

# **A Brief History of Debian**

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**REVISION HISTORY**

NUMBER	DATE	DESCRIPTION	NAME

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## **Abstract**

This document describes the history and goals of the Debian project.

# Chapter 1

## Introduction -- What is the Debian Project?

[The Debian Project](#) is a worldwide group of volunteers who endeavor to produce an operating system distribution that is composed entirely of free software. The principle product of the project to date is the Debian GNU/Linux software distribution, which includes the Linux operating system kernel, and thousands of prepackaged applications. Various processor types are supported to one extent or another, including 32 and 64 bit x86, ARM, MIPS, PowerPC and IBM S/390.

Debian motivated the formation of [Software in the Public Interest, Inc.](#), a New York-based non-profit organization. SPI was founded to help Debian and other similar organizations develop and distribute open hardware and software. Among other things, SPI provides a mechanism by which The Debian Project may accept contributions that are tax deductible in the United States.

For more information about free software, see the [Debian Social Contract](#) and associated Debian Free Software Guidelines, or the [Debian What Does Free Mean?](#) page.

### 1.1 In the Beginning

The Debian Project was officially founded by Ian Murdock on [August 16th, 1993](#). (There is also a [scanned printout](#) of that announcement.) At that time, the whole concept of a "distribution" of Linux was new. Ian intended Debian to be a distribution which would be made openly, in the spirit of Linux and GNU (read his manifesto provided as an appendix to this document for more details). The creation of Debian was sponsored by the FSF's GNU project for one year (November 1994 to November 1995).

Debian was meant to be carefully and conscientiously put together, and to be maintained and supported with similar care. It started as a small, tightly-knit group of Free Software hackers, and gradually grew to become a large, well-organized community of developers and users.

When it began, Debian was the only distribution that was open for every developer and user to contribute their work. It remains the most significant distributor of Linux that is not a commercial entity. It is the only large project with a constitution, social contract, and policy documents to organize the project. Debian is also the only distribution which is "micro packaged" using detailed dependency information regarding inter-package relationships to ensure system consistency across upgrades.

To achieve and maintain high standards of quality, Debian has adopted an extensive set of policies and procedures for packaging and delivering software. These standards are backed up by tools, automation, and documentation implementing all of Debian's key elements in an open and visible way.

### 1.2 Pronouncing Debian

The official pronunciation of Debian is 'deb ee n'. The name comes from the names of the creator of Debian, Ian Murdock, and his wife, Debra.

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## Chapter 2

# Leadership

Debian has had several leaders since its beginnings in 1993.

Ian Murdock founded Debian in August 1993 and led it until March 1996.

Bruce Perens led Debian from April 1996 until December 1997.

Ian Jackson led Debian from January 1998 until December 1998.

Wichert Akkerman led Debian from January 1999 until March 2001.

Ben Collins led Debian from April 2001 until April 2002.

Bdale Garbee led Debian from April 2002 until April 2003.

Martin Michlmayr led Debian from March 2003 until March 2005.

Branden Robinson led Debian from April 2005 until April 2006.

Anthony Towns led Debian from April 2006 until April 2007.

Sam Hocevar led Debian from April 2007 until April 2008.

Steve McIntyre led Debian from April 2008 until April 2010.

Stefano Zacchiroli led Debian from April 2010 until April 2013.

Lucas Nussbaum led Debian from April 2013 until April 2015.

Neil McGovern led Debian from April 2015 until April 2016.

Mehdi Dogguy led Debian from April 2016 until April 2017.

Chris Lamb led Debian from April 2017 until April 2019.

Sam Hartman was elected in April 2019 and is our current leader.

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## Chapter 3

# Debian Releases

Debian 0.01 through 0.90 (August-December 1993)

Debian 0.91 (January 1994): This release had a simple package system which could install and uninstall packages. The project had grown to several dozen people at this point.

Debian 0.93R5 (March 1995): Responsibility for each package was clearly assigned to a developer by this point, and the package manager (**dpkg**) was used to install packages after the installation of a base system.

Debian 0.93R6 (November 1995): **dselect** appears. This was the last Debian release using the a.out binary format; there were about 60 developers. The first master.debian.org server was built by Bdale Garbee and hosted by HP in parallel with the 0.93R6 release. The deployment of an explicit master server on which Debian developers would construct each release led directly to the formation of the Debian mirror network, and indirectly to the development of many of the policies and procedures used to manage the project today.

Debian 1.0 was never released: InfoMagic, a CD vendor, accidentally shipped a development release of Debian and entitled it 1.0. On December 11th 1995, Debian and InfoMagic jointly announced that this release was screwed. Bruce Perens explains that the data placed on the "InfoMagic Linux Developer's Resource 5-CD Set November 1995" as "Debian 1.0" is not the Debian 1.0 release, but an early development version which is only partially in the ELF format, will probably not boot or run correctly, and does not represent the quality of a released Debian system. To prevent confusion between the premature CD version and the actual Debian release, the Debian Project has renamed its next release to "Debian 1.1". The premature Debian 1.0 on CD is deprecated and should not be used.

The hosting of master.debian.org moved from HP to i-Connect.Net around the end of 1995. Michael Neuffer and Shimon Shapiro, founders of i-Connect.Net, hosted master on their own hardware for a little more than a year. During this time, they provided many services to Debian, including running what was essentially the New Maintainer process of the day, and significantly aiding the growth of the early Debian mirror network.

Debian 1.1 *Buzz* (June 17th, 1996): This was the first Debian release with a code name. It was taken, like all others so far, from a character in one of the *Toy Story* movies... in this case, Buzz Lightyear. By this time, Bruce Perens had taken over leadership of the Project from Ian Murdock, and Bruce was working at Pixar, the company that produced the movies. This release was fully ELF, used Linux kernel 2.0, and contained 474 packages.

Debian 1.2 *Rex* (December 12th, 1996): Named for the plastic dinosaur in the *Toy Story* movies. This release consisted of 848 packages maintained by 120 developers

Debian 1.3 *Bo* (June 5th, 1997): Named for Bo Peep, the shepherdess. This release consisted of 974 packages maintained by 200 developers.

Debian 2.0 *Hamm* (July 24th, 1998): Named for the piggy-bank in the *Toy Story* movies. This was the first multi-architecture release of Debian, adding support for the Motorola 68000 series architectures. With Ian Jackson as Project Leader, this release made the transition to libc6, and consisted of over 1500 packages maintained by over 400 developers.

