Chapter 5

Common Support Problems

A GUIDE TO

COMPUTER USER SUPPORT

FOR HELP DESK AND SUPPORT SPECIALISTS

SIXTH EDITION BY FRED BEISSE

Chapter Objectives

- Several categories of common end-user technology problems
- Problem-solving processes that can be applied to typical support problems

Common End-User Problems

- Hardware problems
- Software problems
- Network problems
- User problems
- Security problems
- Documentation problems
- Vendor problems
- Facilities and operating environment problems

Hardware Problems

- Hardware installation
- Hardware compatibility problems
- Hardware configuration problems
- Hardware malfunctions

Hardware Installation Problems

- Hardware problems can occur:
  - During installation of new systems
  - During upgrades of existing systems
- **Incompatible** components are unable to operate together in the same system
  - May be due to incorrect installation
- Example: incompatible RAM memory expansion modules

Hardware Configuration Problems

- Hardware **configuration problems** result when hardware (or software) component settings are incorrect for a specific operating environment
  - More common before Plug and Play standards
- Example: incorrect graphics display card settings

Plug and Play Standards

- **Plug and Play standards**: industry-wide protocols (agreed-upon standards) followed by hardware and operating system vendors
  - Specify communication methods an operating system uses to recognize and incorporate hardware components into an operational system
  - Can help load appropriate drivers, but do not always automatically adjust software settings to take maximum advantage of new hardware's capabilities

Hardware Malfunctions

- Actual malfunctions account for a small percentage of hardware problems
- Can be reduced with a **burn-in test**
  - A 48- to 72-hour period during which a new computer is operated continuously
  - Can uncover obvious problems and identify components whose operation is:
    - Marginal
    - Temperature-sensitive
- Example: inoperative keyboard keys

Hardware Malfunctions
(continued)

- Most likely to fail
  - Electromechanical devices that have moving parts
    - Examples: hard drive; printer, scanner
- Least likely to fail
  - Electronic components
    - Examples: CPU; RAM memory
- Hardware diagnostic tools can help identify system burn-in and hardware malfunctions
  - Many hardware vendors provide tools to help diagnose hardware malfunctions

Effective Hardware Problem-Solving Steps

1. Check availability of updated device drivers
2. Use Windows troubleshooters
   - Fix It Solution Center
3. Check Windows device manager for problems
4. Examine README files
5. Search Internet for problem reports

Software Problems

- Software installation problems
- Software compatibility problems
- Software configuration problems
- Software bugs
- Software performance problems

Software Installation and Compatibility Problems

- Not all software installs automatically
- Vendor solution is **installation software**: a utility that aids in the installation of other software packages
  - Examines hardware configuration to determine whether hardware and software are compatible
  - Creates folders with correct path names
  - Sets configuration options in software to match hardware
  - Copies files to correct folders
  - Updates Windows Registry and other startup files
- Common problem: application software incompatible with a new operating system version

Software Installation and Compatibility Problems (continued)

- **Freeware**
  - Free for personal use (may charge for commercial version)
  - May not be exhaustively tested for compatibility and conflicts with other software
  - **Donationware**: freeware for which a donation is requested by the author
- **Shareware**
  - Evaluation or trial period of 10 to 45 days before purchase
  - May produce conflicts with other software
- **Open source software**
  - Free for personal or business use
  - Designed and developed collaboratively by a team of programmers
  - Some products carry OSI design certification

Software Installation Problems (continued)

- **Conflict**: occurs when two software packages use system resources (CPU, memory, peripheral devices) in different and incompatible ways
- Result of conflicts:
  - Inoperable system
  - Poor performance
- **Restore point**: backup copy of PC configuration information
  - Allows user to revert to a prior configuration in case of problems

Software Configuration Problems

- Result when software options are not set correctly for specific operating environment or hardware
- May occur when users:
  - Install or upgrade new hardware or software
  - Attempt to use a software feature for the first time
  - Attempt to modify configuration information in the Windows Registry or other startup files
    - Windows **Registry**: a database of configuration information on hardware and software installed on a PC
- Common problem: installing a new application program changes the default file associations in the operating system

Software Bugs

- **Bug**: a major error in a program due to:
  - Programmer's coding mistake
  - Programmer's inability to anticipate every situation
- Occur more often in custom-written programs and programs written for a limited market segment
- Occur most often in infrequently used features of a program
- Reduced through extensive beta testing
- Example: incorrect format of large dollar amounts in accounting program

How Vendors Fix Bugs and Upgrade Software

- **Patch**: a replacement for one or a few modules in a software package to fix known bugs
  - Usually designated by adding a digit or letter to a version number
- **Update**: a bug fix software release
  - Repairs known bugs in a previous version
  - Some vendors offer **automatic updates** via the Internet to download and install patches and keep programs up to date

