

CCleaner[®], *faster*: proven!

How optimized business endpoints boost productivity and save IT time and money





Built for small businesses, big businesses and service providers.

Our business software was built to take the strain off your IT department.

Cleaning and defragmenting PCs probably isn't at the top of your agenda. We know that. You probably know that you should do it but it's time consuming and with resources constantly under strain, it seems to be a bottom-of-the-list task which you never get around to doing. Or at least not until the support tickets come in.

This is why we invented CCleaner and Defraggler.

Automated cleaning and defragmenting means your IT department spends less time on basic maintenance and end users work on better performing machines, without the constant threat of low disk space.

We believe our software is a win-win solution for any businesses using PCs.



But of course we'd say that, which is why we asked Passmark, a third-party software testing specialist, to put our software through its paces.

In this report we've highlighted Passmark's main findings. You can view the full report here: www.passmark.com/reports/ccleaner17.pdf

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Summary

Passmark Software conducted objective performance testing on two of our products, CCleaner and Defraggler, in order to demonstrate their benefits to system performance. This was achieved by comparing results before and after each piece of software was run on different system setups, which represented real-life use.

Tests were carried out on a desktop and laptop operating on Windows 7 and 10. Before testing, a typical amount of computer usage was carried out and a set of typical applications were installed on each machine, which allowed Passmark to test on machines that represented the computer of an average user. To represent the computer behaviour of a more frequent user, Passmark installed a more extensive set of applications onto the same machines, before repeating the tests.

Passmark found:

- CCleaner recovers nearly 3.5GB of disk space on an initial clean and over the course of a year, will free up 34GB of disk space per endpoint (based on automated weekly cleaning)
- Using CCleaner & Defraggler, you can increase unutilized RAM by 36%
- Using CCleaner and Defraggler, you can make PCs boot 59% faster
- Using CCleaner and Defraggler, you can make browsers launch up to 37% faster
- · CCleaner and Defraggler have a negligible impact on a computer's resources
- Cleaning using CCleaner is 20 times faster than performing the same clean manually

This report summarizes Passmark's findings, which are detailed in their Performance Report. You can view their full report here: www.passmark.com/reports/ccleaner17.pdf.

What CCleaner and Defraggler do



About CCleaner

CCleaner deletes the unnecessary files, settings and data accumulated on a machine during its day-to-day use. This data unnecessarily bloats machines and slows them down or poses a security risk.

CCleaner:

- · Deletes temporary and cache files which unnecessarily take up space on endpoints
- Deletes history, cache and password data, and manages cookies, to help organizations adhere to IT policy
- Reduces memory load and speeds up boot times by quickly managing programs which automatically start with Windows
- Uninstalls software even when this is not possible through the Windows Control Panel Add/Remove
 Programs applet
- · Cleans up the Windows Registry by removing information that's incorrect or no longer needed
- Deletes duplicate files to recover hard drive space
- Reduces the footprint of user profiles by deleting cache and temp files, which speeds up login
- · Removes traces of documents that have already been deleted by securely wiping free disk space

From one dashboard, our on-premise and cloud-based versions of CCleaner allow you to manage, clean and optimize individual or grouped endpoints. All cleans are configurable by the administrator.

CCleaner cleans to a safe maximum

- CCleaner will never delete files and settings which are required for correct operation. You can see the breakdown of files which CCleaner will not clean on Passmark's report: www.passmark.com/reports/ccleaner17.pdf
- During a default clean CCleaner does not delete files and settings which are considered user preference (such as bookmarks).
- Cleans can be customized by the IT admin, using the CCleaner menu.

Get CCleaner at: www.piriform.com/business



Defraggler reassembles the fragmented data strewn across HDDs to allow them to work more efficiently. It also optimizes SSDs.

