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Jump to Debian GNU/Linux!

A guide to why the Debian distro is a good choice

Arturo Fernández Montoro

There are hundreds of GNU/Linux distributions around, each with its strengths and weaknesses. One that stands out from the masses is Debian. It is the only major distribution not developed (or even backed) by commercial vendors, but by a group of volunteers around the world. Its main features are robustness, great software package management, a huge software collection consisting of more than 15,000 pre-compiled packages ready to install and run, and a transparent and always helpful support system based on mailing lists and a bug tracking system.

But, there is something else that makes Debian special: No other distribution has seen as many offspring distributions as Debian has. Among them you'll find customized Linux distributions for regional markets like LinEx (a government-driven project in Spain), or the shooting star Ubuntu (developed by a commercial vendor). The reason for this popularity is obvious: The Debian distro is not only free, but boosts flexibility and transparency.

If you use another Linux distribution and you are interested in changing, after you read this article you should install Debian for sure.

Introduction

Debian/GNU Linux is a universal operating system. You can install and run it not only on Intel- and AMD-based 32 and 64 bit PC systems, but also on different computer architectures like Compaq's and Digital's Alpha systems, ARM,

Motorola 680x0 processors (*m68k*), SGI's big-endian MIPS systems and Digital's DECstations, Sun's SPARC and UltraSPARC systems, the PowerPC (using IBM and Motorola processors), IBM S/390 mainframe systems and Hewlett Packard's PA-RISC machines (*hppa*).

The Debian project doesn't only produce a free (as in freedom, not only of charge) distribution, but is itself a strong supporter of free software. While many people spend hours discussing the differences between "free software" and "open source software", Debian explicetely explains its position in two documents: "The Debian Free Software Guidelines" (DFSG), which defines what constitutes free software according to the Debian project; and the "Social Contract" with the free software community which positions the project itself and defines its links to the outside world:

- Debian will remain 100% free
- The project will give back to the free software community
- The project will not hide problems
- It prioritizes its users and free software
- It describes how to deal with work that does not meet its free software standards

You can read this document at Debian Social Contract (http://www.debian.org/social_contract).

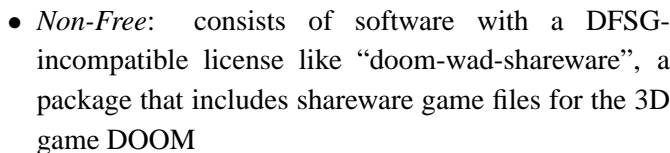
Differing from other Linux distributions, you'll find not just one Debian version at a time, but three different releases: "stable", "testing" and "unstable". These are three different

There is, however, only one official release: “stable”. Debian recommends it for production environments. The “testing” distribution contains packages that haven’t been accepted for the “stable” release yet, but after extensive testing will eventually move over. The “unstable” tree is the Debian developers’ working ground. At times this distribution can show problems like broken dependencies. Nevertheless, this distribution is usually completely functional since quality assurance (QA) is a task the Debian project takes serious. Packages in “unstable”, however, simply have not been tested in depth. If you wish to run a system equipped with the latest software versions “testing” is a good bet, but if you need a robust server you should choose “stable”.

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Each distribution groups its packages by their software licenses:

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Debian's different approach becomes visible not only formally but also in technical details. It ships with a unique and robust package management system, centering around the APT tools and the “dpkg” utility, that Debian developers and users are especially proud of. It is the best way to install software quickly and easily on your machine—even as a newbie you'll appreciate and love it. The package management system uses “dependencies” between packages to ensure correct software installation. Pre-compiled packages are distributed in a specific archive format with “.deb” file extension. While utilities like “dpkg” and “apt-get” are pure command-line tools, Debian also provides a set of package management front-ends to choose from like “dselect”, “aptitude” and “synaptic”. Most tools access software repositories via FTP or HTTP, provided the user wishes so. You type a single command, and Debian will download, install and configure the software for you. You don't need to worry

about where the software resides—as long as the configuration file `/etc/apt/sources.list` contains the repository's proper URL. Each repository entry looks like the following line:

```
deb http://www.debian.org/debian \
  sarge main contrib non-free
```

This means that the tools will download and install software belonging to the “Sarge” distribution from the main Debian web site. To install the GNU Image Manipulation Program (GIMP) the “root” user will now type e.g. the following command line:

```
#apt-get install gimp
```

The “apt-get” program will download the GIMP package and all packages it depends on (i.e. all software needed to run the GIMP).

Debian does not hide errors and bugs. Users can to send bugs using the *bug tracking system* and the Debian developers can quickly access them by web or e-mail. Bugs are accessible to everybody because of the importance Debian places on *Quality Assurance*. “The Debian Policy” is a specification for the standards of quality using by Debian.

On the other hand, Debian also has some disadvantages when compared with other distributions: its hardware auto detection is still way behind the appropriate functionality in SuSE or Mandriva, and the installation process doesn't make it easy for beginners.

Installing Debian/GNU Linux

To install Debian you need at least a little patience. To give you a headstart, a short summary of the Debian “Sarge” installation process for a desktop machine follows. The official Debian installation page at

Debian installation page (<http://www.debian.org/releases/stable/installmanual.en.html>) provides more detailed information.

First you have to choose an install method:

- *Network*: you can install Debian via the internet or using a partition that one of the other machines in your LAN provides by means of NFS (Network File System)

- *CDs or DVDs*: books, magazines and independent software vendors will provide you with Debian installation media. You can also download the appropriate images from the Debian web-site and burn them yourself. To boot from the installation DVD is the easiest way for newbies. Check your BIOS to ensure your system will do so!

Before you start make sure you have as much information about your hardware as possible, because during the install process the installation program will request the information.

“Sarge” allows you to use the 2.4.17 or the 2.6.8 kernel. To choose the latest Linux version, type “linux26” at the “lilo” prompt when booting from the install media and press “Enter”.

The Debian installer program asks you about your language, country and keyboard layout. If possible it configures your network and loads appropriate kernel modules for the hardware it auto-detects.

 “Sarge” allows you to use the 2.4.17 or
 the 2.6.8 kernel

Now it's time to partition your disk. Be careful. After you have selected the installation partition the next step is to install the base system. To be able to boot your system you need to install a boot loader like GRUB or LILO. When done, reboot your machine. Now Debian starts some post-boot configuration routines: you'll be asked to:

- Configure your time zone
- Choose a name for your machine
- Set up users and passwords. During this stage you must choose the password for the “root” user
- Create an ordinary user for your day work
- Set up PPP or PPPOE for dial-up connections with the internet
- Configure the APT system in charge of the package management
- Install some software packages. To do this you first have to choose the relevant software. On a desktop machine you'll probably want the office-suite OpenOffice, the Mozilla Firefox web browser, the e-mail

GuadaLinux web site



Bibliography

The Debian web site (<http://www.debian.org>)

The Linex distro web site (<http://www.linex.org>)

The GuadaLinux distro web site (<http://www.guadalinex.org>)

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Arturo is a software engineer specialist in web development and a freelance author for various Linux magazines. He works with Debian GNU/Linux since 2000.