

Deploying Windows 7

Lesson 3

Objectives

- Understand enterprise deployments
- Capture an image file
- Modify an image file
- Deploy an image file

Understanding Enterprise Deployments

Careful planning is required and the following objectives must be considered:

- Create standardized computing environments
- Minimize user interaction at the workstation
- Ensure continued functionality of all hardware and software resources
- Minimize interruption of user productivity

Steps to Deploy an Enterprise Workstation

1. Build a deployment share.
2. Perform a reference computer installation.
3. Capture an image of the reference computer.
4. Boot the target computers.
5. Apply the Windows 7 reference computer image.

Windows Deployment Tools

- Windows 7 Automated Installation Kit
- Microsoft Deployment Toolkit 2010
- Windows Deployment Services

Windows 7 Automated Installation Kit (AIK)

- Primarily used by OEMs
- OEMs deploy Windows 7 workstations two ways:
 - Build-to-Plan (BTP)
 - Build-to-Order (BTO)

Windows 7 AIK Tools

- Windows System Image Manager (*Windows SIM*)
- ImageX.exe
- Deployment Image Servicing and Management (*DISM.exe*)
- Windows Pre-installation Environment (*PE*)
- System Preparation (*SysPrep.exe*)
- User State Migration Tool (*USMT*)

Microsoft Deployment Toolkit (MDT) 2010

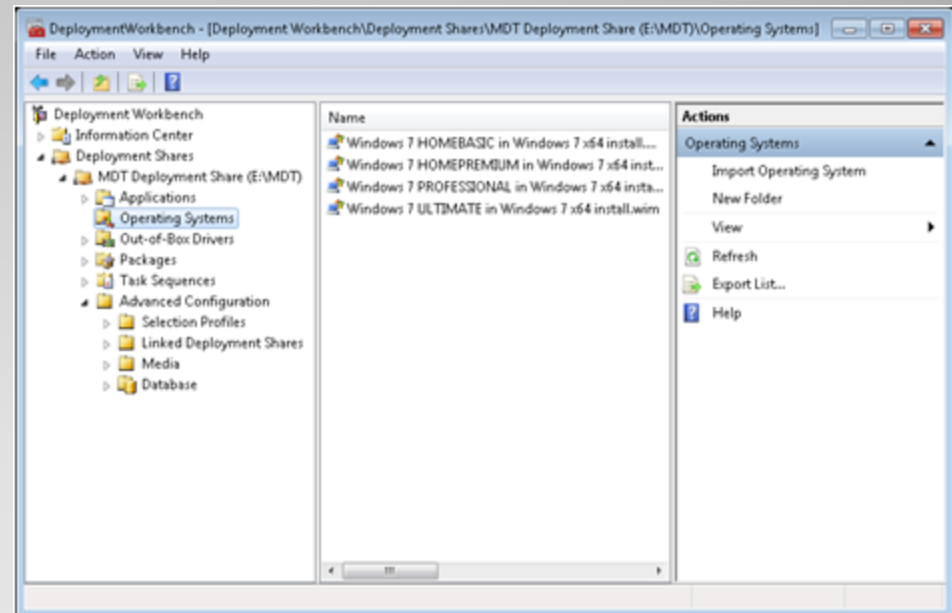
- Superset of Windows 7 AIK for enterprise network deployments
- Two types of deployments:
 - Lite-touch installation (LTI)
 - Zero-touch installation (ZTI)

Enterprise Deployment Scenarios

- New computer
- Upgrade computer
- Replace computer
- Refresh computer

MDT 2010 Deployment Workbench Interface

- Creates *task sequences*
- Includes answer files and additional tasks
- Can perform tasks before and after Windows 7 installation



Windows Deployment Services (WDS)

- Included in Windows Server 2008
- Used to deploy Windows imaging files over the network
- Network must support:
 - Dynamic Host Configuration Protocol (DHCP)
 - Pre-boot Execution Environment (PXE)

CAPTURING IMAGE FILES

Image Files

- Traditional files are sector-based.
- Common extensions are .iso and .img.
- Microsoft uses Windows Imaging files (.wim).
- File-based images

Capturing Images

- Depending on the environment
 - Manual or automatic
 - Simple to complex
 - Only one image
 - Many images for different users

