Boot Camp
Installation &
Setup Guide

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Setting Up Boot Camp

This document shows you how to install and set up Boot Camp so you can use Microsoft Windows on an Intel-based Mac computer.

Introduction

NOTICE: Make sure to back up all of your data before using Boot Camp, and regularly back up data while using the software.

Boot Camp lets you install Windows on a Mac computer, using a Microsoft Windows installation disc that you provide. Windows is installed on its own partition. After installation, you can use either Windows or Mac OS X on your Mac computer.

The Boot Camp Assistant application helps you create the Windows partition and restart your Mac using your Windows installation disc. Then you follow these instructions to install Windows and install software drivers that let Windows work with your Mac hardware.

If you've already installed Windows on your Mac with Boot Camp and you want to upgrade to Windows Vista or Windows 7, you don't need to use the Boot Camp Assistant. Follow the instructions in "Upgrading to Windows Vista or Windows 7" on page 15.

Important: Before you use Boot Camp Assistant, print this document. It contains information you'll need while installing Windows.

What You Need

- An Intel-based Mac computer with Mac OS X 10.6 or later
- The keyboard and mouse or trackpad that came with your computer. (If they aren't available, use a USB keyboard and mouse.)
- Mac OS X version 10.6 or later (the latest version of Mac OS X is strongly recommended)
- A built-in optical disc drive or a compatible external optical drive

  For information on using your computer with an external optical drive, see the documentation that came with your computer.
- A Mac OS X version 10.6 installation disc
- One of the following:
  - Windows XP Home Edition or Professional with Service Pack 2 or later (32-bit version only)
  - Windows Vista Home Basic, Home Premium, Business, or Ultimate
  - Windows 7 Home Premium, Professional, or Ultimate

Important: You must use a single full-install Windows installation disc. You cannot use an upgrade version of Windows. If you're installing Windows XP, you must use Service Pack 2 or later. You cannot install an earlier version of Windows XP and then attempt to update it later.

To see how much free space you need on your disk for Windows, refer to the documentation that came with Windows.

You can use a 32-bit version of Windows XP or Windows Vista with any Intel-based Mac computer. You cannot use a 64-bit version of Windows XP on any Mac computer.

You can use a 32-bit version of Windows 7 with any of these Mac computers:

- An iMac or MacBook Pro introduced in 2007 or later
- Any Intel-based Mac Pro, MacBook, or Mac mini

You can use a 64-bit version of Windows Vista or Windows 7 with any of these Mac computers:

- A Mac Pro or MacBook Pro introduced in early 2008 or later
- An iMac or MacBook introduced in late 2009 or later

If you're not sure when your Mac computer was introduced, see http://www.apple.com/support/hardware, click your Mac model, and look for an article on identifying your Mac.

Installation Overview

Installing Windows on your Mac computer involves the following steps:

Step 1: Check for updates.

Step 2: Open Boot Camp Assistant.
Boot Camp Assistant creates a partition for Windows and starts the Windows installer.

Step 3: Install Windows.

Step 4: Install the Boot Camp drivers on your Windows volume.

Important: Before you begin, make sure you have a backup of the important information on your computer.

Step 1: Check for updates

In Mac OS X, go to http://www.apple.com/support/bootcamp and check whether you need to update your software before you can install Windows.

Step 2: Open Boot Camp Assistant

Boot Camp Assistant helps you create a new partition for Windows and gets you started with the Windows installation.

Important: If you're using a portable computer, connect the power adapter before continuing.

To use Boot Camp Assistant:
1 Log in to an administrator account on your computer, quit all open applications, and log out any other users on your computer.
2 Choose Apple () > Software Update.

   Install all available updates. If your computer restarts after installing an update, choose Apple () > Software Update again to install any additional updates.
3 Open Boot Camp Assistant (in the Utilities folder in the Applications folder).

Creating a Partition for Windows

Boot Camp Assistant lets you choose the size for your Windows partition, and then creates that partition on your internal disk drive without erasing any data.

Note: If your computer has more than one internal disk and you want to install Boot Camp on a disk that isn't in the first hard drive bay, remove the drives in the lower numbered bays. You can reinstall the drives after you install Boot Camp.

