



How to safely and securely destroy hard disk data

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INTRODUCTION

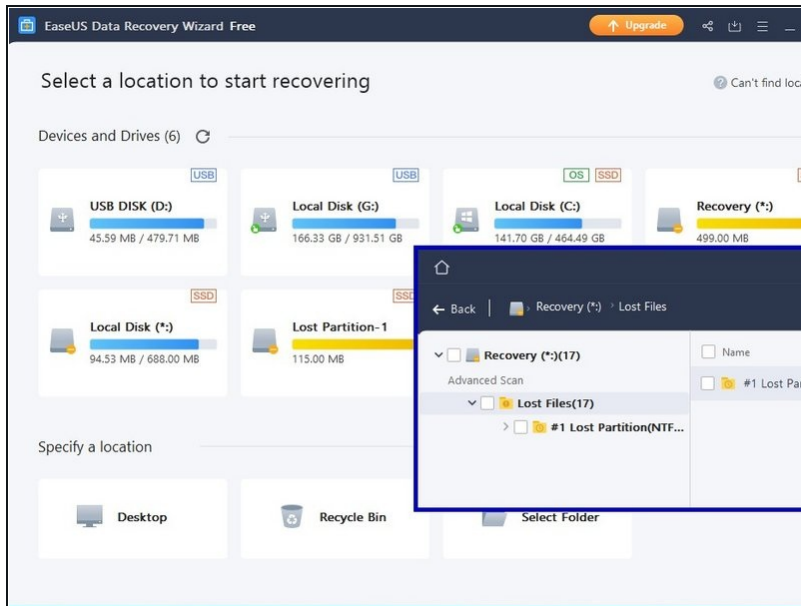
Modern hard disks can hold a huge amount of data, even one from your 10 or 15 year old discarded computer. People often say “Nobody would be interested in my data!” You might be surprised.

Email and social media login credentials are highly prized by hackers. Access to your email account will enable a hacker to reset the passwords on many of your other accounts, such as PayPal, Amazon, social media, cloud storage and possibly even banking (though we hope you use 2 factor authentication for the most sensitive). A list of your contacts would enable a hacker to impersonate you and send them convincing scams. A hacker might be able to pick up snippets of all kinds of data about you, harmless in themselves, but useful in constructing an identity theft attempt. And more.

So it's important that a hard disk never leaves your possession without the data being securely destroyed.

Data destruction on SSDs, memory sticks and memory cards requires rather different methods. See my companion guide [How to safely and securely destroy data on SSDs and memory sticks](#) if that's your problem.

