



CHAPTER 4

Finding Software Solutions

Because most computer systems have several application programs installed in addition to the operating system, isolating a software problem can be confusing. Software errors can also appear to be hardware malfunctions at first.

Software problems can result from the following circumstances:

- Improper installation or configuration of a program
- Input errors
- Device drivers that may conflict with certain application programs
- Interrupt conflicts between devices

You can confirm that a computer system problem is caused by software by running the System Set Test Group as described in Chapter 5, "Running the Dell Diagnostics." If all tests in the test group are completed successfully, the error condition is most likely caused by software.

This file provides some general guidelines for analyzing software problems. For detailed troubleshooting information on a particular program, see the documentation that accompanied the software or consult the support service for the software.

Installing and Configuring Software

You should use virus-scanning software to check newly acquired programs and files for viruses before installing the programs on the computer's hard-disk drive. Viruses, which are pieces of code that can replicate themselves, can quickly use all available system memory, damage and/or destroy data stored on the hard-disk drive, and permanently affect the performance of the programs they infect. Several commercial virus-scanning programs are available for purchase, and most bulletin board services (BBSs) archive freely distributed virus-scanning programs that you can download with a modem.

Before installing a program, you should read its documentation to learn how the program works, what hardware it requires, and what its defaults are. A program usually includes installation instructions in its accompanying documentation and a software installation routine on its program diskettes.

The software installation routine assists users in transferring the appropriate program files to the computer's hard-disk drive. Installation instructions may provide details about how to configure the operating system to successfully run the program. You should always read the installation instructions before running a program's installation routine.

When you run the installation routine, you should be prepared to respond to prompts for information about how the computer's operating system is configured, what type of computer you have, and what peripherals are connected to the computer.

Using Software

The following subsections discuss errors that can occur as a result of software operation or configuration.

Error Messages

Error messages can be produced by an application program, the operating system, or the computer. Chapter 3, "Messages and Codes," discusses the error messages that are generated by the computer. If you receive an error message that is not listed there, check the operating system or application program documentation.

Input Errors

If a specific key or set of keys is pressed at the wrong time, a program may give you unexpected results. See the documentation that came with the application program to make sure that the values or characters you are entering are valid.

Make sure that the operating environment is set up to accommodate the programs you use. Keep in mind that whenever you change the parameters of the computer's operating environment, you may affect the successful operation of the programs. Sometimes, after modifying the operating environment, you may need to reinstall a program that no longer runs properly.

Program Conflicts

Some programs may leave portions of their setup information behind, even though you have exited from them. As a result, other programs cannot run. Rebooting the system can confirm whether or not these programs are the cause of the problem.

There are also programs that use specialized subroutines called device drivers that can cause problems with the computer system. For example, a variation in the way the data is sent to the monitor may require a special screen driver program that expects a certain kind of video mode or monitor. In such cases, you may have to develop an alternative method of running that particular program—by creating a start-up file made especially for that program, for example. Call the support service for the software you are using to help you with this problem.

Avoiding Interrupt Assignment Conflicts

Problems can arise if two devices attempt to use the same interrupt request (IRQ) line. To avoid this type of conflict, check the documentation for the IRQ line's default for each installed expansion card. Then consult Table 4-1 to configure the card for one of the available IRQ lines.

Table 4-1. IRQ Line Assignment Defaults

IRQ Line	Used By/Available
IRQ0	Used by the system timer
IRQ1	Used by the keyboard to signal that the output buffer is full
IRQ2	Used by interrupt controller 1 to enable IRQ8 through IRQ15
IRQ3	Used by serial port 2 (COM2 and COM4)
IRQ4	Used by serial port 1 (COM1 and COM3)
IRQ5	Available unless used by a secondary parallel port
IRQ6	Used by the diskette drive controller
IRQ7	Used by the primary parallel port
IRQ8	Used by the RTC
IRQ9	Used for power management functions
IRQ10	Available
IRQ11	Available
IRQ12	Used by the PS/2 mouse port unless the mouse is disabled in the System Setup program
IRQ13	Used by the math coprocessor
IRQ14	IDE secondary
IRQ15	IDE primary

NOTE: For the full name of an abbreviation or acronym used in this table, see the abbreviations and acronyms list at the end of this guide.

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