Debian 2.1 *Slink* (March 9th, 1999): Named for the slinky-dog in the movie. Two more architectures were added, [Alpha](#) and [SPARC](#). With Wichert Akkerman as Project Leader, this release consisted of about 2250 packages and required 2 CDs in the official set. The key technical innovation was the introduction of apt, a new package management interface. Widely emulated,

apt addressed issues resulting from Debian's continuing growth, and established a new paradigm for package acquisition and installation on Open Source operating systems.

Debian 2.2 *Potato* (15 August 2000): Named for "Mr Potato Head" in the *Toy Story* movies. This release added support for the [PowerPC](#) and [ARM](#) architectures. With Wichert still serving as Project Leader, this release consisted of more than 3900 binary packages derived from over 2600 source packages maintained by more than 450 Debian developers.

Debian 3.0 *Woody* (19 July 2002): Named for the main character the *Toy Story* movies: "Woody" the cowboy. Even more architectures were added in this release: [IA-64](#), [HP PA-RISC](#), [MIPS \(big endian\)](#), [MIPS \(little endian\)](#) and [S/390](#). This is also the first release to include cryptographic software due to the restrictions for exportation being *lightened* in the US, and also the first one to include KDE, now that the license issues with QT were resolved. With Bdale Garbee recently appointed Project Leader, and more than 900 Debian developers, this release contained around 8,500 binary packages and 7 binary CDs in the official set.

Debian 3.1 *Sarge* (6 June 2005): named for the sergeant of the Green Plastic Army Men. No new architectures were added to the release, although an unofficial AMD64 port was published at the same time and distributed through the new Alioth project hosting site. This release features a new installer: *debian-installer*, a modular piece of software that feature automatic hardware detection, unattended installation features and was released fully translated to over thirty languages. It was also the first release to include a full office suite: OpenOffice.org. Branden Robinson had just been appointed as Project Leader. This release was made by more than nine hundred Debian developers, and contained around 15,400 binary packages and 14 binary CDs in the official set.

Debian 4.0 *Etch* (8 April 2007): named for the sketch toy in the movie. One architecture was added in this release: [AMD64](#), and official support for [m68k](#) was dropped. This release continued using the *debian-installer*, but featuring in this release a graphical installer, cryptographic verification of downloaded packages, more flexible partitioning (with support for encrypted partitions), simplified mail configuration, a more flexible desktop selection, simplified but improved localization and new modes, including a *rescue* mode. New installations would not need to reboot through the installation process as the previous two phases of installation were now integrated. This new installer provided support for scripts using composed characters and complex languages in its graphical version, increasing the number of available translations to over fifty. Sam Hocevar was appointed Project Leader the very same day, and the project included more than one thousand and thirty Debian developers. The release contained around 18,000 binary packages over 20 binary CDs (3 DVDs) in the official set. There were also two binary CDs available to install the system with alternate desktop environments different to the default one.

Debian 5.0 *Lenny* (February 2009): named for the wind up binoculars in the *Toy Story* movies. One architecture was added in this release: [ARM EABI](#) (or *armel*), providing support for newer ARM processors and deprecating the old ARM port (*arm*). The [m68k](#) port was not included in this release, although it was still provided in the *unstable* distribution. This release did not feature the [FreeBSD port](#), although much work on the port had been done to make it qualify it did not meet yet the [qualification requirements](#) for this release.

Support of small factor devices in this release was increased by the added support for Marvell's Orion platform which was used in many storage devices and also provided supported several Netbooks. Some new build tools were added which allowed Debian packages to be cross-built and shrunk for embedded ARM systems. Also, netbooks of varied vendors were now supported and the distribution provided software more suitable for computers with relatively low performance.

It was also the first release to provide free versions of Sun's Java technology, making it possible to provide Java applications in the *main* section.

Debian 6.0 *Squeeze* (February 2011): named for the green three-eyed aliens.

The release was frozen on August 6, 2010, with many of the Debian developers gathered at the 10th DebConf at New York City.

While two architectures (alpha and hppa) were dropped, two architectures of the new [FreeBSD port](#) (kfreebsd-i386 and kfreebsd-amd64) were made available as *technology preview*, including the kernel and userland tools as well as common server software (though not advanced desktop features yet). This was the first time a Linux distribution has been extended to also allow use of a non-Linux kernel.

The new release introduced a dependency based boot sequence, which allowed for parallel init script processing, speeding system startup.

Debian 7.0 *Wheezy* (May 2013): named for the rubber toy penguin with a red bow tie.

The release was frozen on June 30, 2012, very close to the Debian developers gathering in the 12th DebConf at Managua, Nicaragua.

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One architecture was included in this release (armhf) and this release introduced multi-arch support, which allowed users to install packages from multiple architectures on the same machine. Improvements in the installation process allowed visually impaired people to install the system using software speech for the first time.

This was also the first release that supported the installation and booting in devices using UEFI firmware.

Debian 8 *Jessie* (April 2015): named for the cow girl doll who first appeared in Toy Story 2.

This release introduced for the first time the systemd init system as default. Two new architectures were introduced: arm64 and ppc64el and three architectures were dropped: s390 (replaced by s390x), ia64 and sparc. The Sparc architecture had been present in Debian for 16 years, but lacked developer support to make it maintainable in the distribution.

The release included many security improvements such as a new kernel that nullified a whole set of security vulnerabilities (symlink attacks), a new way to detect packages which were under security support, more packages built with hardened compiler flags and a new mechanism (needrestart) to detect sub-systems which had to be restarted in order to propagate security updates after an upgrade.

Debian 9 *Stretch* (June 2017): named for the toy rubber octopus with suckers on her eight long arms that appeared in Toy Story 3.

The release was frozen on February 7th, 2017.

Support for the powerpc architecture was dropped in this release, whileas the mips64el architecture was introduced. This release introduced debug packages with a new repository in the archive, packages from this repository provided debug symbols automatically for packages.

Debian 10 *Buster* (July 2019): named for Andy's pet dog, received as Christmas present in the end of Toy Story.

With this release Debian for the first time included a mandatory access control framework enabled per default (AppArmor). It was also the first Debian release to ship with Rust based programs such as Firefox, ripgrep, fd, exa, etc. and a significant number of Rust based libraries (more than 450).

Debian 11 *Bullseye* (no release date yet): named for Woody's wooden toyhorse that appeared in Toy Story 2.

