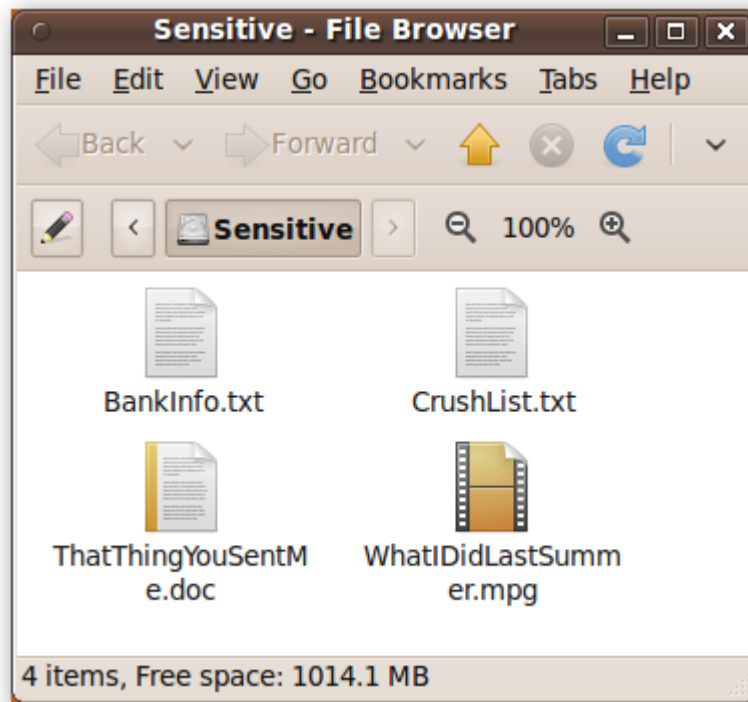


Use an Ubuntu Live CD to Securely Wipe Your PC's Hard Drive

by Trevor Bekolay on April 19th, 2010

Have you ever given or sold a PC to somebody else, but really wanted to *completely* wipe the hard drive first? Today we'll show you how to use an Ubuntu Live CD to get your personal information off your PC.



When you delete a file in Windows, Ubuntu, or any other operating system, it doesn't actually destroy the data stored on your hard drive, it just marks that data as "deleted." If you overwrite it later, then that data is generally unrecoverable, but if the operating system don't happen to overwrite it, then your data

is still stored on your hard drive, recoverable by anyone who has the right software.

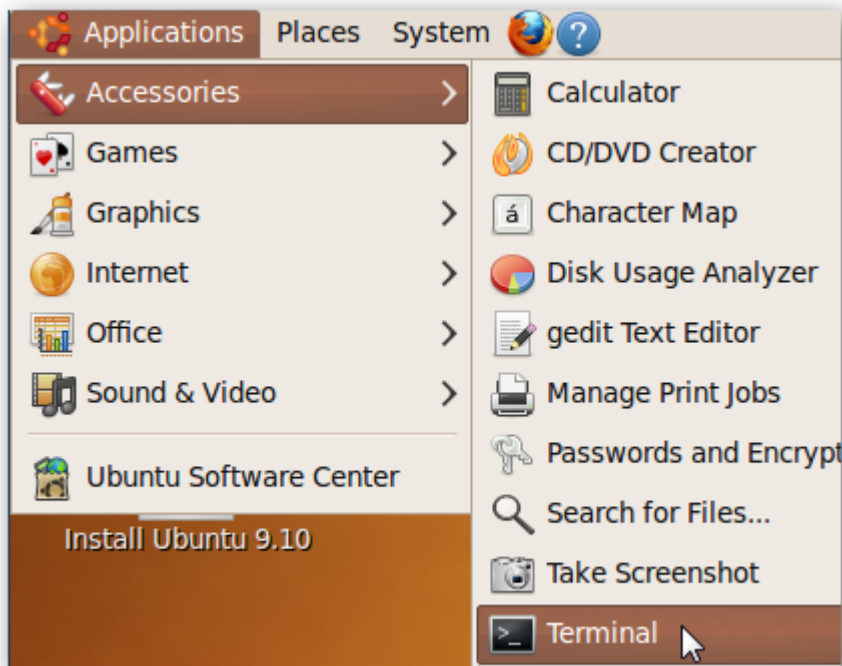
By securely deleting files or entire hard drives, your data will be gone for good.

