# Managing Operating Systems Deployment

# Module Overview

- Overview of Operating System Deployment
- Preparing a Site for Operating System Deployment
- Building and Capturing a Reference Operating System Image
- Deploying an Operating System

# Lesson 1: Overview of Operating System Deployment

- What Is Operating System Deployment?
- Terminology of Operating System Deployment
- Overview of Operating System Deployment Scenarios
- Server Roles for the Operating System Deployment Process

# What Is Operating System Deployment?

- Operating system deployment is a set of technologies that you can use to install operating systems on workstations and servers
- You can include additional hardware drivers and software packages in a task sequence of an operating system deployment
- Operating system deployment includes the following:
  - Operating system image capture
  - Windows ADK
  - Task sequences
  - Operating system image deployment
  - User state migration

# Terminology of Operating System Deployment

| Category | Term |
| --- | --- |
| Image | • Boot image<br>• Operating system image<br>• Windows image file format (.wim) |
| Task | • Task sequence step<br>• Task sequence group<br>• Task sequence |
| Driver | • Windows device driver (or driver)<br>• Drivers node<br>• Driver package |

| Category | Term |
| --- | --- |
| Computer | • Reference computer<br>• Source computer<br>• Destination computer<br>• Unknown computer |
| Other | • Operating system installer<br>• PXE boot<br>• Windows PE<br>• Sysprep |

# Overview of Operating System Deployment Scenarios

The operating system deployment scenarios include:

- Bare-metal installation
- In-place upgrade
- Operating system refresh
- Side-by-side migration

The various methods that initiate an operating system deployment include:

- Configuration Manager software deployment
- PXE
- Bootable media
- Stand-alone media
- Prestaged media

TABLE 19.1 Deployment Scenarios

| Name | Supported | User State | System Hardware |
|---|---|---|---|
| Upgrade | No | Preserved | Same |
| New Computer | Yes | Ignored or N/A | New |
| Refresh | Yes | Restored | Same |
| Replace | Yes | Restored | New |
| OEM | Yes | N/A | New |

# Server Roles for the Operating System Deployment Process

## Systems used for a bare-metal installation

Import computer information
or
Enable unknown computer support

**Primary site**

Create image for installation and distribute to distribution point

Create deployment for clients

**Management point**

**Distribution point**

Client performs a PXE boot from distribution point

Client reads instructions from management point

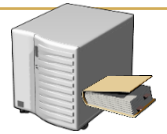
Client installs operating system from distribution point

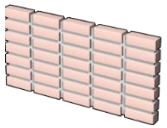
Results reported to management point

# Lesson 2: Preparing a Site for Operating System Deployment

- Prerequisites for Operating System Deployment
- Demonstration: Enabling PXE and Multicast on a Distribution Point
- Configuration Manager Settings and Component Requirements
- Demonstration: Configuring the Network Access Account
- Demonstration: Managing Device Drivers
- Preparing Boot Images
- Demonstration: Managing the Default Boot Images
- Operating System Images and Installers
- Managing Additional Packages Used by Operating System Deployment

# Prerequisites for Operating System Deployment

| Prerequisite | Description |
| --- | --- |
| Primary site server  | • Install Windows ADK for Windows 8.1 to:<br>• Install Windows PE boot images<br>• Install USMT 6.3 |
| Distribution point  | • To enable PXE and/or multicast support, install the Windows DS role |
| State migration point  | • Supports user state migration |
| DHCP  | • Supports PXE and multicast |



