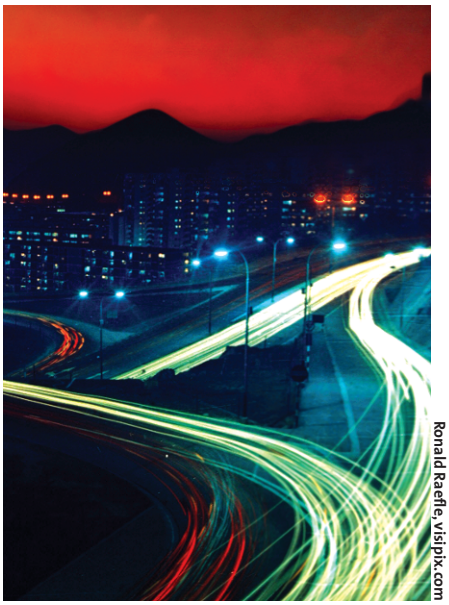
An Up-to-date Overview of Free Software and its Makers

Projects on the Move

Free software covers such a diverse range of utilities, applications and other assorted projects, that it can be hard to find the perfect tool from all that programming effort. As the range increases so rapidly, you occasionally need a little help to make your choice. We pick the best of the bunch for you.

BY MARTIN LOSCHWITZ



Ronald Raeffe, visipix.com

In this month's issue we begin by focusing on Racer, a racing game for automobile fans, and then move on to using Linux as a Wireless Access Point. We continue with a look at OpenBSD 3.4; also Debian, teamwork and a change in the Constitution.

Racer

The racing simulation game, Racer [1], is something special. There are two reasons for this. For one thing, the game runs both on Windows and on Linux. For another, Racer is the first free simulation of this type for Linux. Sadly, the author has not adopted free licensing for the application; although the source code can be downloaded from the author's website, there is an explicit note to the effect that Racer is not an Open Source project. The wording of the license is unclear; anyone interested in modifying the source code would do well to contact the author beforehand.

THE AUTHOR

Martin Loschwitz is from a small German town called Niederkrüchten and a developer for Debian GNU/Linux. Martin's leisure time is mainly preoccupied with activities in the Debian or GNU community.

The homepage provides a number of binary downloads, although only SuSE Linux 7.3 and nVidia cards are supported. In most cases, you will need to compile the game from the sources. And this is no trivial matter, as is evidenced by the unofficial FAQ at [2] and the troubleshooting page [3]. Racer requires a video adaptor with hardware acceleration support.

After launching the program, players can choose between timed laps in single-player mode, and a networked team game. In team mode, players can opt to join an existing team, or start up their own.

On of Racer's special features is the fact that it is extensible by adding themes. The Racer Xtreme group's website at [4] provides a number of new racing cars and tracks. After downloading a theme, players can select their favorites using the *Select Track* and *Select Car* menu items. The Ferrari Enzo and the Opel/Vauxhall Speedster are just some of the highlights. There are also one or two Formula 1 tracks, such as Monaco and Silverstone.

The game is mouse controlled. This is unusual and takes some getting used to, but after a short learning curve, most players should be able to control their cars quite accurately. And if you want to monitor your prowess on video, you can record a race using Racer's recording facilities. By default, videos are placed in temporary storage, but there is a menu item that allows you to store them on disk. To do so, simply press the [F2] key while playing.

Admittedly, Racer does have one or two weak points. The controls are slightly frantic at high speeds. The crash scenes are poor: If a player runs into a wall, the car flips onto its roof, and disappears from the screen, freezing the game in the process. You need to restart to get the game going again.

Having said that, Racer is a neat racing simulator that has helped me while away many a boring afternoon. The bugs are rarely intrusive, and many hours of untroubled gaming are guaranteed.

Host AP

Wireless LAN is a convenient way of linking up two computers. All you need are two cards that can communicate in ad hoc mode. But to link up multiple computers to a WLAN, it is preferable to use an access point (AP).

There are any number of access points on the market at present, but most of them have fixed antennas that cannot be replaced if damaged. Some are plagued by unstable firmware, one notable exception being Linksys, who run Linux on their APs. Enter the Host AP driver for Linux [5] that allows you to run a PC as an access point. The only requirement is a WLAN card with a Prism 2, Prism 2.5, or Prism 3 chipset.

Host AP comprises multiple components: the device drivers for PCMCIA and PCI cards (*hostap_cs* and *hostap_pci*) basically perform the same tasks as the drivers in the PCMCIA CS [6] or Linux WLAN NG packets [7], but they have been optimized for Host AP. The second component is the *hostap* driver. The optional *hostap _wep* module provides WEP encryption for the system.

After loading the modules, you simply enable the *hostap* transfer mode.

The Host AP driver works with both the PCMCIA CS suite and the internal kernel-based PCMCIA structure. The latter method has the advantage of allowing you to patch Host AP into the kernel; the patches for the current version are available in the CVS branch of the project, along with the drivers.