## Chapter 4

# A Detailed History

### 4.1 The 0.x Releases

Debian was begun in August 1993 by Ian Murdock, then an undergraduate at Purdue University. Debian was sponsored by the GNU Project of [The Free Software Foundation](#), the organization started by Richard Stallman and associated with the General Public License (GPL), for one year -- from November 1994 to November 1995.

Debian 0.01 through Debian 0.90 were released between August and December of 1993. Ian Murdock writes:

"Debian 0.91 was released in January 1994. It had a primitive package system that allowed users to manipulate packages but that did little else (it certainly didn't have dependencies or anything like that). By this time, there were a few dozen people working on Debian, though I was still mostly putting together the releases myself. 0.91 was the last release done in this way.

Most of 1994 was spent organizing the Debian Project so that others could more effectively contribute, as well as working on **dpkg** (Ian Jackson was largely responsible for this). There were no releases to the public in 1994 that I can remember, though there were several internal releases as we worked to get the process right.

Debian 0.93 Release 5 happened in March 1995 and was the first "modern" release of Debian: there were many more developers by then (though I can't remember exactly how many), each maintaining their own packages, and **dpkg** was being used to install and maintain all these packages after a base system was installed.

"Debian 0.93 Release 6 happened in November 1995 and was the last a.out release. There were about sixty developers maintaining packages in 0.93R6. If I remember correctly, **dselect** first appeared in 0.93R6."

Ian Murdock also notes that Debian 0.93R6 "... has always been my favorite release of Debian", although he admits to the possibility of some personal bias, as he stopped actively working on the project in March 1996 during the pre-production of Debian 1.0, which was actually released as Debian 1.1 to avoid confusion after a CD-ROM manufacturer mistakenly labelled an unreleased version as Debian 1.0. That incident led to the concept of "official" CD-ROM images, as a way for the project to help vendors avoid this kind of mistake.

During August 1995 (between Debian 0.93 Release 5 and Debian 0.93 Release 6), Hartmut Koptein started the first port for Debian, for the Motorola m68k family. He reports that "Many, many packages were i386-centric (little endian, -m486, -O6 and all for libc4) and it was a hard time to get a starting base of packages on my machine (an Atari Medusa 68040, 32 MHz). After three months (in November 1995), I uploaded 200 packages from 250 available packages, all for libc5!" Later he started another port together with Vincent Renardias and Martin Schulze, for the PowerPC family.

Since this time, the Debian Project has grown to include several [ports](#) to other architectures, a port to a new (non-Linux) kernel, the GNU Hurd microkernel, and at least one flavor of BSD kernel.

An early member of the project, Bill Mitchell, remembers the Linux kernel

"... being between 0.99r8 and 0.99r15 when we got started. For a long time, I could build the kernel in less than 30 minutes on a 20 MHz 386-based machine, and could also do a Debian install in that same amount of time in under 10Mb of disk space.

" ... I recall the initial group as including Ian Murdock, myself, Ian Jackson, another Ian who's surname I don't recall, Dan Quinlan, and some other people who's names I don't recall. Matt Welsh was either part of the initial group or joined pretty early on (he has since left the project). Someone set up a mailing list, and we were off and running.

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As I recall, we didn't start off with a plan, and we didn't start off by putting together a plan in any highly organized fashion. Right from the start, I do recall, we started off collecting up sources for a pretty random collection of packages. Over time, we came to focus on a collection of items which would be required to put together the core of a distribution: the kernel, a shell, update, getty, various other programs and support files needed to init the system, and a set of core utilities."

### 4.1.1 The Early Debian Packaging System

At the very early stages of the Project, members considered distributing source-only packages. Each package would consist of the upstream source code and a Debianized patch file, and users would untar the sources, apply the patches, and compile binaries themselves. They soon realized, however, that some sort of binary distribution scheme would be needed. The earliest packaging tool, written by Ian Murdock and called **dpkg**, created a package in a Debian-specific binary format, and could be used later to unpack and install the files in the package.

Ian Jackson soon took over the development of the packaging tool, renaming the tool itself **dpkg-deb** and writing a front-end program he named **dpkg** to facilitate the use of **dpkg-deb** and provide the *Dependencies* and *Conflicts* of today's Debian system. The packages produced by these tools had a header listing the version of the tool used to create the package and an offset within the file to a **tar**-produced archive, which was separated from the header by some control information.

At about this time some debate arose between members of the project -- some felt that the Debian-specific format created by **dpkg-deb** should be dropped in favor of the format produced by the **ar** program. After several revised file formats and correspondingly-revised packaging tools, the **ar** format was adopted. The key value of this change is that it makes it possible for a Debian package to be un-packaged on any Unix-like system without the need to run an untrusted executable. In other words, only standard tools present on every Unix system like 'ar' and 'tar' are required to unpack a Debian binary package and examine the contents.

## 4.2 The 1.x Releases

When Ian Murdock left Debian, he appointed Bruce Perens as the next leader of the project. Bruce first became interested in Debian while he was attempting to create a Linux distribution CD to be called "Linux for Hams", which would include all of the Linux software useful to ham radio operators. Finding that the Debian core system would require much further work to support his project, Bruce ended up working heavily on the base Linux system and related installation tools, postponing his ham radio distribution, including organizing (with Ian Murdock) the first set of Debian install scripts, eventually resulting in the Debian Rescue Floppy that was a core component of the Debian installation toolset for several releases.

Ian Murdock states:

"Bruce was the natural choice to succeed me, as he had been maintaining the base system for nearly a year, and he had been picking up the slack as the amount of time I could devote to Debian declined rapidly."

He initiated several important facets of the project, including coordinating the effort to produce the Debian Free Software Guidelines and the Debian Social Contract, and initiating an Open Hardware Project. During his time as Project Leader, Debian gained market share and a reputation as a platform for serious, technically-capable Linux users.

Bruce Perens also spearheaded the effort to create [Software in the Public Interest, Inc.](#). Originally intended to provide the Debian Project with a legal entity capable of accepting donations, its aims quickly expanded to include supporting free software projects outside the Debian Project.

The following Debian versions were released during this time:

- 1.1 *Buzz* released June 1996 (474 packages, 2.0 kernel, fully ELF, **dpkg**)
- 1.2 *Rex* released December 1996 (848 packages, 120 developers)
- 1.3 *Bo* released July 1997 (974 packages, 200 developers)

There were several interim "point" releases made to 1.3, with the last being 1.3.1R6.