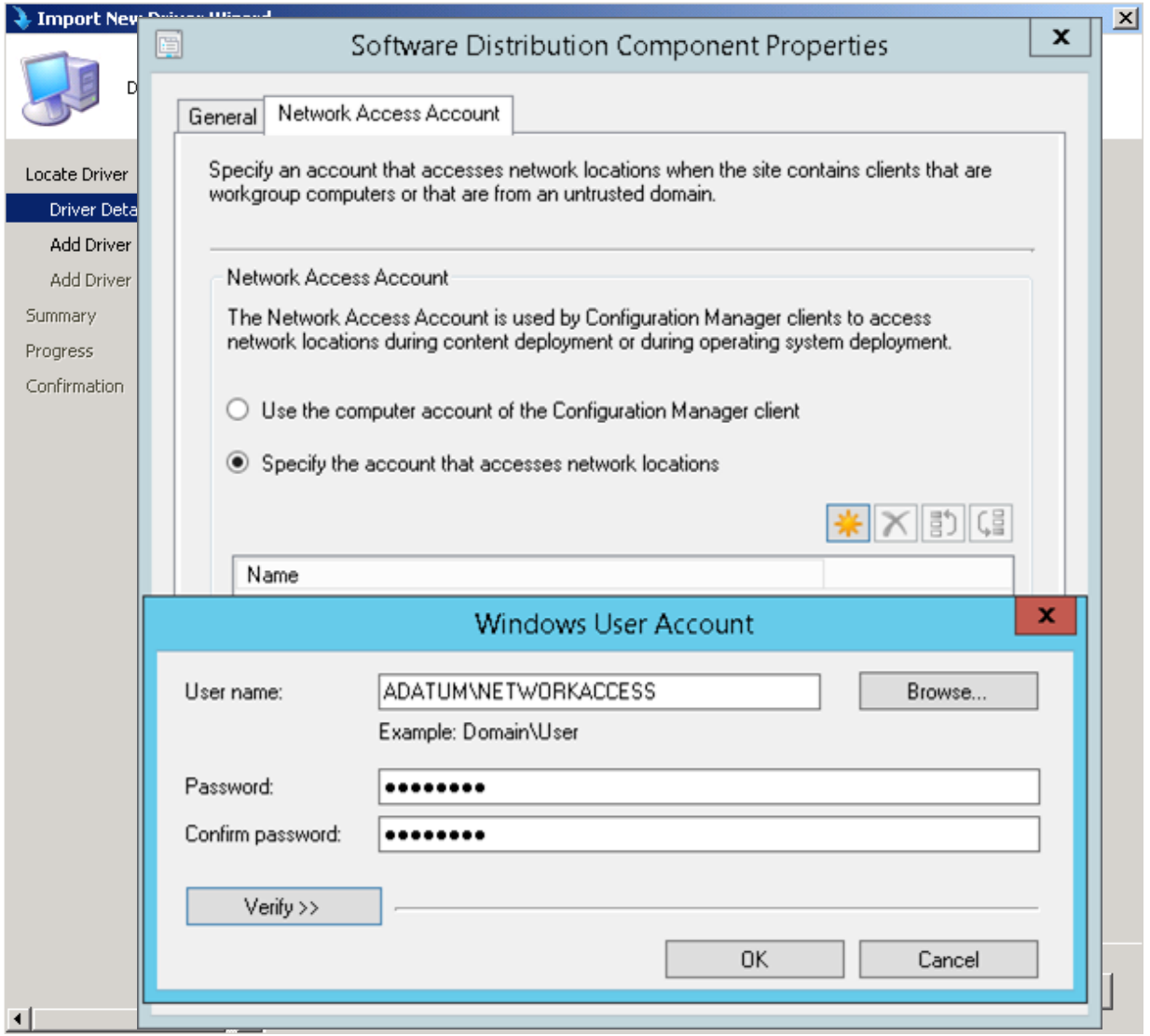
Firewalls need to allow PXE traffic

The Network Access account:

- Allows site-wide setting
- Is used to access distribution point during operating system deployment operations
- Must have read access to shares containing the images and the Drivers node

Drivers and Driver Packages:

- You can import any Windows drivers
- You must add a driver to a driver package to use it
- You can enable or disable drivers
- You can categorize drivers
- You can add drivers to boot images



# Demonstration: Managing the Default Boot Images

In this demonstration, you will see how to:

- Modify the default boot images
- Distribute the default boot images

# Lesson 3: Building and Capturing a Reference Operating System Image

- Configuring a Reference Computer
- Overview of Task Sequences
- Creating a Build and Capture Task Sequence
- Demonstration: Creating a Build and Capture Task Sequence
- Deploying a Build and Capture Task Sequence
- Capturing a Reference Computer by Using Task Sequence Media