Defraggler:

- Can defragment an entire drive, a folder, or one or more individual files
- Can defragment the freespace on your drive by gathering all the free areas into a single large freespace
- Speeds up your PCs by placing pieces of data together
- Defragments drives sequentially (ctrl click the drives and press 'Defrag')
- Defragments RAID drives

SSD drives are optimized using TRIM and Zero-fill functions.

Get Defraggler at: www.piriform.com/business



Set and forget

Schedule CCleaner and Defraggler to make sure business endpoints are always clean and optimized – without you doing a thing.

Your IT department spends less time on basic maintenance and end users work on better performing machines, without the constant threat of low disk space.

The Test Methodology

Passmark recorded eleven different performance metrics, on two machines, in two different states.

Machines tested

Two popular machines were used for testing:

Test Machine 1: Low-End Laptop

Model:	DELL Inspiron N5010		
CPU:	Intel Core i5 M 450 @ 2.40 GHz		
Video Card:	ATI Mobility Radeon HD 5000 Series		
RAM:	6GB DDR3 RAM		
HDD (Main Boot Drive):	500 GB 5400 RPM		
0/S:	Windows 7		

Test Machine 2: Mid-Range Desktop

Model	Lenovo H50W-50 i5
CPU:	Intel Core i5-4460 CPU @ 3.20GHz
Video Card:	NVIDIA GeForce GT 705
RAM:	8GB DDR3 RAM
SSD (Main Boot Drive for Standard Image):	Samsung 850 PRO 512GB
HDD (Main Boot Drive for Extended Image):	Western Digital Green 2.0TB WD20WZRX
2nd Drive	Samsung 1000GB 7200RPM HD103UJ
0/S:	Windows 10

Machines states

Each test machine was tested in two different states:

1. Standard Image: A standard set of typical applications had been installed and a typical amount of usage had occurred on the machine. This setup represented average use.

2. Extended Image: A standard set of typical applications were installed as well as a more extensive list of less common applications that could be found on the PC of a heavy user. This setup represented high use.

We asked Passmark to load the machines with a realistic number of applications so the results achieved would be representative of the benefits a user can expect from using our software. The applications loaded were very common applications, such as Dropbox and Skype. Passmark Software's report details the full list. You can see the report here: www.passmark.com/reports/ccleaner17.pdf

Performance metrics

Eleven performance metrics were recorded at three stages:

- 1. Before any software was run (to get a benchmark result)
- **2**. After cleaning using CCleaner (to see how cleaning affected performance)
- **3**. After defragmenting using Defraggler (to see how defragmenting as well as cleaning affected performance)

This is what the entire test plan looked like:

	Windows	Windows 7 Laptop		Windows 10 Desktop	
Performance Metrics Measured	Standard Image (Average Use)	Extended Image (High Use)	Standard Image (Average Use)	Extended Image (High Use)	
Disk space recovered from initial cleanup	~	~	~	~	
Disk space recovered per week	\checkmark	~	~	~	
Number of artifacts & passwords cleaned	~	~	~	~	
Change in free RAM	\checkmark	~	~	~	
Machine boot time	\checkmark	~	~	~	
Browser load time	\checkmark	~	~	~	
Installation size	\checkmark	~	~	~	
Installation time	~	~	~	~	
Memory usage during idle	~	~	~	~	
CPU usage during idle	1	~	~	~	

Then Passmark performed a manual cleanup by manually removing anything CCleaner cleans via Windows explorer.

You might notice Passmark didn't test battery life. This is because there isn't a direct link between cleaning a computer and its battery performance. Although some cleaning software claims to improve battery life, it's impacted by many variables.

The Results

CCleaner and Defraggler positively impacted disk space, free RAM, browser startup time and a host of other performance metrics. Passmark's results confirmed that our software enables businesses to improve the performance of endpoints, with minimal effort. The greatest performance gains were usually found when both CCleaner and Defraggler were run.

1. 36% more free RAM

'On average, using CCleaner and Defraggler can increase your available free RAM by 36%.'

