By Greg Shultz

When your computer hardware appears to power up okay, but the Windows XP operating system won't boot properly, you have to begin a troubleshooting expedition that includes getting into the operating system, determining the problem, and then fixing it. To help you get started on this expedition, here are 10 things you can do when Windows XP won't boot.

1   Use a Windows startup disk

One of the first things you should reach for when troubleshooting a Windows XP boot problem is a Windows startup disk. This floppy disk can come in handy if the problem is being caused when either the startup record for the active partition or the files that the operating system uses to start Windows have become corrupted.

To create a Windows startup disk, insert a floppy disk into the drive of a similarly configured, working Windows XP system, launch My Computer, right-click the floppy disk icon, and select the Format command from the context menu. When you see the Format dialog box, leave all the default settings as they are and click the Start button. Once the format operation is complete, close the Format dialog box to return to My Computer, double-click the drive C icon to access the root directory, and copy the following three files to the floppy disk:

- Boot.ini
- NTLDR
- Ntdetect.com

 After you create the Windows startup disk, insert it into the floppy drive on the afflicted system and press [Ctrl][Alt][Delete] to reboot the computer. When you boot from the Windows startup disk, the computer will bypass the active partition and boot files on the hard disk and attempt to start Windows XP normally.

2   Use Last Known Good Configuration

You can also try to boot the operating system with the Last Known Good Configuration feature. This feature will allow you to undo any changes that caused problems in the CurrentControlSet registry key, which defines hardware and driver settings. The Last Known Good Configuration feature replaces the contents of the CurrentControlSet registry key with a backup copy that was last used to successfully start up the operating system.

To use the Last Known Good Configuration feature, first restart the computer by pressing [Ctrl][Alt][Delete]. When you see the message *Please select the operating system to start* or hear the single beep, press [F8] to display the Windows Advanced Options menu. Select the Last Known Good Configuration item from the menu and press [Enter].

Keep in mind that you get only one shot with the Last Known Good Configuration feature. In other words, if it fails to revive your Windows XP on the first attempt, the backup copy is also corrupt.

3   Use System Restore

Another tool that might be helpful when Windows XP won't boot is System Restore. System Restore runs in the background as a service and continually monitors system-critical components for changes. When it detects an impending change, System Restore immediately makes backup copies, called restore points, of these critical components before the change occurs. In addition, System Restore is configured by default to create restore points every 24 hours.

To use System Restore, first restart the computer by pressing [Ctrl][Alt][Delete]. When you see the message *Please select the operating system to start* or hear the single beep, press [F8] to display the Windows Advanced Options menu. Now, select the Safe Mode item from the menu and press [Enter].

Once Windows XP boots into Safe mode, click the Start button, access the All Programs | Accessories | System Tools menu, and select System Restore. Because you're running in Safe mode, the only option on the opening screen of the System Restore wizard is Restore My Computer To An Earlier Time, and it's selected by default, so just click Next. Then, follow along with the wizard to select a restore point and begin the restoration procedure.

4   Use Recovery Console

When a Windows XP boot problem is severe, you'll need to use a more drastic approach. The Windows XP CD is bootable and will provide you with access to a tool called Recovery Console.

To boot from the Windows XP CD, insert it into the CD-ROM drive on the problem system and press [Ctrl][Alt][Delete] to reboot the computer. Once the system begins booting from the CD, simply follow the prompts that will allow the loading of the basic files needed to run Setup. When you see the Welcome To Setup screen, shown in **Figure A**, press R to start the Recovery Console.

You'll then see a Recovery Console menu, like the one shown in **Figure B**. It displays the folder containing the operating system's files and prompts you to choose the operating system you want to log on to. Just press the menu number on the keyboard, and you'll be prompted to enter the Administrator's password. You'll then find yourself at the main Recovery Console prompt.
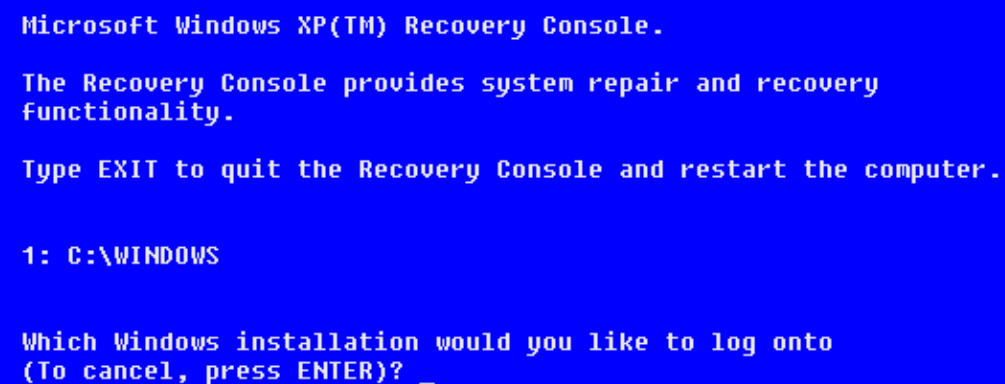


```
Windows XP Professional Setup

    Welcome to Setup.

    This portion of the Setup program prepares Microsoft(R)
    Windows(R) XP to run on your computer.


    ●  To set up Windows XP now, press ENTER.

    ●  To repair a Windows XP installation using
       Recovery Console, press R.

    ●  To quit Setup without installing Windows XP, press F3.
```