Refer to your Windows installer documentation to help you determine the best partition size for your system. Windows Vista and Windows 7 require more disk space than Windows XP.

If you're installing Windows XP and your Windows partition can be 32 GB or smaller, you can choose between two formats for that partition. You'll select the format in a later step, but you must decide on a format now so you can choose an appropriate size. Here are the two formats:

- NTFS—Provides better reliability and security, but you will not be able to save files to the Windows volume from Mac OS X. This partition can be any size.
- FAT—Provides better compatibility, allowing you to read and write files on the Windows volume from Mac OS X. This partition must be 32 GB or smaller.

If you're installing Windows Vista or Windows 7, the Windows partition must use the NTFS format.

If You Have Problems Creating a Partition
If you have problems creating a Windows partition, check the following:

- The disk must be a single partition, formatted as Mac OS Extended (Journaled). If the disk already has more than one partition, you must repartition it.
- The disk must be an internal disk. You cannot use Boot Camp Assistant to install Windows on an external disk.
- If a dialog appears saying "The disk cannot be partitioned because verification failed," try repairing the disk using Disk Utility and opening Boot Camp Assistant again. If that doesn't work, back up all the information on your computer, start up from your Mac OS X installation disc, and erase the disk using Disk Utility. Restore the information to your computer from the backup and try opening Boot Camp Assistant again.

Step 3: Install Windows
Read and follow these instructions for installing Windows on your Mac computer. Refer to your Windows documentation for general information about installing and setting up Windows.

To install Windows on your Mac computer:
1 If you already quit Boot Camp Assistant without installing Windows:
   a Open Boot Camp Assistant.
   b Select "Start the Windows installer."
   c Click Continue.
2 Insert your Windows installation disc.

3 In Boot Camp Assistant, click Start Installation.

Your computer starts up from the Windows installation disc.

4 Follow the onscreen instructions. Refer to the following sections for more information.

If you're asked to choose between an upgrade or custom installation, choose a custom installation.

Selecting and Formatting the Windows Partition

It's important to select the correct partition when installing Windows so that you don't overwrite Mac OS X on your computer. You'll then choose the correct format.

> *NOTICE:* Do not create or delete a partition, or select any partition other than as noted below. Doing so may delete the entire contents of your Mac OS X partition.

To select and format the correct partition for Windows Vista or Windows 7:

1 Select "Disk 0 Partition 3 BOOTCAMP."
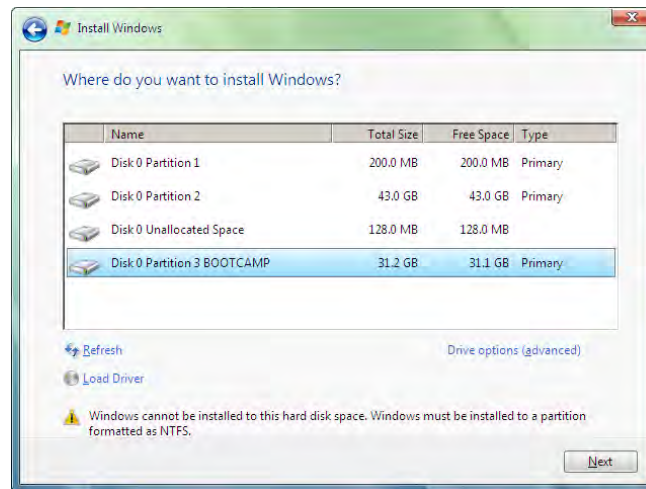
2 Click "Drive options (advanced)."

3 Click Format, and then click OK.

4 Click Next.

The Windows partition is formatted using the NTFS file system.
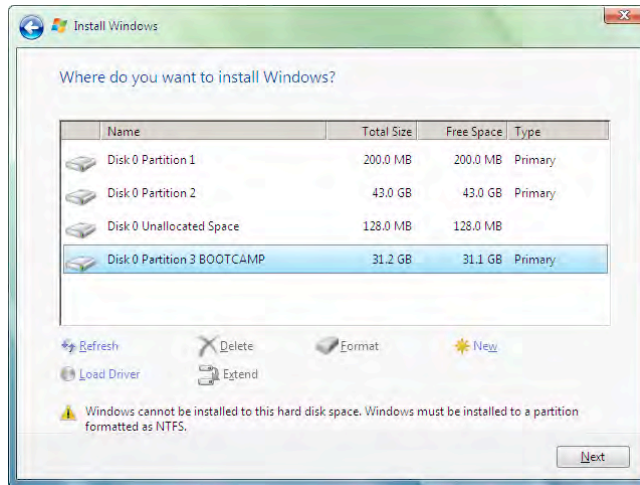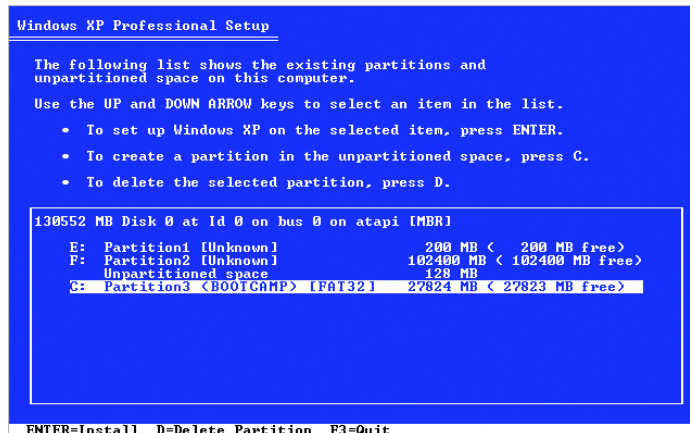
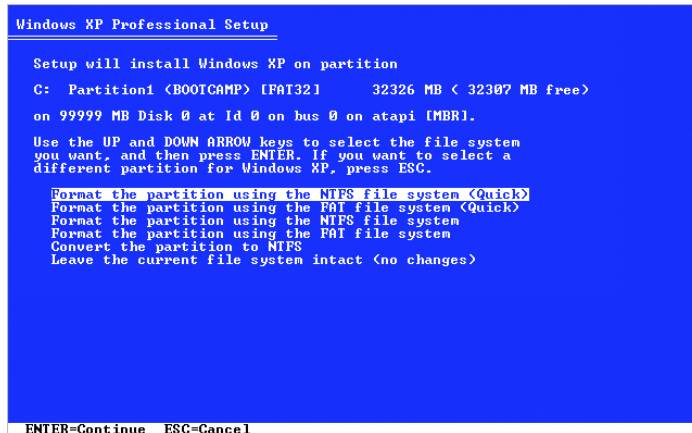**To select and format the correct partition for Windows XP:**

1 Select "C: Partition3 <BOOTCAMP> [FAT32]."

2   Select an NTFS or FAT format:

- NTFS—Provides better reliability and security, but you will not be able to save files to the Windows volume from Mac OS X.

- FAT—Provides better compatibility, allowing you to read and write files on the Windows volume from Mac OS X. This option is available only if the Windows partition is 32 GB or smaller.

Important: Do not select "Leave the current file system intact." To successfully install Windows XP, you must select one of the other options.

```
Windows XP Professional Setup

  Setup will install Windows XP on partition

  C:  Partition1 <BOOTCAMP> [FAT32]      32326 MB ( 32307 MB free)

  on 99999 MB Disk 0 at Id 0 on bus 0 on atapi [MBR].

  Use the UP and DOWN ARROW keys to select the file system
  you want, and then press ENTER. If you want to select a
  different partition for Windows XP, press ESC.

      Format the partition using the NTFS file system (Quick)
      Format the partition using the FAT file system (Quick)
      Format the partition using the NTFS file system
      Format the partition using the FAT file system
      Convert the partition to NTFS
      Leave the current file system intact (no changes)




  ENTER=Continue   ESC=Cancel
```

Setting Up Windows

After you install the Windows software, your computer automatically restarts using Windows. Use the Windows setup screens to configure Windows.

If You Have Problems Installing Windows

If you have problems installing Windows, try the following solutions.

