

# FreeBSD Foundation August Update



The  
**FreeBSD**  
FOUNDATION

Dedicated to supporting the  
FreeBSD Project and Community

## Upcoming Events

### [September 2015 FreeBSD Developer Summit](#)

September 11, 2015  
Reston, Virginia

### [vBSDcon 2015](#)

September 11-13, 2015  
Reston, Virginia

### [SNIA Storage Developer Conference 2015](#)

September 21-24, 2015  
Santa Clara, CA

### [womENCourage 2015](#)

September 24-26, 2015  
Uppsala, Sweden

### [EuroBSDcon 2015](#)

October 1-4, 2015  
Stockholm, Sweden

### [BSDCon Brazil 2015](#)

October 9-10, 2015  
Fortaleza, Brazil

### [GraceHopper 2015](#)

October 14-16, 2015,  
Houston, Texas

### [November 2015 FreeBSD Developer and Vendor Summit](#)

November 2-3, 2015  
Sunnyvale, CA

### [USENIX LISA '15](#)

November 8-13, 2015  
Washington, D.C.

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**FreeBSD Journal**

## Message from the Executive Director

As the kids head back to school and fall is just around the corner, the Foundation is gearing up for one of the busiest seasons on record. Working on the middle school FreeBSD class; preparing for the long list of upcoming events; and making even greater progress on Foundation sponsored projects are just some of the things we've been doing to support the Project. Please take a moment to check out what we've been up to this month, and thank you for your continued involvement in FreeBSD!

Deb

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## Development Projects Update

As summer comes to an end, I look back on the great progress we've made on a number of Foundation-sponsored projects and productive meetings that



we've held. I recently returned from the BSDCam workshop held at the University of Cambridge. Around 50 FreeBSD developers and invited guests attended this Foundation-sponsored event, and participated in some excellent discussion and planning sessions. Detailed notes from these sessions will soon be published within the FreeBSD community, but I'll specifically mention the tool chain session here. I lead the discussion and we covered many topics - some more as status updates, and others as a broader discussion. Topics included ongoing LLVM integration and incorporating additional LLVM-based tools like the linker (LLD) and sanitizers for identifying defects in source code, the ELF Tool Chain components, and others. We were able to agree on a viable path to completing the migration away from a number of aging tool components in FreeBSD to a fully permissively licensed tool chain and runtime.

We also have some excellent progress on project development. First is the ongoing effort on the FreeBSD/arm64 port. Andrew Turner was largely responsible for the basic functionality, which was committed to the FreeBSD HEAD development repository some time ago. Semihalf recently wrapped up and committed the remaining changes to support



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See what others are saying about the Journal:

"Awesome! This is the best way to popularize FreeBSD!!" San Jose, California

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

## Why Choose FreeBSD?

### NYC\*BUG

"Almost 12 years of the New York City \*BSD User Group (NYC\*BUG) provides a useful perspective on the \*BSD ecosystem.

NYC\*BUG is a technical user group in New York City. We conduct monthly meetings and held five conferences in various forms, plus maintain various mailing lists.

We also manage a full cabinet at New York Internet hosting a number of projects, such as the BSD Certification Group and array of mirrors.

all 48 CPU cores in Cavium's ThunderX processor. Semihalf is now nearing completion on a device driver for ThunderX's 10/40 gigabit per second network interface. This support will make FreeBSD a viable "out-of-the-box" operating system for the ThunderX platform as ThunderX enters general commercial availability.

Andrew Turner has been working on support for the HiKey board from HiSilicon. It conforms to the 96Boards Consumer Edition specification and carries an eight-core ARM Cortex-A53 64-bit system-on-chip (SoC) and 1GB of RAM. The HiKey board will provide a low-cost way for individual developers to explore FreeBSD/arm64.

One of the Foundation's project development goals is to augment the FreeBSD community development process, not displace it. I'm happy to report on community efforts in both arm64 ports/packages and UEFI boot support.

Sean Bruno has continued building FreeBSD/arm64 packages using the QEMU user-mode support developed by Stacey Son. Nearly 17,000 packages are now available, and tool chain changes mentioned above will enable over 1,000 more.

Marcel Molenaar committed a number of improvements to the EFI frame buffer implementation and UEFI boot code, enabling FreeBSD to boot in UEFI mode a large number of devices that previously failed. This includes many Apple Mac devices.

Along with the Release Engineering Team, FreeBSD Foundation staff member and Release Engineer, Glen Barber, released FreeBSD 10.2-RELEASE in mid-August, two weeks ahead of the planned schedule.

Foundation staff member Konstantin Belousov continued working on atomics usage cleanup and optimizations. Konstantin also fixed longstanding high-profile issue that prevented FreeBSD/i386 from working with ZFS, as it required a larger initial stack. The change introduced a boot-time tunable parameter for the kernel stack size which eliminates one more reason that end users may need to recompile a kernel.

Edward Napierala continued working on the reroot project, and started working on a prototype implementation of a Binary Artifact Transparency server which will enable the Project to secure installer and package distribution against malfeasance - we'll have more details on this exciting project in a future update.

-- contributed by Ed Maste

## So Many Conferences, So Little Time...

Just a quick glance at the left-hand column of this newsletter and you'll get a glimpse at just some of the events the FreeBSD Project and Foundation are heading to this fall. We're very excited to take part in these events, because attending is not only an excellent opportunity to spread the word about all of the good work the FreeBSD Project and Foundation are doing, but also offers the chance to introduce new people to FreeBSD.

