Getting Started with FreeBSD

BY ROLLER ANGEL

Working with the Front Range BSD User Group, I have taught a Getting Started with FreeBSD workshop at SCaLE for a few years now. I do so because I realize the power of the tools and enjoy sharing my experience with others through workshops like this one. I also come away from each session with fresh validation for my own setup and with feedback that fuels a steady flow of improvements to the workshop. The most recent session was at SCaLE 19x, and in previous years, the workshop was presented at SCaLE 17x and 18x.

The Workshop at SCaLE 19x

Participants came wandering into the ballroom where they were welcomed by the projector screen's Getting Started with FreeBSD title slide — created by the FreeBSD Foundation's Marketing Coordinator, Drew Gurkowski. The presentation was livestreamed via YouTube at https://www.youtube.com/watch?v=ByFCRwMJATM and screenshots can be pulled from the livestream.

Typically, the FreeBSD Foundation's Executive Director, Deb Goodkin, begins the workshop with an introduction to the presentation, but this time, Drew Gurkowski did a great job with that.

With each workshop, we want to make sure that participants can work through hurdles and follow along with the process. We initialize and configure a virtual machine in VirtualBox, which we use for lack of a computer lab to make use of a lab machine. Part of the process is inserting the virtual cd into the CD-ROM drive of the virtual machine. We then boot from that cd drive and install FreeBSD to the virtual hard drive of the virtual machine. At the end of the FreeBSD installer, we run the command **`shutdown -p now`** to instruct FreeBSD to shut off the computer. That way, we can remove the virtual disc and prevent the virtual machine from starting from the disc when booting again. Once we've installed FreeBSD to the hard drive, we'll want to boot from the hard drive from then on.

FreeBSD
www.freebsd.org

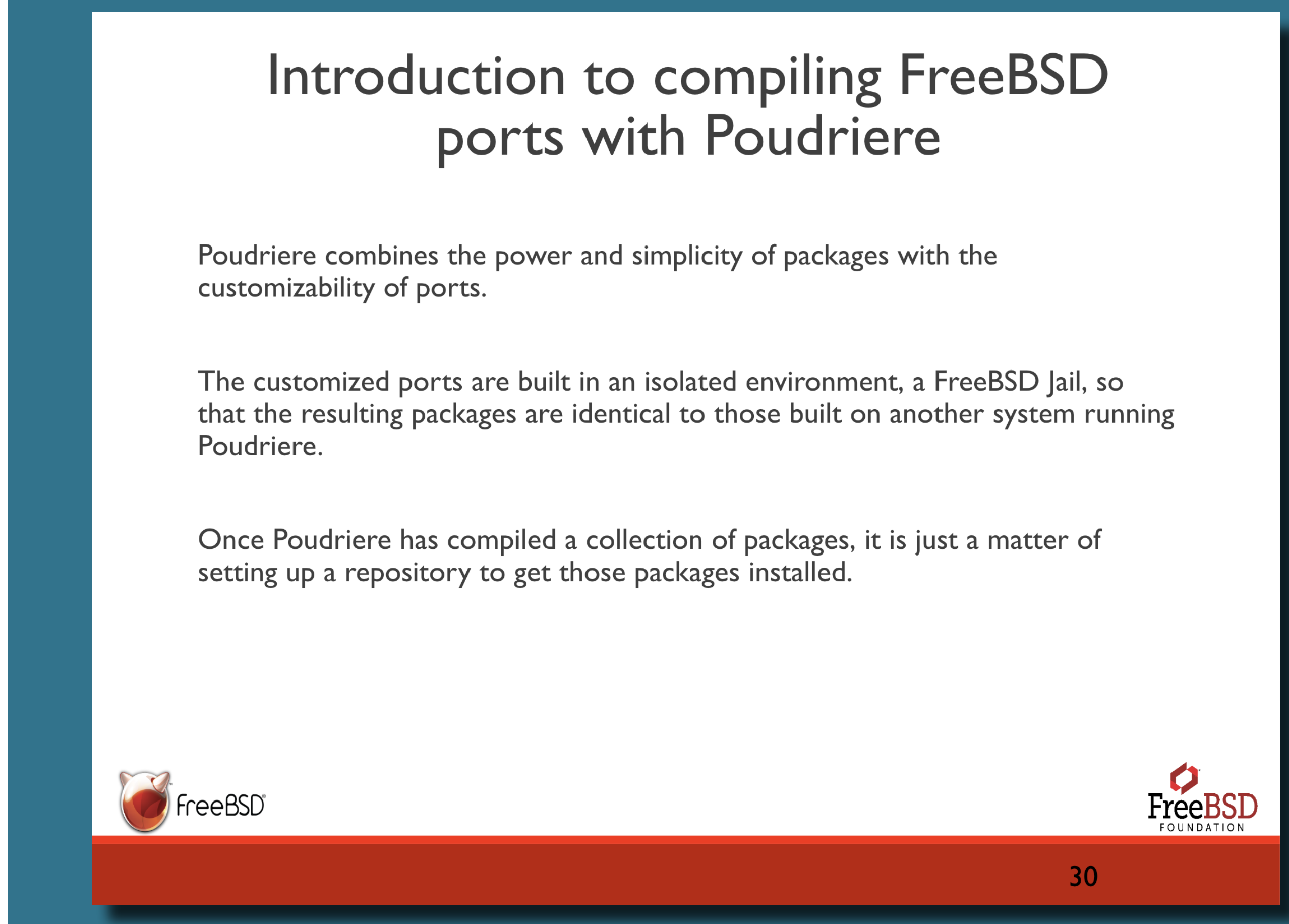
FreeBSD FOUNDATION
www.freebsdfoundation.org

