Department of Education and Children's Services
South Australia

What Place does Open Source Software have in Australian And New Zealand schools' and jurisdictions' ICT Portfolios?

Open source software suitable for use in Australian and New Zealand schools

A review of technical documentation

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June 2004

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Abbreviations

Open source software abbreviations

BSD	Berkeley Software Distribution
GIMP	GNU Image Manipulation Project
GNU	GNU's Not Unix
GNU GPL	GNU's Not Unix General Public License
GPL	General Public License
GNU LGPL	GNU Lesser General Public Licence (LGPL).
LGPL	Lesser General Public Licence
LTSP	Linux Terminal Server Project
Moodle	Modular Object-Oriented Dynamic Learning Environment
OSI	Open Source Initiative
SISSL	Sun Industry Standards Source Licence

State and Territory Departments of Education

ACTDEYFS	Australian Capital Territory Department of Education, Youth and Family Services
DoE (Tasmania)	Department of Education, Tasmania
DECS (SA)	Department of Education and Children's Services (South Australia)
DEET (NT)	Department of Employment, Education and Training (Northern Territory)
DET (VIC)	Department of Education and Training (Victoria)
DET (WA)	Department of Education and Training (WA)
EQ	Education Queensland
NSW DET	New South Wales Department of Education and Training

Commonwealth and national school sector agencies

DEST	Department of Education, Science and Training
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MCEETYA ICT in Schools Taskforce	Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) Information and Communication Technologies Taskforce

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Acknowledgements

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Summary of URLs

http://audacity.sourceforge.net/	Audacity homepage
http://au1.samba.org	SAMBA homepage
http://dev.mysql.com/doc/)	Location for documentation for MySql
http://fedora.redhat.com	Red Hat Fedora project website
http://gimp.org/books/	Books about GIMP are available from here
http://gug.sunsite.dk/articles/spyrogimp/	Spyrogimp site
http://hardware.redhat.com/hcl/	List of the hardware that is compatible with Red Hat software
http://hardwaredb.suse.de/	List of hardware compatible with SuSE Linux software
http://manual.gimp.org/	Technical documentation for GIMP
http://moodle.org/doc/?frame=philosophy.html	Technical documentation for Moodle
http://opensource.org/licenses/	Information about open source software licences.
http://squid-docs.sourceforge.net .	Users guide for Squid is available here.
http://squid.visolve.com/squid/index.htm	Configuration guide to Squid is available here.
http://tldp.org/HOWTO/text/TransparentProxy	Documentation for using Squid which is aimed at systems administrators and assumes prior knowledge of a Linux system.
http://wxwidgets.org/	This is the homepage for wxWidgets which is an open source C++ GUI framework to make cross-platform programming a more simple process.
http://www.debian.org	Debian Linux home page
http://www.debian.org/social_contract	Location of Debian community's social contract
http://www.docs.sun.com	User documentation for StarOffice.
http://www.freebsd.org	FreeBSD homepage
http://www.freebsd.org/platforms/index.html	Outlines platform compatibility for FreeBSD

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Summary of URLs

http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/	FreeBSD documentation handbook
http://www.gimp.org	GIMP homepage
http://www.gimp.org/windows/	GIMP for Windows
http://www.linuxcompatible.org/	Source of detailed information about hardware compatible with Linux
http://www.linux-mandrake.com/en/fhard.php3	List of hardware compatible with Mandrake software
http://www.mandrakelinux.com	Mandrake website
http://www.mandrakelinux.com/en/fdoc.php3	Location of Mandrake technical documentation
http://www.math.umd.edu/~dcarrera/openoffice/docs/	Community development site for user documentation for OpenOffice
http://www,moodle.com	Moodle Service Network
http://www.moodle.org	Moodle developers home page
http://www.openbsd.org	OpenBSD homepage
http://www.openbsd.org/i386.html#hardware	List of hardware compatible with OpenBSD software
http://www.openoffice.org/docs/setup_guide/toc.html	Location for set up guide for OpenOffice
http://www.opensource.org/licenses/	List of all approved open source software licences is provided here
http://www.osia.net.au/	Open Source Industry Alliance
http://www.php.net/	PHP home page
http://www.postgresql.org/docs	Location for documentation for Postgresql
http://www.redhat.com/docs/manuals/linux/RHL-9-Manual/	Location for Red Hat technical documentation
http://www.samba.org	Samba homepage
http://www.samba.org/samba/team.html	Samba team page
http://sourceforge.net/index.php	Homepage for Sourceforge: the main online site for open source software developments

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Executive summary

This report has been prepared as a result of research investigating the overarching question: *What place does open source software have in Australian and New Zealand schools and school jurisdictions' ICT portfolios?'* This report is one of a series produced through this research which includes the following:

- A research paper about total cost of ownership and open source software in schools; and
- Report of a trial of open source software conducted at Grant High School, in South Australia.

Each report presents a perspective to answering the research question. While each of these reports are self-contained and can be read individually, it is also intended that they be complementary to each other.

In addressing the overarching research question, this report uses the following key question to provide a focus to this report: *What open source software operating systems, applications and technical documentation, currently exist that have applicability to Australian school sector?*

The purpose of this report is to identify and review the technical documentation associated with some open source software that is commonly used in schools. One of the issues when using open source software is the amount of choice available: there is a huge variety of open source software suitable for use on several different platforms that perform a wide variety of functions. Making choices about what is the most suitable software in any given environment can be a time-consuming (albeit interesting) exercise. It is intended that by providing this basic user guide to open source software will enable schools and school jurisdictions to be able to make informed choices about which software they may choose to use within their particular environments.

The provision of expertise and support is an important component in being able to deploy open source software. The market has recognised this and providing support in open source software is a newly industry emerging in Australia. The Open Source Industry Alliance (OSIA) has recently been established as a national peak industry association for open source companies.[1] OSIA members range from lone consultants to medium sized companies who earn income from Australia and overseas from the provision of open source support services and documentation.

The software reviewed in this report was identified through a 'whole of government' survey sent to all South Australian public schools. The open source software most commonly identified through that survey has been reviewed here. It should be noted however, that this review does not cover all open source software used in schools: email, databases and configuration software have not been reviewed although they are used in schools, and only a limited number of applications software has been reviewed. Nonetheless, this review provides users with a simple entry point to open source software that they may wish to consider for use in schools. The technical documentation associated with the software reviewed here can be accessed via the Internet or can be obtained from service vendors.