Passmark Software measured free RAM before and after CCleaner was used, and then after Defraggler was subsequently run. The percentage increase in available free RAM across the four scenarios was then calculated.

On average across all four setups, 28% more free RAM was made available when a default clean using CCleaner was run and some startup items were switched off using the startup management feature. When Defraggler was subsequently run, this rose to 36%. When the results from the two machines setup to represent high use were isolated, this rose to 43% after using CCleaner and 62% after subsequently running Defraggler.

These results show that a greater positive result can be achieved using both CCleaner and Defraggler, especially in the case of high usage endpoints.

So what can you do with this additional RAM?

More free RAM means users can work on more programs simultaneously without difficulty – and fewer support tickets for IT admins.





Percentage more free RAM freed up using CCleaner on a Windows 7 Laptop and a Windows 10 Desktop.

2. 59% faster boot time

'Across all four images, the aggregate boot time was seen to be 53% faster after using CCleaner and after subsequently running Defraggler, 59% faster.'

In this test, Passmark measured the amount of time taken for the machine to boot into the operating system before and after CCleaner was run, and then after Defraggler was run too. Across all four setups, the aggregate boot time* was 53% faster after using CCleaner. After additionally defragging using Defraggler, this increased to 59% faster.



Boot time (sec)

Average boot time across all four test setups: Windows 7 Laptop and a Windows 10 Desktop, standard (average use) images and the extended (high use) images.

These positive results are thanks to Defraggler reorganising disk data so it's quicker to access and to CCleaner's startup feature, where unnecessary apps which slow startup can be switched off.

Cleaning, defragging and switching off unnecessary startup apps hugely reduces boot time so users can get to work faster.

CCleaner also speeds up user login

CCleaner can help reduce the footprint of user profiles by deleting cache and temp files, which speeds up login.

*The percentage improvement between the sum of the baseline boot times across all four setups and the sum after using CCleaner, or CCleaner and then Defraggler.

3. 34GB disk space recovered

'On average, CCleaner recovers nearly 3.5GB of disk space on its initial clean and over the course of a year, will free up 34GB of disk space per endpoint, based on automated weekly cleaning.'

In this test Passmark measured disk space recovered from an initial clean using CCleaner and then after a subsequent clean, following a week's worth of activity.

Across all four machine setups, 13.5GB was recovered on initial cleanup and 2.4GB was recovered a week later. On average across the four setups, 3.4GB was recovered on initial cleanup and 599 MB was recovered a week later.

The average results were then extrapolated to show how much disk space CCleaner can recover over the course of a year, using this formula:





Average disk space recovered using CCleaner on a Windows 7 Laptop and a Windows 10 Desktop, for both the standard (average use) and extended (high use) images.

So what does this extra disk space mean?

Efficiently used hard drive space means reduced support tickets from users who require more space and delayed requests for additional storage.

4. Up to 37% faster browser launch

'Running CCleaner and Defraggler can make browsers launch faster.'

In Passmark's tests, browser load time was seen to be up to 37% faster when CCleaner and Defraggler were run, with varied impact depending on the machine state prior to the test.

Across all four machine states, the aggregate* browser launch time was seen to be 5% faster after running CCleaner and Defraggler.

Results were quite varied because, during a clean, CCleaner deletes cache, cookies, history and other browser data, which can speed up browser load time. However, this depends on how much browser data was stored pre-clean because when the browser is first opened after cleaning, it may need to reload some of the items which were deleted.

Cleaning browsing data has other important benefits...

Deleting browsing data doesn't just reduce browser launch time. Storing browsing data and user passwords in any environment can pose a security risk, so should be routinely deleted.

- In environments where endpoints are routinely shared, such as libraries and educational institutions, passwords and browsing data shouldn't be shared between users. Automated cleaning solves this problem and maintains user privacy by routinely cleaning based on a trigger action (such as closing a browser) or at a scheduled time.
- In organizations where employees hot desk, automated cleaning deletes cache and temp files which helps reduce the weight of user profiles and speeds up login.
- Cleaning browsing data stops users being retargeted by ads.

