

Exploring the long-awaited Debian 3.1 sarge

THE FINISH LINE

Debian developers coded, talked, and postponed deadlines for 35 months until Debian 3.1, alias Sarge, finally saw the light of the Linux day. The list of new features is impressive, including a new installer and many state of the art technologies. **BY MAX WERNER**

The Debian GNU/Linux operating system, which is renowned among Linux professionals for its stability, is now gaining popularity with Linux newcomers. Debian offers regular updates and hard-to-beat, convenient package management. Debian users have waited almost three years for a new stable release of their landmark OS. Now, at last, the world is waking up to a brand new Debian.

Debian 3.1, alias Sarge, replaced the venerable Woody (version 3.0) June 6, 2005. You'll find a list of sources for Debian Sarge at [1] with options ranging from your local dealer, through CD/DVD image downloads, to PCs preloaded with Debian.

The list of supported architectures has not changed in comparison to Woody;

Sarge still shines with support for no less than eleven systems, including x86, Sparc, PowerPC, and Itanium. The developers do not officially support AMD64, although there is an unofficial port at [2].

It seems that the sheer bulk of architectures prevents a timely release, since the team has to bug hunt every single architecture. The fact that the AMD64 CPU port is unofficial clearly shows that the project would do well to concentrate on the more widespread processor types.

New Installer

After booting from CD or DVD, the login screen shown pops up to welcome you. Users can press [F1] at this point to access the familiar help menu. Pressing [F5] takes you to the first new feature in Sarge, the Debian Installer, which can be configured using the parameters shown on screen prior to booting; this allows users to disable USB detection (a feature that provokes errors on some systems.)

The Debian installer is one of many factors contributing to the delays. Recognizing the need for a user-friendly instal-

lation system, the developers decided to write a completely new system to replace the boot floppies that Woody used. This was a hugely time-consuming process, but the results make it worth the wait. The installer supports 43 languages, XFS file systems, and booting from USB memory sticks – it also does a far better job of hardware detection than the boot floppies ever did.

But the main advantage of the installer is that it is far friendlier to users than the boot floppies. Although Debian still does not have a GUI-based install, intuitive controls mean that users will hardly miss a GUI. Sarge uses the 2.4 kernel by default, but entering *linux26* selects the 2.6.8 version. In our lab, the hardware detection routine even found the Firewire interface and offered to configure it as a network interface. This is a major step forward in comparison to Woody, where users were expected to manually load kernel modules.

Hard disk partitioning is also far more convenient than in the past; Sarge detects free disk space and offers to partition it automatically. Users can opt for *All files in one partition*, *Desktop machine*, or *Multi-user workstation*. The third option is recommended for server machines, as it creates a separate partition for */*, */usr*, */var*, */tmp*, and */home*.

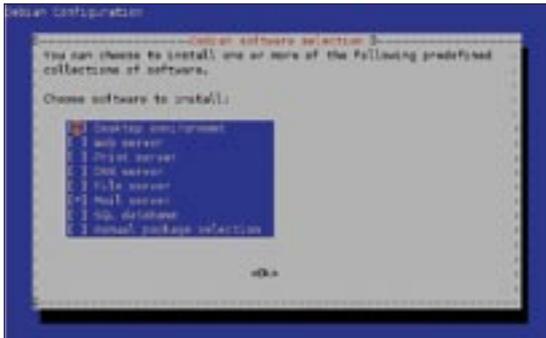


Figure 1: The Debian installer offers several package schemes based on the intended use of the system.

If you prefer a manual approach to partitioning, Debian gives you that option, although the icons are a bit confusing at first. You might like to read the detailed help page before you do this. Ext3 is the default filesystem, with Ext2, ReiserFS, JFS, XFS, and FAT available as options.

Packages

The basic system installation follows. Depending on your computer, you might be surprised to see a dialog prompting you to choose the right kernel from a list of over 30 versions. In most cases, you can simply accept the highlighted entry. After completing the basic installation and rebooting, the next step is to configure the time, the timezone, and the root password, and then to create a user.

One of Debian's major strengths is the fact that users can install the full selection of packages over the Internet. The Apt package manager allows users to install packages from the CD, off the Internet, or from a local filesystem. The selection of packages is again vastly improved. Sarge has 15,000 programs that take up two DVDs. This makes buying a box a more interesting proposition than ever before.

Package selection is a multiple stage process; besides the *Desktop environment* package scheme, you can opt to install a web, print, DNS, mail, file, or SQL server (Figure 1). If you already know your way around the package management system, you might like to select *Manual package selection*. Be warned! This launches the Aptitude tool, and its interface takes some getting used to. You might prefer to get the required packages at a later stage using Synaptic or *apt-get* to avoid having to do battle with the Aptitude front-end.