Capturing an Image Manually Using ImageX.exe

1. Install the reference computer
2. Prepare the reference computer (SysPrep)

```
sysprep /generalize /oobe
```

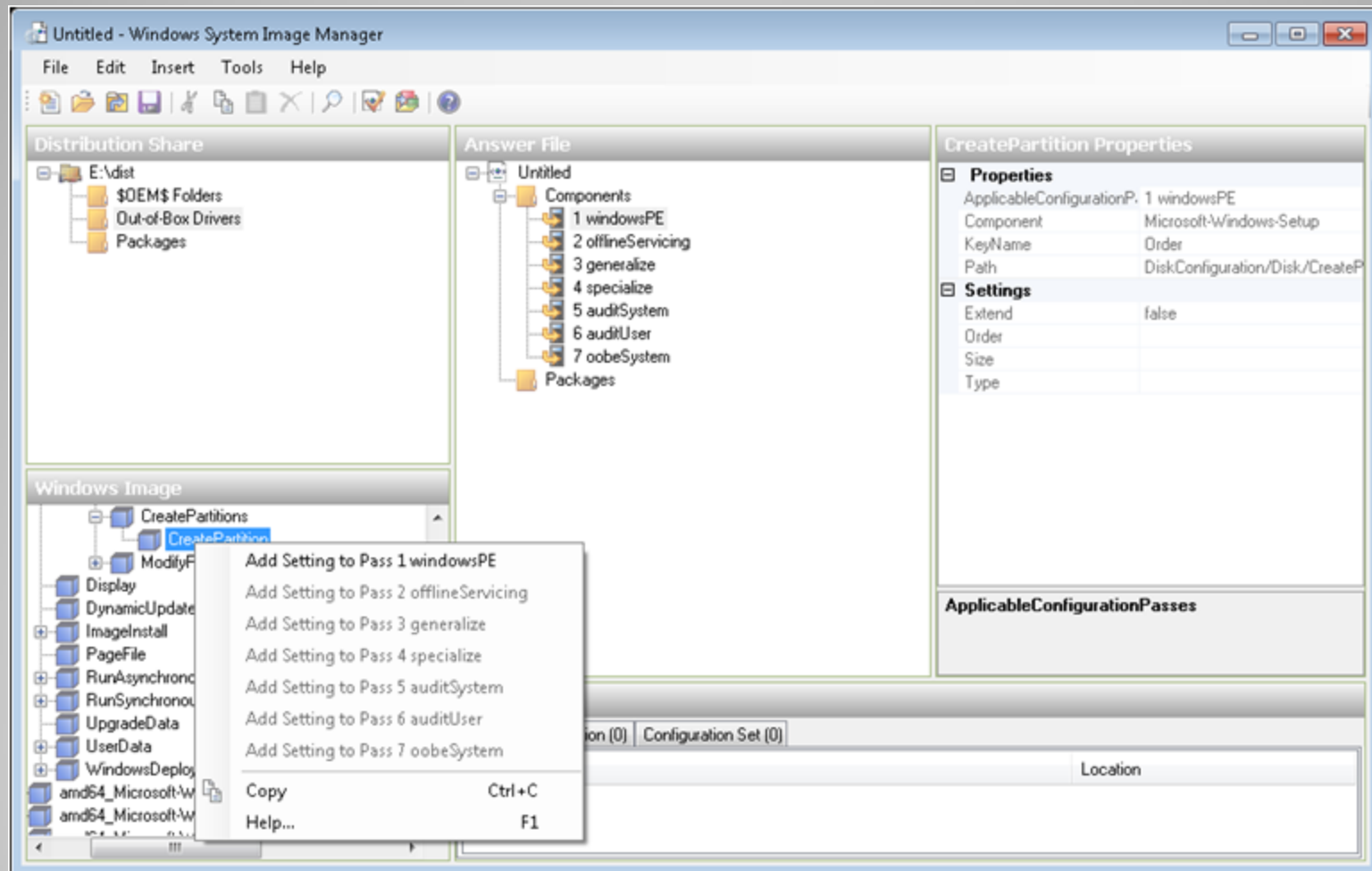
3. Create a Windows PE Boot disk
4. Capture the image file

```
ImageX.exe /capture c: d:\win7.wim "Win7" /verify
```

Using Windows SIM

- Creates answer files to streamline the process of creating multiple images
- Provides responses to prompts that appear during Windows 7 installation
 - Partition and format disks
 - Install device drivers
 - Configure Windows 7 parameters