This document then, has been prepared to support schools and school sectors to make decisions about which open source software they may wish to use. All the software reviewed here already has a place in schools and school jurisdictions ICT portfolios, and is being used successfully.

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[1] See http://www.osia.net.au/).

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1. Introduction

The purpose of this report is to review the technical documentation of a selection of open source operating systems and applications software currently being used in schools. Open source server operating system software is being used for email servers, web servers, file servers, print servers and proxy caches. Open source operating system software is also being used on desktops. Open source applications software being used in schools includes word processing, spreadsheets, presentation software and 'curriculum software' such as for manipulating graphics and sound. Open source software learning objects are also used for teaching and learning purposes.[2]

Along with a review of the technical documentation available, to enable comparisons between identified pieces of open source software with similar proprietary software, a brief summary of the functionality available within each piece of software reviewed, is also provided. Table One provides a summary of some of the open source software commonly used in schools instead of proprietary software.

Table One:[3] Proprietary and open source software that perform similar functions

Task	Commercial Application	Open Source Application
Operating system	Windows 2000	Linux or Red Hat Linux
Word Processing	Microsoft Word	OpenOffice.org.Writer
Spreadsheet	Excel	OpenOffice.org.Calc
Presentation	PowerPoint	OpenOffice.org Impress
Web Browser	Internet Explorer	Mozilla
E-Mail	Outlook	Evolution or Mozilla
Graphics	Photoshop	The GIMP

In addressing the overarching research question: '*what open source software operating systems, applications and technical documentation, currently exist that have applicability to Australian school sector?*' this report uses the following key question to provide a focus to this report: '*what open source software operating systems, applications and technical documentation, currently exist that have applicability to Australian school sector?*'

2. What is open source software?

Open source software is software that has source code that is open, viewable, unrestricted and redistributable. It is available by downloading it from the Internet. When open source software is downloaded from the Internet the users of that software are required to adhere to the licence agreements of the software. Licences for open source software provide an unconditional right of any party to modify the software and allow unlimited distribution.[4] The 'open' in open source software is intended in the philosophical sense of 'open or free speech' rather than as a free (ie no cost) product. Open source software is developed by identifiable communities who contribute to the development of a particular piece of software. Successful open source software is produced by communities with explicit philosophical objectives and robust and rigorous development, testing and approval processes for improvements made to the software.

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[2] See http://www.linuxforkids.org/
[3] See Sommer and Strait (2004) http://www.ossadvocacy.org/docs/oss-school/oss-school.html. Each piece of software is included because it is generally considered to perform similar functions.
[4] Hubley & Muller, 2002, http://asiapac.gartner.com/events/noie.cfm

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People in the software communities participate voluntarily or are paid by employers such as government departments or companies such as IBM, Hewlett Packard and Sun Microsystems. Consistent with the philosophy of public education, open source software is made available to the public at large as a public good rather than for gain or profit. Companies achieve financial gains related to open source software from the research developed through the collaborative processes which underpin open source software development, and from associated products such as the packaging or bundling of products, associated technical services, conferences, books, and promotional materials.

There are several open source software systems available in the marketplace. Linux is an example of an open source operating system (compared to Windows or Windows NT) and OpenOffice is an example of open source applications software that provide office functions such as wordprocessing, presentations and spreadsheets. Questions concerning whether to include open source software within the ICT portfolio of a school or school sector tend to revolve around balancing four differing demands: the business case; technical demands; legal requirements; and ethical, social and educational implications. The choices of software schools and sectors make are based upon a range of issues; much of which involve weighing the risks against the benefits about the purposes to which the software is to be put.

Governments around the world including the UK, USA and a number of European Union governments have prepared policies and reports concerning the use of open source software in government agencies and schools.[5] The UK government has had a national government policy on open source software in place since 2002 in response to the *eEurope Action Plan*. Douglas Alexander MP, e-Government Minister, Cabinet Office, announced in Parliament recently that:

> *the Open Source Software policy has been formulated for use within UK Government because we seek to embrace the fast moving pace of the software industry and to acknowledge the clear potential for Open Source Software to change the software infrastructure marketplace.*[6]

Governments and schools are interested in increasing the interoperability between software systems for teaching and learning and administrative purposes. The question of how to achieve interoperability hinges on the nature of the standards upon which the software is based. This is akin to determining the nature of the foundations upon which a house is to be built. Open standards that allow the standard to be seen, provide the capacity for interoperability between both open and proprietary software. Open source software provides a concrete way of developing open standards. Rather than making open standards theoretical exercises, open source software provides the practical means for determining these standards.

The issues around whether open source software has a place in a school or sector's ICT portfolio can draw emotive responses, yet the questions do not require 'either/or'; or 'one versus the other' responses. Software infrastructure in schools and sectors for the most part are not 'green field sites', and so the choices about the acquisition and provision of software similarly are not black and white; either/or decisions, but a matter of weighing up the risks and the benefits for particular contexts.

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[5] See Board of Technology, Government of Denmark (2002) http://www.eun.org/insight-pdf/special_reports/Why_Europe_needs_foss_Insight_2004.pdf; European Schoolnet. (2003); British Educational and Communications Technologies Agency (BECTA) (2004), http://www.becta.org.uk/etseminars/presentations/presentation.cfm?seminar_id=12&presentation_id=9&chunk=6&section=7_1; Vuorikari, R. (2004), http://www.eun.org/insight-pdf/special_reports/Why_Europe_needs_foss_Insight_2004.pdf

[6] British Educational and Communications Technologies Agency (BECTA) (2004), http://www.becta.org.uk/etseminars/presentations/presentation.cfm?seminar_id=12&presentation_id=9&chunk=6&section=7_1

3.   Open source software licences

Most open source software comes with a licence agreement. Open source software licences work within conventional copyright law but with the owner asserting ownership of the software, and then making the software available under specified licence terms. While licences for most proprietary software are designed to reduce or prevent the freedom to copy, change or redistribute the software, by contrast, the respective open source software licences are designed to guarantee people's ability to share and change the software. The licences for open source software allow for the unrestricted distribution of the software but it does not preclude the sale of products that include open source software as long as the product does not require a royalty fee to be attached to the item and the software can be modified and redistributed for free.

