance of a successful migration with a minimum of failures increases dramatically.

Decisions should be made to determine what to migrate. This includes:

- Personal user settings
- Applications and settings
- Personal data files
- Folders

When deciding what to migrate, the criteria should be what is actually required to have the new system come up with the same look and feel as the old system. The more data that is migrated, the more chances there are for a migration failure.

Types of Migration Strategies

Migration strategies can include a basic system upgrade or an in-place installation of the new operating system. It might also be a side-by-side computer replacement where data needs to be moved from one system to a new system. The final strategy is referred to as a clean installation. This is where the operating system and all data are wiped from a computer and replaced with the new installation. The safest type of migration is the in-place migration, because it is nondestructive.

Since Windows 2000, user information has been stored in profiles, which consisted of a set structure of folders designed to hold all the information a user needed to operate the workstation successfully. Legacy applications were a problem with this scenario, because the legacy applications did not avail themselves of the profiles. In large environments, or those environments that used Active Directory, user information may be scattered around various locations on the workstation and on a file server. In a perfect world, all a migration would have to take into account is the user profiles. Since this is not a perfect world, there is the User State Migration Tool (USMT).

USMT Will Migrate	USMT Does Not Migrate
Internet Explorer settings	Hardware settings and drivers
Outlook Express store	Passwords
Dialup connection information	Applications
Desktop settings	Synchronization files
Phone and modem options	DLL files
Accessibility options	Executable files
Classic desktop	Encrypting File System certificates (in some cases EFS certificates will be migrated if you are moving to Vista)
Command prompt settings	
Favorites	
Fonts	
Folder options	
Taskbar settings	
Mouse and keyboard settings	
Quick launch settings	
Screen saver selections	
Sound settings	
Regional options	
My Documents	
My Pictures	
My Videos	
My Music	
My Received Files	

In all but the wipe and load scenario, the USMT uses three steps. The original system is scanned, and files and settings are compressed and stored in an intermediate location. The new system will then receive the SOE image and any other supplemental applications. The user settings will be restored on the new system.

In a wipe and load installation, the three steps are slightly different. The original system is scanned, and files and settings are compressed and stored in an intermediate location. The disk is then reformatted and the SOE image and supplementary applications are installed, and the user settings are restored.

Automating User State Migration

User state migration is automated using USMT, which consists of several command-line tools, including ScanState and LoadState. These two tools used to be script driven, but in version 3.0, the scripts are now in XML formats. Version 3.0 can also move user profiles, even if some of the files have been encrypted using EFS. The USMT can migrate from Windows 2000, Windows XP, or Vista to either Windows XP or Vista.

When migrating to Vista, the USMT uses the Components Manifests for Windows Vista to move the operating system settings. The manifest file is created by Vista for each component that is loaded with the operating system. No matter what settings are captured by ScanState, LoadState will only transfer settings that have a corresponding manifest file on the target computer.

The USMT gets its instructions from a setup of XML files. A set of default files are provided, and each of these default files can be customized to meet organizational needs; for example, if the target is Windows Vista (the subject of this test) the two default files that would be used are MigApp.XML and MigUser.XML.

To make the customization process easier you can create a file called config.xml by using the SCANSTATE switch /genconfig. To get the best results from this process, you would create one computer that has the source operating system and all the applications that you want to migrate. Run SCANSTATE /genconfig to capture the list of user, operating system, and application settings to migrate from any computer in the organization. The config.xml file is required for controlling the migration of operating system components when either the source or destination operating system is Vista. If there is no config.xml, only the default settings are migrated.

Creating a Migration Script

The custom migration script can be as simple as following the steps listed above to create a config.xml file. Once the file has been created, it can be edited to complete the customization and determine what will be included and excluded as part of the migration process. Most of the options are configured using a yes or no format. Each component in the file will have a migrate = section where you can specify yes or no. These files are in a text format, so they can be edited using notepad.exe or any text editor.

Using Vista Imaging

If an entire system can be mirrored without regard to personalization, Vista includes tools for system imaging, remote system installation, and software deployment. New to Vista is the Windows Imaging Format (WIM), which is disk imaging technology. Once an image has been captured, the imaging files can be mounted as a system volume so they can be edited more easily. With WIM, you can deploy the same image to different types of computer hardware. WIM supports the SOE concept.

Managing Vista Deployments Using SMS 2003

Windows System Management Server (SMS) 2003 can be used as part of the zero touch installation (ZTI) of Vista. Two tools are used with SMS 2003, the Business Desktop Deployment (BDD) tool and the Operating System Deployment (OSD) tool. These tools are used together to implement the deployment.

Before beginning the process, make sure all servers that are running SMS are patched to the latest level, at least SP2. The point of using SMS is to ensure that you can remotely capture an image of a computer, store that image somewhere, and then deploy that image to either the same computer or different computers on the network. To accomplish this, you need some way to control the computers, somewhere to store the images, a way for users or SMS to get access to those images, and an infrastructure in place to download the images without slowing the network to a crawl.

In Microsoft speak, that means the SMS distribution points have enough space to store the images, deployment server distribution points must be created with enough space for the OSD images, and finally you need to determine the size of each image you are going to deploy and the number of images you must save. The number of images saved will be determined by the number of different workstation configurations you have, whether you are still deploying to Windows XP, or, if using Vista, by the base Vista installation and any language support you must provide.

Besides the operating system, ScanState will migrate user state data to a storage point, and then retrieve it at a later time. Storage space must be allocated for user state data, and the distribution point should be on a high speed network segment. Again, the amount of space necessary will depend on what you are migrating. If you are taking all the information in the My Documents folder, and all user data is stored in that file, the amount of storage space necessary will increase accordingly. Estimates can be done by using the SCANSTATE.EXE utility and using the /p option to estimate disk space required for storage.

Log files must also be a consideration. When the deployment is put into play, logs will be generated for each deployment. Storage space must be allocated for that, also. Space is also needed for storing source files for the applications to be deployed and the Vista operating system.

Determining OSD Prerequisites

The SMS OSD must be installed on at least one site server within the organization. The feature pack gives the administrator the ability to capture images, distribute, and install workstations and servers. The OSD Feature Pack is an add-on to SMS, so it requires SMS 2003 SP2 or above. If you are going to use the user state migration features of the OSD Feature Pack for Windows Vista, you also must download and install the USMT 3.0.