Step 1 — What not to do



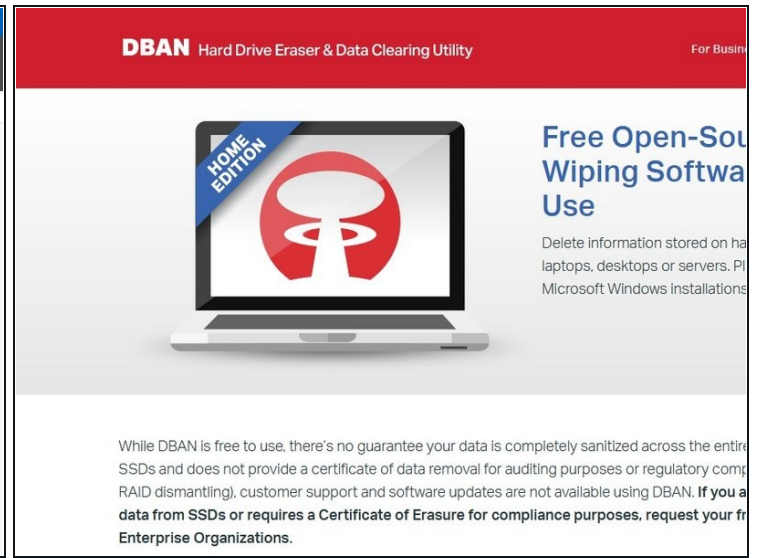
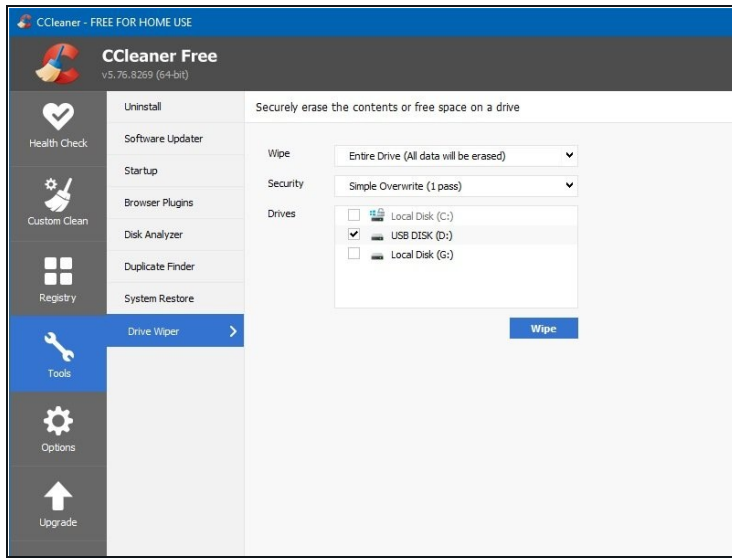
i Here is what NOT to do:

⚠ Don't just delete your files. Even if you then empty the recycle bin, simple freely available tools can probably recover them.

⚠ Don't think that reformatting your disk will wipe it. That only resets the indexes. Most of your data will remain.

⚠ Likewise, don't imagine that reinstalling your operating system will do any better. That will only overwrite the start of your disk, leaving most of your data untouched.

Step 2 — Non-physical destruction



- Physical destruction is much the quickest, surest and most satisfying method. Even if you want to pass on the computer for re-use, fitting a new solid state disk is cheap and easy, and will make the computer run faster than ever before. But if you REALLY MUST keep the old hard disk, there is a choice of several disk wipe utilities:
 - [Ccleaner](#) will wipe a hard disk, but not the one you're booted from. You can connect your old hard disk to another computer with a USB-SATA adapter in order to wipe it.
 - You can make a bootable memory stick or CD containing [DBAN](#), which will wipe your hard disk.
 - Both the above may leave fragments of data in remapped and hidden disk sectors. Blancco (from the same source as DBAN) is the professional disk wipe utility, carrying various government and industry standard certifications and approvals. An evaluation licence is available.
- ❗ None of these is quick. It might take 12 - 24 hours for a 1TB disk. Do you really want to wait that long?

Step 3 — Take aim!



- Take a look at your hard disk. From the lid, you should be able to make out the outline of where the disk is.
- If in doubt, on the bottom of the disk you should be able to see the motor, which directly drives the disk spindle.
- Below the disk is the read/write head actuator spindle.
- Note a point roughly half to three quarters of the way from the centre of the disk and its circumference. This is where you will be doing the damage!
- ① For laptop drives the hammer and nail method (Step 5) is probably quickest. But for the very few having aluminium platters and for desktop drives having a tougher cover the drill method (Step 6) is generally easier.

Step 4 — Optional: Opening the drive



- If you have any difficulty working out where the disk is, or if you're just curious to see inside, you can unscrew the lid.
- You will generally need a Torx screwdriver. There are normally 6 screws around the perimeter of the drive. Remove these.
- Most laptop drives have one more screw under the label. You will need to locate it by feel, or by viewing it with the light at just the right angle.
- Scrape away the label from around the screw head, using a craft knife or similar. Under the label there is likely to be a layer of foil. Scrape this away as well, revealing the screw head. Remove the screw.
- Desktop drives may have more screws, which you will have to locate and remove in the same way.
- Once you have removed all the screws you should be able to prise off the lid. A rubber seal may make it a little reluctant to come off.