Answer File Settings

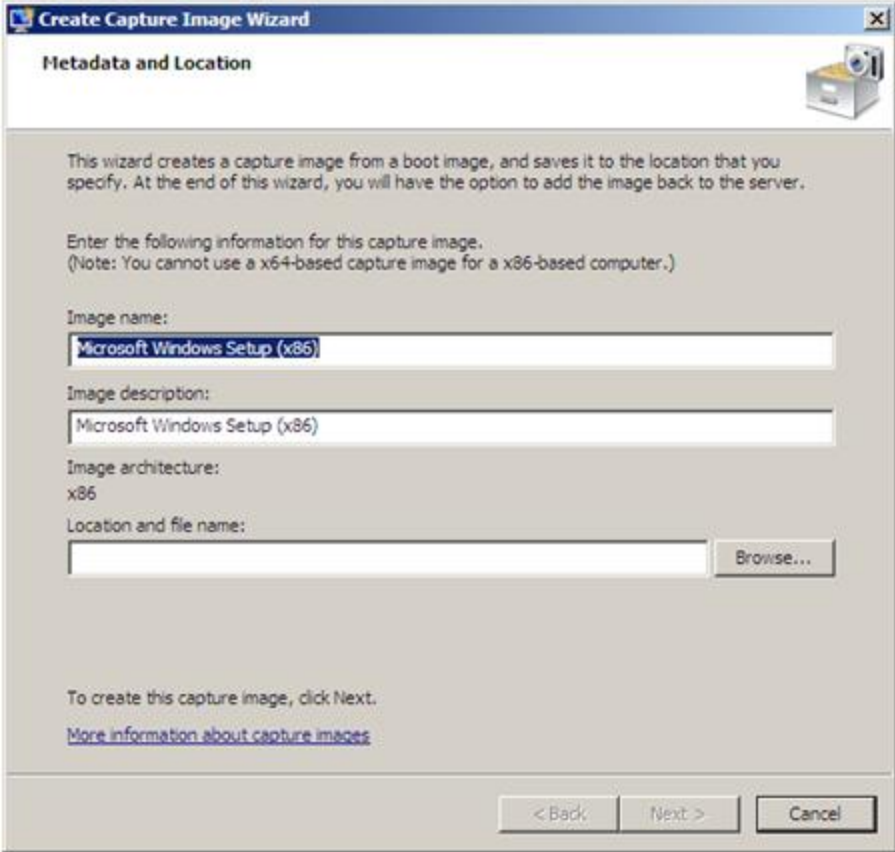


Applying an Answer File

- Copy the configuration set files to a removable medium (CD, DVD, or USB flash)
- Boot from Windows 7 installation DVD
- Insert removable media containing answer file
- Windows setup scans for answer file
- Can also start the installation from a Windows PE command prompt and specify the answer file

Capturing an Image Using WDS

- Automates the capture process
- Wizard-based
- Create capture image and upload it to WDS server
- Can be deployed immediately



The screenshot shows the 'Create Capture Image Wizard' window, specifically the 'Metadata and Location' step. The window has a title bar with the text 'Create Capture Image Wizard' and a close button. Below the title bar is a subtitle 'Metadata and Location'. The main content area contains the following text: 'This wizard creates a capture image from a boot image, and saves it to the location that you specify. At the end of this wizard, you will have the option to add the image back to the server.' followed by 'Enter the following information for this capture image. (Note: You cannot use a x64-based capture image for a x86-based computer.)'. There are four input fields: 'Image name:' with the text 'Microsoft Windows Setup (x86)', 'Image description:' with the text 'Microsoft Windows Setup (x86)', 'Image architecture:' with the text 'x86', and 'Location and file name:' with a 'Browse...' button next to it. At the bottom, there is a message 'To create this capture image, click Next.' and a link 'More information about capture images'. The bottom of the window has three buttons: '< Back', 'Next >', and 'Cancel'.

Create Capture Image Wizard

Metadata and Location

This wizard creates a capture image from a boot image, and saves it to the location that you specify. At the end of this wizard, you will have the option to add the image back to the server.

Enter the following information for this capture image.
(Note: You cannot use a x64-based capture image for a x86-based computer.)