Bruce Perens was replaced by Ian Jackson as Debian Project Leader at the beginning of January, 1998, after leading the project much of the way through the preparation for the 2.0 release.

## 4.3 The 2.x Releases

Ian Jackson became the Leader of the Debian Project at the beginning of 1998, and was shortly thereafter added to the board of Software in the Public Interest in the capacity of Vice President. After the resignation of the Treasurer (Tim Sailer), President (Bruce Perens), and Secretary (Ian Murdock), he became President of the Board and three new members were chosen: Martin Schulze (Vice President), Dale Scheetz (Secretary), and Nils Lohner (Treasurer).

Debian 2.0 (*Hamm*) was released July 1998 for the Intel i386 and Motorola 68000 series architectures. This release marked the move to a new version of the system C libraries (glibc2 or for historical reasons libc6). At the time of release, there were 1500+ packages maintained by more than 400 Debian developers.

Wichert Akkerman succeeded Ian Jackson as Debian Project Leader in January of 1999. [Debian 2.1](#) was [released](#) on 09 March, 1999, after being delayed by a week when a few last-minute issues arose.

Debian 2.1 (*Slink*) featured official support for two new architectures: [Alpha](#) and [Sparc](#). The X-Windows packages included with Debian 2.1 were greatly reorganized from previous releases, and 2.1 included **apt**, the next-generation Debian package manager interface. Also, this release of Debian was the first to require 2 CD-ROMs for the "Official Debian CD set"; the distribution included about 2250 packages.

On 21 April 1999, [Corel Corporation](#) and the [K Desktop Project](#) effectively formed an alliance with Debian when Corel announced its intentions to release a Linux distribution based on Debian and the desktop environment produced by the KDE group. During the following spring and summer months, another Debian-based distribution, Storm Linux, appeared, and the Debian Project chose a new [logo](#), featuring both an Official version for use on Debian-sanctioned materials such as CD-ROMs and official Project web sites, and an Unofficial logo for use on material mentioning or derived from Debian.

A new, unique, Debian port also began at this time, for the [Hurd](#) port. This is the first port to use a non-Linux kernel, instead using the [GNU Hurd](#), a version of the GNU Mach microkernel.

Debian developers joined formally for the first time in an annual meeting called [DebConf](#). The first meeting, called [Debconf0](#), took place in Bordeaux, France from the 5th to the 9th of July 2000. The conference aim was to join developers and advanced users in a single place totalk about Debian and work together developing parts of the distribution.

Debian 2.2 (*Potato*) was released August 15th, 2000 for the Intel i386, Motorola 68000 series, alpha, SUN Sparc, PowerPC and ARM architectures. This was the first release including PowerPC and ARM ports. At the time of release, there were 3900+ binary and 2600+ source packages maintained by more than 450 Debian developers.

An interesting fact about Debian 2.2 is that it showed how an free software effort could lead to a modern operating system despite all the issues around it. This was studied thoroughly by a group of interested people in an article called [Counting potatoes: The size of Debian 2.2](#), by Jesús González Barahona, quoting from this article:

*"[...] we use David A. Wheeler's sloccount system to determine the number of physical source lines of code (SLOC) of Debian 2.2 (aka potato). We show that Debian 2.2 includes more than 55,000,000 physical SLOC (almost twice than Red Hat 7.1, released about 8 months later), showing that the Debian development model (based on the work of a large group of voluntary developers spread around the world) is at least as capable as other development methods [...] It is also shown that if Debian had been developed using traditional proprietary methods, the COCOMO model estimates that its cost would be close to \$1.9 billion USD to develop Debian 2.2. In addition, we offer both an analysis of the programming languages used in the distribution (C amounts for about 70%, C++ for about 10%, LISP and Shell are around 5%, with many others to follow), and the largest packages (Mozilla, the Linux kernel, PM3, XFree86, etc.)"*

## 4.4 The 3.x Releases

Before woody could even begin to be prepared for release, a change to the archive system on ftp-master had to be made. Package pools, which enabled special purpose distributions, such as the new "Testing" distribution used for the first time to get woody ready for release, were [activated on ftp-master](#) in mid December 2000. A package pool is just a collection of different versions of a given package, from which multiple distributions (currently experimental, unstable, testing, and stable) can draw packages, which are then included in that distribution's Packages file.

At the same time a new distribution *testing* was introduced. Mainly, packages from unstable that are said to be stable moved to testing (after a period of a few weeks). This was introduced in order to reduce freeze time and give the project the ability to prepare a new release at any time.

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In that period, some of the companies that were shipping modified versions of Debian closed down. Corel sold its Linux division in the first quarter of 2001, Stormix declared bankruptcy on January 17th 2001, and Progeny ceased development of its distribution on October 1st, 2001.

The freeze for the next release started on July 1st 2001. However, it took the project a little more than a year to get to the next release, due to [problems in boot-floppies](#), because of the introduction of cryptographic software in the main archive and due to the changes in the underlying architecture (the incoming archive and the security architecture). In that time, however, the stable release (Debian 2.2) was revised up to seven times, and two Project Leaders were elected: Ben Collins (in 2001) and Bdale Garbee. Also, work in many areas of Debian besides packaging kept growing, including internationalization, Debian's web site (over a thousand web pages) was translated into over 20 different languages, and installation for the next release was ready in 23 languages. Two internal projects: Debian Junior (for children) and Debian Med (for medical practice and research) started during the woody release time frame providing the project with different focuses to make Debian suitable for those tasks.

The work around Debian didn't stop the developers from joining the annual [DebConf](#) meeting. The second meeting [Debconf1](#) was held from the 2nd to the 5th of July together with the Libre Software Meeting (LSM) at Bordeaux (France) gathered around forty Debian developers. The third conference, [Debconf2](#) took place in Toronto (Canada) July 5th 2002 with over eighty participants.

Debian 3.0 (*woody*) was released July 19th, 2002 for the Intel i386, Motorola 68000 series, alpha, SUN Sparc, PowerPC, ARM, HP PA-RISC, IA-64, MIPS, MIPS (DEC) and IBM s/390 architectures. This is the first release including HP PA-RISC, IA-64, MIPS, MIPS (DEC) and IBM s/390 ports. At the time of release, there were around 8500 binary packages maintained by over nine hundred Debian developers, becoming the first release to be available on DVD media as well as CD-ROMs.