There are several different open source software licences. The two main categories of open source software licence are 'copyleft' and 'non-copyleft' licences. The term 'copyleft' comes from the right to copy being left in place. Copyleft licenses such as the GNU General Public Licence (GPL) require that modified versions of the software must also be open source software. Non-copyleft licences do not insist on the right to freely redistribute the software be left in place. The most common 'copyleft' open source software licences are Open Source Initiative (OSI)[7] compatible licences such as the GNU GPL and the most common 'non-copyleft licence is the Berkeley Software Distribution (BSD) licence. The GNU General Public Licence is intended to guarantee users' freedom to share and change open source software.

Detailed information about open source software licences is available at http://opensource.org/licenses/

4.   Assumptions

The following assumptions have been made upon which to base this report:
1. The target hardware for this report is up to 4 years old.
2. Desktop hardware across Australian and New Zealand schools is likely to be more diverse in its age and capabilities than server hardware.
3. All software reviewed is appropriate for use on i386 architecture, which contains Intel and desktop PCs.

Viable open source software include the following characteristics:
1. A dedicated core developer group;
2. An active community around the software;
3. A clear plan for software developments;
4. Lively feature development processes;
5. Well documented technical documentation;
6. Third party support, corporate funding and/or other strategic alliances;
7. Rapid turnaround processes for support requests and bug fixes;
8. Adoption of the software internationally;
9. Service industry support around the software through third party publications, support documentation and the provision of expertise.

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[7] The Open Source Initiative (OSI) credentials open source software licences that can then use the phrase: 'Certified Open Source Software' to accompany their software. See http://opensource.org/licenses/

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5.   Software reviewed

The software reviewed here is currently in use in schools across Australia and New Zealand. In this report the technical documentation available for operating systems, applications software and utilities have been reviewed. It should be noted however, that this review of software only covers a limited selection of open source software. There is considerably more open source software in use in schools than has been reviewed here.

5.1   Operating systems
The following operating systems have been considered for their use on desktops and on servers.
1. Red Hat (Fedora)
2. Mandrake 9.2 (3 CDs)
3. Debian 3.0 (7 CDs)
4. Free BSD and OpenBSD 3.4 (1 CD)
5. SuSE evaluation version (1 CD)

5.2   Applications software
The following applications software have been reviewed:
1. OpenOffice (word processing, spreadsheet, presentation software)
2. Moodle (learner management system)
3. Gimp (digital image manipulation)
4. Audacity

5.3. Utilities software
The following applications software have been reviewed:
1. Samba (file serving software)
2. Squid (web caching software)

5.4. Software acquisition
The software reviewed in this report was sourced from a Linux vendor. The cost of materials and postage was $3.00 for each product. The cost of the software itself was $0.00 including all software provided on CD ROMs. Most software also included electronic copies of the manuals.

There is no phone support provided for this software. All support provided is available using email and community web forums.

6.   Method of review

To review each piece of software's technical documentation and associated support services available through the open source community and elsewhere, the following categories are used:
i.   Background to the distributor of the software
ii.   Hardware compatibility
iii.   Technical documentation
iv.   Technical documentation's ease of use
v.   Installation
vi.   Software licence requirements
vii.   Community
viii.   Summary

Case studies follow each review to provide an example of where each respective piece of software has been deployed in schools.[8]

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[8] While most of these case studies have been drawn from across South Australia, it is apparent from the research that has informed the development of this paper, that schools in other states and territories are also using a wide range of open source software.

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Category descriptors
The intention of each of these categories is briefly described here:

i.   Background to the distributor of the software
A brief synopsis of the background about the distributor of the software is outlined to provide the reader with a context within which to consider the specific pieces of open source software.

ii.   Hardware compatibility
The compatibility of the open source software with hardware commonly used in schools, as documented by the distributor, is summarised. A detailed source of information about hardware compatibility with Linux can be found at http://www.linuxcompatible.org/

iii.   Technical documentation
The documentation reviewed in this report is available either on the installation media (i.e. the CDROM), or documentation is available on the website of the product. This review has focused on installation documentation and user documentation for the software distributions. For the purposes of this report the level of documentation has been classified using the following calibration:

A. Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage

B. Support manuals are provided by distributor, the documentation is available on the web or in the distribution package, they cover the core requirements but are complicated to locate. Documentation may not be available for the most current version.

C. Documentation provided by distributor is lacking but other support avenues are available. The documentation provided by the distributor may be old and out of date.

D. Documentation provided by distributor is unavailable.

iv.   Documentation ease of use
'Ease of use' of the documentation has been separated out as a descriptor as it is central to enabling open source software to be used in schools and school jurisdictions. 'Ease of use' here refers to whether the supporting technical documentation for the software is easy to understand by a competent technical officer.

v.   Installation
Documentation for the installation process of open source software is important to make an installation straightforward. It should be easy for anyone with previous computer skills to follow the documentation. Documentation of the installation process is considered an important component for ease of installation. The use of disk-imaging can reduce the amount of installations required for large groups of computers.

vi.   Software licence
There are a variety of open source software licences. While they leave in place the right to copy and reuse the software, there are differences between the different open source software licences which makes some software more appealing to use in schools than others. The licence for each piece of software has been reviewed here to enable consideration of the ease of use of the software in schools. When restrictions on redistribution are mentioned these will not effect schools' use of the software or limit

the number of computers on which the software may be installed. Restrictions mentioned however, may affect schools' ability to give the software away to students and staff.

vii.   Community

The community surrounding an open source project is vital to the software's ongoing usability. The level of support that can be found has been rated as follows:
- a.   Active and friendly
- b.   Semi-active
- c.   Once active now dead

viii.   Summary

A summary about the usability in schools and school jurisdictions' IT portfolios of each piece of software reviewed, is provided.

7.   Operating systems

This section reviews the technical documentation associated with open source operating systems software. The following five operating systems' technical documentation is reviewed:
1. Red Hat (Fedora)
2. Mandrake 9.2 (3 CDs)
3. Debian Linux 3.0 (7 CDs)
4. OpenBSD 3.4 (1 CD)
5. SuSE evaluation version (1 CD)

7.1 Red Hat Fedora   http://fedora.redhat.com

Red Hat Fedora is the latest desktop distribution from Red Hat. It provides a graphical user interface, file browser and much other software. This release differs from previous releases from Red Hat as it has a larger community focus due to a shift in direction from Red Hat Inc. Fedora continues to have close ties with Red Hat and many resources provided by Red Hat can be shared by Fedora.

In this report the version of Fedora considered is called Fedora Core 1. At the time of writing Fedora Core 2 had just been released.