The latest version of SMS OSD will support deployment of

- Microsoft Windows XP, x64 Edition
- Microsoft Windows Vista
- Microsoft Windows Vista Support

Vista Support

To use the latest OSD with Windows Vista, you must use the Vista version of Sysprep. It is installed in the %systemroot%\system32\sysprep folder on a computer running Vista. Vista also has a licensing option that does not require a product key for each computer.

Support for the User State Migration Tool

You may require multiple versions of the User State Migration Tool. The Feature Pack supports only one version of the USMT for a package. For example, if you are upgrading a computer that is running a 32-bit operating system to a 64-bit operating system, you have to use the 32-bit version of the USMTScan program to gather the system settings for the 32-bit installation and a 64-bit version of the USMTLoad program to restore the settings to the 64-bit operating system.

The User State Migration Tool version 3.0 has to be used for capturing and restoring user states for deploying Windows Vista. USMT version 3.0 can migrate user state data from computers running Windows 2000 SP4 to Windows Vista.

Installing SMS 2003 OSD

To install the SMS 2003 OSD Feature Pack, you first must choose the right computer. An SMS 2003 site server is the recommended platform, although you can also install it on a computer that is running the SMS 2003 Administrator Console. SMS 2003 with at least SP1 must be installed on site servers that will be supporting the OSD Feature Pack. You must use the Administration Console that was supplied with SMS 2003 SP1 or later.

To install the OSD Feature Pack:

1. Back up the SMS site server before upgrading SMS or adding the Feature Pack.
2. Download the latest version to either an SMS site server or a computer that is running the SMS Administrator Console.
3. Extract the setup files, which include:
 - ▶ OSDDeployment.msi: Microsoft Installer program for OS Deployment Feature Pack.
 - ▶ OSDDeployment_setup.exe: OS Deployment Feature Pack setup.
 - ▶ Documentation files: OS Deployment Feature Pack Release Notes (readme.htm) and *Microsoft Systems Management Server 2003 OS Deployment Feature Pack Users Guide* (OSD_FP_guide.doc) and product license information.
4. Install the OSD Feature Pack by double clicking OSDDeployment_setup.exe. The executable calls the OSDDeployment.msi file, which starts the setup wizard. Click Next and read/accept the license agreement. Click Next on the installation page, and after setup is complete, click Finish. No special configuration information is needed either during or after the Feature Pack setup. If there is an issue, there are two log files created under SMS\logs that may contain error messages: OSDDeploymentsetup.log and OSDDeploymentmsi.log.

If you are using a language other than English:

5. After the feature pack has been installed, download a version of the Windows Preinstallation Environment from <http://www.microsoft.com/smsserver>.
6. Navigate to the OSD subfolder of the SMS installation folder and rename the file OSDWINPE.WIM to OSDWINPE.ENU.
7. Copy the download of Windows PE into the subfolder and rename it OSDWINPE.WIM.
8. Run the SMS Administrator console and create any packages and programs that will be deployed with the localized operating system.

Configuring SMS 2003 OSD

After the OSD has been installed, it provides the basic functionality discussed in length at different parts of this Exam Manual. If you want to alter the process, you can customize the actions of the Feature Pack by scripting.

OSD Scripting

The way the installation process receives the information about what it is supposed to do is similar to a standard Windows environment. There is a group of name/value pairs that can be read or set by an action during the installation process. Any of these existing variables can be read through the normal Windows environment. These variables can be changed or set using an automation object or a command line, depending on which is more appropriate to the object.

The environment variables used by the OSD Feature Pack are:

Variable	Description
OSDADVERTID	Unique ID of the SMS advertisement that started the OS installation. This sends a status message to the SMS site throughout the installation process. Read Only.
OSDACTIONREQUEST	Allows an action to request specific reboot behavior, either reboot or rebootandretry. Rebootandretry causes the computer to reboot and rerun the current action. Reboot causes the computer to reboot before running the next action.
OSDCOMPUTERNAME	Used by the OSD when sending status information to the SMS Site. In a refresh scenario, this is the existing computer name. When running the OS Image Installation CD, the value is the variable OSDNEWMACHINENAME, if available, or the MAC address.
OSDCONFIGPATH	Full path of the program configuration file on the distribution point. Read Only.
OSDINSTALLPACKAGE	Unique ID of the OS Deployment package that the OS Image Installation CD should install. Set by an OS Image Installation CD unattended script.
OSDINSTALLPROGRAM	Name of the OS Deployment program that the OS Image Installation CD should install. Set by an OS Image Installation unattended script.
OSDINSTALLSILENT	Indicates that the OS Image Installation CD should run without user intervention. This variable can be set to any numeric value other than blank to run the installation without interaction.
OSDLOCALDATAPATH	Path to a folder on the local computer where custom actions can store data that will not be overwritten during the image installation process. Note that during the preinstall phase, this local might not exist if the hard drive has not yet been partitioned and formatted. Read Only.

OSDLOGPATH	Path to a folder where custom actions should generate a log file. In the case of failure, this folder will be backed up to the Windows temporary folder for troubleshooting. Read Only.
OSDNEWMACHINE- ENAME	Name to assign to the computer when the new operating system is installed. The variable is used for new computers and replaces computer installations when running the OS Image Installation CD.
OSDPACKAGEID	Unique ID of the OS Deployment package being installed. Read Only.
OSDPACKAGEPATH	Full path to the OS Deployment package on the distribution point. Read Only.
OSDPROGRAMID	Name of the OS Deployment Program being installed. Read Only.
OSDSTATEPATH	Full path of the location where the user state should be captured to and restored from. If this is set to a value of "*" then the OS Deployment will automatically expand the path to a safe local location on the destination computer.
OSDTARGETDRIVE	Root drive where the operating system will be installed, including a trailing backslash. This value will be different in a full operating system vs. Windows PE due to the special way in which Windows PE assigns drive letters. Read Only.

Customizing Actions

Each installation is made up of five different phases, the Operating System Installation Wizard, the Pre-Install Phase, the Install Phase, the Postinstall Phase, and the State Restore Phase. The steps that occur in each of these phases are called actions, and the actions can be changed or custom actions created depending on what problems you have to solve for your customer. Common scenarios include automating the OS Image Installation CD, transferring state in a replace replica scenario, or pre-assigning computer names and product keys based on MAC address.

Actions can be customized by way of a custom script. The script can use different settings provided by a simple text file or retrieved from a database using the Active Data Objects (ADO) automation interface.

For sample scripts, refer to the *Microsoft System Management Server 2003 Operating System Deployment Feature Pack Users Guide*, which is installed as part of the OSD Installation.