Before the next release the *DebConf* annual meeting continued with the fourth conference, [Debconf3](#) taking place in Oslo from July 18th to July 20th 2003 with over one hundred and twenty participants, with a *DebCamp* preceding it, from July 12th to July 17th. The fifth conference, [Debconf4](#), took place from May 26th to June 2nd 2004 in Porto Alegre, Brazil with over one hundred and sixty participants from twenty six different countries.

Debian 3.1 (*sarge*) was released June 6th, 2005 for the same architectures as *woody*, although an unofficial AMD64 port was released at the same time using the project hosting infrastructure provided for the distribution and available at Alioth (formerly at <https://alioth.debian.org>). There were around 15,000 binary packages maintained by more than one thousand and five hundred Debian developers.

There were many major changes in the *sarge* release, mostly due to the large time it took to freeze and release the distribution. Not only did this release update over 73% of the software shipped in the previous version, but it also included much more software than previous releases almost doubling in size with 9,000 new packages including the OpenOffice suite, the Firefox web browser and the Thunderbird e-mail client.

This release shipped with the 2.4 and 2.6 Linux kernel series, XFree86 4.3, GNOME 2.8 and KDE 3.3 and with a brand new installer. This new installer replaced the aging boot-floppies installer with a modular design with provided for more advanced installations (with RAID, XFS and LVM support) including hardware detections and making installations easier for novice users of all the architectures. It also switched to **aptitude** as the selected tool for package management. But the installation system also boasted full internationalization support as the software was translated into almost forty languages. The supporting documentation: installation manual and release notes, were made available with the release in ten and fifteen different languages respectively.

This release included the efforts of the Debian-Edu/Skolelinux, Debian-Med and Debian-Accessibility sub-projects which boosted the number of educational packages and those with a medical affiliation as well as packages designed especially for people with disabilities.

The sixth *DebConf*, [Debconf5](#) was held in Espoo, Finland, from July 10th to July 17th, 2005 with over three hundred participants. [Videos](#) from this conference are available online.

The seventh *DebConf*, [Debconf6](#) was held in Oaxtepec, Mexico, from May 14th to May 22nd, 2006 with around [two hundred](#) participants. [Videos](#) and [pictures](#) from this conference are available online.

## 4.5 The 4.x Releases

Debian 4.0 (*etch*) was [released](#) April 8th, 2007 for the same number of architectures as in *sarge*. This included the AMD64 port but dropped support for m68k. The m68k port was, however, still available in the *unstable* distribution. There were around 18,200 binary packages maintained by more than one thousand and thirty Debian developers.

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## 4.6 The 5.x Releases

Debian 5.0 (*lenny*) was [released](#) February 14th, 2009 for one more architecture than its predecessor, *etch*. This included the port for newer ARM processors. As with the previous release, support for the m68k architecture was still available in *unstable*. There were around 23,000 binary packages (built from over 12,000 source packages) maintained by more than one thousand and ten Debian developers.

With the release of Debian lenny, the naming scheme for point releases was [changed](#): point releases will use a true micro version number, so the first point release of Debian lenny will be 5.0.1. In the past point releases were named by an *r* plus the number appended to major and minor number, e.g. 4.0r1.

The eighth *DebConf*, [Debconf7](#), was held in Edinburgh, Scotland, from June 17th to 23th, 2007 with over four hundred participants. [Videos](#) and [pictures](#) from this conference are available online.

The ninth *DebConf*, [Debconf8](#), was held in Mar de Plata, Argentina, from August 10th to 16th, 2008 with over [two hundred](#) participants. [Videos](#) and [pictures](#) from this conference are available online.

The tenth *DebConf*, [Debconf9](#), was held in Cáceres, Spain, from July 23th to 30th, 2009 with over [two hundred](#) participants. [Videos](#) and [pictures](#) from this conference are available online.

The eleventh *DebConf*, [Debconf10](#), was held in New York City, United States of America, from August 1st to 7th, 2010 with DebCamp preceding it from July 25th to 31st. Over [200 people](#) including Debian developers, maintainers, users gathered at the Columbia Campus to participate in the conference. [Videos](#) and [pictures](#) from this conference are available online.

## 4.7 The 6.x Releases

Debian 6.0 (*squeeze*) was released February 6th, 2011.

After the project decided, the 29th of July 2009, to [adopt time-based freezes](#) so that new releases would be published the first half of every even year. Squeeze was a one-time exception to the two-year policy in order to get into the new time schedule.

This policy was adopted in order to provide better predictability of releases for users of the Debian distribution, and also allow Debian developers to do better long-term planning. A two-year release cycle provided more time for disruptive changes, reducing inconveniences caused for users. Having predictable freezes was expected also to reduce overall freeze time.

However, even though the freeze was expected in December 2009, the [announcement that squeeze had frozen](#) came in August 2010, coinciding with the celebration of the 10th annual DebConf meeting in New York.

New features include:

- Linux Kernel 2.6.32, now completely free and without problematic firmware files.
  - libc: eglibc 2.11
  - GNOME 2.30.0 with some pieces of 2.32
  - KDE 4.4.5
  - X.org 7.5
  - Xfce 4.6
  - OpenOffice.org 3.2.1
  - Apache 2.2.16
  - PHP 5.3.3
  - MySQL 5.1.49
  - PostgreSQL 8.4.6
  - Samba 3.5.6
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- GCC 4.4
- Perl 5.10
- Python 2.6 and 3.1
- 10,000 new packages, for more than 29,000 binary packages built from nearly 15,000 source packages.
- DKMS, a framework to generate Linux kernel modules whose sources do not reside in the Linux kernel source tree.
- Dependency-based ordering of init scripts using insserv, allowing parallel execution to shorten the time needed to boot the system.
- Two new ports, kfreebsd-i386 and kfreebsd-amd64.

Many packages started using a new source package format based on quilt. This [new format](#), called "3.0 (quilt)" for non-native packages, separates Debian patches from the distributed source code. A new format, "3.0 (native)", was also introduced for native packages. New features in these formats include support for multiple upstream tarballs, support for bzip2 and lzma compressed tarballs and the inclusion of binary files.

The twelfth *DebConf*, [Debconf11](#), was held in Banja Luka, Republic of Srpska, Bosnia and Herzegovina, from 24 to 30 July 2011, with DebCamp preceding it from 17 to 23 July.

The thirteenth *DebConf*, [Debconf12](#), was held in Managua, Nicaragua, from 8 to 14 July 2012, with DebCamp preceding it from 1 to 6 July, and a Debian Day on 7 July.

