

# FreeBSD Foundation July-August 2017 Update



Dedicated to supporting the  
FreeBSD Project and community

## Upcoming Events

[vBSDcon DevSummit](#)

September 7, 2017  
Reston, VA

[vBSDcon 2017](#)

September 8-9, 2017  
Reston, VA

[SNIA SDC 2017](#)

September 11-14, 2017  
Santa Clara, CA

[September 2017 FreeBSD  
DevSummit](#)

September 21-22, 2017  
Paris, France

[EuroBSDcon 2017](#)

September 21-24, 2017  
Paris, France

## FreeBSD Journal



The [July/August Issue](#) of the *FreeBSD Journal* is now available. Don't miss articles on Getting Started with iohyve, Understanding Docker for FreeBSD Users, Lynx Network Traffic Analysis, and more.

## Message from the Executive Director

Dear FreeBSD Community Member,

You are probably wondering why we are sending out our quarterly newsletter more than a month early. Well, our marketing director is expecting a couple of future FreeBSD contributors soon, and I want to say, we are hopeless in our writing without her, but I won't say that, because she will edit that out. Before she heads off on maternity leave, we wanted to highlight some of our accomplishments over the past few months.

As I reflect back on what we've done to support FreeBSD over the past few months, I'm amazed at how much we really accomplish. We are able to do this because we not only have a giving community to fund our work, but we have a team of people who are passionate about FreeBSD and are willing to put in the extra effort to support the community they love.

In this newsletter, we are covering recent and future events, highlights of the latest work from our two interns who are ending their co-op terms with us this month, and more. Please take a few minutes to relax and check out what we've been doing to support FreeBSD!

Deb

## August Development Projects Summary

As I described back in the [May issue](#) of the Foundation newsletter, the Foundation employed Siva Mahadevan and

Guangyuan (Charlie) Yang, two

co-operative education students from the University of Waterloo over the summer term. In this update I'll highlight a few more of Siva and Charlie's projects, and touch on what's coming next.



Previous updates mentioned continuous integration projects developed by both students (in the May update), Siva's work on the capsicum test

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"I've found it really practical, and great reading...it caters to all levels of users."  
Brooklyn, NY

## Why Choose FreeBSD?



"Stormshield leverages off FreeBSD to deliver high performance UTM (Unified Threat Management) and Next-Generation Firewall technology since 1998. We continuously show our support for FreeBSD via technical contributions and sponsorship; as a company we are totally committed to the on-going success of this great community.."

— Fabien Thomas, Chief Innovation Officer,  
[Stormshield](#)

suite (in [July](#)) and Charlie's addition of non-volatile DIMM memory support for the acpidump tool (also in July).

Charlie investigated test failures reported on FreeBSD by the difoscope tool used by the reproducible builds project. These largely turned out to be due to small differences in the format of utilities used by difoscope. Charlie submitted bug reports and patches to the upstream difoscope authors, and as a result difoscope is now fully functional and passes its test suite on FreeBSD.

Charlie worked on several tasks related to running FreeBSD on 32-bit Arm boards (such as the Raspberry Pi and BeagleBone Black), and as a final project in this series is porting and verifying the open-source PiAware project. PiAware builds on a number of third-party software packages and connects to FlightAware's flight-tracking services to submit aircraft movement data. It provides a good example of an embedded application running on an Arm platform that can be used to identify common examples of "Linuxisms" (relying on Linux-specific interfaces and configuration), and nonportability.

To wrap up the term, Charlie has been adding to the Simplified Chinese translation of the FreeBSD handbook. As a bilingual native speaker with contacts in the FreeBSD community, Charlie has a unique ability to contribute.

Siva has a number of projects in progress that are undergoing final stages of review and integration into FreeBSD. First is the addition of msdosfs (FAT) filesystem support to the makefs userland file system generation tool. This capability will be very useful for generating installer and virtual machine images for EFI-based PCs and embedded boards, all of which place at least a portion of their bootloader components on a FAT filesystem. With the knowledge gained in this project Siva is looking into issues in the kernel msdosfs filesystem support as reported by members of the FreeBSD community.

Siva is also addressing a few longstanding limitations in previous Foundation-sponsored and community work on the vt(4) system console. This includes adding the ability to control the scrollbar history size, control over the system cursor, and other issues.

As a final project this term Siva ported the Clang undefined behavior sanitizer (ubsan) to the FreeBSD kernel. The undefined behavior sanitizer is implemented in the compiler and a companion runtime support library, with the latter previously available in FreeBSD only for userland. Ubsan provides run-time detection for behavior undefined by the C standard, such as integer overflow, and can help identify a source of common security issues.

For the upcoming fall term (September through December) Charlie will be starting a co-op placement at another company, and Siva returns to Waterloo for the second half of the third year of his Computer Science program. Both students expect to continue with some more work on FreeBSD after the work term ends. Next month two new co-op students will join the Foundation's Kitchener-Waterloo office, and I look forward to

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sharing the projects they take on.

