

How to repair and recover corrupted CD and DVD data

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Instructions for repairing and restoring a corrupted CD or DVD

1. Structure of an optical disc
2. Two types of scratches on CD and DVD
3. 5 ways to fix a CD or DVD
4. Tips to recover data from a corrupted CD or DVD
5. How to recover data from a corrupted CD or DVD
 1. Recover corrupted CDs and DVDs on Windows
 2. Read and backup scratched DVDs on macOS
 3. Recover data from scratched disks on Linux
6. Repair and restore data from damaged DVDs

Structure of an optical disc

Before we get into how to fix a corrupted CD or DVD, we should learn more about how optical disc works. You probably already know small lasers read data from a CD (that's why they're called optical discs) but how are optical discs made?



In general, an optical disc is like a sandwich. Although the design varies depending on the type of CD, DVD or Blu-ray, the principle is the same. A layer of aluminum (or similar material) sandwiched between two layers of polycarbonate.

Plastics help protect data and help focus laser read data from aluminum. Scratches on the plastic layer are often the cause of CD and DVD damage.

Two types of scratches on CD and DVD

There are usually two types of scratches on optical discs: scratches at right angles and scratches running along the grooves.

1. Perpendicular scratches are those that run from the center to the edges of the disc but are still not the worst.
2. A circular scratch is a more damaging scratch, running along a spiral.

The perpendicular scratch is usually not too bad because the laser can 'jump' over the scratch and continue reading. However, concentric scratches are more devastating, causing big jumps or even being unable to read a disc.

If your CD or DVD has many round scratches, the chances of data recovery are very small. Fortunately, there are several DIY options that can help you repair your disc.

5 ways to fix a CD or DVD

There are several ways to fix scratched DVDs and CDs, but it is not guaranteed to be 100% successful but worth a try.

1. Wipe the disc with a soft, lint-free cloth and a small amount of damp, mild detergent. This is a reliable measure because it is the most common. Slime from the hands, food residues are also removed with this method.

2. Apply toothpaste on the scratch. Some substances in toothpaste can fill the void caused by scratches and when polished, the laser can read data from the disc.
3. Soften heat scratches from 60W light bulb. Leaving the disc under the heat can soften the plastic a little, helping read the data.
4. Fill the scratch with wax products. Lip balm, shoe polish and other wax products can fill up scratches like the way toothpaste works.
5. Cover holes in the data layer with pen and tape. Not all broken disks are due to scratches. The holes in the data layer are also the cause of damaged CDs and DVDs. In this case, cover the hole with tape and a dark pen so that you can read the disc.

Tips to recover data from a corrupted CD or DVD

Try one of the following tips to recover data from a corrupted disk.

1. Use a CD recorder, a DVD burner instead of a reader.
2. If possible, restore on the same drive used to create the disc. The chance of success is higher if you use the same drive or at least the same manufacturer.
3. Unable to read data with the operating system, try recovery tools.

How to recover data from a corrupted CD or DVD

In some cases, you may need to use an optical disc recovery tool to back up the disc content.

Many available software utilities do this, but most are outdated, rarely updated and often do not work. The reason is that fewer and fewer people are using CDs and DVDs. Games can ship on DVD and Blu-ray, but a digital version is also available. Very few people use optical disks for storage.

So what are your options? Your choice depends on the operating system used.

Recover corrupted CDs and DVDs on Windows

Recovering data from a corrupted CD or DVD on Windows is not easy. A good choice is IsoBuster, which can create copies of each byte of disk content.

1. Download IsoBuster for Windows

Alternatively, you can use the Roadkil's Unstoppable Copier utility.

1. Download Unstoppable Copier for Windows

Read and backup scratched DVDs on macOS

The simplest option on macOS is to use the Disk Utility tool to copy a fixed optical disc, that is, store it as a disk image on your computer.

Open Disk Utility, select the disk in the left pane, then choose **File> New Image** . Follow the steps to name the DVD file, select a save location, then click **Save** to start the backup.

When done, you can mount the disk image without the physical disk.

Recover data from scratched disks on Linux

Like Windows, you can use Unstoppable Copier for Linux.

<http://www.roadkil.net/program.php?ProgramID=29>

Alternatively, you can also try ddrescue, this is a command line tool that offers many options for recovering all types of storage media.

<https://www.gnu.org/software/ddrescue/ddrescue.html>

Repair and restore data from damaged DVDs

Whether by a method such as toothpaste or other ways the disc can be read, you will be satisfied that it works. But how long does this satisfaction last?

You should see some tips below to ensure long-term disk usage:

1. When the recovery is successful, immediately back up the content and make an ISO copy of the disc.
2. Always use high quality optical discs.
3. Carefully preserve the CD.

I wish you successful implementation!

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