Image name:
Microsoft Windows Setup (x86)

Image description:
Microsoft Windows Setup (x86)

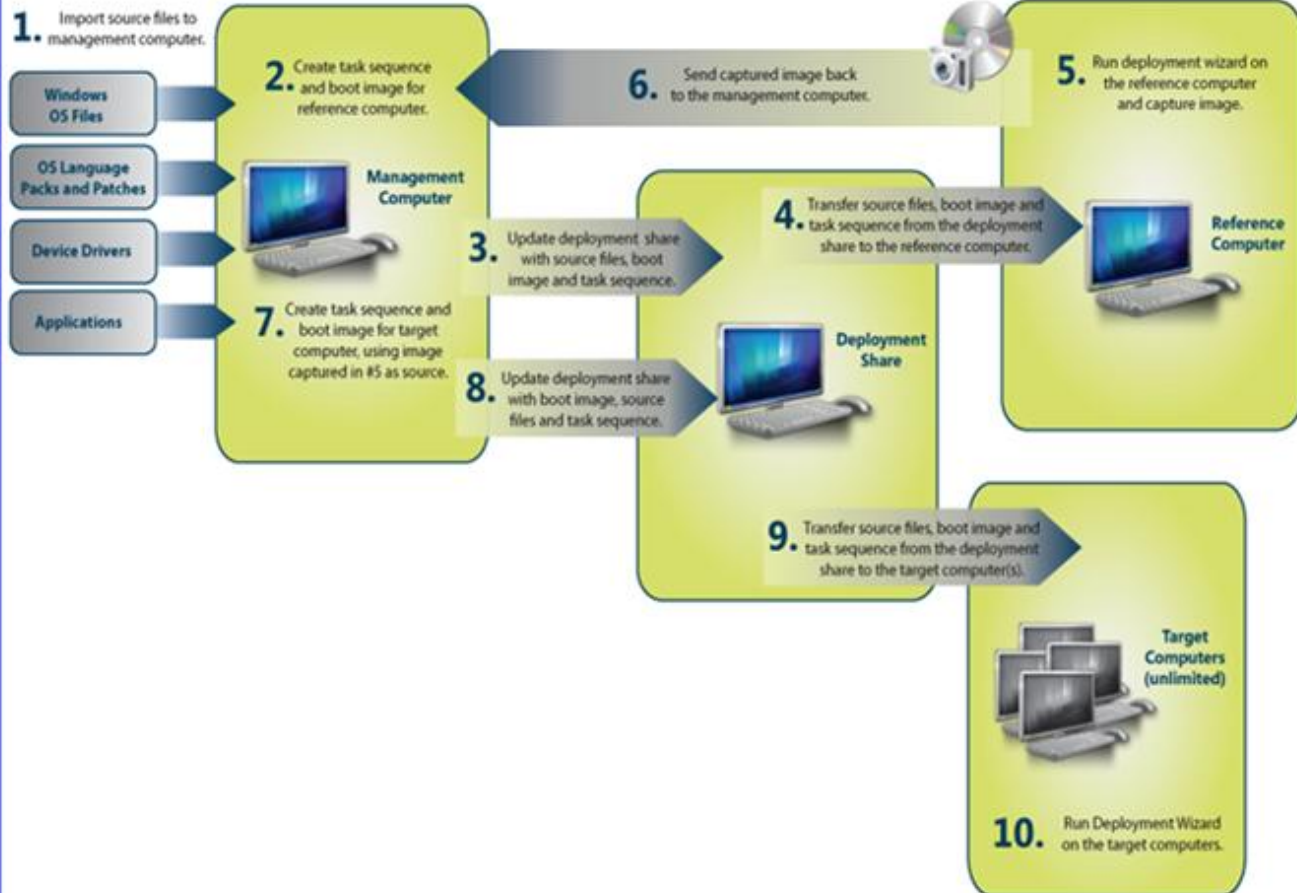
Image architecture:
x86

Location and file name:
Browse...

To create this capture image, click Next.
[More information about capture images](#)


< Back Next > Cancel

Capturing an Image Using MDT 2010



The New Task Sequence Wizard

New Task Sequence Wizard



Select Template

General Settings
Select Template
Select OS
Specify Product Key
OS Settings
Admin Password
Summary
Progress
Confirmation

The following task sequence templates are available. Select the one you would like to use as a starting point.

Standard Client Task Sequence
Sysprep and Capture
Standard Client Task Sequence
Standard Client Replace Task Sequence
Custom Task Sequence
Litetouch OEM Task Sequence
Standard Server Task Sequence
Post OS Installation Task Sequence

Previous Next Cancel

Introducing Deployment Image Servicing and Management (DISM.exe)

- Used to modify image files while offline
 - Add device drivers
 - Add language packs
 - Add packaged updates
 - Enable or disable operating system features
 - Append a volume image to a workstation image
 - Combine multiple images in a single Windows Imaging file