7.1.i.   Background to the distributor of the software

Red Hat is a commercial company based in the USA with outlets in Australia and throughout the Asia-Pacific. Red Hat was one of the first Linux distributors. Red Hat offers enterprise level support, and was one of the first open source software distributors to establish partnerships with large computer companies such as Oracle and Sun.

In late 2003 Red Hat split their corporate distributions from their desktop offerings, renaming Red Hat desktop to Red Hat Fedora. Thus Red Hat 9 was the last of the non-Fedora distributions. Red Hat Fedora can be thought of as Red Hat 10. The Fedora Project is a Red-Hat-sponsored and community-supported open source project. The goal of the Fedora Project is to work with the Linux community to build a complete, general purpose operating system exclusively from open source software.

7.1.ii.   Hardware compatibility

Red Hat provides a comprehensive online list of hardware on which Fedora has been tested. This hardware list includes the following selection:
•   All Intel and AMD chips from Pentium 1 and up
•   All IDE hard drives and CDROMS
•   Most sound cards and graphics cards
•   Most network cards and printers.
•   All standard keyboards and mice.

A full list of compatible hardware and utilities is provided on the Red Hat website. http://hardware.redhat.com/hcl/

Minimum requirements for a graphical desktop are:
Pentium II 400 Mhz, with 2Gb of hard drive space and 192Mb of RAM.

7.1.iii. Technical documentation

Documentation can be found at:
http://www.redhat.com/docs/manuals/linux/RHL-9-Manual/

Currently there is little documentation available for Fedora, but work is being undertaken to create Fedora specific documentation. The procedures and software used in Fedora and Red Hat 9 though, are very similar. Fedora documentation will be based on the documentation for Red Hat 9 (which is freely available).

The documentation reviewed here is the Red Hat 9 documentation.

Red Hat 9 documentation is distributed electronically, in PDF format. Hard copies of Red Hat 9 documentation are provided when purchasing Red Hat enterprise software.

Documentation for Red Hat 9 is 140 pages in length and is split into several sections:
- Installation Guide for Intel/AMD computers.
- Getting Started Guide (for new users)
- Customisation Guide
- Reference Guide
- Security Guide
- System Administration Primer
- Glossary of terms
- Appendices

Installation Guide
The installation documentation is thorough and explains all the functions of the installation process. It provides a step by step run through of the processes required to install the software. The documentation includes answers to commonly asked questions at various stages of the installation.

The installation guide contains four Appendices which detail how to upgrade from a previous versions of Red Hat, and specific trouble shooting documentation at the installation stage.

Getting Started Guide (for new users)
This section is aimed at users who are new to computers, or acts as a refresher guide for more experienced users. This section provides a tour of the desktop and common applications.

Customisation Guide
The customisation guide provides details for the customisation of the lower level system configuration: '*how to create customised installers'*. It also covers the configuration of web-servers, file-sharing and web-caching (ie the Apache, Samba and Squid services).

Reference Guide
This section provides a detailed reference for all parts of a Red Hat distribution. It includes maintenance of network services, location of software on disk. This section aims to explain the design decisions behind Red Hat.

Security Guide
This section provides an explanation of the security features of Fedora. It outlines steps you can take to further secure a Fedora system.

System Administration Primer
This primer provides information for performing the tasks of a system administrator, such as creating user accounts and installing software in a multi-user environment.

Glossary of terms
The Glossary explains terms that are commonly found in the documentation and when using a Fedora system.

Technical documentation rating

Fedora Red Hat:
C: Documentation provided by distributor is lacking but other support avenues are available.

Red Hat 9 is however is very similar, and has been rated:
A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

7.1.iv Technical documentation's ease of use
The style of the documentation is aimed at a semi-confident computer user. The quality of the documentation is professional and contains the required information to install the software. It also contains information on trouble shooting when problems occur.

7.1.v Installation
The installation system of Fedora for desktops is simple, polished and professional. Fedora demonstrates the best of hardware detection and simple setup that Linux distributions can offer.

7.1.vi Software licence
All software that is distributed in Fedora is available to download without cost. All of the core parts of Fedora and most of the additional software distributed are covered under the GPL or OSI compatible licences, which allow them to be redistributed without restriction. There is some software, such as the Acrobat reader, which is included in Fedora. This software is also available without cost, but it is recommended that the licences pertaining to such proprietary software is checked for their specific requirements concerning redistribution.

7.1.vii Community
The hub of the Fedora community is located in the USA with community members spread out across the world. Red Hat provides mailing lists for support of Fedora products and for other open source projects.

The Fedora community contains many employees of Red Hat as well as volunteers from many different countries. This community is focusing on improving Red Hat's compatibility with other Linux distributions and standards. Many members of this community are also active in the Red Hat community.

The Red Hat community is helpful with new users and for finding solutions to problems.

> The Fedora community has been rated here as:
> *a: Active and friendly*

7.1.viii Summary

The Fedora Linux distribution builds on the level of ease of use and support that Red Hat Linux has enjoyed. Fedora is a stable and widely supported Linux distribution. It contains many programs that make it suitable in the school sector.

> *Case study: Grant High School, South Australia*
>
> At Grant High we use Fedora Core 2 (FC2) for our Linux Terminal Servers. Our experiences with FC2 are good. It seems stable with only a few, insignificant problems. The reasons for choosing FC2 are many:
> - it has an excellent update feature (it actually has two, Yum and up2date) which enables us to, almost automatically, keep on top of the security updates;
> - it is 'bleeding edge', and as such we are showing our students that we are at the cutting edge in IT at Grant High School;
> - RedHat is the best known brand in Linux distros which helps getting acceptance when it comes to installing it on our students home computers;
> - It is easy to use: we are Linux 'newbies' at Grant High School and still somewhat reliant on an intuitive GUI.
> - The GUI interface is also good for those students who want to use it at home;
> - It was the choice of the makers of the K12LTSP package that we have chosen to deploy. The Linux Terminal Server Project (LTSP) can be installed on any distro but the K12LTSP distribution has a number of advantages that we can benefit from at school, as well as a huge range of educational software installed by default .
>
> *Samps Okholm: IT Technican*

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RedHat 9 Case Study: Department of Education, Youth and Family Services, Australian Capital Territory

Schools in the ACT use two networks: EduNet for administration purposes and Student Network Servers (SNS) for curriculum purposes. In 2003, all schools in the ACT were supplied with Linux RedHat 9 for their proxy servers. About a third of all schools in ACT use RedHat 9 for their SNS; another third use Windows and the remaining third, use a mixture of Windows and Red Hat. The development and support of Red Hat Linux servers has occurred with the Department of Education, Youth and Family Services working in collaboration with the Canberra Schools Linux User Group (CSLUG).