Troubleshooting

Log Files

The OSD Feature Pack agent stores information under the C:\MINIT\SMSOSD folder located on the destination computer. All log files are in a subfolder called OSDLOGS. To enable a more detailed logging scenario, create a file called C:\OSD.DEBUG. This file must be created before the deployment begins, and the contents of the file do not matter. If the image is being managed with an unattended script, the minint folder is removed after the script has been run.

If the deployment fails, the OSDLOGS folder is backed up to the temp folder before the minint folder is deleted. Failures during the image capture are logged to a file stored in c:\~\sms_icw\smscapture.log.

If a new OS Deployment package has been created or an OS Deployment program's properties have been changed, SMS creates an associated log file for each action and stores the log file in the SMS\logs folder. The three default log files are OSDNewPackageWizard.log, OSDNewProgramWizard.log, and OSDProgram-Properties.log.

Archiving Files

If an OSD completes successfully, the OSD Feature Pack folders are deleted. If you want to retain them, you can create the empty file c:\minit\archive_old.sms. If you use this file and want to restart the OSD process, the c:\minit folder must be deleted.

Using the Lab Shell for Windows PE

As discussed above, when an OSD action fails, it is logged and the action exits. During the Windows PE phase of the process, this can cause problems because when the agent stops, Windows PE reboots the computer. This can cause a cycle of reboots. Any deployment should be thoroughly tested in a lab environment to minimize the possibility of this happening in a production environment. To help troubleshoot or test, you can use an OSD Feature Pack shell program called OSDSHELL.LAB.EXE to access a command shell in the Windows PE environment so that you see the state of the computer and test run scripts.

Errors in Script Files

Besides other methods of customizing actions, VBScript and Jscript files can also be used. The Windows Script Host does not return a nonzero exit code if the script fails. To make sure the OSD Feature Pack returns an error code, use the WScript.Quit method to explicitly exit the script with a nonzero value.

Planning

As you have looked through this section, you can see that planning and testing play an important role in the deployment process. Some of the decisions and plans that will need to be made include decisions to determine what to migrate, including:

- Personal user settings
- Applications and settings
- Personal data files
- Folders

When deciding what to migrate, the criteria should be what is actually required to have the new system come up with the same look and feel as the old system. The more data that is migrated, the more chances there are for a migration failure.

The actual migration planning and implementation process is:

1. Identify currently installed applications.
2. Identify applications, data, and settings that must be migrated.
3. Validate information with the system owner.
4. Work with subject matter experts to validate each level of transfer.
5. Create a USMD transfer script.
6. Capture the source data.
7. Test the data restore.
8. Validate the data restore with the subject matter experts.
9. Include the script into the deployment process.

The systems are then ready to migrate, though network bandwidth, storage space, and permissions also need to be taken into consideration.

Practice Questions

Chapter 1 Deploying the 2007 Microsoft Office System

1. You are preparing for a large-scale deployment of Office 2007 in your organization. You have defined three mirrored installation points and have used the Office Customization Tool to create a custom Setup customization (.MSP) file. For fault tolerance and improved performance, you need to ensure that client computers in your organization have both Office 2007 installation points available throughout the installation process.
What action should you take next?
 - A. Ensure that the Setup customization file in each deployment point contains only one installation point entry.
 - B. Map a network drive letter on each client computer to the root of a DFS tree that is linked to all installation points.
 - C. Edit the OPEN key in the autorun.inf file in each installation point.
 - D. Edit the DistributionPoint Location element in the Config.xml file in both installation points.

2. You are planning an over-the-network deployment of Office 2007 to all desktop computers in your organization. The Office 2007 installation will take place in the security context of the locally logged-on user through the use of Group Policy and escalated privilege. You have copied all of the content from the Office 2007 DVD to a folder named InstPnt on a Windows Server 2003 file server named ATLAS. You need to share the InstPnt folder with your users employing the security principle of least privilege.
What should you do?
 - A. Grant the Administrators group the Full Control NTFS permission on the InstPnt shared folder.
 - B. Grant the Domain Admins group the Modify NTFS permission on the InstPnt shared folder.
 - C. Grant the Authenticated Users group the Read & Execute NTFS permission on the InstPnt shared folder.
 - D. Grant the Everyone group the Read NTFS permission on the InstPnt shared folder.

3. You are planning a deployment of Office 2007 Enterprise Edition to all desktop computers in your organization. Employees in your organization work in one of three different languages. You have created a custom Config.xml file in your network installation point such that you can specify precisely which languages Setup installs on each user's computer. You need to point the Office 2007 Setup program to the custom Config.xml file, which is named LangConfig.xml.
What action should you take?
 - A. Add the command string `\server\share\Office12\setup.exe /config \server\share\Office12\LangConfig.xml` to your installation script.
 - B. Add the command string `\server\share\Office12\setup.exe /adminfile \server\share\Office12\LangConfig.xml` to your installation script.
 - C. Add the command string `\server\share\Office12\Enterprise.WW\setup.exe /config \server\share\Office12\LangConfig.xml` to your installation script.
 - D. Add the command string `\server\share\Office12\Enterprise.WW\setup.exe /adminfile \server\share\Office12\LangConfig.xml` to your installation script.

4. You are planning an Office 2007 deployment in your organization. Company security policy stipulates that certain commands and interface options be disabled in some Office 2007 applications. What action should you take? (Select two.)
- A. Load the 2007 Office System Administrative Templates into Group Policy.
 - B. Load the 2007 Office System Administrative Templates into the Office Customization Tool.
 - C. Configure the Disable items in user interface policies in Group Policy Editor.
 - D. Configure the Disable items in user interface policies in the Office Customization Tool.
5. You want to use Group Policy Software Installation to deploy Microsoft Office 2007 to computers in your organization. You use the Office Customization Tool (OCT) to define a custom Setup customization file. You need to apply customized features and user settings during the installation of the 2007 Office release. What action should you take?
- A. Use a script to apply the .MSP file after initial deployment.
 - B. Ensure that all customizations are specified in the Config.xml file.
 - C. Configure the appropriate Group Policy Object (GPO) for per-user software installation.
 - D. Store Office 2007 security update and service pack files to the \Updates folder in the network installation point.

Chapter 2 Configuring Windows Vista Automated Installation Settings

1. You defined and deployed a custom Windows Vista installation to all of the desktop workstations in your organization. Your company recently hired 10 employees whose native language is Russian. You need to provide these 10 employees with native language support on their own workstations. What action should you take?
- A. Mount the Windows image by using the PKGMGR command. Use the ImageX utility to add the appropriate language pack to the offline Windows image.
 - B. Create an answer file that contains a reference to the appropriate language pack. Apply the answer file to the offline Windows image by using Windows System Image Manager (SIM).
 - C. Mount the Windows image by using the ImageX utility. Use PKGMGR to add the appropriate language pack to the offline Windows image.
 - D. Add the language pack to the Out-of-Box Drivers folder in Windows System Image Manager (SIM). Use PKGMGR to add the appropriate language pack to the offline Windows image.