Figure A


```
Microsoft Windows XP(TM) Recovery Console.

The Recovery Console provides system repair and recovery
functionality.

Type EXIT to quit the Recovery Console and restart the computer.


1: C:\WINDOWS


Which Windows installation would you like to log onto
(To cancel, press ENTER)? _
```

Figure B

5 Fix a corrupt Boot.ini

As the Windows XP operating system begins to load, the Ntldr program refers to the Boot.ini file to determine where the operating system files reside and which options to enable as the operating system continues to load. So if there's a problem rooted in the Boot.ini file, it can render Windows XP incapable of booting correctly.

If you suspect that Windows XP won't boot because Boot.ini has been corrupted, you can use the special Recovery Console version of the Bootcfg tool to fix it. Of course, you must first boot the system with the Windows XP CD and access the Recovery Console as described in #4.

To use the Bootcfg tool, from the Recovery Console command prompt, type

```
Bootcfg /parameter
```

Where */parameter* is one of the required parameters listed in the table below.

Parameter	Description
/Add	Scans the disk for all Windows installations and allows you to add any new ones to the Boot.ini file.
/Scan	Scans the disk for all Windows installations.
/List	Lists each entry in the Boot.ini file.
/Default	Sets the default operating system as the main boot entry.
/Rebuild	Completely re-creates the Boot.ini file. The user must confirm each step.
/Redirect	Allows the boot operation to be redirected to a specific port when using the Headless Administration feature. The Redirect parameter takes two parameters of its own: [Port Baudrate]	[UseBiosSettings].
/Disableredirect	Disables the redirection.

6 Fix a corrupt partition boot sector

The partition boot sector is a small section of the hard disk partition that contains information about the operating system's file system (NTFS or FAT32), as well as a very small machine language program that is crucial in assisting the operating system as it loads.

If you suspect that Windows XP won't boot because the partition boot sector has been corrupted, you can use a special Recovery Console tool called Fixboot to fix it. Start by booting the system with the Windows XP CD and accessing the Recovery Console as described in #4.

To use the Fixboot tool, from the Recovery Console command prompt, type

```
Fixboot [drive]:
```

Where *[drive]* is the letter of the drive to which you want to write a new partition boot sector.

7 Fix a corrupt master boot record

The master boot record occupies the first sector on the hard disk and is responsible for initiating the Windows boot procedure. The master boot record contains the partition table for the disk as well as a small program called the *master boot code*, which is responsible for locating the active, or bootable, partition, in the partition table. Once this occurs, the partition boot sector takes over and begins loading Windows. If the master boot record is corrupt, the partition boot sector can't do its job and Windows won't boot.

If you suspect Windows XP won't boot because the master boot record has been corrupted, you can use the Recovery Console tool Fixmbr to fix it. First, boot the system with the Windows XP CD and access the Recovery Console as described in #4.

To use the Fixmbr tool, from the Recovery Console command prompt, type

```
Fixmbr [device_name]
```

Where `[device_name]` is the device pathname of the drive to which you want to write a new master boot record. For example, the device pathname format for a standard bootable drive C configuration would look like this:

```
\Device\HardDisk0
```

8   Disable automatic restart

When Windows XP encounters a fatal error, the default setting for handling such an error is to automatically reboot the system. If the error occurs while Windows XP is booting, the operating system will become stuck in a reboot cycle—rebooting over and over instead of starting up normally. In that case, you'll need to disable the option for automatically restarting on system failure.

When Windows XP begins to boot up and you see the message *Please select the operating system to start* or hear the single beep, press [F8] to display the Windows Advanced Options Menu. Then, select the Disable The Automatic Restart On System Failure item and press [Enter]. Now, Windows XP will hang up when it encounters the error and with any luck, it will display a stop message you can use to diagnose the problem.

9   Restore from a backup

If you can't seem to repair a Windows XP system that won't boot and you have a recent backup, you can restore the system from the backup media. The method you use to restore the system will depend on what backup utility you used, so you'll need to follow the utility's instructions on how to perform a restore operation.

10   Perform an in-place upgrade

If you can't repair a Windows XP system that won't boot and you don't have a recent backup, you can perform an in-place upgrade. Doing so reinstalls the operating system into the same folder, just as if you were upgrading from one version of Windows to another. An in-place upgrade will usually solve most, if not all, Windows boot problems.