Peter Fenwick, Executive Teacher Student Networks

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7.2   Mandrake 9.2   http://www.mandrakelinux.com

Mandrake Linux is a distribution from Europe based on an early version of Red Hat. Mandrake was the first Linux distribution to have a completely graphical installation system. Mandrake develops software for the auto-detection of hardware and hardware drivers. This software, released as open source, is now used in many other major Linux distributions.

Mandrake has the best multi-lingual support of all the Linux distributions.

7.2.i   Background to the distributor of the software

The Mandrake Linux lead creator lives and works in France, where he established the Mandrake company to develop and sell Mandrake Linux. This company employs people to work on the distribution. The distribution was initially based on Red Hat Linux, but since its' initial release has had a separate developer, software and community base.

The company has had financial success and used its profits to fund the development of various open source software projects. They have decided to focus on smaller open source projects rather than the larger ones, such as OpenOffice. Recently the company has restructured itself and this restructure has included establishing a more community-based approach to software development.

Mandrake Linux has recently become a community driven distribution, much the way that Red Hat started the Fedora project. It is likely therefore, that there will be more frequent releases of software distributions, along with certain releases identified as 'official' that will be boxed and sold with support. This approach is likely to give more flexibility in obtaining updates at the same time as providing professional support.

Version 9.2 of Mandrake was reviewed for this report. Version 10 was released during the final stages of the report preparation.

7.2.ii   Hardware compatibility

Mandrake provides a searchable list of hardware that is compatible at http://www.linux-mandrake.com/en/fhard.php3

Mandrake Linux supports:
•   All Intel and AMD chips from Pentium 1 and up
•   All IDE hard drives and CDROMS
•   Most sound cards and graphics cards
•   Most network cards and printers.
•   All standard keyboards and mice.

Minimum specifications for installation on a desktop:
Pentium class processor with 1Gb of hard drive space and 64-128 Mb of RAM.

7.2.iii   Technical documentation

Documentation can be found at http://www.mandrakelinux.com/en/fdoc.php3

The documentation for the installation and use of Mandrake 9.2 are reviewed here. The installation documentation and starter guide are new for Mandrake 9.2 version. The other technical documentation has remained the same since the 9.0 release. This installation documentation includes:

- The Starter Guide;
- The Reference Guide;
- A guide to important user applications;
- A guide to configuring Mandrake Linux.

This documentation is provided on the installation CD, with the most up-to-date versions available on the Mandrake website. Mandrake provides all documentation for their older products on the website also. Some chapters of the technical documentation are included in more than one set of the documentation.

In the technical documentation there are chapters devoted to the system configuration tool that Mandrake includes called the Mandrake Control Centre. This chapter covers system maintenance, printer configuration, and security of the system. There is also documentation on the software installation tool. This documentation provides guidance to users in obtaining and upgrading software on their systems.

The everyday applications guide provides a list of recommended free and open source software to achieve common tasks. This document aims to provide quality documentation for software included in their distribution.

> *Technical documentation rating*
>
> *A : Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage*

7.2.iv   Technical documentation's ease of use
Their user documentation is of a high quality, is easy to used and is invaluable to new users.

7.2.v   Installation guide
The installation guide for Mandrake is 92 pages long: one third provides the installation instructions; another third provides a user introduction; and the other third provides notes about using program's installed with Mandrake.

The installation set contains some of the beginners guide. Some parts of the installation use the Windows platform to produce boot disks and find information about the system. The installation technical documentation includes information about:
- Migration to Mandrake from a Mac OSX platform;
- Common problems encountered during installation; and
- A link to a list of supported hardware :
  See: http://www.linux-mandrake.com/en/fhard.php3

The installation document provides a quick start guide for users already familiar with using computer systems. It helps the beginner discover the location of items such as:
- Where to find applications;
- Where to find the system control panel;
- Where to find Windows concepts such as 'network neighbourhood' and 'my documents' folders.

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User Introduction

Following the installation guide, there is a chapter for users who are complete beginners with Linux. This chapter steps the user though the first boot up of a Mandrake system and explains some concepts used in Linux, such as multiple user accounts. Mandrake provides a graphical setup utility, called the first time wizard, which lets the user configure their desktop based on a few choices. This can configure the Mandrake desktop to behave in a way similar to Windows or Mac OS. The first time wizard, also configures the users mail and internet settings. This feature allows a very fast setup for each user. The wizard also can setup an account on the Mandrake Linux website with a service called the Mandrake club. This is a free service where users can find answers to their questions. This service provides an easy entry into the Mandrake user community.

The user documentation contains instructions for basic computer usage, such as the use of icons, windows, start menu and task management. This information is useful for beginner computer users. Users who are familiar with other operating systems will find information here that will let them familiarise themselves with the way that a Linux desktop works.

Additional programs

Extra chapters, included in the installation guide have been prepared using the two common desktops provided with Linux: KDE and Gnome. These chapters cover similar ground:

- Customising the users desktop;
- Basic file management; and
- Finding help.

Each chapter is written to show the features of each particular desktop.

After the desktop introduction, the installation guide covers the use of common programs including

- Using Mozilla on the Internet;
- Using Mail programs, including setting up an email account;
- Performing office work;
- Using audio and video applications; and
- Using digital cameras.

7.2.vi   Software licence

All software that is distributed in Mandrake Linux is available to download without cost. All of the core parts of Mandrake and most of the additional software distributed is covered under the GPL or OSI compatible licences, which allows it to be redistributed without restriction. There is some software, such as the Acrobat reader, which are included in Mandrake. This software is available without cost but licence requirements concerning the redistribution of the proprietary software should be checked at the agency level.

7.2.vii   Community

The Mandrake distribution is based in France and as such enjoys a large user base there. Mandrake is used worldwide and is widely recognised as a popular Linux distribution.

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Mandrake software have created a website to be the focus of community interaction. This is called the Mandrake Club. Once registered users can chat and ask questions using an online web application. The central location of this forum makes it particularly useful for new users who may not have the skills to find other community sites. The Mandrake Club is a free service to users of Mandrake software. There is a paying option which provides the benefits of more prompt responses to questions posted there.

> Community rating:
> *A: Active and friendly*

7.2.viii   Summary

The Mandrake distribution is able to be installed and used by someone with a little user experience. Their technical documentation is of a high quality and can be used by competent new users. Mandrake has a strong distribution with a user focus.

