

# MUUGLines

The Manitoba UNIX User Group Newsletter

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**Next Meeting: March 14, 2017  
7:30pm**

**RTFM: shred**

**Wyatt Zacharias** will be hosting this month's RTFM segment about shred. Shred can be invoked either on files or devices to securely delete them, and has command-line options to adjust its efficacy.

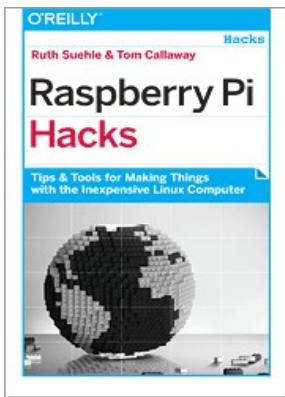
**Daemon-Dash: Pi-hole**

Worried about tracking, security and privacy? Cluttered, blinky images ruining your desktop's feng-shui? Just plain hate advertising? This month, **Gilbert Detillieux** will discuss Pi-hole, software that turns your Raspberry Pi into a network-wide ad blocker.

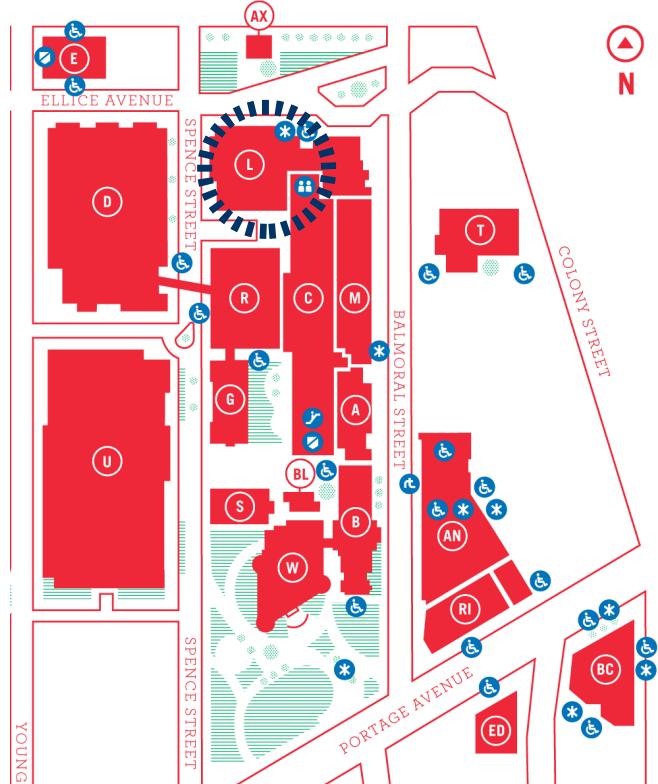
**Door Prizes:**

- **Raspberry Pi Hacks (paper copy)**
- **Choose an eBook from a selection**

This month we will be giving away a dead-tree copy of Raspberry Pi Hacks by O'Reilly. In addition, we will be giving away another ebook and the usual assortment of magazines and miscellanea. Come to the meeting for your chance to win!



## Where to Find the Meeting



## 1L11 Lockhart Hall

This month's meeting is in Lockhart Hall. Look for a sign on the door. There are elevators and escalators scattered around the buildings. A convenient one might be the elevator located right at the Ellice Ave entrance. Doors are usually open by 7:00 pm with the meeting starting at 7:30 pm. Parking is available on the surrounding streets. Please see

<http://www.uwinnipeg.ca/maps>

for further information about parking and access to the campus.

The latest meeting details are always at:

<https://www.muug.mb.ca/meetings>

## Smaller Wireless Raspberry Pi Now Available

The “Raspberry Pi Zero W” is a \$10 wireless version of the Raspberry Pi Zero. The wireless chip supports 802.11b/g/n Wi-Fi (2.4GHz-only) and Bluetooth 4.0. To save on space, there are no Ethernet ports and the USB ports are On-the-Go ports, not USB-A.

The Zero and Zero W both use a BCM2835 single-core chip that was in the original Raspberry Pi, but the CPU speed is now 1GHz instead of 700MHz. The Zero W uses a Cypress (formerly Broadcom) wireless chip that's also used in the Raspberry Pi 3. The PCB antenna layout is licensed from ProAnt.



The low-profile (2.6" x 1.2" x 0.2") Pi Zero technically has a full-size GPIO header, but the pins have to be soldered on by the user if they are needed.

The Zero W also comes with:

- 512MB RAM
- Mini-HDMI and USB On-The-Go ports
- Micro-USB power
- HAT-compatible 40-pin header
- Composite video and reset headers
- CSI camera connector

The case has three interchangeable lids: one that's solid, one with a hole for GPIO pins, and another with a hole for the camera module. The case costs extra (pricing unknown at this time).



February 29, 2012 marks the fifth-year anniversary the The Raspberry Pi Foundation has been selling computers.

