Identify and quit applications that have become nonresponsive.

Identify support options customized for your Mac.

View CPU, Memory, Disk, and Network Usage in Activity Monitor.

In this chapter, you learn how to recover and correct common errors that you might encounter when using your system, including:

- Force-quitting applications
- Removing application preferences
- Booting in Safe Mode
- Controlling background processes
- Changing login and startup items
- Repairing disk errors
- Generating a system profile for diagnostics
- Finding your support options

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Troubleshooting Your System

Your Mac is a great piece of hardware combined with a great operating system. Even so, things can still go wrong; applications can crash or "stop working" and strange errors might crop up over time. If you find that your computer isn't behaving as you expect, you have a handful of El Capitan tools available for identifying or correcting the problem.

Keep in mind that not every problem is a user-serviceable issue. Although I have yet to experience a catastrophe on my Mac, they do happen. Keep the information about your purchase and warranty in a memorable location so that it's handy in the rare case that your system becomes totally nonfunctional.

Dealing with Troublesome Software

The most common problem with the Mac is a frozen or "stuck" application. When this happens, the software becomes unresponsive and the cursor most often turns into the "spinning beach ball of death."

To deal with the problem, first consult any troubleshooting information provided by the software publisher. After you've exhausted any official support sources, you can try the following troubleshooting steps.

Force-Quitting Applications

Correcting most application problems is a matter of forcing the application to quit and then restarting it. To force-quit any application, follow these steps:

1. Press the Command, Option, and Escape keys simultaneously on your keyboard.
2. The Force Quit Applications window appears, listing all of the running applications.
3. Choose the application to terminate by clicking its name. If the system has detected that the application is hung, it is displayed in red.
4. Click Force Quit or Relaunch (if restarting the Finder).

Quick Force Quit

You can also force-quit applications using the Force Quit option under the Apple menu or by clicking and holding a "stuck" application icon in the Dock.

5. You might receive a prompt to send diagnostic information to Apple to report the crash.
6. You can ignore this message and press Command+Q to exit, click OK to send the report to Apple for review, or click Reopen to send the report and restart the application.

Testing with the Guest Account

If an application continues to crash after it has been restarted, there might be a problem with the application's support or preferences files. Before doing any destructive system surgery, follow these steps to verify the problem:

1. Enable the Guest account as described in Chapter 14, "Securing and Protecting Your Mac."
2. Use the Apple menu to log out of your account.

3. Log into the Guest account.
4. Attempt to run the application that was crashing. If the application runs normally, your main account likely has corrupted files. If the application continues to crash, re-install the most up-to-date version using the installer provided by the software publisher. You might want to disable the Guest account when you are finished testing (not shown).

Speed Up Troubleshooting with Fast User Switching

You can also use Fast User Switching to quickly switch between your account and the Guest account without needing to log out. Add a fast user switching menu to your menu bar by opening the Users & Groups System Preferences panel, clicking Login Options, and then choosing Show Fast User Switching Menu.

Removing Corrupted Application Files

If a crashing application runs correctly under another account, you almost certainly have corrupted application support files or preferences located in your account. If the application came with an installer file, try running the installer to fix the broken files, or delete the application and reinstall from the Mac App Store. If you don't have an installer file or you didn't purchase the software through the App Store, follow these steps to delete the problem files:

1. Within the Finder, hold down Option and choose Library from the Go menu.

2. In the Finder window field, type the name of the application that is crashing.
3. Choose the Filenames selection in the Spotlight Search drop-down menu that appears.
4. Click Library in the Spotlight Search filter bar.
5. Click the + button to add a new search criterion.
6. Choose Other from the first search attribute drop-down menu.
7. Find System Files in the attribute list and check the In Menu check-box beside it. It doesn't matter if other attributes are checked.
8. Click OK.

9. Select Are Included from the drop-down menu next to System Files.

10. Review the search results. When you select a file in the results, the path where it is located is shown at the bottom of the results window.

11. Move any files or folders matched by the search results from the Preferences, Caches, or Application Support directories to a temporary location on your desktop. (You can create a Temporary Files folder for just this purpose.)

12. Try running the crashing application again. If the problem is solved, delete the files you removed; otherwise choose Edit, Undo to put the files back, and then contact the software publisher.

Restarting and Correcting a Frozen Machine

On very rare occasions, your system might freeze entirely, forcing you to reboot. If you find yourself in this situation, first determine if the problem is a fluke, or if it will happen with each restart.

Power down your frozen Mac by holding the power button for five or more seconds. After it turns off, disconnect any peripheral devices that are plugged into your computer. Press the power key to restart the Mac—if it freezes again, begin following the instructions in this section, beginning with "Starting in Safe Mode."

Starting in Safe Mode

When you encounter problems, El Capitan allows you to start up in Safe Mode, which disables non-Apple additions to the system and prevents applications from automatically launching when you log in.