-- contributed by Ed Maste

## 2017 Fundraising Update



As we approach the fall fundraising season, I wanted to give you an update on how we are doing with our fundraising efforts; what your contributions have allowed us to do to support FreeBSD; and some of the areas where we'd like to increase our support.

First, I wanted to send out a heartfelt thank you to an anonymous donor, who generously donated at the Uranium Level (\$250,000 or more). This donation puts us at \$738,402, towards our goal of raising over \$1,500,000!

Second, as you may know, our work to support the FreeBSD Project and community worldwide is 100% funded by individual and corporate donors. In this newsletter, we've highlighted some of our recent efforts, to give you an idea of how we are using your donations. In addition, here is an overview of how your contributions have helped FreeBSD over the past few months.

Your financial support has allowed us to:

- Advocate and educate about FreeBSD at more events around the world, including presenting the "Advantages of FreeBSD" in China, teaching about security using FreeBSD in Africa, running hackathons in Germany, and sponsoring conferences and summits around the world.
- Fund and oversee software development projects to accelerate improvements to FreeBSD, including adding support for nonvolatile memory (NVDIMM), updating the kqueue kernel subsystem for modern application needs, continuing development on FreeBSD's permissively licensed toolchain, adding 64-bit inode support, adding and improving bhyve ARMv7 and ARMv8 support, and improving security and kernel reliability through stack guard page mapping and kernel undefined behavior sanitizer.
- Provide a full-time staff member to oversee the release

engineering efforts, which resulted in FreeBSD 11.1 being released on time.

- Acquire and maintain hardware to improve the FreeBSD infrastructure.
- Facilitate collaboration between commercial users and FreeBSD developers.
- Protect the Project's IP and provide legal support.

Third, by meeting and hopefully exceeding our fundraising goal, we will also be able to:

- Promote FreeBSD at even more computing conferences.
- Provide FreeBSD teaching material to introduce using FreeBSD as a platform for research, computing, education, and products.
- Fund more software development work – we are in the process of kicking off four new software development projects!
- Increase travel to attend conferences, meet with commercial users, and teach at universities.
- Improve developer tools and testing coverage.

As you can see, we're well on our way to a very productive 2017. However, we truly can not do it without you. Please consider supporting the Project by [making a donation](#) today.

Finally, we recently launched our new Partnership Benefits Program to attract more corporate sponsors to help us achieve our goals. You can find out more about this program [here](#). Please share this information with colleagues and companies you think may be interested.

Thank you again for your continued support!

-- contributed by Deb Goodkin

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## July/August 2017 Conference Recaps and Trip Reports

From sponsoring events to attending conferences and awarding travel grants, the Foundation continued its mission of advocacy and fostering community in July and August. Over the past few weeks, members of the Foundation team and travel grant recipients shared their stories of attending events around the world. Below are just a few of the conference recaps and trip reports.

### **BSDCan 2017 - contributed by Roller Angel**

Prior to the first day of the Devsummit, I traveled to Canada by plane from Colorado. When I arrived in Ottawa, I dropped off my luggage at the place where I would be staying during the conference. I stayed in an AirBnb with the FreeBSD Foundation's two new interns Siva and Charlie. [Read more...](#)

### **2017 Essen Hackathon - contributed by Benedict Reuschling**

On the weekend of the G20 summit in Hamburg, a different and more peaceful meeting happened in the Linuxhotel in Essen, Germany. For the third time now, FreeBSD developers, users, and enthusiasts spent the weekend to hack on the operating system and exchange ideas. [Read more...](#)

#### **BSDCam 2017- contributed by Michael Lucas**

Over the decades, FreeBSD development and coordination has shifted from being purely on-line to involving more and more in-person coordination and cooperation. The FreeBSD Foundation sponsors a devsummit right before BSDCan, EuroBSDCon, and AsiaBSDCon, so that developers traveling to the con can leverage their airfare and hammer out some problems. Yes, the Internet is great for coordination, but nothing beats a group of developers spending ten minutes together to sketch on a whiteboard and figuring out exactly how to make something bulletproof. [Read more...](#)

#### **FreeBSD in China at COPU and LinuxCon - contributed by Deb Goodkin**

In May of 2017, we were invited to give a talk about FreeBSD at COPU's (China Open Source Promotional Unit) Open Source China, Open Source World Summit, which took place June 21-22, in Beijing. This was a tremendous opportunity to talk about the advantages of FreeBSD to the open source leaders and organizations interested in open source. I was honored to represent the Project and Foundation and give the presentation "FreeBSD Advantages and Applications". [Read more...](#)

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## **Open Travel Grant Applications**



The Foundation recognizes the importance of bringing members of the FreeBSD community face-to-face to both further development of the Project and spread the word about FreeBSD. Travel grants are available to community members who need

assistance with travel expenses for attending conferences related to FreeBSD development and advocacy. Please note: The travel grant policy has been recently updated. Please carefully review before submitting your application.

#### **BSDTW 2017: November 11-12, 2017, Taipei, Taiwan**

Application Deadline: September 26, 2017

Find out more and apply [here](#).

*-- contributed by Anne Dickison*