2. You plan to deploy Microsoft Windows Vista to all of the desktop computers in your organization. You install Windows Deployment Services (WDS) and the DHCP Server service on a Windows Server 2003 computer named WDS-MS. For fault tolerance and to enhance network performance, you have three domain controllers and one other DHCP server in your enterprise. You add a Windows Vista operating system installation image and a boot image on WDS-MS. You want to be certain that WDS can be used to deploy Vista to your organization's desktop workstations. What action should you take? (Select two.)
- A. Deauthorize the DHCP server that will be used to service WDS image requests.
 - B. Select the Do not listen on port 67 option in the Windows Deployment Services Configuration Wizard.
 - C. Register the WDS service in DNS.
 - D. Select the Configure DHCP option 60 to 'PXEClient' option in the Windows Deployment Services Configuration Wizard.
3. You need to apply the Japanese language pack to your company's Microsoft Vista operating system images in order to support several temporary contractors from Japan who will use your computers. Because these computers will be accessed by both your IT staff and the Japanese contractors, both English and Japanese should be available on the OS image. Your solution must involve the least amount of administrative effort. What should you do?
- A. Use the ImageX utility to mount the Vista image offline. Create an unattended setup answer file that references the Japanese language pack. Use PKGMGR to apply the answer file to the image.
 - B. Use the Add/Remove Programs Control Panel applet on a reference computer to include the Japanese language pack on the image. Redeploy the OS image by using Windows PE.
 - C. Use the PKGMGR utility to mount the offline Windows Vista image. Create an unattended setup answer file that references the Japanese language pack. Use ImageX to apply the answer file to the image.
 - D. Configure a .VBS script file that contains an lpksetup.exe statement that will install the Japanese language pack. Specify the script file in a GPO that is linked to the organizational unit (OU) containing the contractor's computers.
4. You need to perform an over-the-network automated deployment of Windows Vista to 25 computers in your organization. You use Windows System Image Manager (SIM) to create an unattended setup answer file named Autounattend.xml. You then boot the first five Windows XP computers from network-enabled Windows PE recovery CDs, map a drive letter to the Vista distribution share, and issue the following command: setup.exe /u:autounattend.xml. However, automated Vista setup fails to proceed. What action should you take to correct this problem?
- A. Rename the unattended setup answer file unattend.xml. Restart the installation, specifying the original setup.exe statement.
 - B. Issue the command setup.exe /unattend:autounattend.xml.
 - C. Issue the command setup.exe /unattend:unattend.xml.
 - D. Rename the unattended setup answer file winnt.sif. Restart the installation, specifying the original setup.exe statement.

5. You use Windows System Image Manager (SIM) to create a custom unattended setup answer file that you will employ to install Windows Vista on 100 computers at your organization. You need to include the product key and instructions for disk partitioning into your answer file. What should you do?
- A. Add the custom settings to the oobeSystem configuration pass in your answer file.
 - B. Add the custom settings to the generalize configuration pass in your answer file.
 - C. Add the custom settings to the windowsPE configuration pass in your answer file.
 - D. Add the custom settings to the offlineServicing configuration pass in your answer file.

Chapter 3 Deploying Windows Vista

1. You need to inject an updated motherboard chipset driver into the Windows PE build that you use with a particular Windows Vista deployment point. You plan to deploy Windows Vista via an in-memory LTI procedure. What actions should you take? (Select two.)
- A. On the Windows PE tab of the deployment point Properties sheet, select Create a Lite Touch bootable RAM disk ISO image.
 - B. On the Windows PE tab of the deployment point Properties sheet, select the Include all mass storage drivers in the selected group option.
 - C. On the Windows PE tab of the deployment point Properties sheet, select the Include all system-class drivers in the selected group option.
 - D. On the General tab of the deployment point Properties sheet, specify the local or network path of the shared folder containing the updated chipset driver.
 - E. Create a new driver group in the Out-of-Box folder in BDD Workbench.
2. You want to use the Business Desktop Deployment (BDD) Lite Touch Installation (LTI) method for performing partially automated deployments of Windows Vista in your organization. In particular, you want to replace the current operating system of a target computer. You have booted a target computer by using a Windows Preinstallation Environment (PE) disc. What actions should you perform next? (Select two.)
- A. From the Windows PE command prompt, issue the command `start litetouch.vbs / debug:true`.
 - B. From the Windows PE command prompt, issue the command `cscript litetouch.vbs`.
 - C. In the Windows Deployment Wizard, select the Refresh this computer option.
 - D. In the Windows Deployment Wizard, select the Replace this computer option.

3. You are configuring security for two shared folders that you plan to use with your Lite Touch Installation (LTI) deployment: MigUser, which will contain user state information, and Logs, which will store deployment logs. When configuring NTFS permissions for these two shared folders, you need to provide for the least necessary privilege.

What NTFS permissions should you apply to the two folders? (Select two.)

- A. Allow the Domain Users and Domain Users domain global groups the Create Folders/Append Data permission.
 - B. Allow the Schema Admins and Group Policy Creator Owners domain global groups the Create Folders/Append Data and Read Extended Attributes permissions.
 - C. Allow each user account affected by the deployment the Modify permission.
 - D. Allow the CREATOR OWNER special identity the Full Control permission.
4. You want to create a capture a Windows Vista image for use with Lite Touch Installation (LTI) deployments. The reference computer that you want to use to create your reference image has the following specifications:
- ▶ Intel Pentium IV processor
 - ▶ 2 GB RAM
 - ▶ 120 GB unallocated free disk space

Which action on the reference computer should you undertake first?

- A. Boot the reference computer by using a Windows PE CD created from the Lite-TouchPE_x64 ISO file. Manually run wpeinit to launch the BDD Deployment Wizard.
- B. Boot the reference computer by using a Windows PE CD created from the Lite-TouchPE_x64 ISO file. In the BDD Deployment Wizard, run LiteTouch.vbs.
- C. Boot the reference computer by using a Windows PE CD created from the Lite-TouchPE_x86 ISO file. In the BDD Deployment Wizard, specify which operating system to install.
- D. Boot the reference computer by using a Windows PE CD created from the Lite-TouchPE_x86 ISO file. In the BDD Deployment Wizard, specify Capture an image of this computer.