<https://arstechnica.com/information-technology/2017/02/new-10-raspberry-pi-zero-comes-with-wi-fi-and-bluetooth/>

## AWS Outage February 28, 2016

An error in taking too many servers offline resulted in a domino effect that left S3 unable to service all the requests for several hours.



One of the funnier (and horrifying) moments about the outage is when people realized the icon for showing AWS being down was stored on the same subsystem that was down. As a result, the AWS status page was happily trucking along telling people everything was ok.

In a pinch, we recommend #FF0000 as a work-around...

Time for some self-reflection: If your servers go down, will your status page live? Will your monitoring be able to tell you you're down? How quickly could you enact a failover of this nature?

<http://www.recode.net/2017/3/2/14792636/amazon-aws-internet-outage-cause-human-error-in-correct-command>

*My lights won't turn off because S3 is down.*

*@zachowden  
pontificating on unintended consequences of IoT*

## The Next Computing Apocalypse is Only 21 Short Years Away!

January 2038 is when the `time_t` type used to store time values runs out of bits on 32-bit systems. This value uses January 1, 1970 (at midnight, UTC) as `time=0`, the starting point.

But we are all moved or moving to 64-bit – there is no reason to worry about it in 21 years, is there?

Well, no. There are still 32-bit systems being made and deployed, especially as an option for a cheap microcontroller. This is especially true outside of some environments, outside of office work.

Some kernel-based solutions are being considered and tested. We could use a 64-bit version of the Application Binary Interface (ABI), however this means the compatibility layer would have to stay for a long time. Some applications may use their own storage and not use the intended variable at all, rendering the workaround ineffective. There is also a runtime cost of using this 64-bit variable on a 32-bit system, resulting in a slowdown of the entire system.

We could design new system calls, but this would move Linux further away from POSIX, and there would be a lot of system calls to replace.

An alternate suggestion was made for the use of glibc. Since the C library developers are going to have to get involved as some point anyway, there has been more communication between the kernel community and the C library community. Their plan is to

- create 64-bit versions of the affected system calls
- glibc would gain a new feature test macro such as “TIME\_BITS”
- eventually TIME\_BITS=64 would become the default on systems once the distros had enacted it for a while.

See the full article for more details:

<https://lwn.net/Articles/599580/>

## Features of the Linux 4.10 Kernel

1. Nouveau Boost support (open-source NVIDIA DRM driver with higher performance)
2. Initial mainline Intel GVT support. (guest VMs native OS Intel drivers for accessing Intel graphics hardware)

3. More AMD Zen/Ryzen enablement.
4. Intel Turbo Boost Max 3.0 support. (boost to even higher frequencies for single-threaded workloads)
5. EXT4 DAX iomap support and XFS iomap support (more efficient block mapping, PMD page fault support, minor bug fixes, and improvements)
6. Better support for the Microsoft Surface 3/4 devices.
7. More ARM platform support
8. Improved Raspberry Pi 3 support
9. ATA Command Priority support.
10. GCN 1.0/1.1 (SI/CIK) improvements for Radeon Southern Islands and Sea Islands and AMDGPU improvements for power management.

[https://www.phoronix.com/scan.php?  
page=news\\_item&px=Linux-4.10-Ten-Features](https://www.phoronix.com/scan.php?page=news_item&px=Linux-4.10-Ten-Features)

## SHA-1 Broken

The Cryptology Group at Centrum Wiskunde & Informatica (CWI) and the Google Research Security, Privacy and Anti-abuse Group have verifiably proven that files can be cryptographically manipulated to have colliding checksums. Use SHA-256 or SHA-3 instead.

SHA-1 is still widely used, so any application that relies on SHA-1 for digital signatures, file integrity, or file identification is potentially vulnerable. Examples include:

- Digital Certificate signatures
- Email PGP/GPG signatures
- Software vendor signatures
- Software updates
- ISO checksums
- Backup systems

- Deduplication systems
- GIT

The attack required over 9,223,372,036,854,775,808 SHA1 computations. This is the equivalent processing power of 6,500 years of single-CPU computations and 110 years of single-GPU computations.

<http://shattered.io/>

## Regex Sudoku

### Experienced – Hamlet

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### Intermediate - Always Remember

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### Beginner – Beatles

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## MUUG has gone social!



Twitter:  
[twitter.com/manitobaunix](https://twitter.com/manitobaunix)



Facebook:  
[facebook.com/ManitobaUnix](https://facebook.com/ManitobaUnix)



MeetUp:  
[meetup.com/Manitoba-UNIX-User-Group](https://meetup.com/Manitoba-UNIX-User-Group)

## Book & User Group Discounts



O'Reilly, No Starch Press and Les.Net continue to offer discounts to MUUG members. Remember to take advantage when you're buying anything from them!

<http://www.oreilly.com/>  
<https://www.nostarch.com/>

A big thanks to LES.net for providing MUUG with free hosting and all that bandwidth!

<https://les.net/>