Note: Modern hard drives are extremely sophisticated, as are the experts who recover data for a living. There is no guarantee that the methods covered in this article will make your data completely unrecoverable; however, they will make your data unrecoverable to the majority of recovery methods, and all methods that are readily available to the general public.

Shred individual files

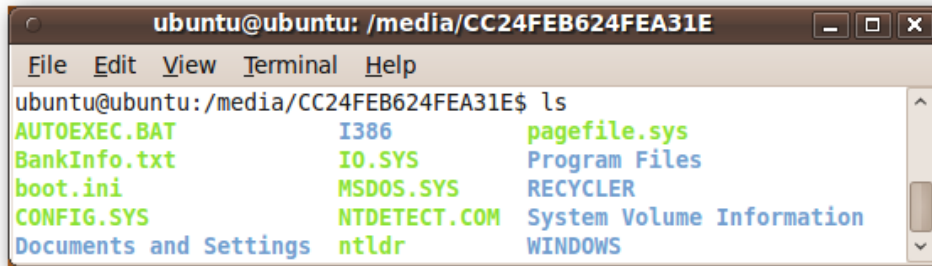
Most of the data stored on your hard drive is harmless, and doesn't reveal anything about you. If there are just a few files that you know you don't want someone else to see, then the easiest way to get rid of them is a built-in Linux utility called **shred**.

Open a terminal window by clicking on Applications at the top-left of the screen, then expanding the Accessories menu and clicking on Terminal.



Navigate to the file that you want to delete using `cd` to change directories and `ls` to list the files and folders in the current directory.

As an example, we've got a file called `BankInfo.txt` on a Windows NTFS-formatted hard drive.



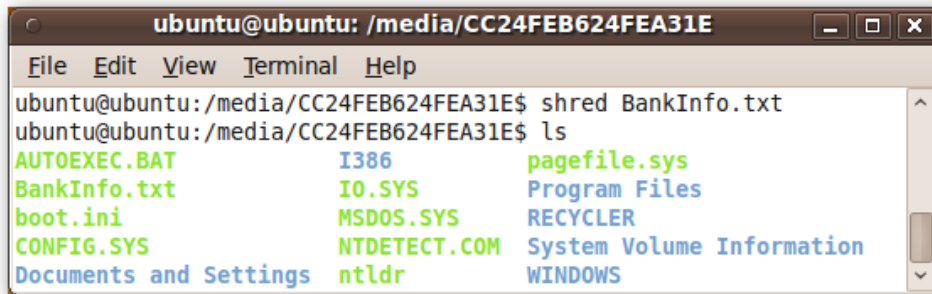
```
ubuntu@ubuntu: /media/CC24FEB624FEA31E
File Edit View Terminal Help
ubuntu@ubuntu: /media/CC24FEB624FEA31E$ ls
AUTOEXEC.BAT          I386          pagefile.sys
BankInfo.txt          IO.SYS        Program Files
boot.ini              MSDOS.SYS     RECYCLER
CONFIG.SYS            NTDETECT.COM System Volume Information
Documents and Settings ntlldr        WINDOWS
```

We want to delete it securely, so we'll call `shred` by entering the following in the terminal window:

```
shred <file>
```

