GNU/Linux Administration - Bug #145

How to flash motherboard BIOS from Linux with no DOS/Windows and no floppy drive

07/19/2013 10:48 PM - Daniel Curtis

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Assignee:	Daniel Curtis	**% Done:**	100%
Category:		**Estimated time:**	0.50 hour
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Description

You've finally made the move to a Windows-free computer, you're enjoying your brand new Linux OS, no trojans/viruses, no slowdown, everything's perfect. Suddenly, you need to update the BIOS on your motherboard to support some new piece of hardware, but typically the motherboard vendor is offering only DOS based BIOS flash utilities. You panic! Fortunately, this problem is easy to solve...

Step 1: Download FreeDOS boot disk floppy image

FreeDOS , a free DOS-compatible operating system, is up to the challenge, no need for proprietary DOS versions. So, all you need is a bootable floppy disk image with FreeDOS kernel on it. We are fortunate that guys at FDOS site have prepared one suitable for us. Use the OEM Bootdisk version, the one with just kernel and command.com, because it leaves more free space on disk for the flash utility and new BIOS image. You can also find a local copy of this image attached at the end of this article. After you download the image, you need to decompress it. In other words:

```
wget http://www.fdos.org/bootdisks/autogen/FDOEM.144.gz
gunzip FDOEM.144.gz
```

Step 2: Copy your BIOS flash utility and new BIOS image to the mounted floppy disk image

Requirement for this step is that you have support for the vfat and loop file systems in the kernel. Or you can have those features compiled as modules. In the latter case, load the modules before the next step, like this.

```
modprobe vfat
modprobe loop
```

Consult /proc/fileystems to see if you have the needed file systems supported. If you do, you should be able to "loop mount" the floppy disk image to some temporary path:

```
mkdir /tmp/floppy
mount -t vfat -o loop FDOEM.144 /tmp/floppy
```

If the mount went without errors, copy BIOS flash utility and new BIOS image to the mounted floppy disk image. You'll probably have to unzip the archive you downloaded from your motherboard vendor site, to get to those two files. Here's just an example for my motherboard (in your case, files will have different names, of course):

```
unzip 775Dual-VSTA\(2.60\).zip
```

```
Archive: 775Dual-VSTA.zip
inflating: 75DVSTA2.60
inflating: ASRflash.exe
```

```
cp 75DVSTA2.60 ASRflash.exe /tmp/floppy
```

Doublecheck that everything went OK, that those two files weren't too big for the floppy:

```
Filesystem           1K-blocks      Used Available Use% Mounted on
/tmp/FDOEM.144
1424       990       434  70% /tmp/floppy
```

Finally, unmount the floppy disk image:

```
umount /tmp/floppy
```

Step 3: Burn a bootable CD which will emulate floppy device for us

Next step is to burn the floppy image to a CD/DVD-RW media, but in a way that it can be booted afterwards. First we need to make a bootable CD image, and then burn it. Notice that on some modern distributions, cdrecord is renamed to wodim, and mkisofs to genisoimage, but the parameters below should be the same.

```
mkisofs -o bootcd.iso -b FDOEM.144 FDOEM.144
cdrecord -v bootcd.iso
```

Step 4: Reboot, flash, reboot, enjoy your new BIOS

Finally reboot your machine, make sure that your CD drive is first in the boot sequence, and then run your BIOS upgrade procedure when the CD boots.

WARNING: Flashing motherboard BIOS is a dangerous activity that can render your motherboard inoperable! While the author of this article has successfully run this procedure many times, your mileage may vary. Be careful!

Files

FDOEM.144.gz	107 KB	07/20/2013	Daniel Curtis