10.3.6 Installation Facts

Use the following steps to install Windows from the installation media:

1. Prepare the system hard disk(s). If you are performing a clean install on a new hard disk, you can partition and format the disk during the installation process. However, you will need to prepare disks before the installation if you want to install Windows on a hardware RAID array (RAID 0, RAID 1, RAID 5, RAID 10, etc.). Some motherboards include an integrated RAID controller that allows you to build an array from multiple SATA hard disks installed in the system. You can also install a RAID controller board in an expansion slot to define a RAID array. If you need to configure a RAID array prior to installation, do the following:
   - Install the drives required to support the desired RAID level in the system.
   - Do one of the following:
     - If using an integrated RAID controller on the motherboard, access the BIOS/UEFI configuration interface and enable RAID instead of traditional SATA operations.
     - If using a RAID controller board, install the board in an expansion slot and then boot the computer. During system boot, the RAID BIOS will load. Press the key combination specified in the RAID BIOS screen to enter the RAID configuration utility.
   - Define a new RAID array of the desired type using the disks installed in the system.

     Adding a hard disk to a RAID array will destroy all existing data on that disk. Be sure to back up any data you want to keep before adding the disk to the array.

2. Insert the installation media (such as a DVD or USB flash drive) and then boot from that media.
3. During the first part of the installation, Windows loads the necessary files it needs to start the installation. During this phase, you may need to load additional drivers to support your storage controller so that Windows can write to the disk. This commonly occurs when installing to a RAID array. To do this, select **Load Driver**. You must have the necessary drivers available on a USB flash drive.
4. After the initial files and drivers are loaded, you select the disk where you want to install Windows. At this point you can choose an existing partition (if one exists), or create a new partition.
5. After Windows prepares the disks, it starts copying files to the hard disk. When the file copy is complete, the system will reboot. Leave the installation media in the drive until prompted to remove it.
6. After the system reboots, Windows configures the system. You will be prompted for configuration information such as the region and language, the computer name, date and time, and network settings.

In addition to using an installation DVD, you can also install Windows using the methods mentioned below.

This lesson covers the following topics:

- Bootable flash drive
- Network installation
- Unattended
- Disk imaging
- Repair installation

Bootable Flash Drive

Instead of installing from the installation disc, you can create a bootable USB flash drive and copy the installation files to that drive. Microsoft provides a utility called the *Windows 7 USB/DVD Download Tool* that can be used to automate the process.

Network Installation

To perform a network installation, the Windows installation files must first be copied to a network location. Then, the installation process is run remotely over a network connection. This allows multiple systems to be installed at the same time using the same installation files. To do this, you must first:

- Configure a Windows Deployment Services (WDS) server. This server contains the files needed to install Windows on remote computer systems over a network connection. WDS functions in conjunction with the Preboot Execution Environment (PXE) to load a miniature version of Windows, known as the Windows Preinstallation Environment (Windows PE), on network hosts. Windows PE is a minimal version of the Windows operating system. Its purpose is to get a basic system up and running such that the host can connect to the WDS server and install a full version of Windows.
- Boot the host computer where Windows is to be installed using a PXE boot. The computer will connect to the WDS server and boot into Windows PE. Once done, Windows can be installed locally from the WDS server.

Unattended

An unattended installation is a type of installation that requires no interaction from the user during the installation process. To do this, an XML file (called an answer file or response file) is pre-populated with all the answers to the standard Windows installation prompts. This file is named autounattend.xml and is copied to the root of the Windows installation media.

For this reason, it is typically easier to perform an unattended install from a USB flash drive instead of an optical disc.

During the installation, the answer file is used to respond to the prompts in the Windows installer. If you have included all of the necessary information in the answer file, the installation will proceed automatically without pausing for user input.

Disk Imaging

With disk imaging, or image deployment, you install Windows on one computer and then copy that image to other computers. The imaging process is faster than installing Windows individually because all applications, configuration settings, and user accounts from the reference system are included in the imaging process. Imaging is an efficient way of installing Windows if you have a large number of computers that use the same hardware configuration. Be aware of the following facts when using disk imaging:

- All computers need to have the same hardware abstraction layer (HAL), ACPI support, and mass storage drivers.
- Computers can have different peripheral hardware, because Plug-and-Play will detect peripheral hardware.
- Your Windows licensing agreement must allow multiple installations using the same product key.
- Computers must be manually renamed after imaging. Otherwise you will experience duplicate computer name errors.

Repair Installation

You can perform a repair installation to fix a currently installed Windows implementation. A Repair Installation will restore corrupt or missing DLLs, fix registry problems, and fix startup files while preserving user accounts, data, applications, and installed drivers.

To perform a repair installation, do the following:

1. Insert your Windows installation media.
2. Run the Setup.exe file on the installation media.
3. Elevate privileges when prompted by UAC.
4. Accept the license agreement.
5. Specify how the repair installation should occur. You can select from the following options:
    - Keep personal files, apps, and Windows settings
    - Keep personal files only
    - Nothing
6. Wait while Windows is reinstalled.