# Configuring a Reference Computer

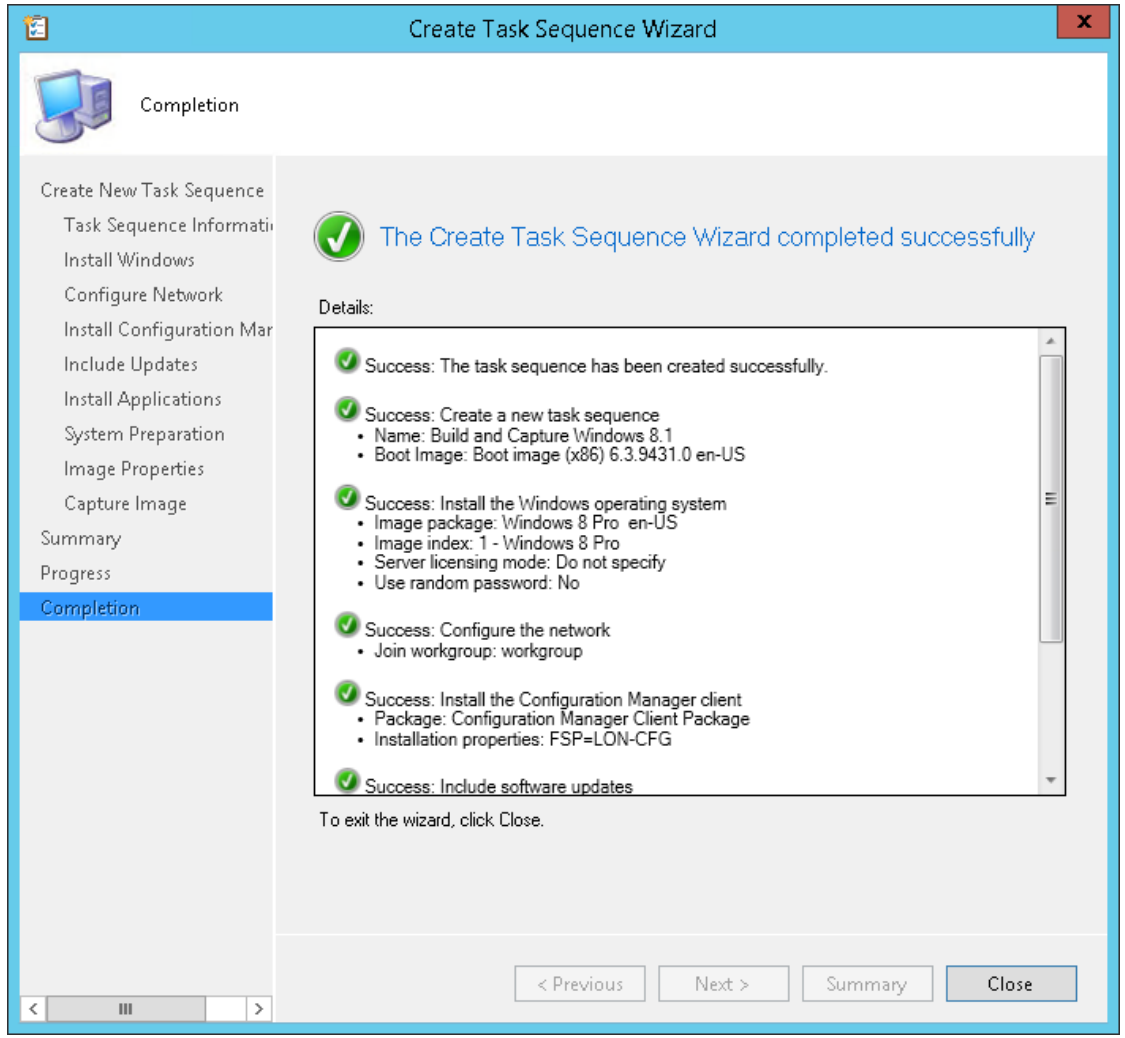
| Build method | Advantages | Disadvantages |
| --- | --- | --- |
| Automated configuration | • Unattended<br>• Reusable task sequence<br>• Task sequence can be modified | • Time required to validate automated build<br>• Changes often require revalidation of entire build<br>• Effort involved in building packages such as the operating system installation package |
| Manual configuration | • Does not need to create a task sequence<br>• Can install directly from removable media | • Depends on an administrator for accuracy<br>• Requires a test and verification method<br>• Cannot reuse the configuration method<br>• Requires active user involvement |