If you get a message saying "Installer Disc Not Found" when installing Windows

Make sure you're logged in to Mac OS X as an administrator.

If the Windows installer isn't responding

Be sure you are using the original keyboard and mouse that came with your computer.

If you're using an Apple mouse, the Windows installer may not respond if the mouse is connected directly to your computer. Connect the mouse to the USB port on your keyboard.

If Windows didn't install properly

Verify that you're using an original, full version of one of the following:

- Windows XP Home Edition or Professional with Service Pack 2 or later
- Windows Vista Home Basic, Home Premium, Business, or Ultimate
- Windows 7 Home Premium, Professional, or Ultimate

Media Center, OEM, and upgrade versions of Windows XP are not recommended.

Restart your computer and hold down the Option key until one or more disk icons appears on your screen. Insert the Windows installation disc. Select the Windows installation disc icon and then click the arrow beneath it. Quickly press any key on your keyboard to start the installer. Follow the onscreen instructions to repair or reinstall Windows.

If you insert the wrong disc during installation

Eject the disc by holding down the Eject key on your keyboard while restarting the computer.

Step 4: Install the Boot Camp Drivers for Windows

After installing Windows, install Mac-specific drivers and other software for Windows using your Mac OS X installation disc.

The Mac OS X disc installs drivers to support Mac components, including AirPort, built-in iSight camera, the Apple Remote, the trackpad on a portable Mac, and the function keys on an Apple keyboard.

The Mac OS X disc also installs the Boot Camp control panel for Windows and the Apple Boot Camp system tray item.

To install the Boot Camp drivers:

1 Eject the Windows installation disc.

2 Insert the Mac OS X disc.

   If the installer doesn't start automatically, browse the disc using Windows Explorer and double-click the setup.exe file in the Boot Camp directory.

3 Follow the onscreen instructions.

   If a message appears that says the software you're installing has not passed Windows Logo testing, click Continue Anyway.

   Windows that appear only briefly during the installation don't require your input.

If nothing appears to be happening, there may be a hidden window that you must respond to. Check the taskbar and look behind open windows.

Important: Do not click the Cancel button in any of the installer dialogs.

4 After your computer restarts, follow the instructions in the Found New Hardware Wizard to update your software drivers (Windows XP only).

5 Follow the instructions for any other wizards that appear.

6 Check for updated Boot Camp drivers by using Apple Software Update or going to www.apple.com/support/bootcamp.

If You Have Problems Installing the Device Drivers

If it appears that the Boot Camp drivers weren't successfully installed, try repairing them.

To repair Boot Camp drivers:

1 Start up your computer in Windows.

2 Insert your Mac OS X installation disc.

3 If the installer doesn't start automatically, browse the disc using Windows Explorer and double-click the setup.exe file in the Boot Camp directory.

4 Click Repair and follow the onscreen instructions.

If a message appears that says the software you're installing has not passed Windows Logo testing, click Continue Anyway.

If you need to reinstall specific drivers, you can install one driver at a time. For example, if your built-in iSight camera isn't working, you can reinstall just the iSight driver.

Individual drivers are in the Drivers folder on the Mac OS X installation disc.

To reinstall a specific driver:

1 Insert your Mac OS X installation disc.

2 Quit AutoRun if it opens.

3 Using Windows Explorer, locate the driver that you want to reinstall.

4 Open the driver to start the installation.

Starting Up Using Mac OS X or Windows

After you've installed Windows and the Boot Camp drivers, you can start using Windows on your Mac. Boot Camp makes it easy to start up your computer using either Mac OS X or Windows. You can set the default operating system for your computer using Startup Disk preferences (Mac OS X) or the Boot Camp control panel (Windows). You can also select an operating system as your computer is starting up.

Setting the Default Operating System

You can use the Startup Disk pane of System Preferences in Mac OS X to set the default operating system for starting up your computer. Boot Camp also installs a Boot Camp control panel that lets you set the default operating system when you're using Windows.