## 4.8 The 7.x Releases

Debian 7.0 (*wheezy*) was released May 4th, 2013. This new version of Debian included various interesting features such as [multiarch support](#), several [specific tools to deploy private clouds](#), an improved installer, and a complete set of multimedia codecs and front-ends which removed the need for third-party repositories.

After the release of Debian wheezy, the naming scheme for point releases was [changed once again](#): point releases will be named by the minor version number, e.g. 7.1. In the past point releases were named by the micro number appended to major and minor number, e.g. 6.0.1.

During the Debian Conference DebConf11, in July 2011, the "multiarch support" was introduced. This feature was a release goal for this release. Multiarch is a radical rethinking of the filesystem hierarchy with respect to library and header paths, to make programs and libraries of different hardware architectures easily installable in parallel on the very same system. This allows users to install packages from multiple architectures on the same machine. This is useful in various ways, but the most common is installing both 64 and 32-bit software on the same machine and having dependencies correctly resolved automatically. This feature is described extensively in the [Multiarch manual](#).

The installation process was greatly improved. The system could be installed using software speech, above all by visually impaired people who do not use a Braille device. Thanks to the combined efforts of a huge number of translators, the installation system was available in 73 languages, and more than a dozen of them were available for speech synthesis too. In addition, for the first time, Debian supported installation and booting using UEFI for new 64-bit PCs, although there was no support for *Secure Boot* yet.

Other new features and updated software packages included:

- Linux Kernel 3.2
  - kFreeBSD kernel 8.3 and 9.0
  - libc: eglibc 2.13
  - the GNOME 3.4 desktop environment
  - KDE Plasma Workspaces and KDE Applications 4.8.4
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- the Xfce 4.8 desktop environment
- X.org 7.7
- LibreOffice 3.5.4 (replacing OpenOffice)
- Xen Hypervisor 4.1.4
- Apache 2.2.22
- Tomcat 6.0.35 and 7.0.28
- PHP 5.4
- MySQL 5.5.30
- PostgreSQL 9.1
- Samba 3.6.6
- GCC 4.7 on PCs (4.6 elsewhere)
- Perl 5.14
- Python 2.7
- 12,800 new packages, for more than 37,400 binary packages built from nearly 17,500 source packages.

For more information on the new features introduced in this release, see the *What's new in Debian 7.0* chapter of *Wheezy Release Notes*.

The fourteenth *DebConf* [Debconf13](#), was held in Vaumarcus, Switzerland, from 11 to 18 August 2013, with DebCamp preceding it from 6 to 10 August, and a Debian Day on 11 August.

The fifteenth *DebConf* [Debconf14](#), was held in Portlan, United States of America, from 23 to 31 August 2014. with 301 attendees was the largest Debconf in the Western hemisphere to date.

## 4.9 The 8.x Releases

Debian 8.0 (*Jessie*) was released April 25th, 2015.

A major change in this release was the replacement of the init system: systemd replaced sysvinit. This new init system featured many improvements and faster boot times. Its inclusion, however, sparked a lot of debate in the different mailing lists and even led to a General Resolution titled [init system coupling](#), which was voted by close to half of the developers<sup>1</sup>.

Other new features and updated software packages included:

- Apache 2.4.10
- Asterisk 11.13.1
- GIMP 2.8.14
- an updated version of the GNOME desktop environment 3.14
- GNU Compiler Collection 4.9.2
- Icedove 31.6.0 (an unbranded version of Mozilla Thunderbird)
- Iceweasel 31.6.0esr (an unbranded version of Mozilla Firefox)
- KDE Plasma Workspaces and KDE Applications 4.11.13

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<sup>1</sup>In the Debian Project Leader Elections of the previous four years the number of voters had been usually around 40% of the existing Debian Developers

- LibreOffice 4.3.3
- Linux 3.16.7-ckt9
- MariaDB 10.0.16 and MySQL 5.5.42
- Nagios 3.5.1
- OpenJDK 7u75
- Perl 5.20.2
- PHP 5.6.7
- PostgreSQL 9.4.1
- Python 2.7.9 and 3.4.2
- Samba 4.1.17
- Tomcat 7.0.56 and 8.0.14
- Xen Hypervisor 4.4.1
- the Xfce 4.10 desktop environment
- more than 43,000 other ready-to-use software packages, built from nearly 20,100 source packages.

For more information on the new features introduced in this release, see the *What's new in Debian 8.0* chapter of *Jessie* [Release Notes](#).

## 4.10 The 9.x Releases

Debian 9.0 (*Stretch*) was released June 17th, 2017.

New features and updated software packages included:

- Apache 2.4.23
  - Bind 9.10
  - Calligra 2.9
  - Emacs 25.1
  - Firefox 50.0
  - GNOME desktop environment 3.22
  - GNU Compiler Collection 6.3
  - GnuPG 2.1
  - KDE Plasma Workspaces and KDE Applications 5.8
  - LibreOffice 5.2.7
  - Linux 4.9
  - MariaDB 10.1
  - OpenJDK 8
  - OpenSSH 7.4p1
-

- Perl 5.24
- PHP 7.0
- Postfix 3.1
- PostgreSQL 9.6
- Python 3.5
- Samba 4.5.8
- Xen Hypervisor 4.8.1
- the Xfce 4.12 desktop environment
- more than 51,000 other ready-to-use software packages, built from nearly 25,000 source packages.

For more information on the new features introduced in this release, see the *What's new in Debian 9.0* chapter of *Stretch Release Notes*.

## 4.11 The 10.x Releases

Debian 10.0 (*Buster*) was released July 6th, 2019.

New features and updated software packages included:

- Apache 2.4.38
  - Bind 9.11
  - Calligra 3.1
  - Emacs 26.1
  - Firefox 60.7
  - GNOME desktop environment 3.30
  - GNU Compiler Collection 8.3
  - GnuPG 2.2
  - KDE Plasma Workspaces and KDE Applications 5.14
  - LibreOffice 6.1
  - Linux 4.19
  - MariaDB 10.3
  - OpenJDK 11
  - OpenSSH 7.9p1
  - Perl 5.28
  - PHP 7.3
  - Postfix 3.3.2
  - PostgreSQL 11
  - Python 3.7.3
-

- Rustc 1.34
- Samba 4.9
- the Xfce 4.12 desktop environment
- more than 57,700 other ready-to-use software packages, built from nearly 25,000 source packages.