Depending on your hardware, installing the packages for a desktop system from the DVDs can take about an hour. If you select *Desktop environment*, Debian automatically installs both KDE and Gnome without allowing you to choose a desktop. In this case, Sarge will take up about 2GBytes of valuable hard disk space. Gnome is the default desktop, but you can opt to launch KDE in the Gnome

Display Manager (GDM).

When installing Debian on a laptop, we noted that Debian does not bother to install laptop-specific services. We searched in vain for the KDE battery monitor or the Gnome applet, a laptop-optimized kernel, or dynamic CPU clock speed control tools. Users with laptops are expected to do it themselves, although finding the right tool can be time consuming considering the enormous selection of packages.

Unpopular XFree86

The X server setup shows that Debian has taken a major step towards its desktop-oriented competitors, but it still can't quite hold sway with other major league desktops. After automatically launching the GDM, the X server gave us an 800x600 screen resolution, although our 17 inch LCD monitor and ATI Rage 128

graphics adapter can handle 1280x1024 pixels without breaking a sweat.

Giving the *dpkg-reconfigure xserver-xfree86* command and relaunching the X server, by pressing [Ctrl] + [Alt] + [Backspace], took care of the problem in our case. Debian detected our mouse and keyboard reliably. Unfortunately, Sarge does not have a version of the more modern X.org server, so users still have to make do with XFree86 4.3.0.

As Sarge was scheduled for release at a far earlier date, current versions of many programs did not make their way into the release. The developers concentrated on stability rather than up-to-date-ness, and this is one of the reasons why Debian is not regarded as a leading edge distribution. On the other hand, distributors that add beta versions of OpenOffice to their distributions might like to take a leaf out of Debian's book.

Gnome 2.8 (Figure 2) and KDE 3.3.2 are both fairly recent and stable versions of the big gun desktop environments. The Gnome desktop looks tidy and the menus seem to make sense. Launching KDE adds the Gnome programs to KDE-specific menu items, leading to duplicate *System control* or *Terminal* entries. If the icon does not tell you which of these programs is for KDE, the results can be frustrating.

The fact that the Debian developers still have a *Debian* sub-menu is another minor annoyance. *Debian* is a complete

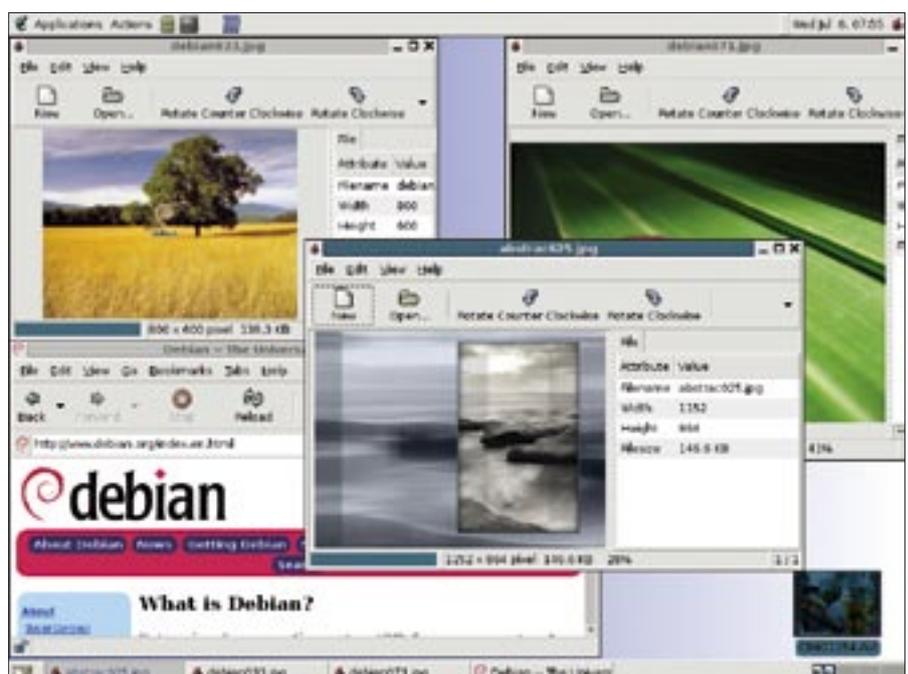


Figure 2: By default, Debian 3.1 uses the Gnome desktop.