To set the default operating system in Mac OS X:

1 In Mac OS X, choose Apple menu > System Preferences, and then click Startup Disk.

2 Select the startup disk with the operating system you want to use by default.

3 If you want to start up that operating system now, click Restart.

To set the default operating system in Windows:

1 In Windows, click the Boot Camp icon in the system tray and choose Boot Camp Control Panel.

   Note: Your screen may look different, depending on which computer you're using.

2 Select the startup disk with the operating system you want to use by default.

3 If you want to start up that operating system now, click Restart.

To restart in Mac OS X using the Boot Camp icon in the system tray:

▪ In Windows, click the Boot Camp icon in the system tray and choose "Restart in Mac OS X."

This also sets the default operating system to Mac OS X.

Selecting an Operating System During Startup

You can select which operating system to use during startup by holding down the Option key. This displays icons for all available startup disks, and lets you override the default setting for the startup disk in Startup Disk preferences (Mac OS X) or the Boot Camp control panel (Windows) without changing that setting.

To select an operating system during startup:

1 Restart your computer and hold down the Option key until disk icons appear onscreen.

2 Select the startup disk with the operating system you want to use, and then click the arrow beneath the icon.

If You Have Problems Using Windows on Your Mac

If you're having trouble using Windows on your Mac, try the solutions below.

For more troubleshooting information, go to www.apple.com/support/bootcamp.

If you see "No Boot Disk Attached" when starting up your computer

You may have formatted your Boot Camp partition incorrectly so it cannot start up your computer. Start up your computer with Mac OS X and open Boot Camp Setup Assistant. Remove the Boot Camp partition and then re-create it. Install Windows again, being sure to format the partition.

If the screen is blank or distorted

Some graphics cards may not work with both Mac OS X and Windows on a Mac computer. If you're having trouble with your screen display when using Windows, try the following:

- Use the graphics card that came with your Mac.
- Make sure you've installed the Boot Camp drivers. See "Step 4: Install the Boot Camp Drivers for Windows" on page 11.
- Adjust the screen resolution setting in the Display control panel.
- Go to http://www.apple.com/support/bootcamp and check for compatibility information and updated software for your computer.

If you can't rename the Windows partition

You can rename the Windows partition only in Windows. Start up in Windows and right-click the C: drive in Windows Explorer. Then type a name.

If you have a RAID configuration

RAID configurations using Boot Camp are not supported. For more information, go to www.apple.com/support/bootcamp and search for "RAID."

Removing Windows from Your Computer

How you remove Windows from your computer depends on whether you installed Windows on a single-volume disk or on a second disk partition.

If you installed Windows on a second disk partition: Using Boot Camp Assistant as described below, remove Windows by deleting the Windows partition and restoring the disk to a single-partition Mac OS X volume.

If your computer has multiple disks and you installed Windows on a disk that has only one partition: Start up in Mac OS X and use Disk Utility, in the Utilities folder in the Applications folder, to reformat it as a Mac OS X volume.

To delete Windows and the Windows partition:

1 Start up in Mac OS X.

2 Quit all open applications and log out any other users on your computer.

3 Open Boot Camp Assistant.

4 Select "Create or remove a Windows partition," and then click Continue.

5 Do one of the following:

- If your computer has a single internal disk, click Restore.
- If your computer has multiple internal disks, select the disk with Windows on it, and then select "Restore to a single Mac OS partition" and click Continue.

Upgrading

These sections describe how to upgrade Windows or your version of Boot Camp.

Upgrading the Boot Camp Drivers

If you've already installed Windows on this computer, you can install the updated Mac drivers for Windows.

Important: If you've customized your Windows environment, write down your settings before updating the drivers.

To update the Boot Camp drivers for Windows:

1 Restart your Mac using Windows.

2 Click the Boot Camp icon in the system tray and choose About Boot Camp.

3 If the version is 3.0 or later, use Apple Software Update to check for updated drivers.

4 If the version is earlier than 3.0, insert your Mac OS X version 10.6 installation disc. When the installer starts, click Repair.

If the installer doesn't start automatically, browse the disc using Windows Explorer and double-click the setup.exe file in the Boot Camp directory.

Upgrading to Windows Vista or Windows 7

You can upgrade Windows XP to Windows Vista or Windows Vista to Windows 7.