Figure 1: The Ferrari Enzo is one of many racing cars available with Racer, the first free racing simulation for Linux. You can add cars and tracks to enhance the game. A large selection is available from [4]

New OpenBSD Release

The latest version of the OpenBSD operating system (version 3.5) was published on the FTP Servers at [9] on November 1 [8]. The OpenBSD project aims to provide as secure an operating system as possible. The new version now uses the ELF binary format by default on x86 machines. ELF thus replaces *a.out*, which is now considered obsolete and troublesome.

This critical enhancement also brings *W^X* functionality to x86 PCs (Writable xor eXecute support), and should help prevent buffer overflows at kernel level. It ensures that memory addresses tagged as writeable, cannot be executed at the same time. This protects the system, even if it is running programs that are susceptible to buffer overflow attacks. OpenBSD's standard compiler also has routines that check for typical programming errors in memory handling routines.

OpenBSD 3.4 can read NTFS partitions, although it does not currently support write access. The developers face the same problem as the Linux community: Microsoft simply refuses to release the specifications for the NTFS file system. Although write support is available for Linux, it is still officially classified as *DANGEROUS*. In a worst case scenario, a write operation could actually destroy your whole file system.

There have been a number of enhancements that include support for privilege separation in syslogd and the X server. The GNU tools, such as *diff*, *grep* and *gzip*, have been replaced by equivalent BSD tools, and there have been major enhancements to the *pf* packet filter. Growfs is a newcomer to OpenBSD and allows users to expand hard disk partitions. Additionally, the developers have put a lot of work into updating man-pages.

There have also been notable advances in hardware support. These include ATA 100 support for Apple Powerbooks, experimental support for serial ATA, and the USB system has been brought in line with NetBSD. In addition, OpenBSD can now handle more SCSI controllers and NICs.

A few weeks before OpenBSD 3.4 was released, the project's *misc* mailing list was hit by a flamewar that arose concerning a benchmark that Felix von Leitner had published [10]. Felix had tested OpenBSD, FreeBSD, NetBSD and Linux with regard to the scalability of typical server operations, such as *socket()*, *bind()*, and *fork()*. OpenBSD underperformed in nearly every discipline.

OpenBSD developer, Ted Unangst, attempted to explain the poor results by emphasizing the fact that the OpenBSD developers are more interested in the security of the system than its scalability. Despite this, several patches have been introduced to the tree to remedy performance deficits.

Shortly after the release of version 3.4, a message from a French user caused a stir. He stated that a bookshop where he had been able to purchase OpenBSD 3.3, had told him that they were not permitted to sell version 3.4. The reason for this is a new French law that outlaws the selling of software without French documentation in France.

Despite OpenBSD's extremely poor benchmark performance, the system is favored by many users and programmers, and it does provide protection for security critical applications.

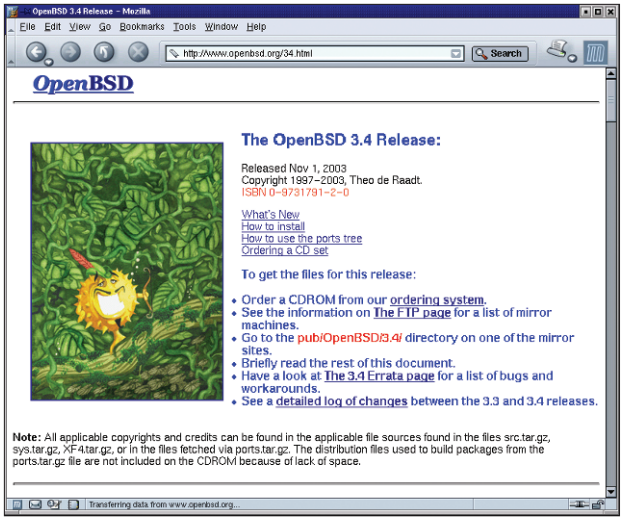


Figure 3: OpenBSD developers released version 3.4 on November 1. Unfortunately, they do not provide ISO image downloads. If you need OpenBSD on CD, you will have to contact your local dealer

Debian Constitution Changed

For quite a few years now, Debian developers have continually requested that the non-free part of Debian GNU/Linux be removed from the distribution. The Debian Social Contract [11] has prevented this so far, as it stipulates *non-free* as a mandatory component of the project. Removing *non-free* would thus mean changing the Social Contract. And according to numerous developers, the Debian Constitution [12] did not allow that, until recently.

Paragraph 4.1.5 of the Debian Constitution states that "non-technical" documentation can be changed. The developers were unable to agree on whether the section concerning the *non-free* branch in the Social Contract was "technical" or "non-technical". This ambiguity has now been removed

from the offending paragraph. The Debian developers voted to re-phrase the paragraph to allow modifications both to the Social Contract and the Debian Free Software Guidelines (DFSG [13]) with a three-quarters majority. The whole process of changing the Constitution took only one month.

On September 30, the Project Secretary, Manoj Srivastava, published three new drafts of the paragraphs for review in the *debian-devel-announce* mailing list [14]. The first draft was by Srivastava himself, and introduced a document class called "Foundation Documents" that included both the Social Contract and the Constitution. Developers would need a three-quarters majority to change Foundation Documents.