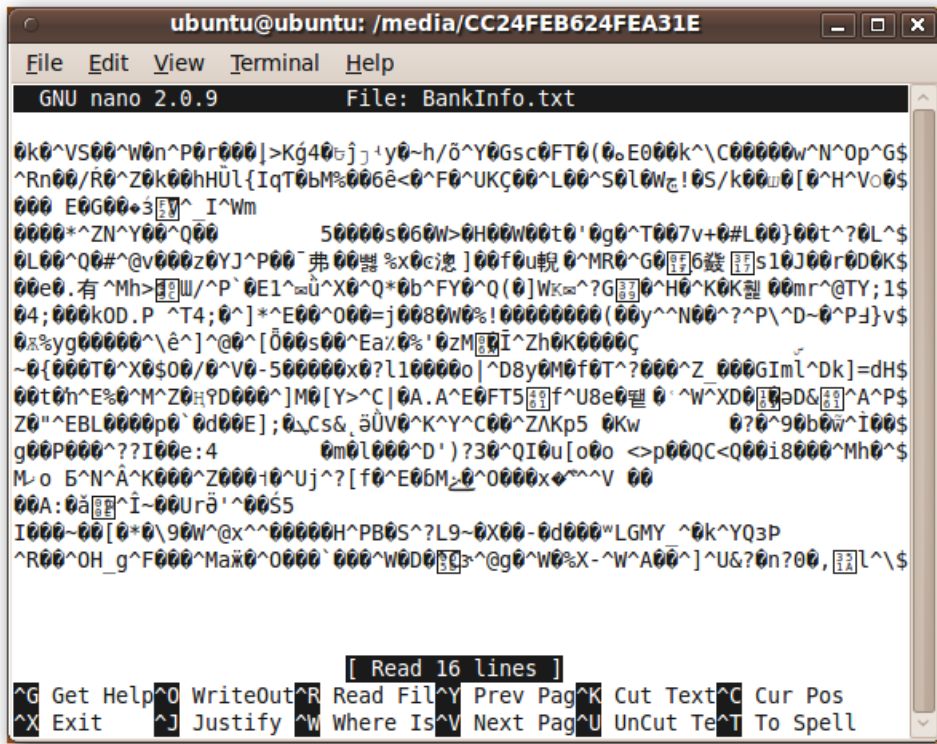
which is, in our example:

```
shred BankInfo.txt
```



```
ubuntu@ubuntu: /media/CC24FEB624FEA31E
File Edit View Terminal Help
ubuntu@ubuntu: /media/CC24FEB624FEA31E$ shred BankInfo.txt
ubuntu@ubuntu: /media/CC24FEB624FEA31E$ ls
AUTOEXEC.BAT          I386          pagefile.sys
BankInfo.txt          IO.SYS        Program Files
boot.ini              MSDOS.SYS     RECYCLER
CONFIG.SYS            NTDETECT.COM System Volume Information
Documents and Settings ntlldr        WINDOWS
```

Notice that our `BankInfo.txt` file still exists, even though we've shredded it. A quick look at the contents of `BankInfo.txt` make it obvious that the file has indeed been securely overwritten.



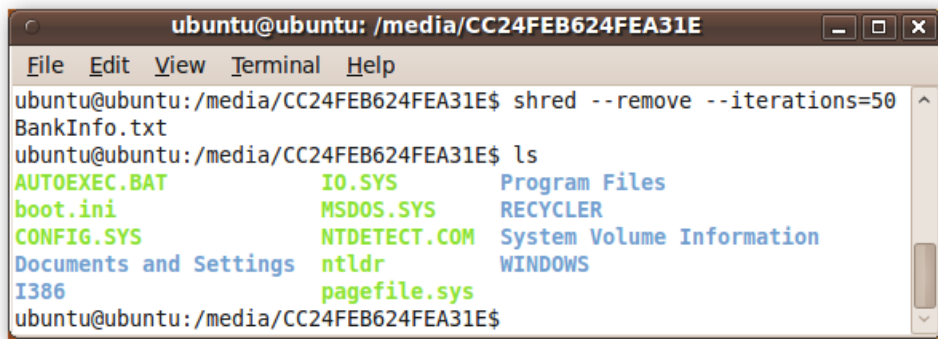
We can use some command-line arguments to make **shred** delete the file from the hard drive as well. We can also be extra-careful about the shredding process by upping the number of times **shred** overwrites the original file.

To do this, in the terminal, type in:

```
shred -remove -iterations=<num> <file>
```

By default, **shred** overwrites the file 25 times. We'll double this, giving us the following command:

```
shred -remove -iterations=50 BankInfo.txt
```



```
ubuntu@ubuntu: /media/CC24FEB624FEA31E
File Edit View Terminal Help
ubuntu@ubuntu:/media/CC24FEB624FEA31E$ shred --remove --iterations=50
BankInfo.txt
ubuntu@ubuntu:/media/CC24FEB624FEA31E$ ls
AUTOEXEC.BAT      IO.SYS           Program Files
boot.ini          MSDOS.SYS        RECYCLER
CONFIG.SYS        NTDETECT.COM     System Volume Information
Documents and Settings  ntlldr          WINDOWS
I386              pagefile.sys
ubuntu@ubuntu:/media/CC24FEB624FEA31E$
```

BankInfo.txt has now been securely wiped on the physical disk, and also no longer shows up in the directory listing.