*The percentage improvement between the sum of the baseline browser launch times across all four setups and the sum after using CCleaner, or CCleaner and then Defraggler.

CCleaner cleans to a safe maximum



We developed CCleaner to clean to the fullest extent possible without affecting system, program and user setting files, which are required for correct operation.

5. 20x faster than performing the same clean manually

'A comparison of a manual clean up, by an experienced engineer, to the automated process in CCleaner, showed that using CCleaner is 20 times faster than performing the same clean manually.'

In this test, Passmark measured the time it takes to run CCleaner's maximum clean against the time it takes to run an equivalent cleanup manually in Windows (this was conducted on the extended image only).

Cleans were equivalent and included:

- · Clearing browser/s cookies, history, temporary files, form data, passwords, and autocomplete data
- · Clearing recent file lists from Microsoft Office applications
- · Clearing recent file lists from Adobe applications
- Clearing Windows recent items
- Clearing recent items from the Windows start menu
- · Deleting duplicate files to recover hard drive space
- · Clearing Windows temporary files, crash dumps, and Windows log files

So, it's considerably faster to clean endpoints using CCleaner than to clean them manually - even when you know where to look for the files you'd like to be deleted. Plus, CCleaner can clean multiple endpoints – automatically. This can mean significant cost savings.

Example

A 100-endpoint organization cleaning 46 times a year (so excluding annual leave and public holidays).



saving \$84,275

6. Practically zero impact on PC resources

'Both CCleaner and Defraggler have a tiny footprint on a PC's resources.'

With software, how good it performs isn't the only thing that matters. You want to know it's not going to be difficult to install, take up lots of space on your machine or affect other programs.

Passmark timed how long CCleaner and Defraggler took to install (up until the point each program was fully functional and ready for use) and then recorded how much space each program used. Once installed, they then measured two indictors which determine how much CCleaner and Defraggler impact a PC's resources when running in the background: memory usage and CPU usage while idle.

Metrics were measured across all four setups, from which Passmark took the average (individual results can be found in Passmark's report: www.passmark.com/reports/ccleaner17.pdf).

Quick and easy to install

Passmark found that CCleaner took just under **11 seconds to install** and its installation size was just **29.55MB** – a far cry from the 4GB it averagely frees up from its initial clean!

Defraggler took just short of 9 seconds to install and its installation size was just 34.57MB.

Note: Passmark measured the time of the initial install on a machine, from opening the file to each program being fully functional. However, the way in which CCleaner and Defraggler are installed throughout a business varies. For example, larger organizations might be better suited to CCleaner Network Edition where the agent can be distributed via their network, whereas smaller businesses might prefer CCleaner Cloud, where the agent can be distributed by email. See 'Which CCleaner is right for my business?' inside the back cover of this report.

After timing installation, Passmark went on to measure each program's impact on a machine once installed.

'Both CCleaner and Defraggler have an almost negligible impact on idle CPU and memory usage, when idle.'

Both metrics measured were very low. Passmark stated that CPU usage was 'too low to be accurately measured'.

So how low were they and what does this mean?

CCleaner's **idle memory usage was less than 16MB**, which is approximately 0.2% of the installed RAM on the machines tested (Defraggler doesn't run in the background when it is closed so there was no idle state to measure). CCleaner and Defraggler on average, **slightly reduced idle CPU load**. These results show that both programs have a tiny impact on a user's PC.

Both CCleaner and Defraggler take seconds to install, take up a tiny amount of space, and run quietly in the background.

Which CCleaner is right for my business?



Where can I try **CCleaner** and **Defraggler**?

We don't expect you take our word for it - that's why we'd love you to trial any of our products, free of charge, for 14 days. No card details, no obligation, no nonsense.

Visit our site or speak to a member of our sales team to see what our software can do for your business.

Get CCleaner and Defraggler at: www.piriform.com/business

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