

Tech Training – Utilities

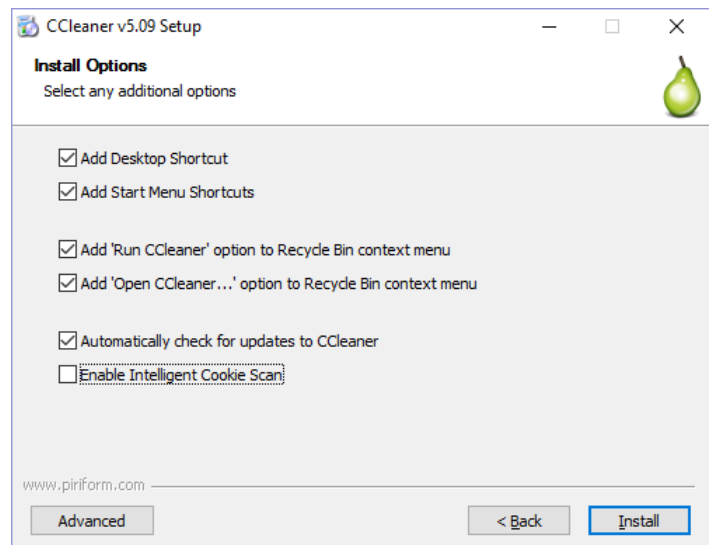
CCleaner – Registry Cleaner

The Windows version of CCleaner is a combination file cleaner and registry cleaner. As a maintenance utility, it is designed to identify and delete unnecessary files. As a registry cleaner, it removes orphaned and unnecessary entries from the Windows Registry database. Both improve system performance. The Mac version is a file cleaner only.

As a Registry cleaner, CCleaner is handy for removing remnants of software programs after the program has been uninstalled. This is especially important after removing viruses and other malware. While there may be some risk in running a registry cleaner, Client Services has had good success with CCleaner. Still, make sure clients understand there is some risk.

Installing and Configuring CCleaner

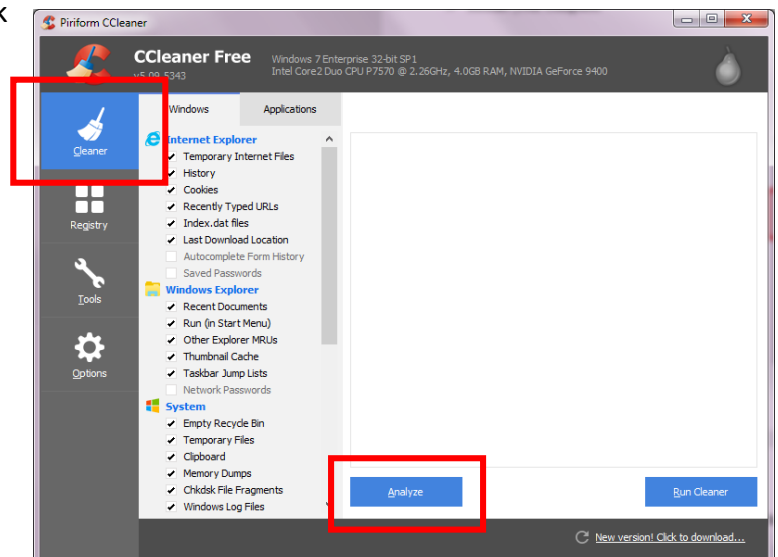
- Download the latest version from the developer's site (www.piriform.com/ccleaner)
- Perform the install
 - Any time you perform an install, be on the lookout for additional, unwanted programs



Using CCleaner – File Cleaner

This will delete temporary files from your hard disk

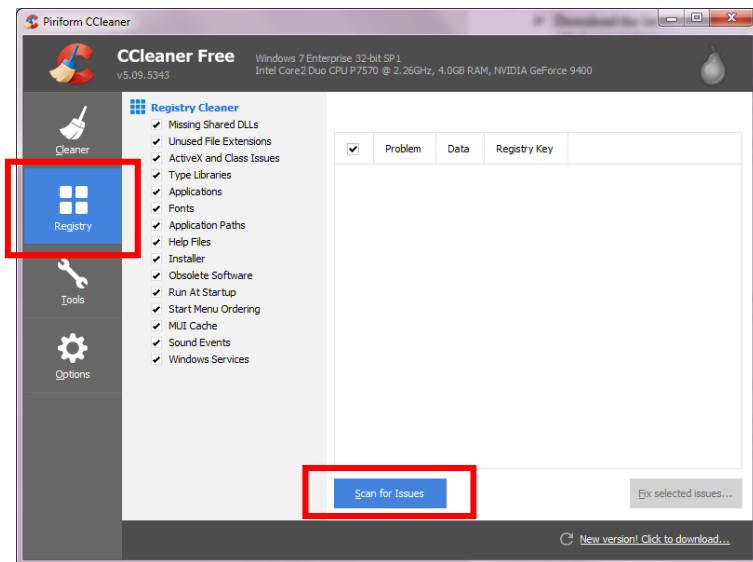
- Move to the Cleaner tab
- Click Analyze
- Once the analysis is complete, click Run Cleaner and OK to confirm.
 - By default, CCleaner removes browser history, cookies, and temporary files. Your client may lose stored form data and passwords.