Repeat this process for any sensitive files on your hard drive!

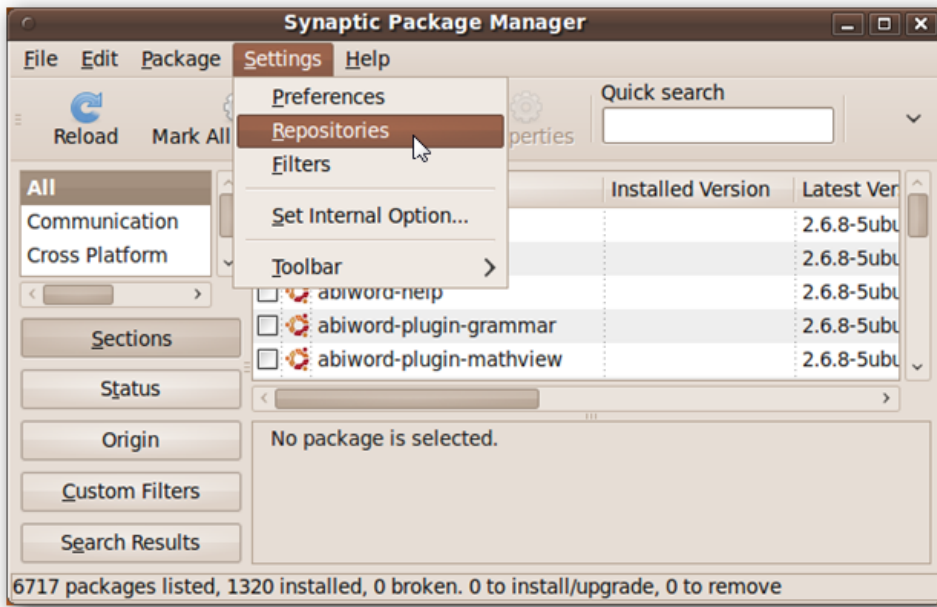
Wipe entire hard drives

If you're disposing of an old hard drive, or giving it to someone else, then you might instead want to wipe your entire hard drive. **shred** can be invoked on hard drives, but on modern file systems, the **shred** process *may* be reversible. We'll use the program **wipe** to securely delete all of the data on a hard drive.

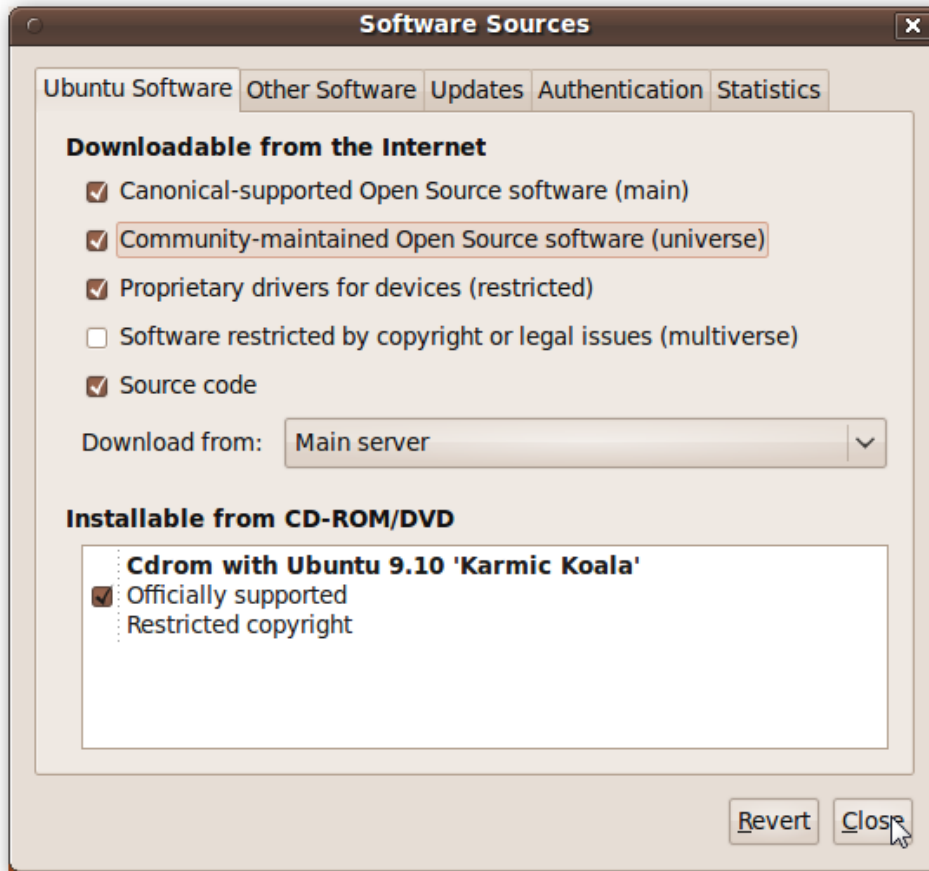
Unlike **shred**, **wipe** is not included in Ubuntu by default, so we have to install it. Open up the Synaptic Package Manager by clicking on System in the top-left corner of the screen, then expanding the Administration folder and clicking on Synaptic Package Manager.