How Vendors Fix Bugs and Upgrade Software (continued)

- **Service pack** (or **service release**): contains both updates and patches to fix problems with a version of a program
- New **release**: an updated version of a program
  - Contains new features the previous release did not have
- New **version**: contains significant new features
  - Usually the result of a substantially rewritten program
- **Upgrade**: a new version of an existing program
  - Sold at a lower price to owners of a previous version of the program

Example of Software Release Numbering

- 2.0 First release of a new version
  - » May be offered as an upgrade for purchasers of version 1.0
- 2.1 An update release with new features
- 2.11 A bug-fix release; alternate: 2.1A
- 2.1 SP-1 An updated version with a service pack (collection of updates) installed

Notes on Software Release Numbering

- Some vendors use the year of release as a primary version designation (e.g., Office 2013) instead of a version number
- Some vendors identify an even lower-level version number called a **build number**
  - A software release may designated with a four part identification:

    Version # - Release # - Update # - Build number#

Installing Software Patches

- Before installing a software patch or service pack:
  - Verify that the patch applies to the software on a user's system
  - Make a backup copy of the original software
  - Install patches in the sequence specified by the vendor
    - Especially when updates are not cummulative
- After installing a software patch:
  - Keep a record of patches installed in case the software needs to be reinstalled
  - Test the software to ensure it is operational

How Vendors Fix Bugs and Upgrade Software (continued)

- **Workaround**: a procedure or operation that accomplishes the same result as an original feature that does not work
- Example: same software operation may be accomplished alternately via:
  - Keyboard command
  - Menu command
  - Toolbar icon
  - Shortcut keys

Software Performance Problems

- **Performance problems** occur when a computer is operational but performance is inefficient
- Often result from a combination of hardware and software problems
- Example: slow read/write times on a hard drive may be due to:
  - Lack of free space on the drive
  - Fragmented files
  - Wasted space on the drive
  - Insufficient RAM
  - Malware infection
  - Drive malfunction

Network Problems

- Network problems are often a combination of:
  - Hardware problems
    - Servers, routers, access points, bridges, switches, gateways
  - Software problems
    - Operating systems
    - Workstation client software
- Example: use of network monitoring software to detect a network bottleneck that was caused by inadequate free space on the server's hard drive

Network Problems (continued)

- Categories of network problems
  - Installation of network hardware and software
    - Servers and network operating system
  - Compatibility of network components
    - Interoperability issues
  - Network Configuration
    - Configuration settings result in less than optimum performance
  - Malfunctions
    - Failed hardware components or damaged software images
  - Performance
    - Suboptimum performance due primarily to configuration problems or device failures

User Problems

- Mistakes
- Misunderstandings
- Wrong products
- Inadequate training or failure to read documentation
- Forgotten information

User Mistakes

- Account for a significant percentage of common support problems
- Example: inadvertent keystroke errors
- Solution: well-designed computer systems
  - Anticipate potential user mistakes
    - Validity check on data input
  - Alert the user to possible errors
  - Provide corrective action
    - Undo option

User Misunderstandings

- Product features or limitations are not well understood
- Example: user keeps hundreds of files in a top-level Documents folder
  - Didn’t understand the role of subfolders
  - Didn’t know how to create and use subfolders

Wrong Products

- Users may purchase or install the wrong product to accomplish a task
- Examples:
  - Purchase of a software package or hardware peripheral that is incompatible with the existing system
  - Purchase of software without:
    - Understanding its capabilities and limitations
    - Knowledge of an alternative program

Inadequate Training or Failure to Read Documentation

- Many problems occur because a user has not been properly trained to use hardware and software
- **Quick start behavior**: a tendency among computer users to:
  - Skip the installation manual
  - Attempt to get a new hardware or software component installed and operational as quickly as possible
  - “I’ll read the manual later, if I have any problems. . .”
- Translates into wasted effort and lost user

Forgotten Information

- Users forget important information such as:
  - User names
  - Passwords
  - PINs
  - Operating procedures
- Solutions:
  - Reference sheets are an effective aid to recall procedures
  - Tip: Users should be encouraged to write down a reminder of their passwords instead of the passwords themselves

Security Problems

- Common security problems
  - Failure to install antivirus, antispyware, firewalls
  - Use of outdated software
    - Failure to keep software versions up-to-date
  - Issues with passwords

Security Problems (continued)

- Security precautions
  - Update software
  - Use antimalware software
    - Guard against viruses, spyware, key loggers
  - Use strong passwords
- Example: User used pet's name as password which could be easily guessed to access her account

Security Problems (continued)

- Vulnerability to scams
  - Support agents play an important role to keep users advised of the latest scams and phishing attempts
- Example: SECURITY ALERT email on next slide
  - What are the tip-offs that this is a scam?

