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Extend the battery life of your (iBook) laptop (29530 lectures)

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*One of the aspects to solve to save the laptop's battery is that the disk must be spun down as long as enough time has passed without disk activity. Usually it is difficult to make it work, especially with journaled systems[1] because noflush daemons don't prevent writes in the file system journal. I describe here some techniques to solve it, and altough I describe in this article how to do it in a Apple iBook with **Ext3**[2] (Debian Sid), it would be useful for any other Linux laptop.*
Although you could be not interested in energy saving (is your laptop normally plugged?), another additional advantage is that we will extend the life of the hard disk, since the laptop's disks are not designed to spin continuously.

This is a very fast and unchecked translation of my previous article in Spanish[3]. Forgive me the English mistakes, it is almost 2 am :-).
Versión en castellano[3]

First of all, traditional daemons, like noflushd, that spin down the disks or prevent disk writes, **have almost no effectivity for Ext3 or ReiserFS journaled filesystems**. This is due to that the operating system writes to the journal if there is any pending write.

I was "fighting" for a long time with ext3, trying to spin the disk down playing with different hdparm setups. I thought that it was its fault, the disk did not stop. As in iBook the only piece in movement is the disk and the CPU almost does not warm up, all the noise (in fact very little) and the heat come from the disk.

In my previous configuration (until few days ago), I had disabled ext3 and returned back to ext2 with *noflushd*, because they produced a lot better results. **But I don't blame to Ext3 anymore...** it was **noflushd** that masked the generation of "unnecessary" logs (my portable one is not a server:-) of *syslogd* and statistics of the NTP. In addition, as my laptop is connected to my home wireless network, which has a DHCP server in the Linux access point[4], whenever the IP is renegotiated, syslogd generated several log lines (I first solved it increasing the leasing period in the DHCP server).

Basically, we are going to do three things:

1. To indicate to the system not to store the files' access time (noatime).
2. To prevent syslogd from storing not "interesting" log lines.
3. To prevent other programs to generate logs, specially ntpd (which does it with its default configuration in Debian).

noatime

By default, the file systems stores in the files' i-node the last access time. That means that whenever a file is read, it generates an write operation. If you are not interested in keeping that information (normally you aren't, at least you have some tricky mail program), you can specify the **"noatime" option in /etc/fstab** for every disk file system (i.e. don't do it for **/proc** or swap partitions). For example:

```
# /etc/fstab: static file system information.
#
/dev/hda4       /        ext3    defaults,noatime        0       1
```

syslogd

I prevented syslogd to generate most of uninteresting lines, like DHCP negotiations, bad sized packets in the wireless network, crond logs every minute, etc. Find below my syslogd.conf version, note that it is hardly conservative.

You will see that the most frequent sources of logs are sent to /dev/null, for the others I added minus ("-") to the begining of the filename, so syslogd doesn't sync them for every line.

```
#  /etc/syslog.conf     Configuration file for syslogd.
#
#                       For more information see syslog.conf(5)
#                       manpage.

#
auth,authpriv.*              /dev/null
*.*;auth,authpriv.none       /dev/null
cron.*                       /dev/null
daemon.*                     /dev/null
*.=debug;\
        auth,authpriv.none;\
        news.none;mail.none  /dev/null
*.=info;*.=notice;*.=warn;\
        auth,authpriv.none;\
        cron,daemon.none;\
        mail,news.none       /dev/null

kern.*                       -/var/log/kern.log
lpr.*                        -/var/log/lpr.log
mail.*                       -/var/log/mail.log
user.*                       -/var/log/user.log
uucp.*                       -/var/log/uucp.log


#
# Emergencies are sent to everybody logged in.
#
*.emerg                          *

daemon.*;mail.*;\
        news.crit;news.err;news.notice;\
        *.=debug;*.=info;\
        *.=notice;*.=warn        |/dev/xconsole
```

ntpd other programs

In spite I've been *radikal* ignoring most of the logs, **I still found frequent writes with vmstat**. I checked every daemon, program and cron entry, and was surprised to discover that **ntpd was the source of most writes**. It was storing protocol statistics in **/var/log/ntpstats**.