For more information on the new features introduced in this release, see the *What's new in Debian 10.0* chapter of *Buster Release Notes*.

## 4.12 Important Events

### 4.12.1 July 2000: Joel Klecker died

On July 11th, 2000, Joel Klecker, who was also known as Espy, passed away at 21 years of age. No one who saw 'Espy' in #mklinux, the Debian lists or channels knew that behind this nickname was a young man suffering from a form of [Duchenne muscular dystrophy](#). Most people only knew him as 'the Debian glibc and powerpc guy' and had no idea of the hardships Joel fought. Though physically impaired, he shared his great mind with others.

Joel Klecker (also known as Espy) will be missed.

### 4.12.2 October 2000: Implementation of Package Pools

James Troup [reported](#) that he has been working on re-implementing the archive maintenance tools and switching to package pools. From this date, files are stored in a directory named after the corresponding source package inside of the `pool` directory. The distribution directories will only contain Packages files that contain references to the pool. This simplifies overlapping distributions such as testing and unstable. The archive is also database-driven using PostgreSQL which also speeds up lookups.

This concept of managing Debian's archives sort of like a package cache was first introduced by Bdale Garbee in [this email](#) to the debian-devel list in May of 1998.

### 4.12.3 March 2001: Christopher Rutter died

On March 1st, 2001, Christopher Matthew Rutter (also known as cmr) was killed after he was struck by a car at the age of 19. Christopher was a young and well known member of the Debian project helping the ARM port. The `buildd.debian.org` site is dedicated to his memory.

Chris Rutter will be missed.

### 4.12.4 March 2001: Fabrizio Polacco died

On March 28th, 2001, Fabrizio Polacco passed away after a long illness. The Debian Project honors his good work and strong dedication to Debian and Free Software. The contributions of Fabrizio will not be forgotten, and other developers will step forward to continue his work.

Fabrizio Polacco will be missed.

### 4.12.5 July 2002: Martin Butterweck died

On July 21st, 2002, Martin Butterweck (also known as blendi) died after battling leukemia. Martin was a young member of the Debian project who recently joined the project.

Martin Butterweck will be missed.

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#### 4.12.6 November 2002: Fire burnt Debian server

Around 08:00 CET on November 20th, 2002, the University of Twente Network Operations Center (NOC) caught fire. The building burnt to the ground. The fire department gave up hope on protecting the server area. Among other things the NOC hosted [satie.debian.org](http://satie.debian.org) which contained both the security and non-US archive as well as the new-maintainer (nm) and quality assurance (qa) databases. Debian rebuilt these services on the host klecker, which was recently moved from the U.S.A. to the Netherlands.

#### 4.12.7 November 2003: Several Debian server hacked

Starting 17:00 UTC on November 19th, 2003, four of the project's main Web servers for bug tracking, mailing lists, security and Web searches [have been compromised](#). The services were taken down for inspection and fortunately it could be confirmed, that the package archive was not affected by this compromise. On November 25th, all services were recovered and back online.

#### 4.12.8 May 2004: Manuel Estrada Sainz and Andrés García Solier died

On May 9th Manuel Estrada Sainz (ranty) and Andrés García Solier (ErConde) were killed in a tragic car accident while returning from the Free Software conference held at Valencia, Spain.

Manuel Estrada Sainz and Andrés García Solier will be missed.

#### 4.12.9 July 2005: Jens Schmalzing died

On July 30th Jens Schmalzing (jensen) died in a tragic accident at his workplace in Munich, Germany. He was involved in Debian as a maintainer of several packages, as supporter of the PowerPC port, as a member of the kernel team, and was instrumental in taking the PowerPC kernel package to version 2.6. He also maintained the Mac-on-Linux emulator and its kernel modules, helped with the installer and with local Munich activities.

Jens Schmalzing will be missed.

#### 4.12.10 December 2008: Thiemo Seufer died

On December 26th Thiemo Seufer (ths) died in a car accident. He was the lead maintainer of the MIPS and MIPSEL port and he had also contributed at length in the debian-installer long before [he became a Debian developer](#) in 2004. As a member of the QEMU team he wrote most of the MIPS emulation layer.

Thiemo Seufer will be missed.

#### 4.12.11 July 2009: Steve Greenland died

On July 18th Steve Greenland (stevegr) died of cancer. He was the maintainer of many core packages (such as cron) since he joined Debian in 1999.

Steve Greenland will be missed.

#### 4.12.12 August 2010: Frans Pop died

Frans Pop (fjp) died on August 20th. Frans was involved in Debian as a maintainer of several packages, a supporter of the S/390 port, and one of the most involved members of the Debian Installer team. He was a Debian listmaster, editor and release manager of the Installation Guide and the release notes, as well as a Dutch translator.

Frans Pop will be missed.

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#### 4.12.13 April 2011: Adrian von Bidder died

Adrian von Bidder (cmot) died on April 17th. Adrian was one of the founding members and secretary of debian.ch, he sparked many ideas that made Debian Switzerland be what it is today. Adrian also actively maintained software in the Debian package archive, and represented the project at numerous events.

Adrian von Bidder will be missed.

#### 4.12.14 May 2013: Ray Dassen died

Ray Dassen (jdassen) died on May 18th. Ray was a Debian Developer for incredible 19 years. He joined the project in 1994, and continued to be an active contributor until his passing. Ray was one of the founding members of the Debian GNOME team, his friendliness and willingness to help fostered a spirit of collaboration within the GNOME team. He continued his involvement within Debian as the maintainer of several packages, most notably the Gnumeric spreadsheet.

Ray Dassen will be missed.

#### 4.12.15 July 2014: Peter Miller died

Peter Miller died on July 27th. Peter was a relative newcomer to the Debian project, but his contributions to Free and Open Source Software go back to the late 1980s. Peter was significant contributor to GNU gettext as well as being the main upstream author and maintainer of other projects that ship as part of Debian, including, but not limited to srecord, aegis and cook. Peter was also the author of the paper *Recursive Make Considered Harmful*.

Peter Miller will be missed.

#### 4.12.16 February 2015: Clytie Siddall died

Clytie Siddall died in February 2015. Clytie was a contributor of Vietnamese translations to Debian and other projects for many years. Within Debian she worked on translations for the installer, dpkg, apt and various documentation. She also contributed translations within the GNOME community and many other projects. Clytie was also a GNOME foundation member between 2005 and 2007.

Clytie Siddall will be missed.