Getting Started With FreeBSD

Roller Angel - FreeBSD Sys Admin
Drew - FreeBSD Foundation

At this point in the workshop, we take a short break, and I use the time to find anyone who hasn't quite caught up and see how I can assist them. The most typical issues I see are incorrect virtual machine settings. We stick with defaults on most settings, but, as an example, someone had unchecked Enable I/O APIC in the System settings of the virtual machine, so checking that box fixed it. Another participant set the machine type to 32-bit and changing that setting to 64-bit solved their issue. When troubleshooting, keep in mind that even a small typo in a package name or setting can be the culprit. More recently, an issue people have faced is the lack of a suitable hypervisor on the new Apple processors, as VirtualBox is not supported on them. We had to work around a few small quirks with the conference WiFi regarding the DNS settings being provided to our virtual machines via DHCP and we ended up changing the nameserver listed in our `/etc/resolv.conf` file.

The next step is demonstrating how thin the line is between server and desktop. Installing a few packages and updating some configuration files is what it takes to get the desktop ready to start. All we need to do is issue the **`startx`** command to tell FreeBSD to start up the desktop. It's great to see participants realize they have just set up their own desktop and that there was no specific distro or flavor of FreeBSD needed for a specific X Window System window manager such as KDE Plasma 5, Lumina, or GNOME. We used XFCE, but also demonstrated how easy it is to install and configure whichever one you want to use. With the window managers running, you can interact with GUI applications like the web browser, programming IDE's, file manager, etc.



Introduction to compiling FreeBSD ports with Poudriere

Poudriere combines the power and simplicity of packages with the customizability of ports.

The customized ports are built in an isolated environment, a FreeBSD Jail, so that the resulting packages are identical to those built on another system running Poudriere.

Once Poudriere has compiled a collection of packages, it is just a matter of setting up a repository to get those packages installed.

30

I thought it was important to also introduce participants to the process of building a custom package repo. If they run into an issue that requires customization of a port and building their own package, they already know how to avoid common pitfalls and don't go down the path of mixing ports and packages. The tool we used is called Poudriere, and it makes building your own package repo quite easy and straightforward.