So, to avoid it, check the following lines in **ntp.conf** are commented out:

```
#statsdir /var/log/ntpstats/

#statistics loopstats peerstats clockstats
#filegen loopstats file loopstats type day enable
#filegen peerstats file peerstats type day enable
#filegen clockstats file clockstats type day enable
```
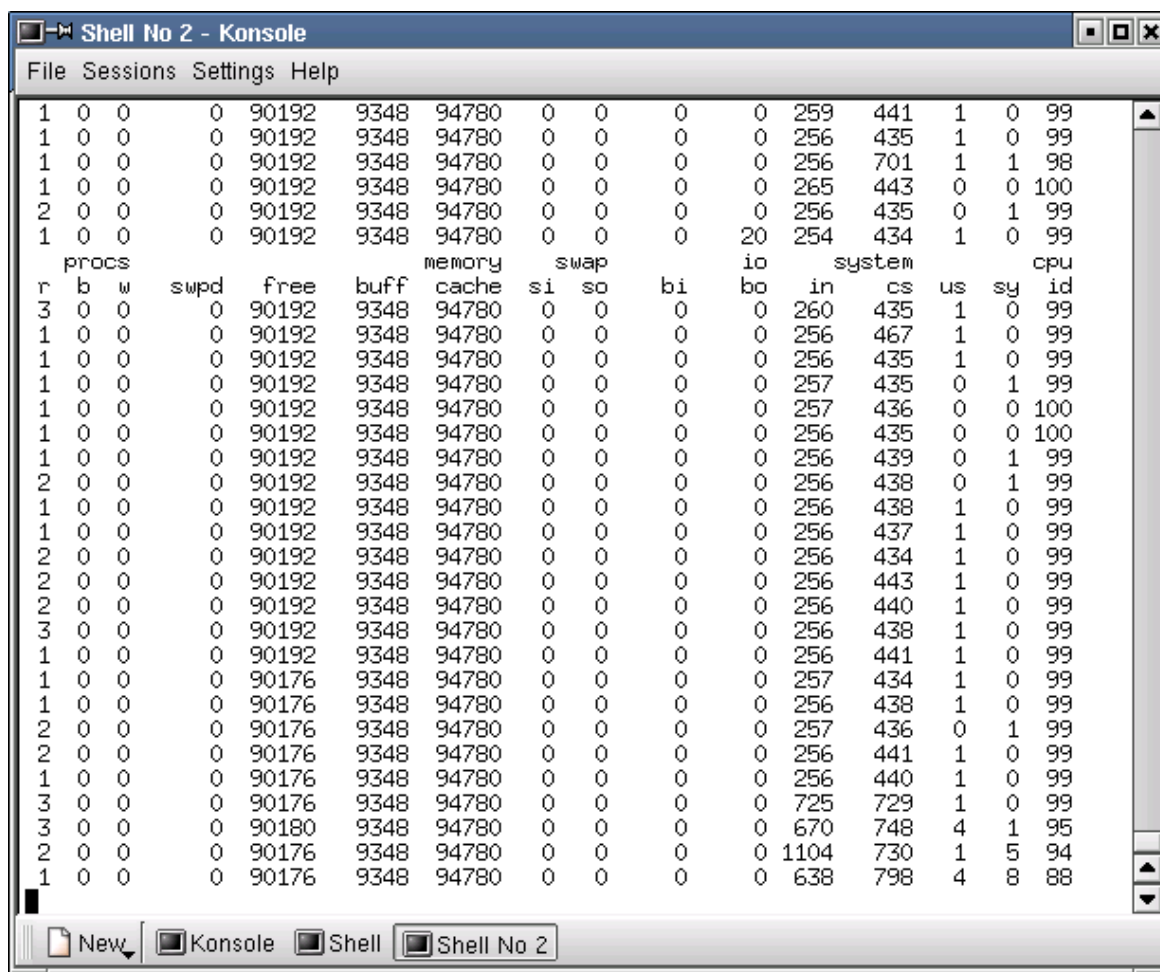
Other "dangerous" programs