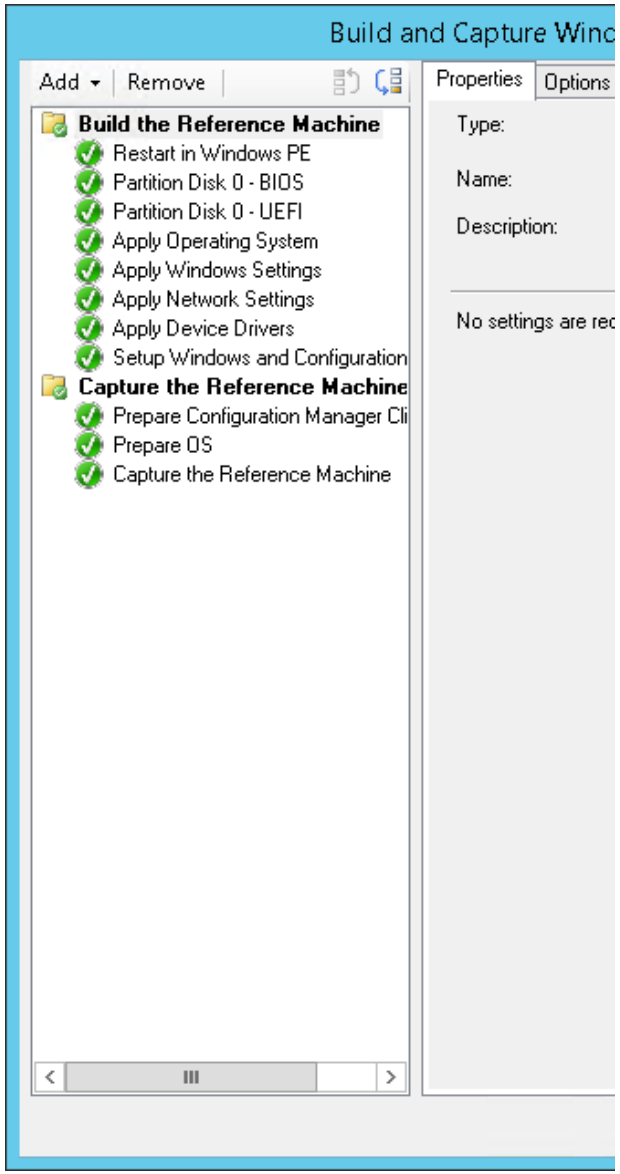
Regardless of the method used, the reference computer cannot be a member of a domain

# Overview of Task Sequences

- A task sequence is a series of steps or tasks that are performed automatically
- The following terms are used when describing task sequences:
  - Action:
    - Built-in action
    - Custom action
  - Condition
  - Step
  - Group

# Creating a Build and Capture Task Sequence




Some steps in the task sequence are not exposed in the wizard

# Deploying a Build and Capture Task Sequence

When deploying a build and capture task sequence:

1. Determine the collection to use; options include:
   - All Unknown Computers
   - Administrator created collection (recommended)
2. Use the Deploy Software Wizard to deploy the task sequence:
   - Select the Make available to boot media and PXE check box
3. Determine the boot option:
   - PXE boot
   - Boot media

- Use capture media from within the reference computer to start the capture process

# Lesson 4: Deploying an Operating System

- Deploying an Operating System Image
- Adding an Operating System Image to Configuration Manager
- Demonstration: Importing and Distributing an Operating System Image
- Creating and Deploying a Task Sequence to Install an Existing Image
- Methods for Running an Installation Task Sequence
- Maintaining Updates for System Images
- Troubleshooting Operating System Deployment

# Deploying an Operating System Image

To deploy an operating system image, perform the following steps:

1. Import the operating system image metadata to Configuration Manager:
   - Import the information about the captured .wim file
2. Distribute the operating system image content to distribution points:
   - The content must be on a distribution point to be usable
3. Create a task sequence to install an operating system:
   - Select a deployment method
4. Deploy the task sequence:
   - Select an initiation method that is congruent with the chosen scenario

- Before you can use an operating system image, the metadata must be imported into Configuration Manager
  - Includes information about the source location
- After the operating system metadata is imported, the operating system content can be distributed to a distribution point
  - Is copied from the source location to the distribution point