#### 4.12.17 December 2015: Ian Murdock died

Ian Murdock, the founder of the Debian Project and its community, died in December 2015. Ian was introduced to computers early in his life, he started actively programming at nine years of age. With the idea and the opportunity to make something better, he started the Debian Project in August of 1993. At that time, the whole concept of a "distribution" of Linux was new. Inspired as he said by Linus Torvalds' own sharing of Linux, he released Debian with the intention that this distribution should be made openly, in the spirit of Linux and GNU. Ian's dream lives on: Debian is made up of a strong community that has fostered development, growth, and wonder. It remains incredibly active with thousands of developers working untold hours to bring the world a reliable and secure operating system. Debian has sparked the interest, curiosity, and passion of those who want to make something better. Then, now, and far into the future.

The Debian 9 *Stretch* release was dedicated in his memory.

Ian Murdock will be missed.

#### 4.12.18 September 2016: Kristoffer H. Rose died

Kristoffer H. Rose died on September 17th 2016 after a long battle with myelofibrosis. Kristoffer was a Debian contributor from the very early days of the project, and the upstream author of several packages, such as the LaTeX package Xy-pic and FlexML. On his return to the project after several years' absence, many of us had the pleasure of meeting Kristoffer during DebConf15 in Heidelberg.

Kristoffer H. Rose will be missed.

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## 4.13 What's Next?

The Debian Project continues to work on the *unstable* distribution (codenamed *sid*, after the evil and "unstable" kid next door from the *Toy Story 1* who should never be let out into the world). Sid is the permanent name for the unstable distribution and is always 'Still In Development'. Most new or updated packages are uploaded into this distribution.

The *testing* release is intended to become the next stable release and is currently codenamed *Bullseye*.

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## Appendix A

# The Debian Manifesto

Written by Ian A. Murdock, Revised 01/06/94

### A.1 What is Debian Linux?

Debian Linux is a brand-new kind of Linux distribution. Rather than being developed by one isolated individual or group, as other distributions of Linux have been developed in the past, Debian is being developed openly in the spirit of Linux and GNU. The primary purpose of the Debian project is to finally create a distribution that lives up to the Linux name. Debian is being carefully and conscientiously put together and will be maintained and supported with similar care.

It is also an attempt to create a non-commercial distribution that will be able to effectively compete in the commercial market. It will eventually be distributed by The Free Software Foundation on CD-ROM, and The Debian Linux Association will offer the distribution on floppy disk and tape along with printed manuals, technical support and other end-user essentials. All of the above will be available at little more than cost, and the excess will be put toward further development of free software for all users. Such distribution is essential to the success of the Linux operating system in the commercial market, and it must be done by organizations in a position to successfully advance and advocate free software without the pressure of profits or returns.

### A.2 Why is Debian being constructed?

Distributions are essential to the future of Linux. Essentially, they eliminate the need for the user to locate, download, compile, install and integrate a fairly large number of essential tools to assemble a working Linux system. Instead, the burden of system construction is placed on the distribution creator, whose work can be shared with thousands of other users. Almost all users of Linux will get their first taste of it through a distribution, and most users will continue to use a distribution for the sake of convenience even after they are familiar with the operating system. Thus, distributions play a very important role indeed.

Despite their obvious importance, distributions have attracted little attention from developers. There is a simple reason for this: they are neither easy nor glamorous to construct and require a great deal of ongoing effort from the creator to keep the distribution bug-free and up-to-date. It is one thing to put together a system from scratch; it is quite another to ensure that the system is easy for others to install, is installable and usable under a wide variety of hardware configurations, contains software that others will find useful, and is updated when the components themselves are improved.

Many distributions have started out as fairly good systems, but as time passes attention to maintaining the distribution becomes a secondary concern. A case-in-point is the Softlanding Linux System (better known as SLS). It is quite possibly the most bug-ridden and badly maintained Linux distribution available; unfortunately, it is also quite possibly the most popular. It is, without question, the distribution that attracts the most attention from the many commercial "distributors" of Linux that have surfaced to capitalize on the growing popularity of the operating system.

This is a bad combination indeed, as most people who obtain Linux from these "distributors" receive a bug-ridden and badly maintained Linux distribution. As if this wasn't bad enough, these "distributors" have a disturbing tendency to misleadingly advertise non-functional or extremely unstable "features" of their product. Combine this with the fact that the buyers will, of

course, expect the product to live up to its advertisement and the fact that many may believe it to be a commercial operating system (there is also a tendency not to mention that Linux is free nor that it is distributed under the GNU General Public License). To top it all off, these "distributors" are actually making enough money from their effort to justify buying larger advertisements in more magazines; it is the classic example of unacceptable behavior being rewarded by those who simply do not know any better. Clearly something needs to be done to remedy the situation.

### **A.3 How will Debian attempt to put an end to these problems?**

The Debian design process is open to ensure that the system is of the highest quality and that it reflects the needs of the user community. By involving others with a wide range of abilities and backgrounds, Debian is able to be developed in a modular fashion. Its components are of high quality because those with expertise in a certain area are given the opportunity to construct or maintain the individual components of Debian involving that area. Involving others also ensures that valuable suggestions for improvement can be incorporated into the distribution during its development; thus, a distribution is created based on the needs and wants of the users rather than the needs and wants of the constructor. It is very difficult for one individual or small group to anticipate these needs and wants in advance without direct input from others.

Debian Linux will also be distributed on physical media by the Free Software Foundation and the Debian Linux Association. This provides Debian to users without access to the Internet or FTP and additionally makes products and services such as printed manuals and technical support available to all users of the system. In this way, Debian may be used by many more individuals and organizations than is otherwise possible, the focus will be on providing a first-class product and not on profits or returns, and the margin from the products and services provided may be used to improve the software itself for all users whether they paid to obtain it or not.

The Free Software Foundation plays an extremely important role in the future of Debian. By the simple fact that they will be distributing it, a message is sent to the world that Linux is not a commercial product and that it never should be, but that this does not mean that Linux will never be able to compete commercially. For those of you who disagree, I challenge you to rationalize the success of GNU Emacs and GCC, which are not commercial software but which have had quite an impact on the commercial market regardless of that fact.

The time has come to concentrate on the future of Linux rather than on the destructive goal of enriching oneself at the expense of the entire Linux community and its future. The development and distribution of Debian may not be the answer to the problems that I have outlined in the Manifesto, but I hope that it will at least attract enough attention to these problems to allow them to be solved.