

MUUGLines

The Manitoba UNIX User Group Newsletter

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Next Meeting: April 13th, 2010

We've had a lot of positive feedback to our previous RTFM presentations, so this month, we're offering you a trio of them! To start, Gilbert Detillieux will be introducing the **grep** family of commands (**grep**, **egrep** and **fgrep**), including a brief look at regular expression syntax and usage. Next up, Michael Doob will present the **sed** command, showing you how to take regular expressions a little further. Finally, Mark Jenkins will present the **smartctl** command, for monitoring hard disk status and health.

Where to find the Meeting



Meetings are held at the IBM offices at 400 Ellice Ave. (between Edmonton and Kennedy). When you arrive, you will have to sign in at the reception desk. Please try to arrive by about 7:15pm, so the meeting can start promptly at 7:30pm.

Limited parking is available for free on the street, either on Ellice Ave. or on some of the intersecting streets. Indoor parking is also available nearby, at Portage Place, for \$5.00 for the evening. Bicycle parking is available in a bike rack under video surveillance located behind the building on Webb Place.

Upcoming Meeting: May 11th, 2010

Next month, Brian Doob will present on podcasting, showing how you can use a combination of open source software (such as *Audacity*) and commercial software (such as *Apple's Garage Band*) to create your own podcast.

Before the break, for the RTFM topic, Montana Quiring will present the **dmesg** command.

Nexenta Adds ZFS De-Duplication

Network Computing reported on its web site in early March that *Nexenta* had enhanced its *NexentaStor 3.0* product to include Sun's in-line de-duplication support for ZFS. With this, duplicate data is eliminated on the first write, rather than later, via post-process.

**We Think Your Friends are
Awesome!**

We Want To Meet Them!

Do you have a friend that is working on an interesting Linux/Unix project?

Why not ask them to present what they are doing at a future MUUG meeting?

Have them email board@muug.mb.ca

Sun introduced the in-line de-duplication feature in ZFS in the fall of 2009, but this is the first commercial product to use it.

<http://www.networkcomputing.com/deduplication/nexenta-deduplicates-zfs.php>

Are Your Eyes Getting Old?

(or, *Buying a New Large-Format LCD Monitor*)

By Adam Thompson <athomps@athomps.net>

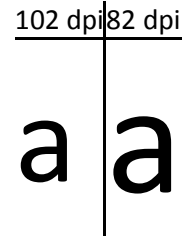


Many of you have heard me complain about the fact my screen is getting too small to read comfortably. Of course, my screen isn't shrinking – my eyes are just getting older and gradually losing their ability to focus. I've tried to find reading glasses that would help, but I just can't find a pair that fits comfortably. I have new prescription lenses, but their focal length is optimized for driving, not reading a screen. I've tried increasing the font size under Windows, MacOS X and Gnome: that works, more or less, but there are a surprisingly large number of applications (even brand-new apps!) that seem to have been hardcoded to specific pixel sizes, and the scaling feature in all three of those GUIs doesn't work perfectly – some apps are suddenly too big to fit on screen, others have labels and buttons truncated.

It occurred to me that there's another way to deal with this problem: buy a screen with a lower resolution. By resolution, I don't mean the typical "1024x768", which is sometimes called the "display resolution", I'm talking about the pixel density – the same number we compare when we're talking about printers: 75dpi, 100dpi, 1200dpi, etc. Of course, printers now range from 600dpi (cheap lasers) to the mind-boggling 5660dpi of some photo-quality color inkjets, while display resolutions range from about 75dpi to just over 100dpi. There are plenty of exceptions: some mobile devices have screens well in excess of 200dpi, but you won't find that sort of number in an ordinary desktop LCD monitor.

I did a quick, non-scientific survey of the LCDs monitor sizes and resolutions available in Canada right now (by browsing the TigerDirect website) and

found that the available monitors range from 82dpi up to 102dpi. That's a fairly large difference. To illustrate that difference, here's what the a lowercase "a" at 82dpi and the same letter at 102dpi would look like:



There's a 24% difference in size between the highest- and lowest-density LCDs in this chart. The DPI column is the approximate pixel density (or "resolution") based on the "display resolution" and data (diagonal screen size or pixel size) provided by the vendor. My calculations assume square pixels, which is typical, but not always correct. Do not buy a monitor based only on this chart: the quality of the various parts in a monitor will make at least as big difference!

<u>XRES</u>	<u>YRES</u>	<u>SIZE(IN)</u>	<u>PIXELPITCH(MM)</u>	<u>DPI</u>
1920	1200	27.5	0.309	82
1366	768	18.5	0.300	85
1024	768	15	0.297	86
1280	1024	19	0.294	86
2048	1152	27	0.291	87
1920	1200	25.5	0.287	89
1440	900	19	0.284	89
1920	1080	24.6	0.283	90
1680	1050	22	0.282	90
1920	1080	24	0.277	92
1600	900	20	0.276	92
1920	1080	23.56	0.272	94
1920	1200	24	0.270	94
1920	1080	23	0.266	96
1280	1024	17	0.264	96
1440	900	17	0.255	100
1600	1200	20	0.255	100
2560	1600	30	0.250	102
2048	1152	23	0.249	102
1920	1080	21.5	0.248	102

Display “resolution” is typically expressed as WIDTHxHEIGHT, for example many laptops have a 1024x768 display. Also, we’re back to the bad old days of CRT size inflation: 18.5” LCDs are now called “19-inch class”, 21.5” are called 22”, and so on. The values in this chart are approximate, but are typical of monitors that size and display resolution.

