

Safe Mode Explained

While Windows is a versatile and powerful operating system, there are times that it can be frustrating. This frustration is particularly evident when you install a new software application or add drivers for some new hardware. Suddenly, the computer crashes or locks up. You reboot the computer and it loads a strange looking Windows desktop with the words **Safe Mode** in the four corners. What is this?

Safe Mode is a special way for Windows to load when there is a system-critical problem that interferes with the normal operation of Windows. The purpose of Safe Mode is to allow you to troubleshoot Windows and try to determine what is causing it to not function correctly. Once you have corrected the problem, then you can reboot and Windows will load normally.

There are several things that happen when Windows boots in Safe Mode that differ from a standard boot:

- Safe Mode does not run the autoexec.bat or config.sys files.
- Most device drivers are not loaded. A device driver is the software that Windows uses to interact with a piece of hardware, such as a printer or scanner.
- Instead of the normal graphics device driver, Safe Mode uses standard VGA graphics mode. This mode is supported by all Windows-compatible video cards.
- Himem.sys, which is normally loaded as part of the config.sys script, is loaded with the **/testmem:on** switch. This switch tells the computer to test the extended memory before continuing.
- Safe Mode checks the msdos.sys file for information on where to find the rest of the Windows files. If it finds the files, it proceeds to load Windows in Safe Mode with the command **win /d:m**. If it does not find the Windows files, it will run **command.com** to bring up a C: prompt.
- Windows boots using a batch file called **system.cb** instead of the standard **system.ini** file. This file loads the **Virtual Device Drivers (VxDs)** that Windows uses to communicate with the standard parts of the computer.
- Windows now loads the regular system.ini file plus **win.ini** and **Registry** settings. It skips the [Boot] (except for the shell and device lines) and [386Enh] sections of system.ini and does not load or run any programs listed in win.ini.
- The Windows desktop loads up in 16 colors and at a resolution of 640 x 480 with the words "Safe Mode" in each corner.

You force entry into Safe Mode by pushing the power button on your computer and then pressing the F8 key, every second until you get the black "safe mode" screen. Although many options are available, the safe mode, the one without networking, is the one most often used for diagnostic and malware removal functions.