



CHAPTER 4

Finding Software Solutions

Because most systems have several application programs installed in addition to the operating system, isolating a software problem sometimes is confusing. Software errors can look like hardware malfunctions at first.

Software problems can result from the following circumstances:

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

You can confirm that a system problem is caused by software by running the system board tests in the Dell Diagnostics (see Chapter 5, “Running the Dell Diagnostics”). If all tests in the test group are completed successfully, the problem is most likely caused by software.

This chapter 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

Use virus-scanning software to check newly acquired application programs and files for viruses before you install the programs on the system's hard-disk drive. Viruses 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.

Before you install a program, 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.

The software installation routine assists you in transferring the appropriate program files to the system's hard-disk drive. Installation instructions often provide details about how to configure the operating system to successfully run the program. Always read the installation instructions before running a program's installation routine.

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

Using Software

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

Error Messages

Error messages are produced by the system, an application program, or the operating system. Chapter 3, "Messages and Codes," provides information about the error messages that are generated by the system. If you receive an error message that is not listed in Chapter 3, "Messages and Codes," check the operating system or application program documentation.

Input Errors

If you press a specific key or set of keys at the wrong time, a program might 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 system's operating environment, you can affect the successful operation of the programs. Sometimes, after modifying the operating environment, you will need to reinstall a program that no longer runs properly.

Program Conflicts

Some programs 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 these programs are the cause of the problem.

Device drivers, which are programs that use specialized subroutines, can cause problems with the system. For example, a variation in the way the data is sent to the monitor can require a special screen driver program that expects a certain kind of video mode or monitor. In such cases, you can develop an alternate 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 peripheral component interconnect (PCI) IRQ assignment screen in the System Setup program (see the *User's Guide* for instructions). 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 2
IRQ3	COM2
IRQ4	Used by serial port 1 (COM1 and COM3) or peripheral component interconnect (PCI) device
IRQ5	Available
IRQ6	Used by the diskette drive controller
IRQ7	Available
IRQ8	Used by the real-time clock (RTC)
IRQ9	Reserved for advanced configuration and power interface (ACPI)
IRQ10	Available
IRQ11	Available
IRQ12	Used by the Personal System/2 (PS/2) mouse port, unless the mouse is disabled in the System Setup program
IRQ13	Reserved for floating-point errors
IRQ14	Used by the hard-disk drive
IRQ15	Available

NOTE: For the full name of an abbreviation or acronym used in this table, see "Abbreviations and Acronyms."