Chapter 4 Using Business Desktop Deployment Workbench

1. You plan to use Business Desktop Deployment (BDD) Workbench to deploy Windows Vista images to 500 computers in your organization. One of your company's policies states that all desktop computers should be branded with a company-specific legal caption that appears during each system startup.

What action should you take to accomplish your goal?

- A. Edit the oeminfo.ini file in the Master %OEM%\\$OEM%\\$\\$System32 folder on the BDD deployment server.
- B. Edit the setlegalwks.vbs file in the Master %OEM%\\$OEM%\\$\\$System32 folder on the BDD deployment server.
- C. Configure the LegalNoticeCaption value in the HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies Registry key on the BDD server.
- D. Add the legal notice caption to the Unattend.xml file in each build on the BDD deployment server.

2. You use Business Desktop Deployment (BDD) Workbench to deploy Windows Vista to all of the desktop computers in your enterprise. You want to include a Windows Vista hotfix named Windows6.0-x86.msu to your distribution share.
- What action should you take first?
- A. Use the expand command to extract the .CAB file from the .MSU file. Then add the MSU package to the Applications node in BDD Workbench.
 - B. Use the msixec command to extract the .CAB file from the .MSU file. Then add the MSU package to the OS Packages node in BDD Workbench.
 - C. By using Windows Explorer, move the hotfix file to the \Packages\HotFix subfolder of your distribution share.
 - D. Add the MSU file to the OS Packages node in BDD Workbench.
3. You want to use Business Desktop Deployment (BDD) Workbench to deploy Windows Vista to the 400 computers in your organization. You want to ensure that users are not prompted to install additional applications during a BDD-driven OS upgrade on their computers. In enacting your solution, you want to apply the least amount of administrative effort. Your BDD configuration includes one lab deployment point and one removable media deployment point.
- What action should you take?
- A. Edit the TS.xml file in the appropriate build folder.
 - B. In the New Deployment Point Wizard, deselect Allow users to select additional applications on Upgrade.
 - C. Delete the application packages from the Distribution Share > Applications node in Deployment Workbench.
 - D. Create an additional lab deployment point.

Chapter 5 Application Compatibility Toolkit

1. You want to leverage Microsoft Systems Management Server (SMS) and the Application Compatibility Toolkit (ACT) to deploy a collection package to 200 client workstations in your organization. You need to gather client data concerning possible compatibility issues with Internet Explorer and logon user account permissions before you deploy Windows Vista.
- What action should you take?
- A. Include the Internet Explorer Compatibility Evaluator and the User Account Control Compatibility Evaluator in your collection package.
 - B. Include the Internet Explorer Compatibility Evaluator and the Windows Vista Compatibility Evaluator in your collection package.
 - C. Convert the ACT Data Collector to .MSI format.
 - D. Ensure that Updating to a new version of Internet Explorer (you must test with Internet Explorer 7) is selected in the package Properties sheet.

2. The Human Resources department in your organization uses a line-of-business application that is incompatible with Windows Vista. Before you deploy Windows Vista on these computers, you use the Application Compatibility Toolkit (ACT) to create a custom application fix. You deploy a script to all of the Human Resources Windows XP SP2 computers that executes the SDBINST command quietly at user logon. However, you discover that the application fix is not applied to the computers. Your network consists of a single Windows Server 2003-based Active Directory domain. What should you do?
- A. Configure the script to run the Regsvr32 command instead of the SDBINST command on each target workstation.
 - B. Deploy the script as a startup script instead of a logon script on all of the Human Resources Windows XP SP2 computers.
 - C. Specify the -q parameter in the script that contains the SDBINST command.
 - D. Deliver the .SDB file to the destination Windows XP SP2 computers.
3. With assistance from the Business Desktop Deployment (BDD) Workbench and the Windows PE tools, you plan to upgrade all desktop workstations in your organization to Windows Vista. However, many users in your company want to install and run a third-party application for which you have not yet identified a fix. Consequently, you want to prevent these users from running the presently incompatible application. What should you do?
- A. In Compatibility Administrator, create a custom compatibility mode and include the DisableDWM compatibility fix into the mode properties.
 - B. Use Compatibility Administrator to create a custom AppHelp message.
 - C. In Application Compatibility Manager, set the assessment property for the incompatible application to Does not work.
 - D. Define a Software Restriction Policy in Group Policy in which the incompatible application is associated with a Network Zone rule and the Basic User security level.

Chapter 6 Managing User State Migration

1. You plan to use Business Desktop Deployment (BDD) 2007 and the User State Migration Tool (USMT) 3.0 to upgrade all Windows XP Professional computers in your organization to Windows Vista. You need to ensure that only files that are stored on each user's local computer are migrated during the user state migration portion of the OS upgrade. What action should you take?
- A. Specify the /p switch with the ScanState.exe command.
 - B. Specify the /localonly switch with the ScanState.exe command.
 - C. Specify the /q switch with the LoadState.exe command.
 - D. Specify the /md switch with the LoadState.exe command.

2. You plan to use Business Desktop Deployment (BDD) 2007 and the User State Migration Tool (USMT) 3.0 to upgrade 300 Windows XP computers in your organization to Windows Vista. You find that when you issue the following command to back up the users' state data on a test user's computer:

```
scanstate \\filesrv\migration\mystore /config:config.xml /i:miguser.xml /i:migapp.xml
```

The user state backup fails with a particular error code.

What action should you take? (Select two. Each correct answer represents a complete solution.)

- A. Create the mystore folder.
 - B. Config.xml is not used in user state migration processes.
 - C. The syntax for the ScanState command is incorrect.
 - D. The ScanState command was not run by using administrative credentials.
3. You plan to use Systems Management Server (SMS) Operating System Deployment (OSD) Feature Pack to upgrade 400 Windows 2000 Professional computers to Windows Vista. You download and install the OSD Feature Pack. You now need to verify that the OSD Feature Pack has been successfully installed.
- What should you do?
- A. Analyze the SMSReportingInstall.log log file.
 - B. Ensure that an Image Packages node exists in the SMS Administrator Console.
 - C. Ensure that an OSD Feature Pack program group exists in the Start menu.
 - D. Ensure that the Create Operating System Image Capture CD command exists in the All Tasks menu of the primary site server in SMS Administrator Console.
4. You plan to use Microsoft deployment technologies in order to upgrade 2,000 Windows XP Professional computers in your organization to Windows Vista. Your business requirements are as follows:
- ▶ The user state should be migrated.
 - ▶ The existing file system should be preserved.
 - ▶ The user will remain at his or her original computer.