Note: If you're using Windows XP, you cannot upgrade to Windows 7. You can perform a clean install (also called a custom install), which erases your Boot Camp partition. Before you perform a clean install, make sure you have the installation discs for all your programs and a backup of your personal files and settings. You can restore them after the installation.

To upgrade from Windows Vista to Windows 7

To upgrade to Windows 7, you need:

- Windows Vista installed on your Boot Camp partition
- A licensed copy of Windows 7 Home Premium, Professional, or Ultimate
- Apple_WIn7_Upgrade_Utility.exe, which is available at http://www.apple.com/support/bootcamp. The Windows 7 installer may not be able to install Windows 7 if your Mac OS X partition is mounted. This utility unmounts your Mac OS X partition. It will be mounted again when you download updated software for Windows 7.

1 In Mac OS X, go to http://www.apple.com/support/bootcamp and check whether you need to update your software before you can upgrade to Windows 7. Some Mac computers require specific updates before you can install Windows 7.

2 Start up your Mac in Windows.

3 Use Apple Software Update to check for updated drivers for Windows Vista.

4 Go to the website http://www.apple.com/support/bootcamp, and download Apple_WIn7_Upgrade_Utility.exe.

5 Open AppleWin7Utility.exe, and follow the onscreen instructions.

   Apple_WIn7_Upgrade_Utility.exe unmounts your Mac OS X partition.

6 Insert your Windows 7 installation or upgrade disc.

7 Follow the instructions that came with Windows 7.

8 After your computer starts up in Windows 7, use Apple Software Update to check for updated software for Windows 7. Your Mac OS X partition is mounted again.

To upgrade from Windows XP to Windows Vista
To upgrade to Windows Vista, you need:

- Windows XP installed on your Boot Camp partition
- A licensed copy of Windows Vista Home Basic, Home Premium, Business, or Ultimate.

1 In Mac OS X, go to http://www.apple.com/support/bootcamp and check whether you need to update your software before you can upgrade to Windows Vista. Some Mac computers require specific updates before you can install Windows Vista.

2 Start up your Mac in Windows.

3 Insert your Windows Vista installation or upgrade disc.

4 Follow the instructions that came with Windows Vista.

5 After completing the installation, insert your Mac OS X installation disc.

   If the installer doesn't start automatically, browse the disc using Windows Explorer and double-click the setup.exe file in the Boot Camp directory.

6 Check for updated Boot Camp drivers by using Apple Software Update or going to http://www.apple.com/support/bootcamp.

To perform a clean install
1 In Mac OS X, go to http://www.apple.com/support/bootcamp and check whether you need to update your software before you can upgrade Windows.

2 Start up your Mac in Windows.

3 Back up your personal data, and make sure you have the installation discs for any applications you use.

4 Insert your Windows installation or upgrade disc.

5   Follow the instructions that came with Windows Vista or Windows 7.

6   After completing the installation, insert your Mac OS X installation disc.

    If the installer doesn't start automatically, browse the disc using Windows Explorer and double-click the setup.exe file in the Boot Camp directory.

7   Check for updated Boot Camp drivers by using Apple Software Update or going to http://www.apple.com/support/bootcamp.

8   Restore your personal data and applications.

If you have problems upgrading Windows

If you're having trouble upgrading Windows on your Mac, try the solution below.

For more troubleshooting information, go to www.apple.com/support/bootcamp.

If you see "Windows was unable to create a required installation folder" when upgrading Windows
You may see this alert if you install Boot Camp 3.0 or later and then try to upgrade to Windows 7. Before you update to Windows 7, download Apple_WIn7_Upgrade_Utility.exe, which is available at http://www.apple.com/support/bootcamp. For more information, see "Upgrading to Windows Vista or Windows 7" on page 15.

Learning More, Support, and Feedback

For more information about Boot Camp, go to www.apple.com/bootcamp.

For Boot Camp support, go to www.apple.com/support/bootcamp.

Apple welcomes your feedback on Boot Camp. To submit feedback, go to www.apple.com/macosx/feedback.

Apple does not provide support for installing or using Microsoft Windows software. To find help for Windows issues, go to www.microsoft.com/windows.