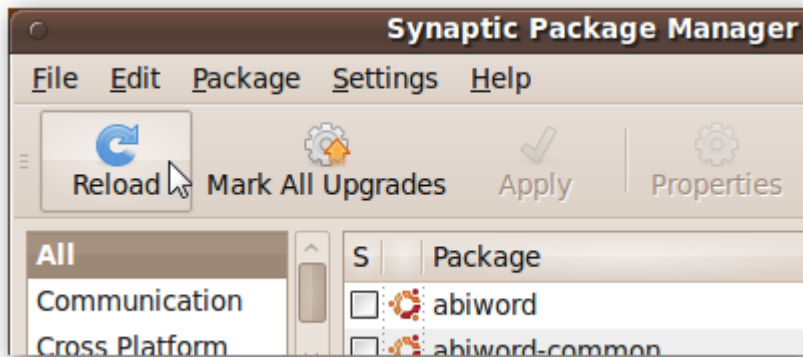
wipe is part of the *Universe* repository, which is not enabled by default. We'll enable it by clicking on Settings > Repositories in the Synaptic Package Manager window.



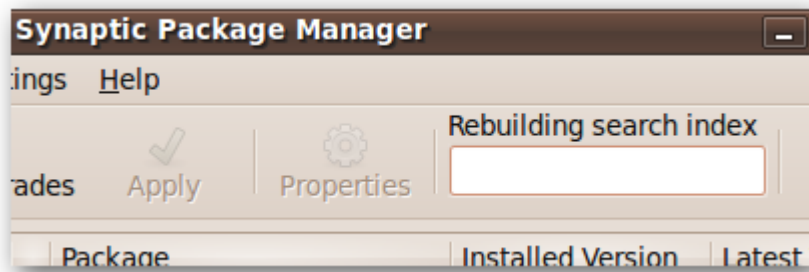
Check the checkbox next to “Community-maintained Open Source software (universe)”. Click Close.



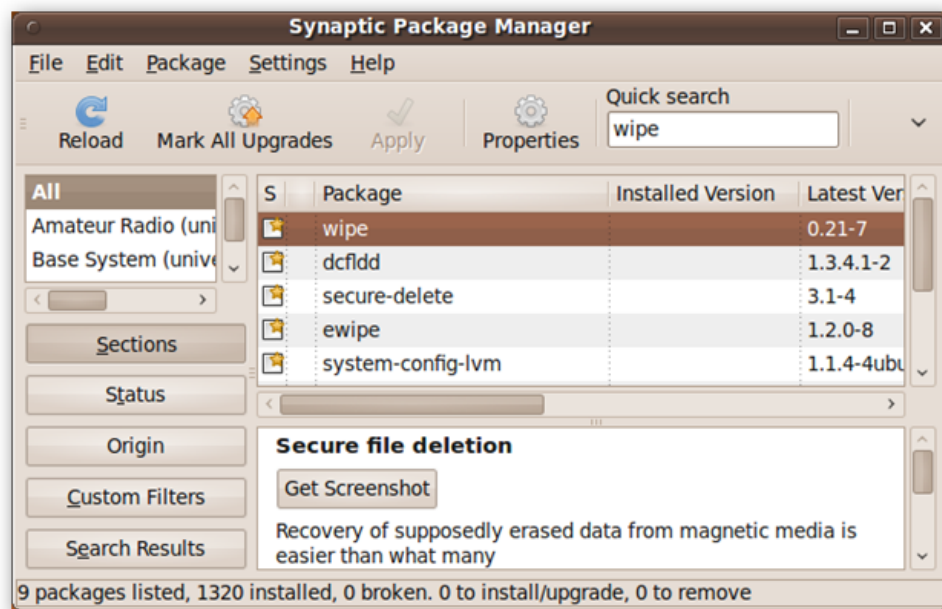
You'll need to reload Synaptic's package list. Click on the Reload button in the main Synaptic Package Manager window.