⚠ Replace the lid and secure it with at least 2 or 3 screws before proceeding to the next step.

Step 5 — The hammer and nail method



- The simplest method is simply to hammer a nail through the drive, which will shatter the disk. A 25mmx2.5mm masonry nail is ideal - a larger nail will be harder to withdraw and there will be a greater chance of shards escaping through the hole. Ordinary wood nails will simply bend.
- Place the drive on a piece of scrap wood on a firm surface such as a concrete floor or a strong workbench. Holding the nail (preferably) with pliers, hammer it into and through the drive at the chosen point.
- ① The nail doesn't have to go right through and into the scrap wood, so long as you can see that it has begun to penetrate the circuit board on the reverse of the drive.
- ① If, having penetrated the top cover the nail refuses to smash or penetrate the disk it's very likely that this is one of the few having a metal platter. The alternative method described in the next step will work very well.

- Shake the shards away from the nail before attempting to pull it out. If you used a claw hammer then you can use the claw to pull out the nail very easily, otherwise use the pliers.
- To be sure, drive the nail through at a second point roughly diametrically opposite.
- Cover both holes with stick tape of any sort.

Step 6 — Using a drill



- If you have a pillar drill or drill press you may find this allows you to do the job more quickly. A 3 - 4mm high speed steel drill bit will do nicely.
 - Drilling through the lid and applying moderate pressure, you may feel the disk platter smash as the drill bit hits it, and likewise a second platter if there is one. Continue drilling until you come out the other side.
 - If the platter doesn't smash even with a little extra pressure with the drill, poke a nail punch or centre punch through the hole and hit it quite hard with a hammer until you smash the platter or platters.
 - If the drill hasn't penetrated right through the drive, shake the shards away from the hole and look into it. If you can see another shiny unbroken surface, there's a second disk platter. Smash that in the same way.
- ① Very old drives, in particular desktop (3.5") drives as well as a few more modern ones may have aluminium platters. You should be able to drill right through these without difficulty.

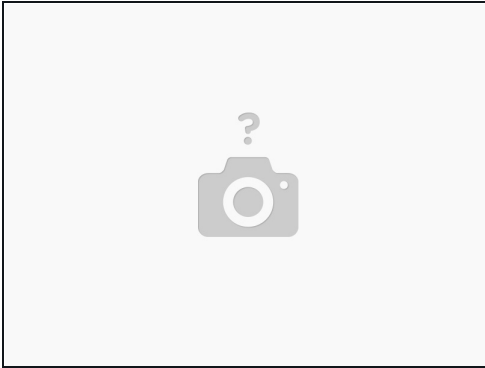
Step 7 — Making it safe



- The shards inside will be extremely sharp and some of them very tiny. You don't want any escaping! Before you finish, cover the holes on both sides with PVC or similar sticky tape so that no shards can escape. (Or if it makes you feel better about your poor old drive, you could use a sticking plaster!)

⚠ It's still possible that small shards could escape between the circuit board and the metal shell so continue to treat the drive with care. To avoid this you could unscrew and remove the circuit board before starting.

Step 8 — An easier way next time



- Full hard disk encryption is the easy way to make life much easier for yourself next time. You can use Bitlocker on Windows or Filevault on MacOS. If you use Linux, Veracrypt is available.
- ⚠ It's important that you fully encrypt your hard disk immediately after installing the operating system, and before writing any data to it or logging onto email, social media or any other websites or applications, otherwise unencrypted data may remain on your hard disk.
- When you want to dispose of your computer or the disk in it, all you have to do is change the encryption password to something long and totally random, then destroy all record of the password.
- ① Full disk encryption applied as described above is the only simple and sure way of destroying the data on an SSD.

To reassemble your device, wait for someone to invent a time machine then take a trip to yesterday. Seriously, there's no other way!

But if that doesn't work for you, please dispose of the remains of your day's work responsibly, in a manner appropriate for electronic waste.