Using CCleaner – Registry Cleaner

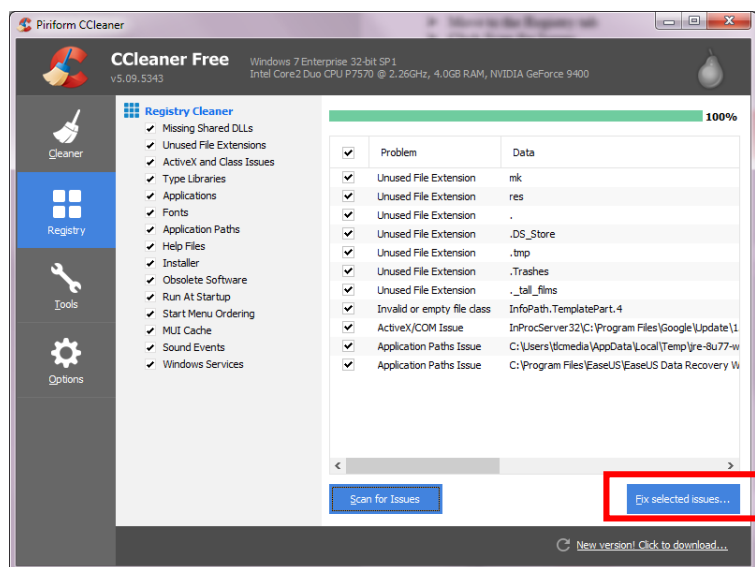
This will remove orphaned and unnecessary entries from the Windows Registry database

- Move to the Registry tab
- Click Scan for Issues
 - CCleaner will identify orphaned entries in the Windows Registry

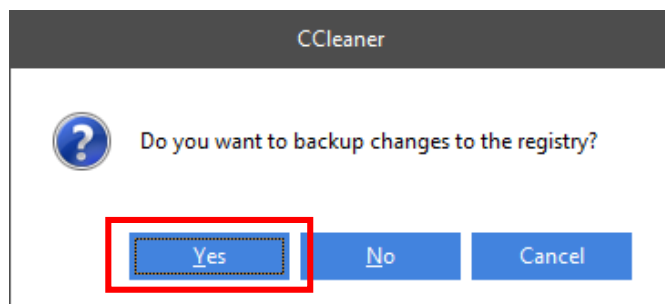


Once the scan has completed, click Fix Selected Issues

- While there is always risk when manually modifying Windows, Client Services has had good success when removing all orphaned entries identified.



- It is wise to back up changes to the Registry (first time only). This will allow you to undo any changes made by CCleaner in the event of a problem.



- Repeat the Scan/Fix cycle until CCleaner no longer finds any issues. When a scan comes up without any issues, close CCleaner.
- Reboot your PC

Chkdsk (Check Disk)

Every Microsoft operating system since DOS has contained a tool for repairing corrupted file or folder structures and checking for bad disk sectors on the hard disk. Chkdsk inspects the physical structure of a disk to make sure that it is healthy. It can repair problems related to bad sectors, lost clusters, cross-linked files, and directory errors.

These types of problems can arise in a variety of ways. System crashes or freezes, power glitches, and incorrectly turning off a computer can all cause corruption in the file or folder structure. Physically bumping or jarring a computer can cause the head that reads disks to hit the surface and cause damage to the surface of the disk. Once some sort of error occurs, it can propagate to create more errors.

Chkdsk.exe is a command-line application and can be run from a command prompt. There are a number of switches that can be used to modify its functions. The syntax of a Chkdsk command is:

- Chkdsk [volume[[path]filename]] [/F] [/V] [/R] [/X] [/I] [/C] [/L[:size]]

Switch	Description
[volume]	Specifies the drive letter (followed by a colon), mount point, or volume name.
[filename]	FAT/FAT32 only: Specifies the files to check for fragmentation.
/F	Fixes errors on the disk. Does not scan for bad sectors.
/V	On FAT/FAT32: Displays the full path and name of every file on the disk. On NTFS: Displays cleanup messages if any.
/R	Locates bad sectors and recovers readable information (implies /F).
/X	NTFS only. Forces the volume to dismount first if necessary.
/I	NTFS only: Performs a less vigorous check of index entries.
/C	NTFS only: Skips checking of cycles within the folder structure.
/L[:size]	NTFS only: Changes the log file size to the specified number of kilobytes.