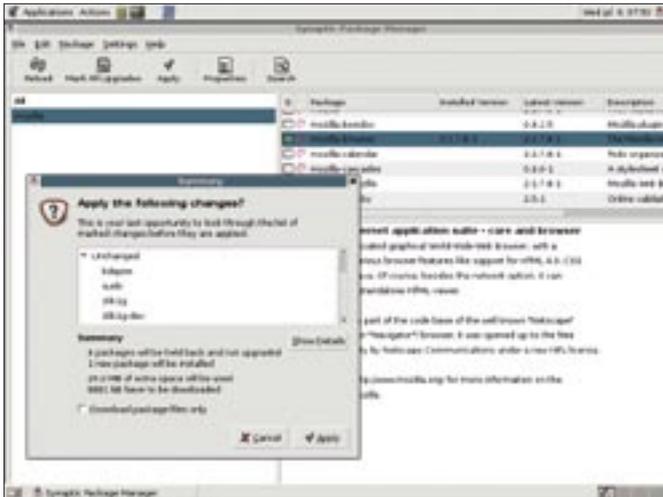


Figure 3: If you are unhappy with the basic selections, you can use the Synaptic package manager to add or remove packages.

menu substructure with more applications, screen settings, and games; programs such as FSView or ImageMagick are only available in the *Debian* menu, although it would make more sense to integrate these tools with the default Gnome and KDE menus.

The standard install fails to deliver basic tools such as the CUPS printer daemon. A bigger selection of packages might make more sense here, as it would remove the need for users to install the missing packages manually at a later stage.

Security First?

Thanks to a smattering of GUI-based tools, there is no need to go to the Debian command line for every single task. GUI tools give administrators user, network, and profile management. Synaptic handles package management for Gnome or KDE, with KPackage optionally available for the latter.

Synaptic (Figure 3) is the GUI-based counterpart to Aptitude. Admins can quickly search for, install, and remove packages with the tool, or update the whole system to the latest version over the Internet. Thanks to Synaptic's well-organized and structured approach, installing packages on Debian is just a matter of seconds.

The *security.debian.org* server, which is typically on the */etc/apt/sources.list*, ensures that users and system administrators always have the latest selection of security updates. The `apt-get update` && `apt-get upgrade` command tells Apt to get the latest updates.

The Debian security team has been very quiet since the Sarge release. Updates have simply not appeared on the servers, and there has been no official statement.

The main reasons appear to be technical and staff-related. As this issue went to press, Martin "Joey" Schulze (seemingly the only active mem-

ber of the team at present) had just started to deliver long-overdue updates.

Pretty Quick

Rebooting after installing showed that Debian 3.1 boots a lot faster than its competitors. The main reason for this is that Debian only installs a small selection of vital services by default. On the upside, this means that Debian will run on less powerful machines.

In line with this philosophy, Debian only launches a minimal set of network services. Besides the Exim mail server, the services include the Fam (File Alteration Monitor) daemon. The daemon is mainly used by KDE tools such as the Konqueror file manager. Sarge also installs SSH by default, although Debian follows many other distributions in not automatically creating firewall rules. Again, on a more positive note, there are any number of IPTables packet filter front-ends on the DVDs, Shorewall or Guarddog, just to name two.

The changes under the hood have been just as wide-ranging as the desktop modifications. Debian Sarge has moved to the state of the art UDev system, which generates */dev/* device files on the fly when new devices are attached. HAL and D-Bus [3] have made their way into the Debian system as part of this hotplug system. If you are upgrading from Woody, you might take a while to get used to setting up these system services.

Conclusions

Compared with Woody, Debian GNU/Linux has taken a giant leap forward

with version 3.1 – but this goes without saying, considering how long Sarge took to develop. None of Debian's competitors can hold sway with the enormous software collection, although some software may not be brand new. I should add, though, that the lack of security updates in the weeks following the Debian release has not been popular with users.

This current release opens Debian up to desktop users, following the lead taken by Debian derivatives such as Ubuntu. Debian scores points with its flexibility, which is unparalleled by any distribution of this type. The dozens of Internet-based repositories mean that an entry in */etc/apt/sources.list* is all it takes to keep your choice of software up to date, even though the software you are updating may not be part of the Debian mainstream.

The system is as stable as we have all come to expect; Debian installs just the bare necessities and leaves users to change the configuration to suit their needs. If you have experience with configuring, and enjoy tweaking, Linux systems, Sarge is a good choice. Newcomers might prefer to opt for a distribution that handles most of the hard work automatically.

After months of fighting that delayed the release time and time again, various opinions have been voiced, with some people demanding an end to the Debian stable version, and others asking for more predictable realistic release deadlines.

The Debian community will have to decide its future for itself. There is no denying that the Debian distribution is one of the most important of all the Linux systems. Countless derivatives have built on the high-quality work of previous Debian releases, and a generation of new derivative distros has already begun to appear based on Debian 3.1. ■

INFO

[1] Getting Debian: <http://www.debian.org/distrib/>

[2] AMD64 port: <http://www.debian.org/ports/amd64/>

[3] Oliver Frommel, Marcel Hilzinger, René Rebe, "Hotplugging": Linux Magazine #53, April, 2005, p. 48