> *Case study: Port Augusta West Primary School, South Australia*
>
> At Port Augusta West Primary School we have six computers in each classroom. We use Windows on the desktops and for the past two years have used different versions of Mandrake on the school's server.   We use the server to run Squid, Samba, Webmin and the filtering software, Dan's Guardian. I researched and installed Mandrake myself and have found Mandrake to be very reliable: the server just doesn't crash. I have found that Mandrake was easier to use than Red Hat 8 which I have installed at Flinders View Primary School, as Mandrake automatically picks up more hardware settings. I can recommend the use of Webmin as it provides a user interface that enables the adding and removing of users and tracking of log files from any web-enabled location.
>
> *Mike Lange, ICT School Services Officer*

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7.3   Debian Linux 3.0   http://www.debian.org

Debian is probably the most widely used open source software distribution in the world. Debian is a Linux distribution that is shaped by a set of rules, put together by volunteers and distributed world wide. Debian provides more software pre-packaged than any other Linux distribution. The Debian community has a preference for using software under licences which are OSI approved.

Debian has a release schedule which is driven by the quality of the software rather than according to market pressure. This means the official Debian distribution contains by default, the most stable version of software available with few bugs. It is possible to run the most recent version of software in Debian with little fuss.

Debian provides the basis for the Spanish school distribution Linex, which is used throughout the Extremadura region of Spain: 80,000 school desktops have been installed with open source software; and for the Norwegian school distribution, Skolelinux. Freeduc, a UNESCO sponsored French education distribution is based on Knoppix, which in turn is based on Debian. Skolelinux is likely to form the basis for future DebianEdu releases. It has a strong developer community in Germany now, and this looks likely set to spread to other countries.

7.3.i   Background to the distributor of the software

Debian is a non-profit organisation created to enforce the Debian community's guidelines. These guidelines are at the core of the community. The guidelines define what kind of software can be included, and favour software which is under an OSI approved license. Election to the leader of the Debian organisation is through a vote of its members. Debian has a very worldwide developer focus with no 'base' country. Debian development in Australia and New Zealand is strong.

7.3.ii   Hardware compatibility

Debian indicates that it is compatible with most common PC hardware. There is however no complete list of compatible hardware available. User experience from the Internet suggests that Debian Linux is compatible with hardware similar to that of Fedora. Debian Linux can also run on older hardware such as 486's.

7.3.iii   Technical documentation

Documentation for Debian is provided electronically in various formats including PDF and HTML. Documentation for Debian is available in nine different languages. The installation manual is written for technically competent users. It is not written in a style that is suitable for computer novices.

Installation documentation
The documentation guides the user though the steps of an installation. The documentation provided is comprehensive enough to enable an installation of Debian to be performed. There are however, no diagrams or screen shots in the installation documentation. The installation documentation details:
• System Requirements;
• How to obtain the software;
• Pre-installation steps;
• Installation steps; and
• Post installation requirements.

There is documentation available for users to learn about the desktop and to enable familiarisation with using Debian Linux. This documentation has been written by another Debian distribution called Progeny Linux, and since donated to Debian. This user documentation covers using Debian from the command line as well as using a graphical interface.

> *Technical documentation rating*
>
> *A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.*

7.3.iv   Technical documentation's ease of use
This documentation is adequate for the installation and running of a Debian, but is not aimed at beginners. The documentation is suitable for knowledgeable users of computers or Linux.

7.3.v   Installation
The installation process is Debian's weak point. Ease of installation is hindered by its text only interface; there is no graphical user interface. The lack of a graphical user interface however, may be counter-balanced by the stability and flexibility the software provides. It is possible to install a room of networked computers with only one floppy disk and access to the Internet. It is also straightforward to mass install a patch or additional software to a large number of Debian computers, which makes a system administrator job easy.

Any Debian installed computer can, regardless of the age of its software, be upgraded to the newest version without the need of the installation program.

There is a major project underway to create a user friendly installation program. It is due for completion in mid to late 2004.

7.3.vi   Software licence
Debian favours software that is under and open licence, and categorises the software distributed by licence. Debian has more open licenced software than any other distribution.

All software that is distributed in Debian Linux is available to download without cost. All of the core parts of Debian and additional software distributed is covered under the GPL or OSI compatible licences, which allows it to be redistributed without restriction. There is some software, such as the Acrobat reader, which is included in Debian. Such software is included but is clearly marked within the distribution without cost, but issues regarding redistribution for proprietary software should be checked at the agency level.

7.3.vii   Community
The Debian community includes a guideline called the social contract which can be found at http://www.debian.org/social_contract

The Debian community's main aim is to produce a distribution that consists completely of free software. To this end, all software that is written to prepare Debian is also software without cost. Many other Linux distributions are slowly incorporating this software into their distributions.

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The Debian community is very active in many different software projects. There is no other major source of support available for Debian other than through the community. The community itself is very active and supportive of new users.

Debian have education and child focussed projects called DebianEdu and DebianJr.

> Community rating:
> *A: Active and friendly*

7.3.viii. Summary
While Debian is not the best distribution for the beginner user, it does provide a strong basis for customizations. Debian's primary advantages are its ease of maintenance and its large package library. Debian Linux provides a solid platform with advanced packaging features. Their strong point is the structured organisation of software development and the people participating in the community.

Case study: Berri Primary School, South Australia

During the July 2004 school holidays Debian will be used to deploy and maintain a school desktop network at the Berri Primary School in South Australia. The school plays host to the only regional Linux user group in South Australia. It is anticipated that such community involvement will help the school to find local support for open source technology into the future.

The school has had a mixture of PCs ranging from a 486 running Windows 3.11 through to PIII 450s. The diversity has made management difficult. It was decided to replace the schools 50 or so computers with good quality reconditioned machines. These machines are twice as fast and have twice the memory of the best of the old curriculum machines.

A Microsoft Windows desktop on the new machines was a requirement due to the schools investment in staff training and educational software. Debian GNU/Linux desktops are being deployed as an alternative alongside Microsoft Windows as it requires little additional effort. Many titles, particularly Macromedia authored ones run well under GNU/Linux using Wine. The Linux desktops will be test beds for future innovations.

The standard means to deploy images in schools is Ghost Enterprise or Microsoft RIS. The Berri Primary School deployment will use a Debian GNU/Linux server. The choice to use Linux imaging tools was made for two reasons:
1. To explore ways to reduce software license costs; and
2. To be able to provide a simplified interface so teachers and support staff can do one-click re-imaging.