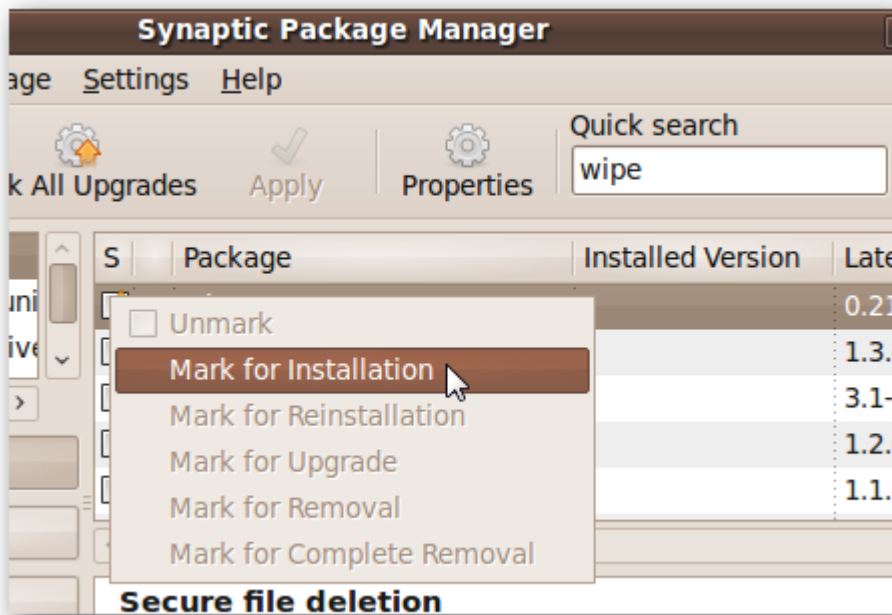
Once the package list has been reloaded, the text over the search field will change to “Rebuilding search index”.



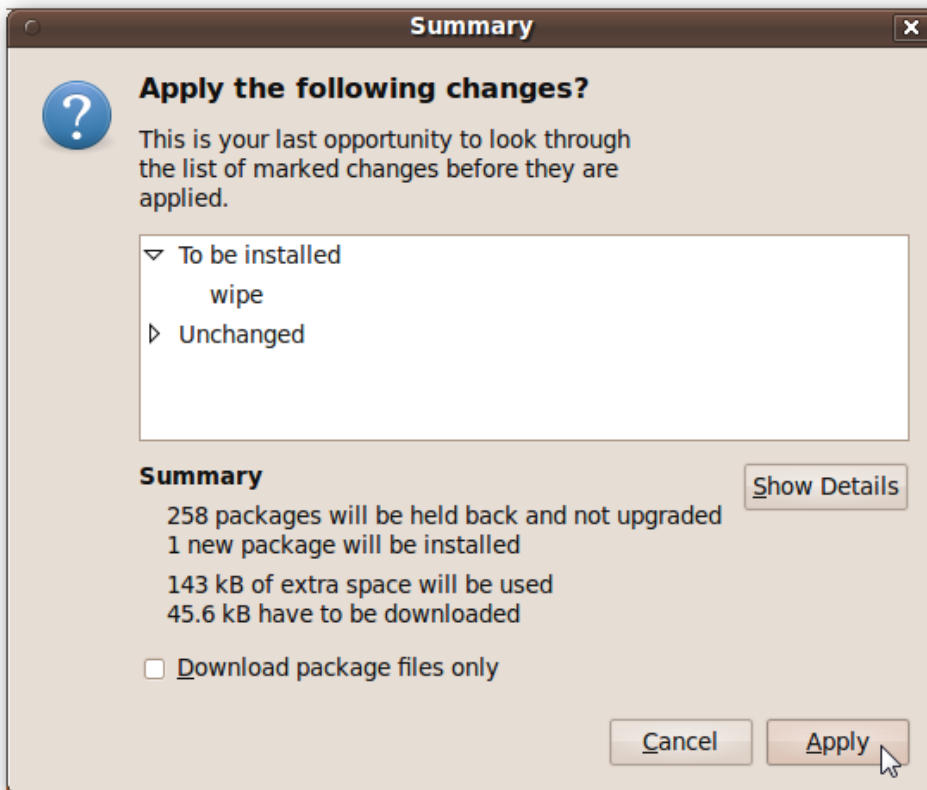
Wait until it reads “Quick search,” and then type “wipe” into the search field. The **wipe** package should come up, along with some other packages that perform similar functions.