There are also other programs and daemons that generate disk writes. I can't give a general recipe because it depends on your installed packages and configurations. Nevertheless, check the following programs:
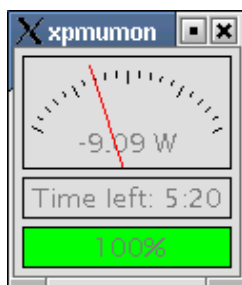
- **exim**: it generates logs every time it executes to chech the pending jobs in the queue. By default it executes every 15 minutes, I've changed it to 1 hour in **/etc/crond.d/exim**.
- **cups**: it writes periodically in /var/spool/certs/.
- **modutils**: modutils package comes with a script that is periodicallyexecuted from /etc/cron.daily/modutils, `/sbin/insmod_ksymoops_clean` which output to several files in /var/log/ksymoops.

Last words

Check the file system activity in your laptop with `vmstat period`, especially the bo columns, which shows the *block outs* to the disk.

```
□⊢◄ Shell No 2 - Konsole                                              ▪□⊠

File  Sessions  Settings  Help

  1  0  0       0  90192   9348  94780    0    0    0     0   259   441   1   0   99  ▲
  1  0  0       0  90192   9348  94780    0    0    0     0   256   435   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   701   1   1   98
  1  0  0       0  90192   9348  94780    0    0    0     0   265   443   0   0  100
  2  0  0       0  90192   9348  94780    0    0    0     0   256   435   0   1   99
  1  0  0       0  90192   9348  94780    0    0    0    20   254   434   1   0   99
   procs              memory      swap      io     system        cpu
  r  b  w    swpd    free   buff   cache  si   so    bi   bo    in    cs  us  sy   id
  3  0  0       0  90192   9348  94780    0    0    0     0   260   435   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   467   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   435   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   257   435   0   1   99
  1  0  0       0  90192   9348  94780    0    0    0     0   257   436   0   0  100
  1  0  0       0  90192   9348  94780    0    0    0     0   256   435   0   0  100
  1  0  0       0  90192   9348  94780    0    0    0     0   256   439   0   1   99
  2  0  0       0  90192   9348  94780    0    0    0     0   256   438   0   1   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   438   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   437   1   0   99
  2  0  0       0  90192   9348  94780    0    0    0     0   256   434   1   0   99
  2  0  0       0  90192   9348  94780    0    0    0     0   256   443   1   0   99
  2  0  0       0  90192   9348  94780    0    0    0     0   256   440   1   0   99
  3  0  0       0  90192   9348  94780    0    0    0     0   256   438   1   0   99
  1  0  0       0  90192   9348  94780    0    0    0     0   256   441   1   0   99
  1  0  0       0  90176   9348  94780    0    0    0     0   257   434   1   0   99
  1  0  0       0  90176   9348  94780    0    0    0     0   256   438   1   0   99
  2  0  0       0  90176   9348  94780    0    0    0     0   257   436   0   1   99
  2  0  0       0  90176   9348  94780    0    0    0     0   256   441   1   0   99
  1  0  0       0  90176   9348  94780    0    0    0     0   256   440   1   0   99
  3  0  0       0  90176   9348  94780    0    0    0     0   725   729   1   0   99
  3  0  0       0  90180   9348  94780    0    0    0     0   670   748   4   1   95
  2  0  0       0  90176   9348  94780    0    0    0     0  1104   730   1   5   94
  1  0  0       0  90176   9348  94780    0    0    0     0   638   798   4   8   88
■

 📄 New,  ■ Konsole  ■ Shell  ■ Shell No 2
```

And, check you've configured the power control [as I described in this article](#)(5). With the configuration and packages described in both articles, your battery will last **5 hours, or more**...

Only 5 hours and 20 minutes left :-)

Lista de enlaces de este artículo:

1. http://bulma.net/body.phtml?nIdNoticia=1154

2. http://bulma.net/body.phtml?nIdNoticia=1481
3. http://bulma.net/body.phtml?nIdNoticia=1510
4. http://bulma.net/body.phtml?nIdNoticia=1309
5. http://bulma.net/body.phtml?nIdNoticia=1481&nIdPage=5

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