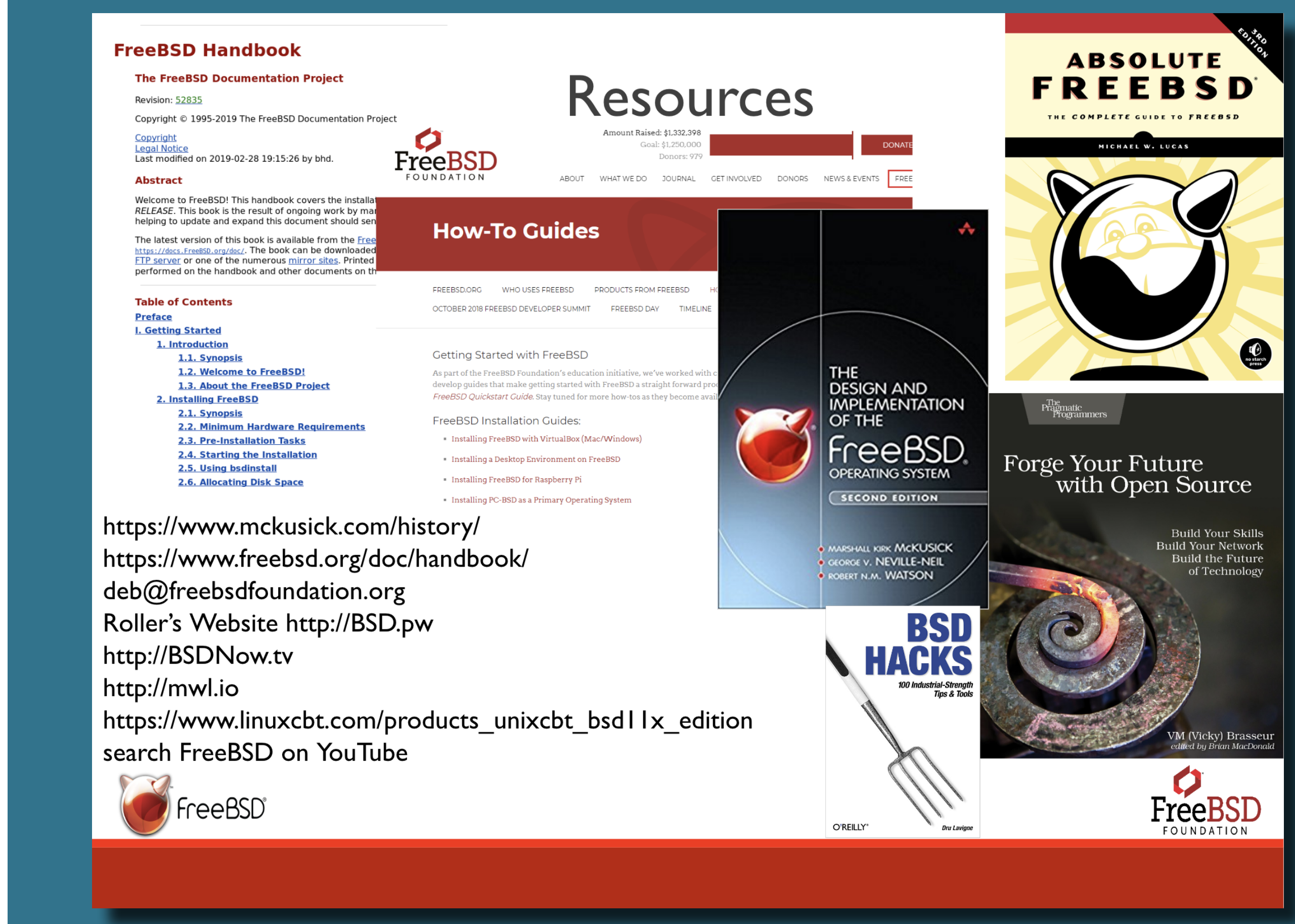
As participants learn to type their commands into the command line, a fitting tool to discuss is Ansible which is typically used for configuration management and works well for controlling remote machines over SSH. We demonstrate how to clone our FreeBSD virtual computer and connect to it via SSH. This way, we can try out Ansible and see how easy it is to tell Ansible to type the commands using a tool called Ansible Playbooks. Included as part of the workshop is an Ansible Playbook we use to setup Poudriere on a remote machine that builds all our packages and synchronizes the resulting files back to our local machine. The idea is that we can rent a very powerful machine for a short period of time to build our packages and then destroy that machine once we have the package files downloaded to our local machine and no longer need the package builder machine. To use the downloaded packages, we can change the package repository settings to point to a **`file://`** path where our package files can be found rather than the default https://download.FreeBSD.org setting.