You can calculate the approximate DPI of a monitor yourself by dividing 25.4 by the pixel pitch (in millimeters). If you don’t have the pixel pitch or the DPI, use one of these two formulas

$pitch_{mm} = \frac{25.4 \times size_{in}}{\sqrt{x^2 + y^2}}$	$dpi = \frac{\sqrt{x^2 + y^2}}{size_{in}}$
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where x and y are the # of horizontal and vertical pixels respectively.

Double-Spacing with “sed”

Think you know **sed**, the UNIX stream editor, like the back of your hand? After having known and used **sed** for almost 30 years, your humble editor was still surprised by a couple simple but effective one-liners, in a recent *IT World* article.

Want to double space a text file, adding a blank line after each line in the file? How’s this for simple?...

```
sed G <input >output
```

Want to get rid of those blank lines again? Here’s an almost as simple command to delete every second line:

```
sed 'n;d'
```

The article doesn’t get into exactly how these work, so you might also want to RTFM on **sed(1)**, or come to the RTFM session at the April MUUG meeting!

<http://www.itworld.com/operating-systems/100018/unix-tip-sed-awk-still-friendly-after-all-these-years>

PS3 Firmware Update 3.21 Blocks Linux, Other OS’es

This isn’t an April Fools joke, but on April 1st, a new firmware update for the PS3, v3.21, will disable the “Install Other OS” feature, which allowed users to install Linux or other systems on their PS3. If users opt to not install the update, they will be unable to sign into the PlayStation Network, or play newer copy-protected videos.

<http://blog.us.playstation.com/2010/03/28/ps3-firmware-v3-21-update/>

An iPhone hacker, George Hotz, has vowed to restore Linux support. Hotz has managed to crack the PS3, three years after its initial release, and is encouraging gamers not to install the update until he find a way to hack it to keep the Other OS option.

<http://arstechnica.com/gaming/news/2010/03/hacker-vows-to-fight-sony-ps3-update-restore-linux-support.ars>

Scottish Economic Stimulus via FOSS?

“If it’s not open source, it’s crap!” Can’t you just hear SNL alumnus Mike Meyers saying that in his thick Scottish brogue? Open source advocates in the UK are trying to encourage governments to reconsider their priorities for government-funded IT spending, after recently awarded contracts to Scottish tenders, who will be reselling and installing American software.

While the awarding of contracts to local firms may seem reasonable, commissions of only between 5 and 10% are earned by these companies, with the bulk of the software budget going to the USA. Use of open source software would allow for more of the tax revenue to stay within the country.

<http://www.booshnews.com/2010/03/30/stimulate-the-economy-in-scotland-by-using-open-source-software/>

Ten Years of Linux on IBM Mainframes

IT World Canada reported on March 25 that IBM celebrated a decade of Linux on its System Z mainframe. Since they opened up their mainframe to Linux, there have been 3,150 Linux applications enabled for System Z; 70% of the top 100 global mainframe customers are running Linux. IBM has invested around \$1 billion over the decade toward supporting Linux on the mainframe.

<http://www.itworldcanada.com/news/ibm-marks-10-years-of-linux-on-systemz/140299>

Two Terabytes and Beyond!

There was a time, not long ago, that terabyte capacity was something you only needed to consider on large file servers with massive RAID boxes or SAN's. With 1TB SATA drives now the norm for entry-level PC's, and 2TB drives easily within reach, it's time to consider some of the issues you'll face in dealing with larger capacity drives under Linux.

For example, did you know that the standard partition table in the MBR, as you might use with the **fdisk** command, has a 2TB limit? For larger drives, you'll need to use the GUID Partition Table (GPT). To set up such a partition, skip the old **fdisk** command, and use GNU **parted** instead. Here's a handy little tutorial on how to set that up:

<http://www.ibm.com/developerworks/linux/library/l-gpt/>

You'll also want to make sure your Linux kernel is recent enough to have the support for GPT and larger drive sizes compiled in. Also, for external drives, additional patches may be needed, depending on the interface. For USB support, you'll likely need a Linux kernel version 2.6.24 or later; if you're using Firewire, you'll need version 2.6.31 or later.

For example, here's how to set up a Drobo external drive with a LUNSIZE greater than 2TB:

<http://drobo-utils.sourceforge.net/#lunsize-fits-all>

Even with the necessary low-level driver support in the Linux kernel, you may also run into limits imposed by the choice of file system. For example, with the commonly-used **ext3** file system, volumes are limited to 8TB with 4K blocks, or 16TB if a larger block size is used. (Individual files are still limited to 2TB, regardless.)

ReiserFS, similarly, is limited to 16TB. For sizes in the petabytes, **JFS** is one way to go. But to get to the exabyte range, you might want to consider going with **ext4** (1EB limit) or **XFS** (16EB limit). That ought to be enough for even the most demanding power users, at least for a few more years! ☺

Sending Us E-Mail?

Due to the amount of e-mail MUUG receives, we've set up an auto-reply to give you jaunty feedback, and redirect some of the e-mail to the appropriate places. Why not look at <http://www.muug.mb.ca/about.html#contacts> first?

Share Your Thoughts

E-mail us with your comments on the newsletter, whether it's criticisms or commendations, and continue to send in articles or ideas for the same. Specifically, what sort of material you would rather see: Announcements, technical articles, new products, or...?

What Do You Think?

If you have a How-To or other idea, and aren't ready to give a presentation at MUUG, an article is a great alternative! If you can write better than the editor, that's terrific; if you can't, submit it anyway and we'll get it into shape for publication. We know that many of you have some great ideas and lots of knowledge. Why not share? Send Mail to: editor@muug.mb.ca.

