Re: Floppy formatting questions

Source: http://coding.derkeiler.com/Archive/General/comp.programming/2007−05/msg00151.html

- *From*: "mensanator@xxxxxxx" <mensanator@xxxxxxx>
- *Date*: 7 May 2007 14:52:59 −0700

On May 7, 3:48 pm, "Jim Langston" <tazmas...@xxxxxxxxxxxxxx> wrote:

> "itportal" <itpor...@xxxxxxxxx> wrote in message
>
> news:1178566367.345479.192330@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
>
> > Hello geeks,
> >
> > I'm new to assembly and file systems. I'm trying to understand how
> > floppy disks work, but I cannot explain myself several things and I
> > though you could help me:
> >
> > 1. A normal 3.5" formatted floppy disk is 1.44 MB, right? An
> > unformatted one is 2.0 MB? What does this format mean ... is it the
> > file system or not? Where are the missing 0.56 MB? I read somewhere
> > that it had to do something with the fact that the floppy disk secrots/
> > tracks (not sure which one of the two) are too near and generate
> > errors ... and therefore some are ignred...

A normal 3.5" 2mb unformatted floppy has the ability to store 2mb of data. When you format it you write information to the floppy stating where the tracks and cylinders are. Which is where it becomes 1.44mb. The 1.44mb formatting gives track/cylinder information that is able to store 1.44mb of data. If you gave different track/cylinder information, you could store 2mb of data.

> > 2. Can I write my own formatting program? I mean not only developing
> > my own file system, but also format the floppy disk so that it uses
> > not only 1.44 MB, but 1.68 MB for example, or why not the whole 2.0
> > MB...

> Yes, you can. But you'd have to have a floppy driver (software) that was able to understand your track/cylinder information. Also, very old floppy disks were kind of hard coded for the 1.44mb and couldn't read 2.0mb formatted floppies, which is why they were normally formatted to 1.44mb.
>
> You might want to find the source code to some version of linux for their format program and see what it is doing.
>
> Go to wikipedia.org and type in floppy disk.

You also should be aware that making more space available usually means haveing less formatting and that usually means having larger sectors. A floppy usually has 512 byte sectors, so changing to, say, 4k sectors frees up some of the space needed because you only need 1/8 of the formatting.

But keep in mind that, typically, you can't put more than one file in a file allocation block. So if your sectors are 4k, a 100 byte file occupies 4k byte of disk space, which is much less efficient than the 412 bytes wasted on a standard floppy.

Backup programs would often install their own formatting to get more space since they weren't trying to be a general purpose file storage and the inefficiency of small files usually wasn't an issue.

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