You need to select the most appropriate deployment scenario for your needs.

What action should you take?

- A. Perform a New Computer installation.
- B. Perform an Upgrade Computer installation.
- C. Perform a Refresh Computer installation.
- D. Perform a Replace Computer installation.

5. You plan to use Systems Management Server (SMS) Zero Touch Installation (ZTI) and Business Desktop Deployment (BDD) 2007 in order to install Windows Vista on 500 new, recently purchased computers. You write a custom Visual Basic, Scripting Edition (VBScript) file that prompts the installing user for a computer name during OS installation. You need to integrate this custom .VBS file into your deployment process. Your solution must involve the least amount of administrative effort.

What action should you take?

- A. In the Properties of the OS Build in BDD Workbench, add a new task in the Preinstall > New Computer only node.
- B. In the Properties of the OS Build in BDD Workbench, add a new task in the Install node.
- C. Specify the path to the custom VBScript files in the Deployment Point Properties in BDD Workbench.
- D. Add the custom script to the Windows PE source files.

Answers and Explanations

Chapter 1

1. Answer: D

Explanation A. Incorrect. By contrast, you need to specify the location of all replicated deployment points in your Setup customization file. Recall that we use the Office Customization Tool to create the .MSP file.

Explanation B. Incorrect. This option is unworkable for a variety of reasons, not the least of which is the fact that the scenario does not specify that our network even uses Distributed File System (DFS) technology.

Explanation C. Incorrect. This choice is a complete red herring. The Autorun.inf file is used by the local computer to launch the Setup.exe executable automatically when the DVD is placed in the drive tray and the OS is configured to support Autorun.

Explanation D. Correct. You need to add the paths to your Office 2007 distribution points both in your .MSP file and in your Config.xml settings file. The Config.xml file will take precedence over the .MSP file.

2. Answer: C

Explanation A. Incorrect. Because the Office 2007 installation will proceed in the security context of the locally logged-on user, you need to grant a user group the Read & Execute permission on the folder.

Explanation B. Incorrect. Because the Office 2007 installation will proceed in the security context of the locally logged-on user, you need to grant a user group the Read & Execute permission on the folder.

Explanation C. Correct. This level of privilege is adequate to allow the over-the-network installation of Office 2007 to succeed.

Explanation D. Incorrect. First, we need to give the users the Execute permission in order to launch the Setup executable. Second, the Everyone special group does not conform to the requirement in the scenario that specifies least privilege.

3. Answer: C

Explanation A. Incorrect. You need to place your custom Config.xml file in the core product folder and reference this path in your /config statement in order to have Setup pick up and use your custom installation settings.

Explanation B. Incorrect. The /config parameter must be used to point to a custom Config.xml file. The /adminfile parameter specifies a customization patch or a folder containing the same. There is also the problem with the directory path leading to the custom Config.xml file.

Explanation C. Correct. You use the /config parameter to point to the correct location of your custom Config.xml file.

Explanation D. Incorrect. Although the location of and path to the custom Config.xml file is correct, the /config parameter must be used here instead of the /adminfile parameter.

4. Answers: A, C

Explanation A. Correct. The 2007 Office System Administrative Templates, a free download from Microsoft.com, allow you to control Office 2007 application behaviors in an extremely granular fashion.

Explanation B. Incorrect. The Office Customization Tool has no extensible framework. The tool is, as they say, “what you see is what you get.”

Explanation C. Correct. You can use predefined or custom user interface and command restrictions for Office 2007 applications in Group Policy.

Explanation D. Incorrect. The Office Customization Tool (OCT) does not allow you to disable command and/or interface elements in an Office 2007 installation.

5. Answer: A

Explanation A. Correct. Systems Administrators cannot use an .MSP file that was created with the Office Customization Tool to apply customizations during Office 2007 deployment. These customizations must be specified, in a limited fashion, in the Config.xml file.

Explanation B. Incorrect. An important Office 2007 deployment consideration is the fact that not all of the customizations provided in an .MSP file can be provided with a Config.xml file. Moreover, the scenario specified that you already used the OCT to create an .MSP file.

Explanation C. Incorrect. Group Policy Software Installation can be used only for per-computer installations of the 2007 Office System.

Explanation D. Incorrect. GPO-based installation of the 2007 Office System does not support the use of the Updates folder to apply security updates or service packs during initial deployment.

Chapter 2

1. Answer: C

Explanation A. Incorrect. These utilities are reversed in their appropriate use. That is, the ImageX utility is used to mount or modify a Windows operating system image. The PKGMGR command is used to install, remove, or modify feature packages for an offline operating system image.

Explanation B. Incorrect. The process of adding a language pack or Microsoft hotfix to an offline Windows image requires first mounting the .WIM file by using the ImageX utility and then creating an unattended installation answer file that references the language pack. However, the PKGMGR command is employed to apply the unattended installation answer file to the offline image, not the SIM itself.

Explanation C. Correct. To add a language pack to an offline Windows operating system image, you must first use the ImageX utility to mount the image. Next, you should create an unattended answer file that contains a reference to the appropriate language pack. Finally, you should use the PKGMGR command to apply the unattended installation answer file to the offline Windows .WIM file.

Explanation D. Incorrect. The Out-of-Box Drivers folder in Windows System Image Manager is used to deploy device drivers to an operating system image. To deploy a language pack to an image, you must add the appropriate language pack to the Packages folder in your distribution share.

2. Answers: B, D

Explanation A. Incorrect. DHCP servers must be authorized in Active Directory before they are allowed to service client IP configuration requests. However, deauthorizing a DHCP server in this scenario defeats the purpose of WDS-based operating system image deployment.

Explanation B. Correct. You must ensure that all of your organization's DHCP servers, whether or not they are Microsoft-based, are configured not to listen to DHCP client requests on UDP port 67. The Windows Deployment Services Configuration Wizard can automate this process in Microsoft DHCP environments.

Explanation C. Incorrect. The WDS service does require authorization in Active Directory. The IP address and host name of the WDS server should be registered in DNS.

Explanation D. Correct. The Windows Deployment Services Configuration Wizard can automate the WDS setup process in Microsoft DHCP environments by configuring DHCP option 60 for you. This option is used to instruct PXE-enabled clients to request boot information negotiation layer (BINL) data from an appropriately configured DHCP server.

3. Answer: A

Explanation A. Correct. ImageX is used to mount and edit offline operating system images. PKGMGR is a command-line tool that is used to install, modify, or remove Windows installation packages offline.