DEPLOYING IMAGE FILES

Understanding Image Types

- Using thick images
- Using thin images
- Using hybrid images

Deploying Images Manually Using ImageX.exe

1. Create a disk partition (diskpart)

```
Create partition primary
```

```
Format fs=NTFS label="New Partition" quick
```

```
Assign letter=c
```

2. Access the install image

3. Apply the install image

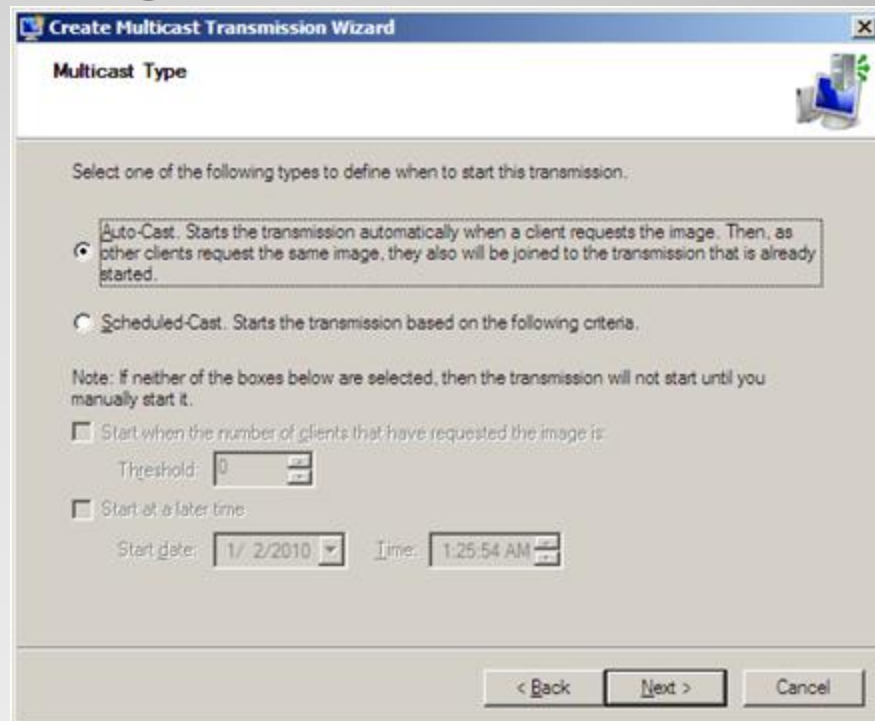
```
ImageX /apply z:\images\win7.wim 1 c:
```