The second draft was from Branden Robinson. He proposed clarifying the ambiguous definition of non-technical documents in the Constitution, thus allowing modification of the Social Contract. The third draft was again from Branden Robinson. It was the same as Srivastava's, except for the fact that he proposed to shift only the Social Contract to the Foundation Documents class, and not the DFSG.

The developer community was asked to vote between October 15 and 29. It turned out that more than 75 percent of all voters were in favor of the first draft. Thus, the foundations have now been laid for removing the non-free branch from the project.

Many Debian developers only maintain one or two packages. Provided these packages are small enough, this does not mean too much effort on their parts. Unfortunately, there some developers who have to maintain whole program suites, such as Gnome or KDE, which in turn comprise some 25 or 30 different packages, as Debian developers tend to split larger suites up into as many small packages as possible.

Debian Teamwork

A single developer would be hard-pressed to cope with the work involved; just maintaining the "Bug Tracking System" entries would take up most of their time. Also, developers are expected to watch out for bugs on various hardware architectures – after all, Debian does support eleven hardware platforms. The work involved in creating packages is itself non-trivial. And a new release means updating every single package. Although Debian specific changes can sometimes be gleaned from previous versions, this is typically impossible for larger program packages. The solution is simple: major program packages should not be maintained by a single person, but by a group of developers.

This approach was adopted by several major Debian projects quite a while back. When Ben Collins quit as the maintainer of the GNU Glibc package, his mantle was taken up by a developer group. The GCC is maintained by the Debian GCC Maintainer group, and now the KDE and Gnome packages have also been adopted by maintainer groups. Chris Cheney, who had been responsible for maintaining all the KDE base packages thus far, passed the maintainership to the Debian QT/KDE maintainer group. The Debian Gnome maintainer group has taken over at least some Gnome packages.

The Debian project provides its developer groups with the necessary infrastructure at *alioth.debian.org*, the Debian equivalent of Sourceforge. Groups can leverage the CVS source code management, Subversion, and access control mechanisms, mailing lists, and project homepage facilities the site provides. Group maintainership of major program packages is extremely important for the Debian project as it is the only real solution to resolving issues and managing bug reports.

It is to be hoped that more maintainers of major packages will agree to group maintainership in future, if they note that the workload is over their heads.

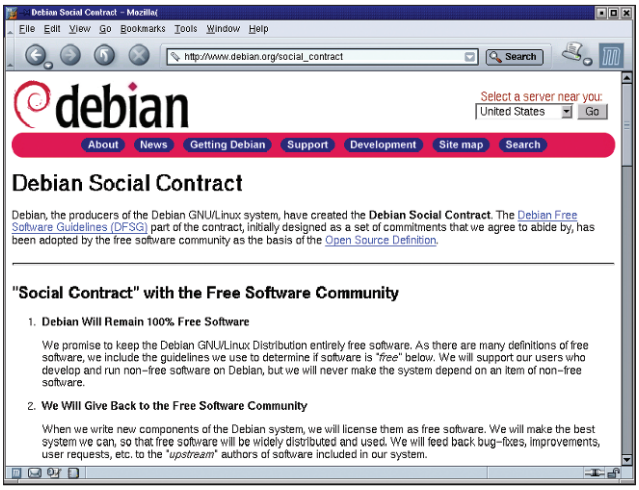


Figure 4: The Debian Social Contract is one of the Debian project's most important documents. Developers recently laid down the foundations for modifying the Contract

That's all folks...

… for this issue, but we do have one request before we go: If you can recommend a program that you would like to see featured in *Projects on the Move*, why not mail me with your suggestion [15]? I look forward to your comments! ■

INFO

[1] Racer, race simulator website: *http://www.racer.nl/*

[2] Unofficial Racer FAQ: *http://www.schuerkamp.de/zope/hoover/racing/racer_linux_faq*

[3] Racer Troubleshooting: *http://www.racer.nl/trouble.htm*

[4] Cars and tracks for Racer: *http://www.racer-xtreme.com/*

[5] Using Linux as a Wireless AP with Host AP: *http://hostap.epitest.fi/*

[6] PCMCIA CS website: *http://pcmcia-cs.sourceforge.net/*

[7] Linux WLAN NG website: *http://www.linux-wlan.org/*

[8] Posting by Ted Unangst: *http://marc.theaimsgroup.com/?l=openbsd-misc&m=106755679117371*

[9] OpenBSD 3.4: *ftp://ftp.openbsd.org/pub/OpenBSD/3.4/*

[10] Felix von Leitners Benchmark: *http://bulk.fefe.de/scalability/*

[11] Debian Social Contract: *http://www.debian.org/social_contract*

[12] Debian Project Constitution: *http://www.debian.org/devel/constitution*

[13] Debian Free Software Guidelines: *http://www.debian.org/social_contract.html#guidelines*

[14] Posting by Manoj Srivastava: *http://lists.debian.org/debian-devel-announce/2003/debian-devel-announce-200309/msg00014.html*

[15] Tips and suggestions: *projects@linux-magazine.com*