1. With your Mac powered down, hold down the Shift key. While continuing to hold down the Shift key, press the Mac power button (not pictured).
2. Continue to hold down the Shift key until your El Capitan desktop appears. (This can take much longer than a normal boot.) Use your computer as you normally would. If the problems you had experienced are gone, you might need to remove non-Apple software that has been installed and is running when the system boots, such as login applications or launch daemons.

Changing Login Applications

When you log into your account, there are a variety of applications that might launch and perform tasks in the background. Sometimes, however, these applications can cause problems that affect other software. To view, add, or remove login applications, follow these steps:

1. Open System Preferences and click the Users & Groups icon.
2. Select your account from the account list.
3. Click the Login Items button to display software configured to launch when you log into your account.
4. Choose any applications that you want to remove and then click the – button to remove them from the list.
5. If you want to add applications back to the list in the future, either drag their icons from a Finder window into the list of items, or click the + button to choose them from a file browser dialog.
6. Close System Preferences.

Check to Hide

The Hide checkbox in front of the Login Items is not used to disable them! This can be confusing for individuals who were used to the Extension Manager in the older versions of Mac OS. Using the Hide button for an application simply hides the windows after the application launches.

Removing Startup Applications and Launch Daemons

Login items and restored applications aren't the only things that run automatically when you start your Mac. There are several locations where software packages might install tasks that need to be run when your system is booted. These tasks are referred to as launch daemons, launch agents, and startup items. To find and disable these invisible applications, follow these steps:

1. Choose Go, Go to Folder from the Finder menu bar.
2. Type one of the following paths into the field that appears: ~/Library/LaunchAgents, ~/Library/LaunchDaemons, /Library/LaunchAgents, /Library/LaunchDaemons, /Library/StartupItems.
3. Click Go.
4. Review the contents of the directory for a file or folder with a name that matches a software title or software publisher name for the software that you've installed.
5. Move any matched files to the Trash.

6. Provide an administrator username and password if prompted, and click OK.
7. Repeat steps 1–6 for all of the listed directories.
8. Restart your computer from the Apple menu. The background processes will no longer run when you boot your system.

Remove Unneeded Files

If you're content with the result, you can now delete the files you removed. If necessary, reinstall the software to correctly re-enable the background processes.

Disabling Extensions

After installing a new piece of software, you might find your computer is acting up. The cause may be an extension—a small piece of software that runs at a very low level to provide a service to your system (the equivalent of a Windows driver). To remove an extension that the software installed, follow these steps:

1. Choose Go, Go to Folder from the Finder menu bar.
2. Type the path /Library/Extensions into the Go to the Folder field.
3. Click Go.

4. Review the contents of the directory to positively identify an extension (.kext) file that matches a device or device manufacturer that you want to remove.
5. Drag the matching file to the Trash can.
6. Provide an administrator username and password when prompted, and click OK.
7. Restart El Capitan.
8. Delete the extension file if you have confirmed it's causing the problem, or move it back to the Extensions folder to re-enable it.

Avoid the System Folder!

If at all possible, you should avoid modifying any folder within the System folder. Only use the steps described here if your system is consistently crashing after you've installed a piece of hardware or software!

Removing System Preferences Panes

Frequently, system features are added through System Preferences panes that are installed for your account or for all accounts on the system. If you suspect that a System Preference item that you installed is causing a problem, you can remove it by doing the following:

1. Open the System Preferences application.
2. Right-click (or Control-click) the Preference pane that you want to remove.
3. Choose Remove (name of application) Preference Pane.
4. Close the System Preferences application.

Fixing Disk Problems

Disk errors, when they occur, can be an upsetting problem to diagnose. Applications might freeze, the system might slow down, and so on. It's difficult to predict how a given piece of software will behave if it encounters a disk problem that it wasn't expecting. Thankfully, El Capitan provides a tool, Disk Utility (found in the Applications folder under Utilities/Disk Utility), for verifying and correcting problems with common disk errors.

Performing Simple Disk Repairs

To verify that your disk is, or isn't, suffering from an error and (potentially) repair it, follow these steps:

1. Open the Disk Utility application found in the Utilities subfolder of the Applications folder.

Pain-Free Fusion

Do you have a nifty Apple Fusion drive in your Mac? Think you might need a disk repair? Just proceed as if you had a normal hard drive. The Fusion drive is *completely* transparent to the end user. There are no user-configurable options, and it presents itself in Disk Utility just like a normal non-Fusion drive.

2. Choose your Mac disk from the list of disks that appears on the left side of the window.
3. Click the First Aid button on the left side of the Disk Utility toolbar.
4. Click the Run button to begin checking your disk for errors.

5. If errors are detected, Disk Utility attempts to correct them. Sometimes this is not possible when booted into your main El Capitan installation. If the operation is not successful, you need to run a repair using the recovery partition (covered next).
6. Click Done when finished
7. Exit Disk Utility by closing the window.