The computers receive their network configuration from the Linux server. New machines network boot directly into a Linux program supplied over the network from the server. The user is prompted for the location of the machine from a list, then the software is automatically loaded onto the computer over the network. Once the images are deployed the server changes the network boot configuration for that machine so future reboots will receive a boot menu instead of the deployment system. The boot menu offers a choice of a Debian GNU/Linux or Microsoft Windows desktop. There is also an on disk boot menu which will allow the computers to start without the network.

Machines can be easily re-imaged by staff individually from the boot menu or in bulk via a web interface. This imaging solution could have been implemented with commercial off the shelf software. The advantages of Linux for the schools with Linux expertise is the ability to customise such solutions for their needs. Technical documentation and downloads for this solution will become available on the school website and at http://shirro.com/edu/ in late July.

Paul Shirren, IT consultant to Riverland schools

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debian

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Installation manual
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Security Information
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Mailing Lists
Mailing List Archives

What is Debian?

Debian is a free operating system (OS) for your computer. An operating system is the set of basic programs and utilities that make your computer run. Debian uses the Linux kernel (the core of an operating system), but most of the basic OS tools come from the GNU project; hence the name GNU/Linux.

Debian GNU/Linux provides more than a pure OS: it comes with more than 8710 packages, precompiled software bundled up in a nice format for easy installation on your machine.

Read more...

Getting Started

The latest stable release of Debian is 3.0r2. The last update to this release was made on November 21st, 2003. Read more about available versions of Debian.

If you'd like to start using Debian, you can easily obtain a copy, and then follow the installation instructions to install it.

To get help in using or setting up Debian, see our documentation and support pages.

Users that speak languages other than English should check the international section.

People who use systems other than Intel x86 should check the ports section.

7.4 Free BSD http://www.freebsd.org
OpenBSD 3.4 http://www.openbsd.org

Free BSD and OpenBSD differ from the other distributions covered so far, as they are based on software developed at Berkeley State University in the 1970's. Thus BSD distributions are open source, but are different to a Linux distribution. Both FreeBSD and Open BSD are entirely community driven distributions. While they provide software to run desktop systems, it is not one of the major focuses for these communities. OpenBSD is primarily used in security focussed applications. FreeBSD is the more general BSD distribution.

7.4.i Background to the distributor of the software

Both FreeBSD and OpenBSD are developed, organised and distributed by volunteers, over the Internet. Many of the software developers of OpenBSD have or have had connections with the Berkeley State University. A Board of Directors constitutes the FreeBSD core team. This team have responsibilities which include deciding the project's overall goals and direction as well as managing specific project areas of the FreeBSD work.

7.4.ii Hardware compatibility

FreeBSD will run on i386 compatible, AMD64, Alpha, IA-64, PC-98 and UltraSPARC® platforms. Details about platform compatibility are available from http://www.freebsd.org/platforms/index.html. Release notes provide up to date information about platform compatibility and are available at http://www.freebsd.org/releases/index.html.

While many people run OpenBSD without any problems, OpenBSD compatibility with hardware is not as good as Linux. Hard drive, network cards and motherboards are very well supported. The newest Graphics cards, sound cards and modems are not as well supported. In addition, Open BSD is compatible with.
- ATAPI CDROM (and CD writing) drives; and
- USB keyboards and some mice.

A full list of know compatible hardware can be found at http://www.openbsd.org/i386.html#hardware.

7.4.iii Technical documentation

Technical documentation for both operating systems are aimed at high level users. This reflects the nature of these distributions which are aimed for server use.

FreeBSD is available as a boxed product (FreeBSD CDs, additional software, and printed documentation) from outlets including in Australia. These outlets are summarised at http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/mirrors.html#MIRRORS-CDROM.
FreeBSD is also available from several mirror sites which are listed at http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/mirrors-ftp.html.

FreeBSD comes with a comprehensive handbook of 22 chapters which is up to date in 2004. These chapters cover how to access the software, installation processes, configuration requirements, security, account management, booting processes, storage, and networking requirements, plus a range of appendices providing reference books and user guides. Several examples of how to handle different scenarios are also

included in the Appendices. The FreeBSD handbook is available at http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/. There is also a FreeBSD documentation project mailing list and a FAQ at http://www.freebsd.org/doc/en_US.ISO8859-1/books/faq/index.html.

Documentation for OpenBSD is included on the OpenBSD CD. It is also up-to-date in 2004. It is written with both the new and more experienced user in mind. The most recent version of the documentation can always be found online. The documentation is in a PDF format, and provides the necessary instructions to enable a competent user to install and configure an Intel-class computer. The documentation contains:
- An introduction to BSD;
- Step by step instructions for the installation;
- How to find additional help; and
- A complete pre-installation checklist.

There are detailed examples for many steps, especially the more difficult ones.

After the installation section, there is good information on the topics of:
- Networking;
- How to set the system up to perform a number of uses, such as firewalls and bridges;
- System tuning;
- Setting up a secure webserver; and
- Enabling disk quotas.

Technical documentation rating

A: Both FreeBSD and OpenBSD support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

7.4.iv Technical documentation's ease of use
Both FreeBSD and OpenBSD technical documentation is thorough and up to date. The documentation is written with technical users in mind. Both sets of documentation are simple enough for most competent people to follow.

7.4.v Installation
The documentation for both FreeBSD and OpenBSD are thorough and contain detailed instructions on all steps of the installation process. The documentation for both software systems cover many common installation problems, and contain solutions. Notable in both sets of documentation is the inclusion of information before you encounter the problem.

7.4.vi Software licence
All core software for both Free BSD and OpenBSD are under the BSD open licence which is OSI compatible. A majority of the software in both of these distributions are under an open licence and can be used and redistributed without cost. Details about the BSD copyright are available at http://www.freebsd.org/copyright/freebsd-license.html.

7.4.vii   Community

The FreeBSD project delegates specific individuals to work with the respective teams according to defined project needs. The leaders of the FreeBSD community are listed on the FreeBSD website which also includes their contact email details.

The OpenBSD community consists of a different cross section of computer users than of other Linux communities. There are less new users, and the community is smaller than that of Fedora or Debian. The OpenBSD community is the best source of information about problems or for asking questions.

> Community rating for both Free BSD and OpenBSD:
> *A: Active and friendly*

7.4.viii. Summary

Both these distributions are extremely stable and secure. They provide excellent tools to configure and use as a server. The tools in both pieces of software are targeted at the system administrator level.