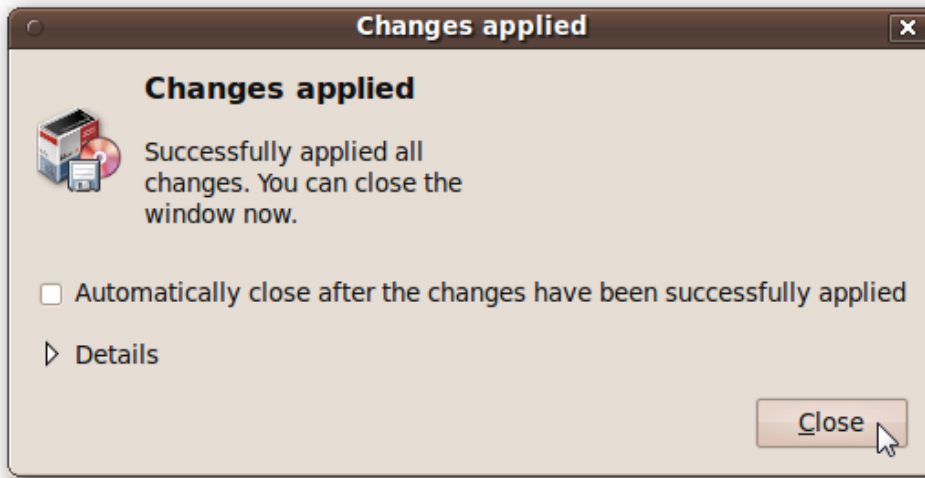
Click on the checkbox to the left of the label “wipe” and select “Mark for Installation”.



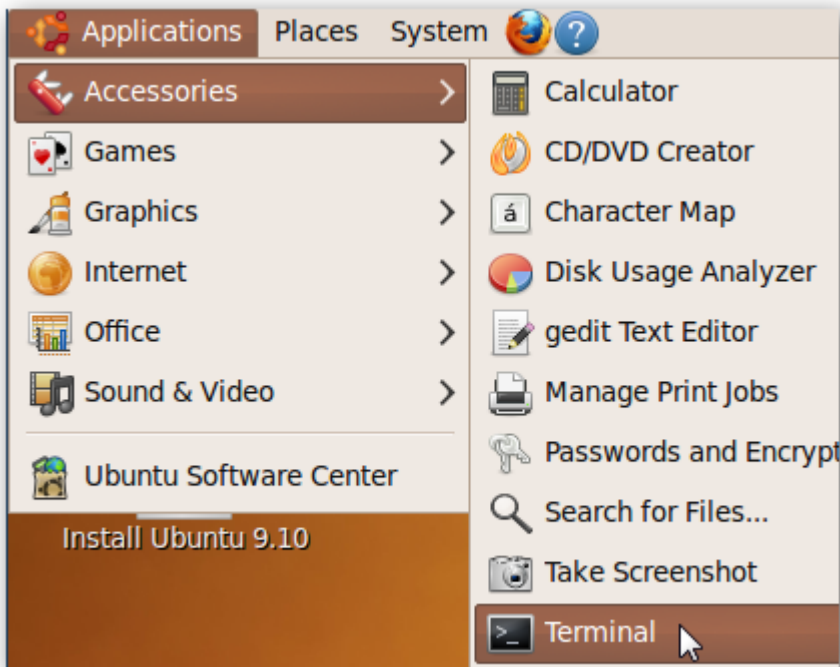
Click on the Apply button to start the installation process. Click the Apply button on the Summary window that pops up.



