Want to know more about OpenBSD?

POWER TO THE DAEMON

In this month's Free World Richard Ibbotson follows up his look at FreeBSD and NetBSD with a closer inspection of OpenBSD – whose many developers and administrators include the likes of Theo de Raadt and Wim Van de Putte

In previous months we've mentioned that BSD is considered by many to be even more secure than GNU/Linux; this couldn't be more evident than in OpenBSD. The OpenBSD project is now more than six years old and the authors boast that there hasn't been a hole in the remote install in over four years.

The OpenBSD source code is being continually edited to patch holes long before they ever become an issue. Therefore, if you require a secure server or firewall, then OpenBSD is the logical choice. That's not to say you couldn't also use it on your desktop if you wanted to.

The entire system is based around secure cryptography routines – OpenSSH began as part of the OpenBSD project – which reinforce the project's no-nonsense approach to software development.

Installing OpenBSD
Having taken the decision to install OpenBSD on your secure server, firewall or even your notebook – a popular use for the OS – the installation process can be started by using a boot floppy or installing from a CD-ROM. These can be purchased online from the OpenBSD site, or alternatively you can install directly via FTP.

For the purpose of this guide we'll assume that you're installing OpenBSD from a CD-ROM – version 3.0 is the latest release at the time of writing. Starting with CD1, you will quickly move through some install screens, which are not unlike those we encountered in FreeBSD and NetBSD. If you can't get access to online help at the start of the installation, it doesn't matter. The CDs come with a quick install guide that should give you a fair idea of where to start and what you're going to do.

The first thing that you will see on the screen after booting will look like this...

```
rootdev=0x1100 rrootdev=0x2f00 rawdev=0x2f02
Enter pathname of shell or RETURN for sh:
erase ^?, werase ^W, kill ^U, intr ^C
(I)nstall, (U)pgrade or (S)hell? i
=================================================
=
Welcome to the OpenBSD/i386 3.0 installation
program.
This program is designed to help you put
OpenBSD on your disk in a simple and rational
way. As with anything which modifies your
disk's contents, this program can cause
SIGNIFICANT data loss, and you are advised to
make sure your data is backed up before
beginning the installation process.
Default answers are displayed in brackets after
the questions. You can hit Control-C at any
time to quit, but if you do so at a prompt,
you may have to hit return. Also, quitting in
the middle of installation may leave your
system in an inconsistent state. If you hit
```

```
Control-C and restart the install, the install
program will remember many of your old answers.
You can run a shell command at any prompt via
'!foo' or escape to a shell by simply typing
'!'.
Specify terminal type [vt220]: <Enter>

Press enter here and then move on to the next
part of the installation...
```

The installation program needs to know which disk to consider the root disk. Note: the unit number may be different than the unit number you used in the boot program (especially on a PC with multiple disk controllers). Available disks are:

```
wd0
Which disk is the root disk? [wd0] <Enter>
Do you want to use the *entire* disk for
OpenBSD? [no] yes

[...]
```

Next you are asked to partition your hard disk. The quick install guide, which comes with your CDs, shows all of this info as well. You may find it useful to know that you can multi-boot this version of BSD with Microsoft Windows NT or XP.
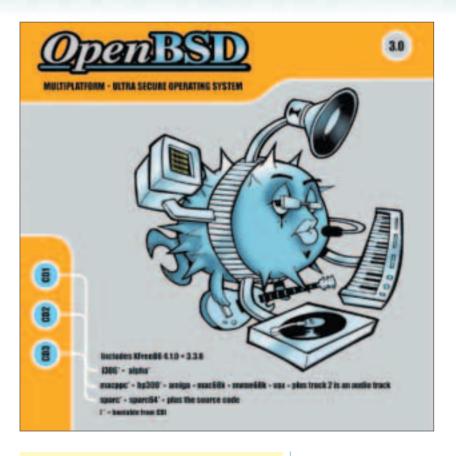
You'll now be prompted to set up your partitions and mount points. After this you can then set up any network connections, such as your modem or network card. Since we are installing OpenBSD, it's best to leave ADSL and ISDN configuration until later on. Configuring the Ethernet version of ADSL is fairly easy under OpenBSD, but if you want a different setup then you should really seek out some advanced reading. You might want to consider a wires-only service for ADSL and then get hold of a modem/router that has RJ45 sockets, so that you can use the Ethernet version of ADSL that way. In any event, you will have to firewall your new connection, and it is much better to firewall around an Ethernet device than anything else. The Alacatel USB modems can be troublesome to configure. If you are just using a 56K modem with an ordinary telephone line then you shouldn't have any problems at all.