Repairing Your Disk Using the Recovery Partition

Repairing disk errors sometimes requires that you boot from your El Capitan recovery partition. Follow these steps to repair your disk:

1. Reboot or start your Mac while holding down Command+R.

2. Choose Disk Utility from the list that appears.
3. Click Continue.
4. Follow steps 2–4 in the preceding exercise (not shown).
5. Click Done when finished.
6. Reboot your computer to re-enter El Capitan (not shown).

Internet Recovery

As mentioned in the preceding task, you can boot into the recovery partition by holding down Command+R when starting your Mac. But what if that partition is damaged?

Even if there are serious errors with the recovery partition, most Macs made since 2010 can boot from Apple's Internet restore site using the same command sequence. This takes longer but works identically to using the local recovery partition.

>>>Go Further

BUILDING A REPAIR TOOLKIT

Disk Utility is only capable of fixing common problems. In the case of a serious issue, Disk Utility warns that it can't solve the problem, but it makes no suggestions for how to proceed.

If you have experienced a serious drive error, you should consider investing in DiskWarrior (http://www.alsoft.com/DiskWarrior/) or TechTool Pro (http://www.micromat.com/). These third-party tools provide much more robust diagnostic and recovery features than Disk Utility does.

Gathering Information About Your Mac

Sometimes, the best way to figure out what is going on with your computer is to ask it. Your Mac can provide a great deal of information about its current operation by way of the built-in monitoring and reporting software. These tools can also help you prepare a report to hand over to the Apple Store Genius or other technicians in the event you need to take in your equipment for service.

Monitoring System Activity

The Activity Monitor (found in the Applications folder under Utilities/Activity Monitor) delivers instant feedback on the software that is running on your system, the amount of memory in use, and how much of your processing power is being consumed. To use Activity Monitor to identify processes with excessive resource consumption, follow these steps:

1. Open the Activity Monitor application found in the Utilities subfolder of the Applications folder.

2. A list of processes is displayed.
3. Track down resource hogs by using the column headings to sort by CPU usage, the amount of virtual memory, or the threads being used.
4. If an offending process is located, click to highlight it, and click the stop sign icon in the toolbar to force it to quit.
5. Use the buttons above the process list to show overall CPU, Memory, Energy, Disk activity, and Network activity in the graphs at the bottom of the screen.

>>>Go Further

HOW IS USING THE ACTIVITY MONITOR DIFFERENT FROM FORCE QUITTING WITHIN THE FINDER?

In addition to the detailed information on the processes that are running on your system, the Activity Monitor also enables you to see background processes that are active. These processes might have been started by an application or script and, without any visual warning in the Finder or Dock, have hung or crashed. Using the Activity Monitor, you can identify these troublemakers and kill them.

Generating a System Profiler Report

If you've ever been asked to "describe your computer" for the purposes of obtaining technical assistance, it's hard to know what information to provide. Using El Capitan's System Information utility, however, you can quickly create reports on your hardware, peripherals, and even software installations.

1. Open the System Information application found in the Utilities subfolder of the Applications folder.
2. Use the list on the left side of the window to choose an information category.
3. Click the category you'd like to view information on, such as Memory or Applications.
4. Details of the chosen category display on the right.
5. Save a copy of the report by choosing File, Save.

6. Choose a report name and save location.
7. Click Save.
8. Alternatively, Choose File, Send to Apple to send your system information to Apple for technical support.
9. When prompted with the Privacy Agreement, click the Send to Apple button.

Lengthy Reports

Although System Information offers a Print option, be careful when choosing it! A full system report can be more than 400 pages long!

Viewing the System Logs

To get a view of any errors that your system might be logging "behind the scenes," you need to take advantage of the Console utility. Console enables you to monitor the various system logs that are generated when El Capitan logs errors or other information. To view your system logs through Console, follow these steps:

1. Open the Console application found in the Utilities subfolder of the Applications folder.

2. The current console error and warning messages are displayed in the content area to the right.
3. A list of available application- or feature-specific logs and filtered logs displays on the left.
4. Click a log/filter name to display the contents of that entry.
5. As new entries are added to the log, the display automatically updates.

Review Your System Log

Many application errors and warnings are logged to the file system.log. To help diagnose a problem with a specific application, try running the application while the Console utility is open and displaying system.log.

There's a good chance you'll see hidden errors being generated by the software.

Remember Your Backups!

If all else fails, remember your backups! Chapter 14 includes methods for backing up your data. If your system reaches an unusable state or files have become corrupted beyond recovery, you should always have your backups ready to come to the rescue. If you're reading this and don't have a backup plan in place, turn to Chapter 14 and start reading now.

Viewing System Support Options

Ever wonder about your support options for your Mac? El Capitan makes it simple to find out what your warranty options are, as well as how to access community support resources for OS X. To access these features, follow these steps:

1. Choose About This Mac from the Apple menu.
2. Use the Support button to access online support resources for El Capitan.
3. Use the Service button to check on repairs, service, and AppleCare extended protection.