Once the installation is done, click the Close button and close the Synaptic Package Manager window.



Open a terminal window by clicking on Applications in the top-left of the screen, then Accessories > Terminal.



You need to figure out the correct hard drive to wipe. *If you wipe the wrong hard drive, that data will not be recoverable, so exercise caution!*

In the terminal window, type in:

```
sudo fdisk -l
```

A list of your hard drives will show up. A few factors will help you identify the right hard drive. One is the file system, found in the System column of the list – Windows hard drives are usually formatted as NTFS (which shows up as HPFS/NTFS). Another good identifier is the size of the hard drive, which appears after its identifier (highlighted in the following screenshot).

```
ubuntu@ubuntu: ~  
File Edit View Terminal Help  
ubuntu@ubuntu:~$ sudo fdisk -l  
  
Disk /dev/sda: 1073 MB 1073741824 bytes  
255 heads, 63 sectors/track, 130 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0x0004dff8  
  
   Device Boot      Start         End      Blocks   Id  System  
/dev/sda1          1           130     1044193+   7   HPFS/NTFS  
  
Disk /dev/sdb: 136.4 GB, 136365211648 bytes  
255 heads, 63 sectors/track, 16578 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0xc071c071  
  
   Device Boot      Start         End      Blocks   Id  System  
/dev/sdb1 *         1        16577     133154721   7   HPFS/NTFS  
  
Disk /dev/sdc: 4025 MB, 4025810432 bytes  
255 heads, 63 sectors/track, 489 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0xe9c136a1  
  
   Device Boot      Start         End      Blocks   Id  System  
/dev/sdc1 *         1          488       3919841    b   W95 FAT32  
ubuntu@ubuntu:~$
```

In our case, the hard drive we want to wipe is only around 1 GB large, and is formatted as NTFS. We make a note of the label found under the the Device column heading. If you have multiple partitions on this hard drive, then there will be more than one device in this list.

The **wipe** developers recommend wiping each partition separately.

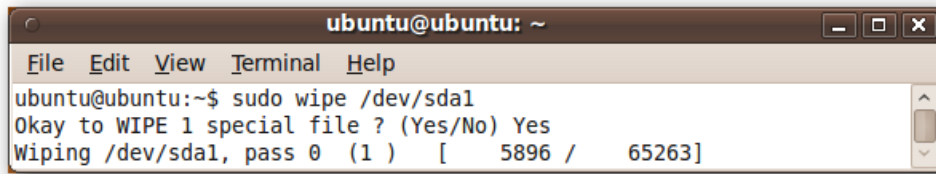
To start the wiping process, type the following into the terminal:

```
sudo wipe <device label>
```

In our case, this is:

```
sudo wipe /dev/sda1
```

Again, exercise caution – this is the point of no return!

A terminal window titled 'ubuntu@ubuntu: ~' with a menu bar (File, Edit, View, Terminal, Help). The terminal shows the command 'ubuntu@ubuntu:~\$ sudo wipe /dev/sda1' and its output: 'Okay to WIPE 1 special file ? (Yes/No) Yes' and 'Wiping /dev/sda1, pass 0 (1) [5896 / 65263]'.

```
ubuntu@ubuntu:~$ sudo wipe /dev/sda1
Okay to WIPE 1 special file ? (Yes/No) Yes
Wiping /dev/sda1, pass 0 (1) [ 5896 / 65263]
```

Your hard drive will be completely wiped. It may take some time to complete, depending on the size of the drive you're wiping.

Conclusion

If you have sensitive information on your hard drive – and chances are you probably do – then it's a good idea to securely delete sensitive files before you give away or dispose of your hard drive. The most secure way to delete your data is with a few swings of a hammer, but **shred** and **wipe** from a Ubuntu Live CD is a good alternative!

This technique isn't the only way to [dispose of data from an old PC](#), but it just goes to show how truly versatile a Linux Live CD can be when repairing a Windows PC—you can [reset your password](#), [clean off a virus infection](#), [recover deleted files](#), or even [recover files from your dead Windows computer](#). If you don't want to carry optical media around with you, you can always [create a bootable Ubuntu flash drive instead](#).

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Trevor is our resident Linux geek, but always keeps his eyes open for neat Windows tricks too.

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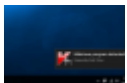
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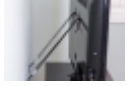
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