Explanation B. Incorrect. Language packs are deployed to online installations of Windows Vista by using the Language Pack Setup Tool (Lpksetup.exe). This utility is run from a command prompt, not from the Add/Remove Programs Control Panel applet. Moreover, the item calls for the solution involving the least amount of administrative effort.

Explanation C. Incorrect. The PKGMGR and ImageX tools are transposed in this case. That is, we use the ImageX utility to mount an offline Vista image, and PKGMGR to apply an unattended setup answer file to an image.

Explanation D. Incorrect. The Language Pack Setup Tool (lpksetup.exe) can be used to add or remove language packs after Windows Vista has already been installed. No evidence exists in this item to suggest that the Japanese contractors' computers have already been installed.

4. Answer: B

Explanation A. Incorrect. Because we are specifically referencing the unattended setup answer file, the file can be provided any name. The crux of the problem is that the setup.exe switch is incorrect: /unattend- should be used in place of /u.

Explanation B. Correct. The /unattend parameter of setup.exe is used to explicitly reference an unattended setup installation file. The generic syntax for this command is setup.exe /unattend:\server\share\ autounattend.xml.

Explanation C. Incorrect. Because the unattended setup answer file is already named Autounattend.xml, this statement, while correct in its syntax, will nonetheless fail in its execution.

Explanation D. Incorrect. For Windows XP unattended installations, the unattended setup answer file must be named winnt.sif when you undertake the installation by booting from a product CD. This syntax is irrelevant in Windows Vista unattended installations.

5. Answer: C

Explanation A. Incorrect. The oobeSystem configuration pass is used to apply settings that are enacted immediately before Windows Welcome starts.

Explanation B. Incorrect. The generalize configuration pass is used by the Sysprep tool to remove computer-specific information from a Windows image.

Explanation C. Correct. The windowsPE configuration pass, which typically occurs first during a Windows Vista operating system installation, configures Windows Preinstallation Environment (PE) settings and basic Windows Setup options.

Explanation D. Incorrect. The offlineServicing configuration pass is used to apply updates to a Windows Vista image.

Chapter 3

1. Answers: A, C

Explanation A. Correct. In BDD Deployment Workbench, use the Generate a Lite Touch bootable RAM disk ISO image option in the deployment point Properties to specify that Windows PE should reside in-memory during your OS deployment.

Explanation B. Incorrect. We want to inject an updated motherboard chipset driver into our Windows PE build. A mass storage driver is a driver for a hard drive or a removable drive.

Explanation C. Correct. System-class drivers include motherboard chipset drivers.

Explanation D. Incorrect. The Network path and Local path options on the General tab of a deployment point Properties sheet denote the location of the deployment point shared folder itself.

Explanation E. Incorrect. Driver groups are useful to target device drivers to specific builds. However, simply defining a new group in BDD Workbench, with no additional configuration, will not ensure that the updated motherboard chipset drivers are injected into the build.

2. Answers: B, C

Explanation A. Incorrect. While we do require the litetouch.vbs script file to start the Windows Deployment Services (WDS) wizard, the start command is used only in a previously installed version of Microsoft Windows, not Windows PE. The /debug:true switch produces verbose logging of the WDS activities as they are executed, and should be issued along with the cscript litetouch.vbs command.

Explanation B. Correct. You can manually initiate the Windows Deployment Wizard by booting the computer by using Windows PE and launching the litetouch.vbs Visual Basic, Scripting Edition (VBScript) installation script.

Explanation C. Correct. The Refresh this computer option in the Windows Deployment Wizard (optionally) saves user state information, wipes the existing operating system, applies the new image, and reinstates the user state information to the box.

Explanation D. Incorrect. The Replace this computer option in the Windows Deployment Wizard saves the user state, deploys the desktop standard environment, and restores the user state migration data to the new computer. Therefore, this option is not appropriate for single-computer scenarios.

3. Answers: A, D

Explanation A. Correct. According to Microsoft best practices, this level of permission will allow computers to populate the shared folders with user migration and log data.

Explanation B. Incorrect. While it makes sense to provide domain administrators with Full Control permissions to these shared folder, these two groups are not relevant to this discussion whatsoever.

Explanation C. Incorrect. With an LTI deployment, the computer account is what requires authentication, not the user who normally logs on to the domain from that computer.

Explanation D. Correct. This permission is consistent with Microsoft best practices for security LTI deployment folders.

4. Answer: D

Explanation A. Incorrect. The processor architecture in this scenario specifies that we use the 32-bit (x86) version of the LiteTouch Windows PE launcher. Moreover, the startnet.cmd batch file automatically calls wpeinit, which in turn evokes the BDD Deployment Wizard.

Explanation B. Incorrect. The LiteTouch.vbs Visual Basic, Scripting Edition script file is used to refresh an online OS build. Moreover, the Pentium IV processor is 32-bit, not 64-bit.

Explanation C. Incorrect. You would specify which available OS to install when you deploy an OS image to a target computer. This action is also performed by using the BDD Deployment Wizard.

Explanation D. Correct. At the conclusion of operating system installation, BDD will automatically run sysprep and capture the computer to a .WIM image. You specify the destination folder in the BDD Deployment Wizard.

Chapter 4

1. Answer: B

Explanation A. Incorrect. The oeminfo.ini file can be edited to add computer-specific information that appears when the user right-clicks My Computer and selects Properties from the shortcut menu. This file alters settings for all OS images staged on the BDD server.

Explanation B. Correct. The setlegalwks.vbs file can be edited to provide a company-specific legal caption for the image. This file alters settings for all OS images staged on the BDD server.

Explanation C. Incorrect. The LegalNoticeCaption value can be configured in Group Policy or directly in the Registry in order to define a legal notice to users. However, setting this policy on the BDD server will not affect deployed workstation computers.

Explanation D. Incorrect. Each OS build on a BDD deployment server uses an Unattend.xmlunattended setup answer file to retrieve Windows Setup values. However, no provision exists in these answer files to specify a legal notice caption.

2. Answer: D

Explanation A. Incorrect. While the expand command can be used to extract a .CAB file from an .MSU archive, this is unnecessary to do in BDD Workbench. Moreover, hotfix and service pack updates should be placed in the OS Packages node in BDD, not the Applications node.

Explanation B. Incorrect. The msiexec command is used to install, modify, repair, and uninstall Microsoft Windows Installer (MSI) packages.