Dear Corporate Customer,

SECURITY ALERT!!!:

Due to a recent high volume of fraud and atempted unauthorized access on your credit card acount, we are temporarily freezing your credit card use from all new transactions immediately. If you wish to continue to use your corporate credit card, you must confirm your personal acount information online today.

To successfully unfreeze your credit card, click on the secure link below and enter your CARD NUMBER and PIN so that you can reactivate your online and ATMs acounts.

We are sorry for this inconvenience and thank you for using your corporate credit card and for re-instating your acount.

Sincerely,

Corporate Credit Card Services

Click on this link to agree to credit card Terms & Conditions and confirm your personal information.

Sent via secure email.

Figure 5-4 Example of fraudulent email message

Documentation Problems

- Common sources of documentation problems:
  - Poor organization
  - Incorrect information
  - Incomplete information
- A frequent source of user frustration
- Tip: Chapter 3 offers suggestions for writing improved user documents

Components of Good Documentation

- Quick start guide
- Tutorial guide for beginners
- Reference manual for experienced users
- Troubleshooting guide
- Online help
  - Searchable by keyword
- Troubleshooting wizards

Vendor Problems

- Common vendor problems:
  - Tendency to oversell products
    - Oversell: to promise nonexistent features
  - Misrepresent product features
  - Delivery of software with known bugs
  - Late delivery of products
  - Promise of purchase rebates
  - **Vaporware**: hardware or software products that are described in vendor ads or press releases but don’t really exist
    - Purpose: gauge market demand
    - Confuse competitors (and users!)

Facilities and Operating Environment Problems

- Problems with the computing facilities
  - Electricity, lighting, air conditioning
  - Office furniture and equipment
  - Workplace ergonomics and safety
- Problems with the computing environment
  - Data backup and recovery
  - Disaster and contingency planning and preparation
  - Security threats
  - Failure to perform preventive maintenance
- Tip: Learn more about these problems in Chapter 10

Troubleshooting Resources on the Web

- General troubleshooting
  - **pcsupport.about.com**
  - **www.computerhope.com**
- Hardware troubleshooting
  - **www.tomshardware.com**
  - **www.directron.org**
  - **arstechnica.com**
  - **hardwarehell.com**

Troubleshooting Resources on the Web (continued)

- Software troubleshooting
  - **www.helpwithwindows.com**
  - **support.microsoft.com**
  - **guides.macrumors.com**
- Other web resources
  - **www.duckduckgo.com**
  - **www.ask.com**
  - **www.zdnet.com**
  - **www.about.com/compute**

Problem-Solving Processes Applied to Typical End-User Problems

Problem 1: Sounds Like Trouble

Problem 2: the Well-Used User Interface

Problem 3: Antivirus Protection Worth Every Cent

You Pay for It

Problem 4: The Path Not Taken

Problem 5: The Nonresponsive Network

Problem 6: The Big, Red X

Chapter Summary

Categories of common end-user technology problems

1. Hardware problems
    a) Installation
    b) Compatibility
    c) Configuration
    d) Malfunctions
2. Software problems
    a) Installation
    b) Compatibility
    c) Configuration
    d) Software bugs
    e) Performance

Chapter Summary (continued)

Categories of common end-user technology problems (continued)

1. Network Problems
   a) Installation
   b) Compatibility
   c) Configuration
   d) Malfunctions
   e) Performance
2. User problems
   a) Mistakes
   b) Misunderstandings
   c) Wrong products
   d) Inadequate training or failure to read documentation
   e) Forgotten information

Chapter Summary (continued)

Categories of common end-user technology problems (continued)

5. Security problems
   a) Failure to take security precautions
   b) Vulnerability to scams

6. Documentation problems
   c) Poor readability
   d) Poor organization
   e) Inaccurate information
   f) Incomplete (omitted) information

Chapter Summary (continued)

Categories of common end-user technology problems (continued)

7. Vendor problems
   a) Oversold features
   b) Misrepresented product features
   c) Deliver software with known bugs
   d) Deliver products late
8. Facilities and operating environment problems
   e) Electrical, lighting and air conditioning failures
   f) Inappropriate office furniture and equipment
   g) Ignoring workplace ergonomics and safety precautions
   h) Failure to follow data backup/recovery procedures
   i) Lack of contingency planning
   j) Failure to perform preventive maintenance