Finally, you will be asked which sets of software you wish to extract from the CDs, such as KDE or the XFCE desktop. This is the screen that will ask you which software you want:

```
The following sets are available for
extraction.
Enter filename, `list', `all', or `done'.
You may de-select a set by prepending a '-' to
its name.
        [X] base30.tgz
        [X] etc30.tgz
```



```
        [X] misc30.tgz
        [X] comp30.tgz
        [X] man30.tgz
        [X] game30.tgz
        [X] xbase30.tgz
        [X] xshare30.tgz
        [X] xfont30.tgz
        [X] xserv30.tgz
        [X] bsd
File name? [] -game*
```

Your selected software will then be installed into the hard drive in your computer.

```
/mnt2//3.0/i386/base30.tgz:
100%
|*********************************************
****|  21192 KB     00:00 ETA
/mnt2//3.0/i386/etc30.tgz:
100%
|*********************************************
****|    987 KB     00:00 ETA
```

Now all you have to do is to set the time zone and then the boot blocks will be installed for you. This makes your machine bootable from the hard disk you have chosen.

Troubleshooting

As your machine starts up it might be wise to watch the boot messages for failed hardware detection. You can

Info

OpenBSD *http:/www.openbsd.org*
To order some CD-ROMs or T-shirts
http://www.openbsd.org/orders.html
Compatible hardware
http://www.openbsd.org/plat.html
How to install
http://www.openbsd.org/faq/faq4.html
ftp://ftp.openbsd.org/pub/OpenBSD/3.0/i386/INSTALL.i386
Useful documents
http://www.openbsd.org/docum.html

http://www.openbsd.org/cgi-bin/man.cgi
Security issues
http://www.openbsd.org/security.html
http://www.openbsd.org/crypto.html
Firewalls *http://www.obfuscation.org/ipf/ipf-howto.txt*
Goals of the project
http://www.openbsd.org/goals.html
You would like to support OpenBSD
http://www.openbsd.org/donations.html
Professional support that you can pay for
http://www.openbsd.org/support.html

type *dmesg* when the system is up and running to view boot messages. Having done that you can configure any hardware or software that you missed out on thus far.

You may need to adjust */etc/hosts* or */etc/resolv.conf* or something similar. If you get confused here then have a look at the documents on the Web site. There is also a PDF-based FAQ you can download, which is very helpful. After looking into all of this you might well want to ask questions and raise issues such as compiling a kernel or migrating from GNU/Linux completely. You can consult the mailing list archives for that. Before sending mail to one of the lists you should consult the document at *http://www.openbsd.org/mail.html*, which gives a useful guide to netiquette on the OpenBSD lists.

It's also good to know that the OpenBSD manpages are amongst the best available. Shortly after installing your new computer you should type in *man afterboot* and read the document hidden therein. After that you can begin to ask constructive questions. Other useful documents are man ifconfig and man route. Reading these will help you to understand the shortened and simplified instructions that you can see above.

Security

It's probably a good idea to mention some more about security and security issues at this point. As well as the usual things that you might expect from a well-designed operating system, there are useful tools like S/KEY one-time passwords. KTH Kerberos IV and V are integrated with many kerberised applications. The newly produced comprehensive firewalling system can be used with syntax that is not unlike those used in the other BSDs.

There was a licence problem with the old IPF and a new version had to be written. PF(4), as it is known, is already thought to be something of a world-beater. It has built-in NAT functionality and support for both IPV4 and IPV6. There is a built in "scrub" that sanitises fragmented and overlapping IPV4 packets. For more info about using firewalls with BSD have a

look at the firewall URL below. This is one of the best HOWTOs on the subject. Other well-known security tools include snort and portsentry; both of which can be good when used properly.

Supported hardware

You can install this version of BSD into several different types of hardware. There isn't quite the same range of hardware that you can use with NetBSD but there's plenty to go at and most system administrators are happy enough with OpenBSD as it is. The hardware that can be used is:

- alpha – DEC Alpha-based machines
- amiga – Amiga m68k-based models (MMU required)
- hp300 – Hewlett-Packard HP300/HP400 machines
- i386 – Intel based PC's
- mac68k – Most MC680x0-based Apple Macintosh models
- mvme68k – Motorola MVME147/16x/17x 68K VME cards
- macppc – Support for Apple based PowerPC systems
- sparc – SPARC Platform by Sun Microsystems
- sun3 – Sun's 68020 based Sun3 models
- vax – DEC's VAX computers

To sum up. You can do most things with OpenBSD. It's very secure and the developers pride themselves in this simple fact. If you want to do something else you might consider NetBSD and or FreeBSD, which were explained in simple terms in previous issues. You might even think about a mixed network where GNU/Linux is to be found alongside one of the BSDs.

The author

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