4. Apply boot files

```
Bcdboot c:\windows
```

Deploying Images Using WDS

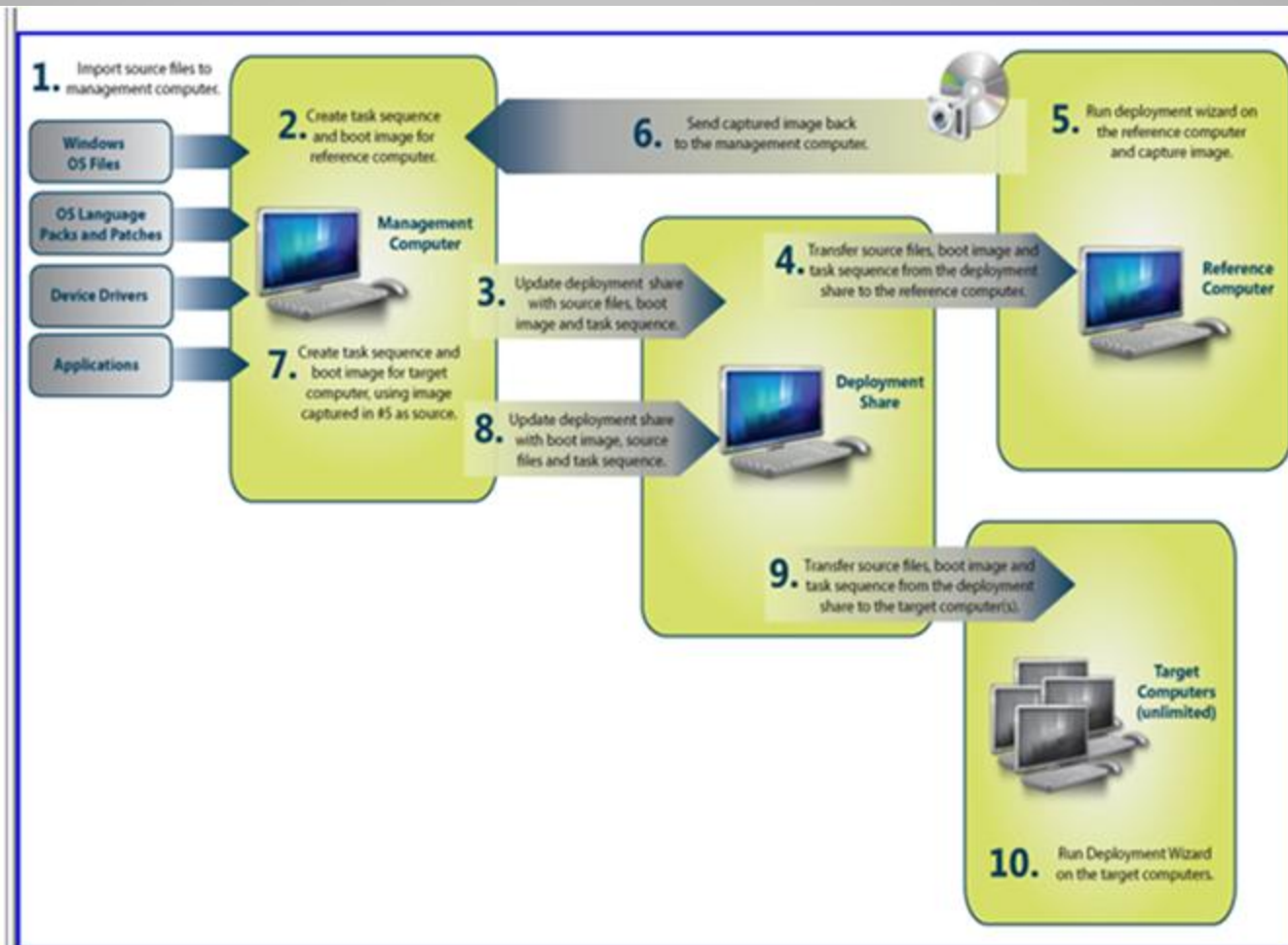
- Can deploy images created with WDS, Windows 7 AIK, or MDT 2010
 - Requires a boot image
- Multicasting with WDS



Deploying Images Using MDT 2010

- Similar procedure to deploy as to create
- Add images to deployment share
- Create task sequences to apply images to target computers
- Thick images – Simple task sequences
- Thin or Hybrid – More scripting required

Deploying Images Using MDT 2010 (cont.)



Performing an LTI Deployment

- Someone at the target computer has to:
 - Boot the computer
 - Run the Deployment Wizard
 - Select task sequence to install Windows 7
 - More interaction may be required depending on the task sequence
- Less interaction at workstation requires more preparation for deployment and vice versa

Using System Center Configuration Manager 2007 (SCCM)

- Required for Zero-touch installation deployment (ZTI)
- Complex network management product
- Can be used to capture and deploy image files in the same basic sequence as LTI
- Uses SCCM tools instead of Deployment Workbench

Using System Center Configuration Manager 2007 (SCCM) (cont.)

- Only use this product for deployment of images if you are already using it
- Requires considerable planning because it has many components and options
- Stores data in a SQL database
- Requires client agent on each computer it manages
- Very expensive product to run, but very powerful

Deploying Windows 7 with SCCM 2007

- Basic steps are the same as for LTI deployment
- SCCM enables you to configure every aspect of the deployment in great detail
- Completely scalable to any size network
- Can create multiple distribution points
- Bare-metal computers can be added to the SCCM database
- Allows workstations to connect to SCCM/MDT server and execute the task sequence that deploys workstation configuration

Skills Summary

- The objectives of a large-scale Windows 7 deployment include:
 - Creation of standardized computing environments
 - Minimized user interaction at the workstation

Skills Summary

- The basic steps of a workstation deployment are:
 - Build a deployment share
 - Perform a reference computer installation
 - Capture an image of the reference computer
 - Boot the target computers
 - Apply the Windows 7 reference computer image

Skills Summary (cont.)

- Tools used to deploy workstations:
 - Windows 7 Automated Installation Kit (AIK)
 - Windows Deployment Services (WDS)
 - Microsoft Deployment Toolkit (MDT) 2010
- Create answer files using the Windows SIM utility, to automate the Windows 7 installation process.
- Modify your image file with DISM.exe tool

Skills Summary (cont.)

- Zero-touch installation (ZTI) deployment requires System Center Configuration Manager 2007 installed on your network.
- SCCM 2007 is a comprehensive network management product that, among many other things, can distribute software to the computers on your network.