Windows 7 also has a switch /B for re-evaluating bad clusters on a volume

Although Chkdsk can be run with no switches, the most useful application is to use either the /F or /R switches. Chkdsk cannot carry out repair functions if any of the files on a disk are locked or in use. So a reboot is required to run a check on any active volume with files in use. Chkdsk then runs before the full system is loaded and files become locked.

If you turn off your computer incorrectly, you may find that Chkdsk will run when you reboot. This is a safety feature to make sure that no file or folder corruption occurred.

Chkdsk tests both FAT and NTFS systems. Here is a brief description of what Chkdsk does when it runs on an NTFS system. Chkdsk's activity is divided into three major passes plus an optional fourth and fifth pass. During each pass a message and a progress report is displayed.

Phase 1: Checking files

During its first pass, Chkdsk examines each file record segment in the volume's master file table (MFT) and examines it for internal consistency. At the end of this phase, Chkdsk has identified the space that is in use and the space that is available, both within the MFT and on the volume as a whole.

Phase 2: Checking indexes (directories)

During this pass, Chkdsk examines each directory that is on the volume for internal consistency and verifying that every file and directory that is represented by a file record segment in the MFT is referenced by at least one directory. Chkdsk confirms that every file or subdirectory that is referenced in a directory actually exists as a valid file record segment in the MFT and also checks for circular directory references. Finally, Chkdsk confirms that the time stamps and file size information for the files are up-to-date in the directory listings for those files.

Phase 3: Checking security descriptors

During this phase, Chkdsk examines each security descriptor that is associated with files or directories on the volume. Security descriptors contain information about ownership of a file or directory, about NTFS permissions for the file or directory, and about auditing for the file or directory.

Phases 4 and 5: Checking sectors (optional)

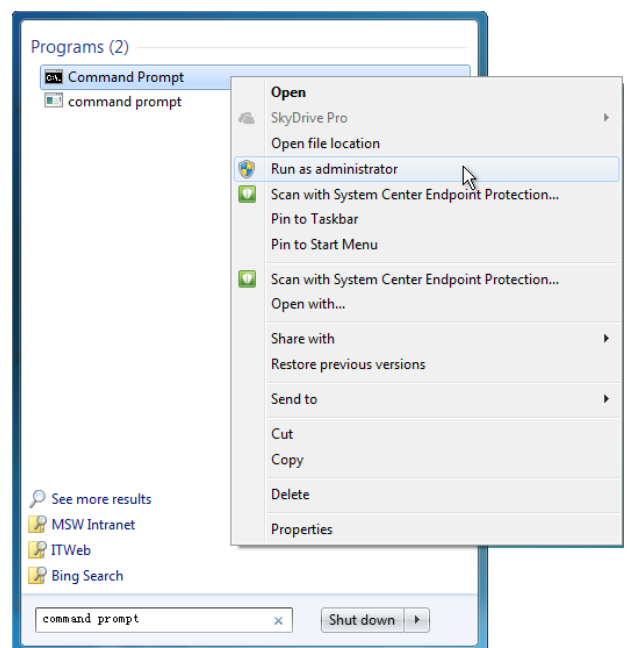
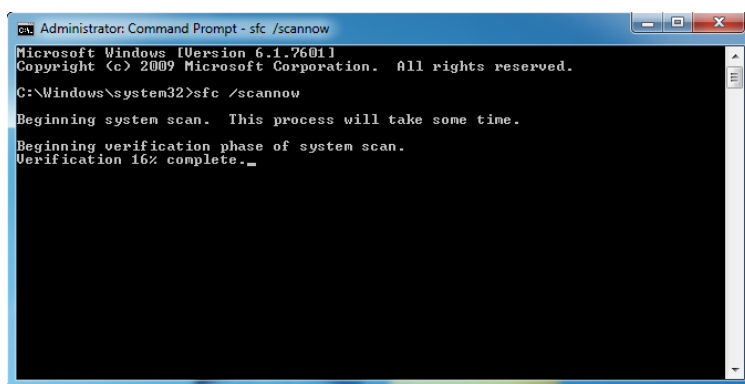
If the **/R** switch is in effect, Chkdsk runs two more passes to look for bad sectors. During stage 4, Chkdsk verifies all clusters in use; during stage 5, Chkdsk verifies unused clusters. Note that this process can be quite lengthy, taking many hours.