Explanation C. Incorrect. Simply placing the “raw” MSU archive into the appropriate folder in the distribution folder does not register the hotfix in BDD Workbench. You must launch the New Package Wizard in BDD and browse to the file to include this package in your OS deployments.

Explanation D. Correct. Although BDD recognizes only the Windows Cabinet (CAB) file format for hotfixes, it will automatically extract the relevant .CABfile from the source Microsoft Update (MSU) file when you run the New Package Wizard in BDD.

3. Answer: B

Explanation A. Incorrect. The task sequence is a build-specific construct that specifies all of the activities that are needed to perform an end-to-end OS deployment. These settings are stored in the TS.xml file. However, we don't edit the task sequence to suppress application advertisements in Deployment Workbench.

Explanation B. Correct. Deselecting this option in the New Deployment Point Wizard ensures that during an upgrade installation users are not prompted to install additional software you may have enabled in Deployment Workbench.

Explanation C. Incorrect. By deleting the applications from your distribution share, you are not using least administrative effort in enacting your solution.

Explanation D. Incorrect. Because a lab deployment point references the local server, you can have only one lab deployment point per BDD distribution server. By contrast, you can create multiple removable media, separate deployment share, or SMS 2003 OSD deployment points on a single server.

Chapter 5

1. Answer: A

Explanation A. Correct. You would need to enable both of these packages in order to detect Internet Explorer security issues or any potential or actual problems with the logon user running as a standard user in Windows Vista.

Explanation B. Incorrect. The Windows Vista Compatibility Evaluator is used to detect issues that are related to deprecated Windows components that might interfere with an installation of Windows Vista.

Explanation C. Incorrect. The Application Compatibility Toolkit (ACT) Data Collector is a self-extracting executable file with the .EXE extension. By using logon scripts or SMS, you can deploy the file as-is.

Explanation D. Incorrect. You can include the Internet Explorer Compatibility Evaluator regardless of which type of compatibility package you create in Application Compatibility Manager.

2. Answer: D

Explanation A. Incorrect. Regsvr32.exe is an application that is used to register dynamic-link libraries (DLLs) and ActiveX controls. By contrast, the Compatibility Database Installer Tool (SDBINST) is used to register application fixes on target workstations.

Explanation B. Incorrect. The specific deployment method for running the SDBINST command is inconsequential until you have transferred the .SDB database to each target computer. At this point the SDBINST will incorporate any defined application fixes contained in the database to the local registry on the target workstations.

Explanation C. Incorrect. The -q parameter of the Compatibility Database Installer Tool (SDBINST) specifies that the application fix should be applied on the target computer with no message boxes. However, until the .SDB database is transferred to the target workstation, this command is useless.

Explanation D. Correct. Before you can run the SDBINST command on the target computers to apply an application compatibility fix, you must transfer the custom compatibility database (.sdb) file to each destination computer.

3. Answer: B

Explanation A. Incorrect. The scenario stated that there exists no working application fix at the present time.

Explanation B. Correct. When a compatibility problem cannot be resolved with an application fix, an Application Help (AppHelp) message is the final option. These messages can be configured to display a message and allow the application to run, or to display a message and not allow the application to run.

Explanation C. Incorrect. This action is perfectly acceptable for an administrator who is interested in logging an incompatible application and submitting the information to Microsoft and the ACT community for analysis. However, this action will not prevent users from installing the affected application.

Explanation D. Incorrect. Software Restriction Policies work fine in terms of restricting software installation and use. However, neither of these specific settings will block the incompatible application.

Chapter 6

1. Answer: B

Explanation A. Incorrect. The /p switch with the ScanState.exe command is used not to migrate a user's state, but rather to pre-allocate disk space in the store location.

Explanation B. Correct. The /localonly switch of the ScanState.exe command specifies that only files stored on the local computer will be migrated. That is to say, data stored on mapped network drives will not be included in the user state migration.

Explanation C. Incorrect. The /q switch of the LoadState.exe command allows LoadState to run without administrative credentials.

Explanation D. Incorrect. The /md switch of the LoadState.exe command specifies a new Active Directory domain for the migrated user.

2. Answers: A, D

Explanation A. Correct. You must create and share a local or remote intermediate store for user state data before you issue the ScanState.exe command on the target computer.

Explanation B. Incorrect. On the contrary, the Config.xml file is used with USMT 3.0 to customize precisely which user profile elements are backed up during a ScanState command run.

Explanation C. Incorrect. The ScanState.exe syntax provided in the scenario is valid.

Explanation D. Correct. You should either log on to the target workstation by using an administrative account or launch the Command Prompt by using administrative credentials before using the ScanState.exe command.

3. Answer: B

Explanation A. Incorrect. You should parse the OSDDeploymentSetup.log log file in your \SMS\logs folder in order to verify that the SMS OSD Feature Pack Update was installed successfully.

Explanation B. Correct. If SMS OSD Feature Pack was successfully, then you should see an Image Packages node appear in your Site Database object hierarchy in the SMS Administrator Console.

Explanation C. Incorrect. While SMS 2003 and the User State Migration Tool (USMT) 3.0 both create program group icons in the Start menu, the OSD Feature Pack Update does not.

Explanation D. Incorrect. This command, among others, exists in the All Tasks menu of the Image Packages node that appears when SMS OSD Feature Pack is installed on an SMS primary site server.

4. Answer: B

Explanation A. Incorrect. In a New Computer installation, the user state is not migrated, the existing client computer is not used, and the original file system is not preserved. In other words, this is a "from scratch" deployment scenario.

Explanation B. Correct. In an Upgrade Computer installation, the user state is migrated, the user remains at his or her original computer, and the original file system remains intact. In most cases, this is the most seamless deployment option.

Explanation C. Incorrect. In a Refresh Computer installation, the user state is migrated and the user can retain their original hardware. However, the original file system is "wiped." Consequently, this deployment scenario is also referred to as "wipe and load."

Explanation D. Incorrect. In a Replace Computer installation, only the user state data is migrated. Because the user is transitioned to new hardware, a new file system is applied.

5. Answer: A

Explanation A. Correct. To add a custom VBS script to the ZTI deployment scheme, you should add a new task to the build's task sequence in BDD Workbench.

Explanation B. Incorrect. We want the script to fire only in New Computer scenarios, and not in Refresh, Non-OSD or Non-Replace situations.

Explanation C. Incorrect. The task sequencer, which is instantiated at the Build level, is where we need to "plug in" our custom script in BDD Workbench.

Explanation D. Incorrect. While it is possible, in theory, to create a custom Windows PE build that includes the custom script, this process fails to meet the requirement of the scenario for least administrative effort.