Performing a Windows XP in-place upgrade is pretty straightforward. To begin, insert the Windows XP CD into the drive, restart your system, and boot from the CD. Once the initial preparation is complete, you'll see the Windows XP Setup screen (shown earlier in Figure A). Press [Enter] to launch the Windows XP Setup procedure. In a moment, you'll see the License Agreement page and will need to press [F8] to acknowledge that you agree. Setup will then search the hard disk looking for a previous installation of Windows XP. When it finds the previous installation, you'll see a second Windows XP Setup screen, as shown in **Figure C** on the next page.

This screen will prompt you to press R to repair the selected installation or to press [Esc] to install a fresh copy of Windows XP. In this case, initiating a repair operation is synonymous with performing an in-place upgrade, so you'll need to press R. When you do so, Setup will examine the disk drives in the system. It will then begin performing the in-place upgrade.

Keep in mind that after you perform an in-place upgrade or repair installation, you must reinstall all updates to Windows.
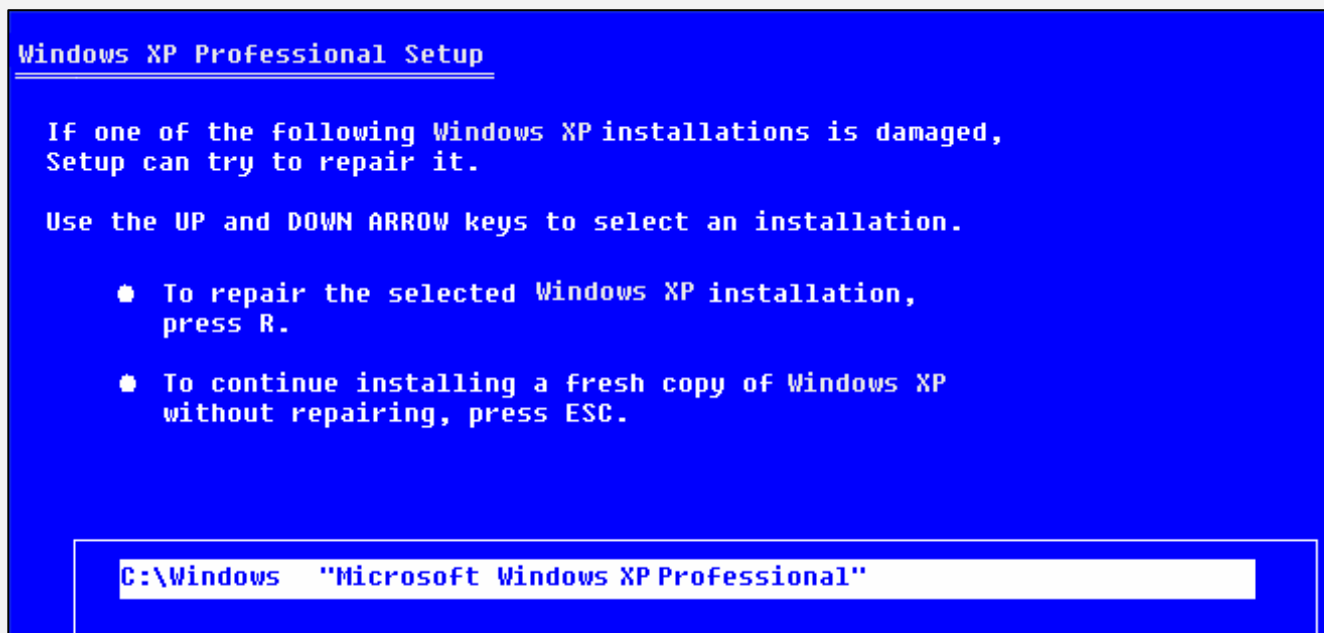
Figure C

Greg Shultz has been using PCs since 1986, when he acquired a Kaypro 16 "luggable" running MS-DOS 2.11 and began programming in Microsoft BASIC and Turbo Pascal. He began his career in the publishing industry as a technical editor for PCM magazine, a publication focused on Tandy computers. He later became a technical journal writer, specializing in the Windows operating system, at The Cobb Group (which later became ZD Journals and then Element K Journals). Greg is now a freelance technical writer who regularly writes articles for ZDNet and TechProGuild. You can visit his Web site at www.TheWinWiz.com.

Additional resources

- TechRepublic's **Downloads RSS Feed** `XML`
- Sign up for our Downloads Weekly Update newsletter
- Sign up for our Network Administration NetNote
- Check out all of TechRepublic's free newsletters
- "Add Safe Mode to the standard Windows XP boot menu" (TechRepublic download)
- "Maximize the Performance of Windows XP" (TechRepublic download)
- "Hard drive failure troubleshooting checklist" (TechRepublic download)

Version history

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