Site database stores operating system image metadata

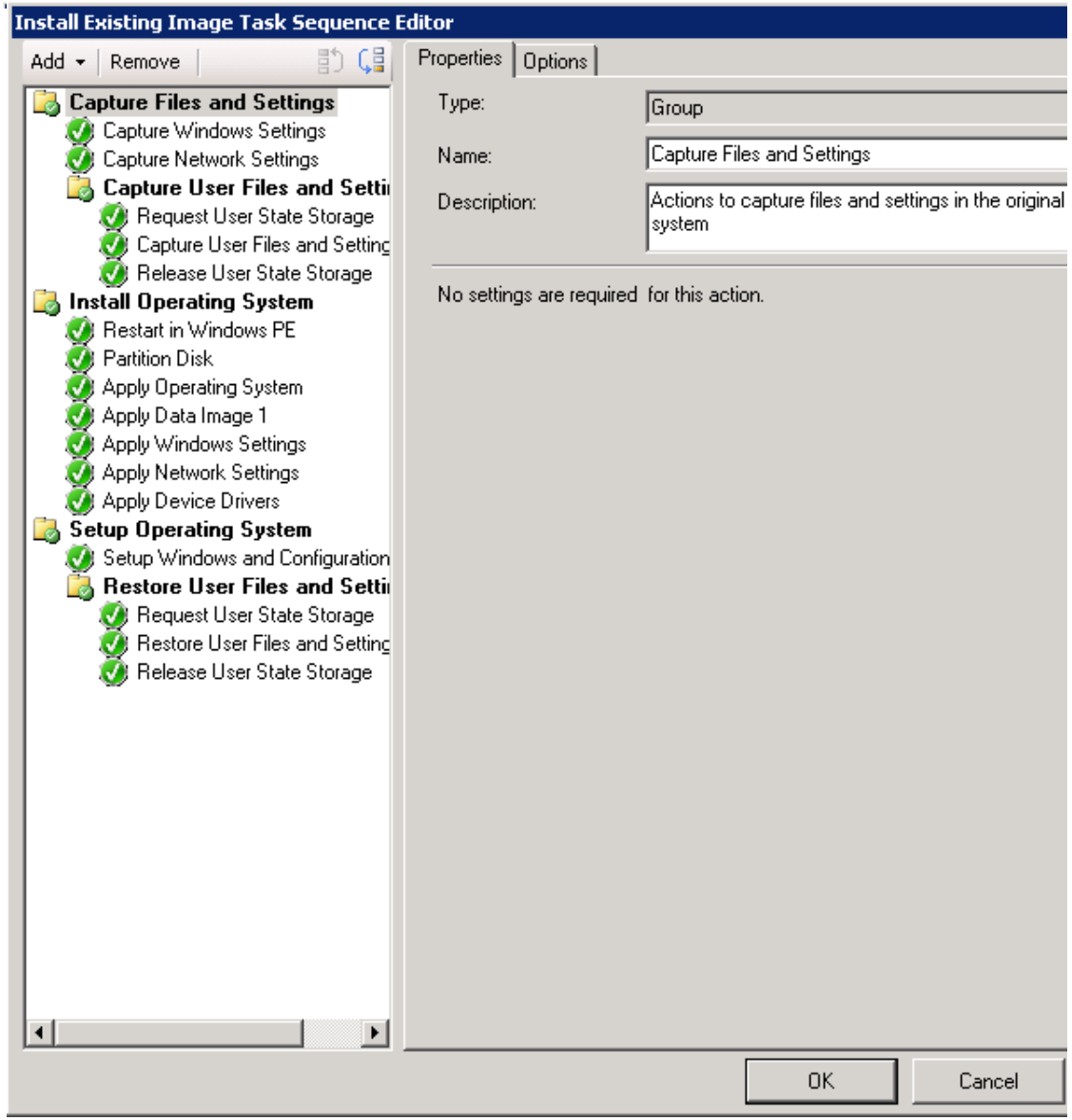
Operating system .wim file

Content stored on a distribution point

# Demonstration: Importing and Distributing an Operating System Image

In this demonstration, you will see how to:

- Import an operating system image
- Distribute an operating system image




- Start the Create Task Sequence Wizard, and select the Install an existing image package option
- Complete the wizard with the appropriate information
- Modify the task sequence as necessary