System File Checker (SFC)

System File Checker is a utility in Windows that allows users to scan for corruptions in Windows system files and restore corrupted files. This article describes how to [run the System File Checker tool \(SFC.exe\)](#) to scan your system files and to repair missing or corrupted system files. If a Windows Resource Protection (WRP) file is missing or is corrupted, Windows may not behave as expected. For example, some Windows functions may not work, or Windows may crash.

To run SFC:

- Open an elevated command prompt (Run As Administrator)
- Type `sfc /scannow`



The `sfc /scannow` command will scan all protected system files, and replace corrupted files with a cached copy that is located in a compressed folder at `%WinDir%\System32\dllcache`. The `%WinDir%` placeholder represents the Windows operating system folder. For example, `C:\Windows`.

NOTE: Do not close this Command Prompt window until the verification is 100% complete. The scan results will be shown after this process is finished.

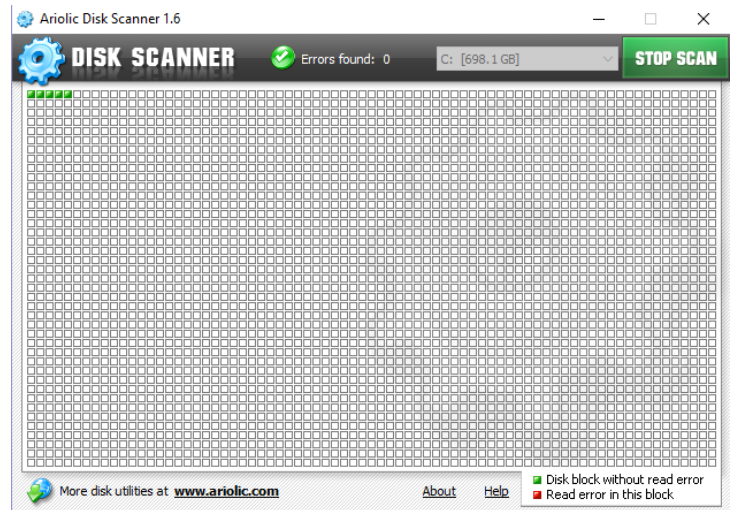
After the process is finished, you may receive one of the following messages:

- Windows Resource Protection did not find any integrity violations.
 - This means that you do not have any missing or corrupted system files.
- Windows Resource Protection could not perform the requested operation.
 - To resolve this problem, perform the System File Checker scan in safe mode, and make sure that the PendingDeletes and PendingRenames folders exist under `%WinDir%\WinSxS\Temp`.
- Windows Resource Protection found corrupt files and successfully repaired them. Details are included in the `CBS.Log%WinDir%\Logs\CBS\CBS.log`.
 - To view the detailed information about the system file scan and restoration, go to [How to view details of the System File Checker process](#).
- Windows Resource Protection found corrupt files but was unable to fix some of them. Details are included in the `CBS.Log%WinDir%\Logs\CBS\CBS.log`.
 - To repair the corrupted files manually, [view details of the System File Checker process](#) to find the corrupted file, and then [manually replace the corrupted file with a known good copy of the file](#).

Ariolic Disk Scanner

Ariolic Disk Scanner is a utility that checks for bad sectors on the hard disk. It doesn't fix sectors or move the files, it merely scans the hard drive. If it does find any bad sectors, a list of the files where read errors occurred can be viewed.

The utility is portable. See TJ for the USB the utility is located on.



Mac Hardware Diagnostics

Pre-06/2013 Hardware (Apple Hardware Test - AHT)

- Shut down computer. Press the power button to restart and hold in the D key as it starts up.
- While AHT is loading an icon will appear on the screen; when it is loaded select your language
- Choose which test to perform.
- Press T or click "Test" to perform the basic tests
- Select "Perform extended testing" checkbox before clicking Test for more thorough diagnostics.
- To exit AHT, click "Restart" or "Shut Down".

Post-06/2013 Hardware (Apple Diagnostics)

- Shut down computer. Press the power button to restart and hold in the D key as it starts up.

- You may have to select a language before Diagnostics loads.
- When it is running the message “Checking your Mac” will appear with a progress bar.
- Basic diagnostics takes about 2-3 minutes to run. A report will appear when it is finished with descriptions of problems and reference codes (needed for Apple Support).
- To determine troubleshooting options, press “Get Started” or Command-G to boot into Recovery Mode.
- Command-R will run the diagnostics again.
- To exit Apple Diagnostics without going into Recovery Mode, restart or shut down.

Mac Diagnostics Links

- No OS Found: <https://support.apple.com/en-us/HT204323>
- Apple Diagnostics (Yosemite): https://support.apple.com/kb/PH18765?locale=en_US
- Diagnostic Reference Codes: <https://support.apple.com/en-us/HT203747>