We also discuss FreeBSD Jails so that participants can get a feel for them and see how easy they are to manage using iocage. We recommend MWL.io for in-depth books regarding FreeBSD Mastery and for workshop participants to follow along with Michael W Lucas as he deep dives into topics regarding FreeBSD Jails, Poudriere, Installing FreeBSD and much more.

The Participants

It was a fantastic group and people from all backgrounds and experience levels were able to geek out on some cool tech and learn something new that will help support their future work. It's easy to see where you can use FreeBSD to solve problems once you get the hang of installing and configuring it. With configuration management tools like Ansible, you can take what you've learned even further as you have a growing record of the changes you made to configuration files and the packages you installed. You can quickly pick up where you left off and continue to learn even more as you progress on your journey with FreeBSD.

We had a very enthusiastic crowd and several participants even brought along laptops on which they planned to install FreeBSD, and some had questions about FreeBSD WiFi. You can easily use USB Tethering from Android to share an internet connection with FreeBSD, plug in the cord, enable the tethering, and then execute the command **`dhclient ue0`** as a privileged user and that will use DHCP to get an address from the first USB Ethernet device. Of course, you can always configure your internal WiFi card with **`/etc/rc.conf`** and **`/etc/wpa_supplicant.conf`** as well. Check section 5 of the FreeBSD Manual Pages for details on these files including the list of supported options. More info on WiFi is in Chapter 32: Advanced Networking of the FreeBSD Handbook.It's good to know which options are available and the workshop aims to get all the usual FAQs answered, to get people using FreeBSD for something cool, and to help people use the software to solve problems.



Resources

https://www.mckusick.com/history/
https://www.freebsd.org/doc/handbook/
deb@freebsdfoundation.org
Roller's Website http://BSD.pw
http://BSDNow.tv
http://mwl.io
https://www.linuxcbt.com/products_unixcbt_bsd11x_edition
search FreeBSD on YouTube

FreeBSD Handbook
How-To Guides
THE DESIGN AND IMPLEMENTATION OF THE FreeBSD OPERATING SYSTEM SECOND EDITION
ABSOLUTE FREEBSD
BSD HACKS
Forge Your Future with Open Source
FreeBSD FOUNDATION
FreeBSD

In closing, I want to mention one participant who came in halfway through the day, was way behind, and not able to catch up. After the workshop, I sat with him in the lobby and helped him get everything running. He had an old core 2 Duo processor, so it was taking extra-long to complete the process on his machine. He was grateful for the help and expressed interest in learning more about BSD. I suggested *FreeBSD Journal*, MWL.io, and BSD User Groups. Plus, I'm always happy to help and my website is http://BSD.pw

ROLLER ANGEL spends most of his time helping people learn how to accomplish their goals using technology. He's an avid FreeBSD Systems Administrator and Pythonista who enjoys learning amazing things that can be done with Open Source technology — especially FreeBSD and Python — to solve issues. He's a firm believer that people can learn anything they wish to set their minds to. Roller is always seeking creative solutions to problems and enjoys a good challenge. He's driven and motivated to learn, explore new ideas, and to keep his skills sharp. He enjoys participating in the research community and sharing his ideas.