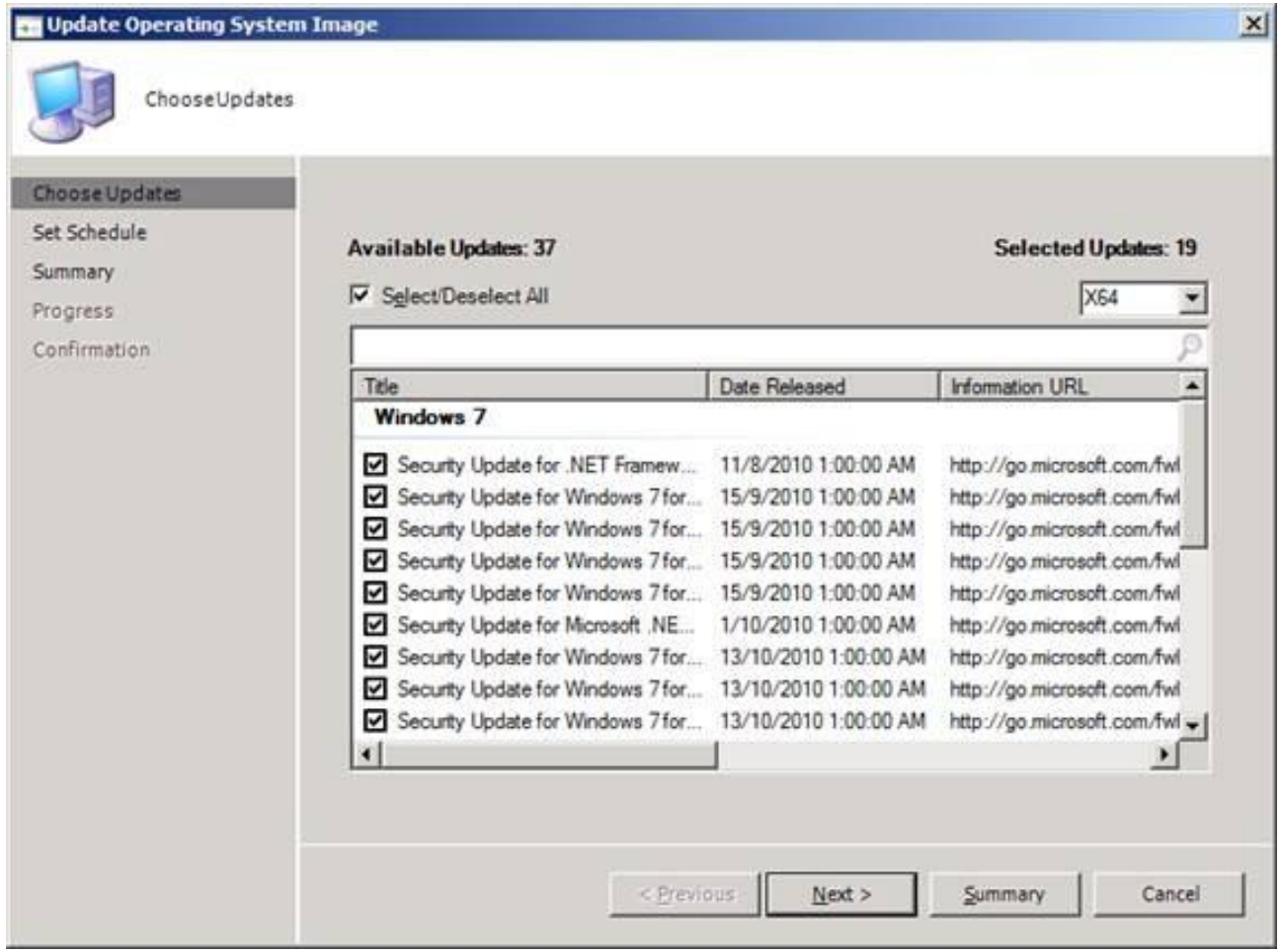
# Methods for Running an Installation Task Sequence

The methods for running an installation task sequence are:

- Configuration Manager client:
  - Deploy to collection with existing clients
- PXE boot:
  - Start the system and press the F12 key to start the PXE boot process
- Boot media:
  - Create the boot media: A CD/DVD set or USB flash drive with the files that are needed to start a system and connect to Configuration Manager
- Stand-alone media:
  - Create the boot media, CD/DVD set, with all the files needed for operating system installation
- Prestaged media:
  - Used by original equipment manufacturers (OEMs) to prestage hard drives for new systems

# Maintaining Updates for System Images

Use the Update Operating System Image Wizard to schedule updates to keep the images in your .wim file updated and current



# Troubleshooting Operating System Deployment

- During the WinPE phase of the installation, the SMSTS.log file is in RAM and will be lost with a reboot. Enable command-line support on the boot image, and use the F8 key to launch a command prompt to access the sm

| Method | Description |
|---|---|
| Log files | • SMSTS.log:<br>  • If the task sequence completes while in Windows PE, log is located in *<largest fixed partition>*\SMSTSLOG<br>  • If task sequence completes while in the deployed OS, log is located in *<CCM Install Dir>*\logs<br>• CCMSetup.log:<br>  • After client setup is completed, log is located in %Windir%\ccmsetup |
| Configuration Manager reports | • Report categories include:<br>  • Task Sequence – Deployment Status<br>  • Task Sequence – Deployments<br>  • Task Sequence – Progress<br>  • Task Sequence – References |

During the Windows PE phase of the installation, the SMSTS.log file is in RAM and will be lost with a restart. Enable command-line support on the boot image, and use the F8 key to launch a command prompt to access the SMSTS.log file.