If you are interested in attending any of these events, don't forget that the Foundation has travel grant opportunities available. The deadline

Our position provides a multitude of angles on FreeBSD usage in the New

York metropolitan area, from end-users exploring FreeBSD for the first time to enterprise infrastructures relying on FreeBSD. We manage to attract both the experienced and those dipping their toes into the \*BSD water for the first time.

While NYC\*BUG plants a flag and maintains a steady \*BSD presence, we benefit from the increased interest and reliance on FreeBSD as a stable, sane operating system. This is particularly true over the past few years, with the role of FreeBSD at Netflix and support for FreeBSD at the cloud service provider Digital Ocean, not to mention firms like Xinuos and New York Internet which rely heavily on the project.

FreeBSD's reputation plays a critical role in our long-term sustainability. We know our organizational abilities and own particular technical duties only goes so far. Continuing development from 64-bit ARM to the new pkg system means providing us the fuel to continue our prominent role in New York's technical community.

More generally, we point to the FreeBSD project and Foundation as solid models for scaling open source projects, unlike so many flash-in-the-pan projects that get cold as quickly as they got hot.

The FreeBSD Foundation provides regular support for our larger events. We are excited to

for submitting your application for EuroBSDcon 2015 is Friday, September 4. You can find out more about travel grant applications [here](#).

As always, if you're attending any of the events, please be sure to stop by the FreeBSD table to say hello and check out what's new. It's also an excellent time to make a donation to the Foundation. See you soon!

-- contributed by Anne Dickison

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## Fundraising Update: Think Give

I recently read this article called the 12 Commandments for a Happy Life and Soul. Nothing life shattering, but it was one of those articles that made me reflect on my life and work.

What stood out most was the last commandment "Think give." It means when you wake up in the morning, ask yourself questions like "what can I do to leave this world a better place?" and "How can I serve?" I believe the Foundation embodies these ideas. We are here to serve, and everyday we look at how we can help further FreeBSD. Our purpose is to support the FreeBSD Project and community, and that support helps FreeBSD make the world a better place. Here's how:



- People around the world can acquire marketable job skills by working on the Project.
- FreeBSD is a free operating system that works on inexpensive platforms like BeagleBone Black and Raspberry Pi to create low-cost computers that can be provided to low-income people and people in impoverished areas around the world.
- FreeBSD is free for anyone to use, even large for-profit corporations who create products that make this world a better place. For example, WhatsApp creates a messaging app that allows family members and friends to communicate to each other all over the world.
- We will soon be providing workshops to introduce computers and operating systems to women and girls around the world. We hope to encourage more women and girls to view engineering not only as a career for the "geek-minded," but also as an option for those looking for a career path that leads to job and financial security.
- People around the world can be involved in this welcoming and inclusive environment learning new skills, gaining expertise in an area, and becoming a leader. These are empowering opportunities that can build self-confidence and allow people to give back to make a positive difference in this world.

So, what have we done this past month to help FreeBSD?

continue working hand-in-hand with the broader FreeBSD technical community and the Foundation."

– NYC\*BUG's Admin@ Group,  
[NYC\\*BUG](#)

Glen Barber worked tirelessly to help get FreeBSD 10.2-RELEASE out, early! It continues the legacy of a stable, reliable, and secure operating system.

- Robert Watson and George Neville-Neil have been working together in Cambridge refining and improving their college level class based on their book "The Design and Implementation of the FreeBSD Operating System," 2nd Edition, by Kirk McKusick, George Neville-Neil, and Robert Watson.
- Justin Gibbs has been working on his semester long middle school FreeBSD class that starts on September 11th.
- Anne Dickison has been advocating for FreeBSD through social media and partnerships, providing more up-to-date literature and new FreeBSD artwork for people to show their love of FreeBSD.
- We were a sponsor of BSDCam to help provide face-to-face opportunities for developers to work together on solving today's problems and developing new functionality and features.
- In addition, we sponsored developers to attend BSDCam and approved more travel grant applications to help get FreeBSD contributors to upcoming conferences and developer summits.
- Our in-house development team and outside contractors continued making improvements to FreeBSD to help make it the best open source operating system available!

We couldn't do all this work without your support. We've raised \$410,000 towards our goal of \$1,250,000, from 556 donors. We need your help to reach our goal, so we can continue and increase our level of support for FreeBSD!

You can help by sharing our newsletter on social media, making a donation today, and/or asking your employer to donate to the Foundation.

Is your company benefiting from using FreeBSD? Do you see the value, but don't know how to convince the business side of the benefits your company is receiving from using FreeBSD?

One of our longtime donors goes through this every year. Being a longtime FreeBSD advocate himself, not to mention he was one of the first BSD developers, he provided us a donation request template to share with the FreeBSD community, because he wants to see FreeBSD continue to improve and grow. Click [here](#) to access the template.

We are always interested in hearing about companies using FreeBSD. Feel free to let us know who is using FreeBSD, so we can approach them for support. You can email me at deb (at) freebsd.foundation (dot) org.

Please show your support for FreeBSD by [making a donation](#) today.

Thank you for your continued support!

-- contributed by *Deb Goodkin*

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