> *Case study: Penola High School, South Australia*
>
> FreeBSD is used at Penola High School for the webserver and proxy serve
> Until recently it was also used to handle the file server requirements. W
> have chosen to use OpenBSD as it has proved to be a very low
> maintenance and cost effective software solution. It runs on a Pentium
> 266.
>
> *Jason Plunkett: Learning Technologies Coordinator*

http://www.freebsd.org
FreeBSD
FreeBSD:The Power To Serve

Select a server near you:
IPv6 Austria [Go]
Language: [de] [en] [es] [fr] [it] [ia] [ru]

Platforms
· i386
· Alpha
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· More?

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Bug Reports

What is FreeBSD?

FreeBSD is an advanced operating system for x86 compatible, AMD64, Alpha, IA-64, PC-98 and UltraSPARC® architectures. It is derived from BSD, the version of UNIX® developed at the University of California, Berkeley. It is developed and maintained by a large team of individuals. Additional platforms are in various stages of development.

Cutting edge features

FreeBSD offers advanced networking, performance, security and compatibility features today which are still missing in other operating systems, even some of the best commercial ones.

Powerful Internet solutions

FreeBSD makes an ideal Internet or Intranet server. It provides robust network services under the heaviest loads and uses memory efficiently to maintain good response times for thousands of simultaneous user processes.

Run a huge number of applications

The quality of FreeBSD combined with today's low-cost, high-speed PC hardware makes FreeBSD a very economical alternative to commercial UNIX® workstations. It is

New Technology Release: 5.2.1
· Announcement
· Installation Guide
· Release Notes
· Hardware Notes
· Installation Notes
· Errata
· Early Adopter's Guide

Production Release: 4.10
· Announcement
· Installation Guide
· Release Notes
· Hardware Notes
· Installation Notes
· Errata

Project News (RSS)
Latest update: May 30, 2004
· New committer: Lars Thegler (ports)
· FreeBSD 4.10-RELEASE is Now Available
· New committer: Koichi Suzuki (doc)
· March 2004 - April 2004 Status Report
· New committer: Christian S.J. Peron (src)
· New committer: Stefan Farfeleder (src)
· New committer: Jeremy Messenger (ports)
· New committer: Tony Ackerman (src)
· New committer: Marius Strobl (src)
· New committer: Daniel Hartmeier (src)

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Installing OpenBSD
Source by AnonCVS
Source by CVSync
Source by CVSup
Source by CTM (Email)
Source by Web

OpenBSD Resources
OpenBSD FAQ
Manual Pages

OpenBSD 3.4

Free, Functional & Secure

Only one remote hole in the default install, in more than 7 years!

The OpenBSD project produces a **FREE**, multi-platform 4.4BSD-based UNIX-like operating system. Our efforts emphasize portability, standardization, correctness, proactive security and integrated cryptography. OpenBSD supports binary emulation of most programs from SVR4 (Solaris), FreeBSD, Linux, BSD/OS, SunOS and HP-UX.

OpenBSD is freely available from our FTP sites, and also available in an inexpensive 3-CD set. The current release is OpenBSD 3.4 which started shipping Nov 1, 2003. The CDs (and Shirts) can be ordered...

Our next release is OpenBSD 3.5 which will ship on May 1, 2004 -- pre-orders have started!

OpenBSD is developed by volunteers. The project funds development and releases by selling CDs and T-shirts, as well as receiving donations. Organizations and individuals donate and thus ensure that OpenBSD will continue to exist, and will remain free for everyone to use and reuse as they see fit.

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7.5 SuSE Linux

SuSE Linux is based in Germany. They distribute their software with support and printed documentation. Similar to Red Hat they support high-end servers with a special version of SuSE Linux. The largest difference between SuSE Linux compared to other Linux distributions is their configuration software Yast which provides an easy to use graphical configuration process.

Only the SuSE Evaluation software and documentation have been reviewed here. This software is available to download from their website. Installation and user documentation are not included in the Evaluation version of the software, used for this report. Installation and user documentation are copyrighted by SuSE and as a complete set are not available for redistribution without cost.

It is possible to download the software from their site without costs due to the open licence much of the software is under, but this process is not simple for beginner users.

7.5.i   Background to the distributor of the software

SuSE Linux is a German based Linux distribution. The company SuSE not only provide operating systems and application software but also offer software solutions and turnkey systems for the deployment of Linux in the enterprise. SuSE Linux was recently chosen by the Munich local government in Germany to replace their desktop software. SuSE company exists to sell software based on SuSE. The quality of the software provided is similar to that of Fedora.

In 2003 Novell acquired SuSE Linux. Novell have since announced that future versions of Novell products will be supplied with versions of the SuSE server software. Novell has also announced that Ximian® Desktop 2 now supports the latest editions of Linux client operating environment software from SuSE Linux. Novell's Ximian Desktop supports SuSE Linux Desktop and SuSE Linux 9.0. Novell are also investing money in creating a better Linux desktop environments.

7.5.ii   Hardware compatibility

Hardware compatible with SuSE Linux can be found at http://hardwaredb.suse.de/

SuSE is compatible with:
• 	All Intel and AMD chips from Pentium 1 and up
• 	All IDE hard drives and CDROMS
• 	Most sound cards and graphics cards
• 	Most network cards and printers.
• 	All standard keyboards and mice.

Minimum specifications for installation on a desktop:
Pentium class processor with 1Gb of hard drive space and 64-128 Mb of RAM.

7.5.iii Technical documentation

Installation documentation is not provided in the Evaluation version of this software (reviewed here) as there is no installation step. User documentation found on the CDROM is of high quality, and is easy to follow, but is only provided to enable the Evaluation CD to be used.

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7.5.iv   Technical documentation's ease of use

While installation documentation is not provided on the CD the user documentation to support the Evaluation CD is of high quality and easy to follow.

7.5.v   Installation

SuSE Linux standard edition can be downloaded for free from their website. SuSE recommend using their live evaluation CD however, which allows users to try SuSE without installing any files on a system. Use of this distribution shows it to be very useable and straightforward. The SuSE desktop is easy to navigate: it is based on the KDE (K desktop environment). The CDROM's primary use is a hardware compatibility check with a demonstration of software included.

The normal version of SuSE has a graphical installation process which is very similar to that of Fedora or Mandrake.

7.5.vi   Software licence

Most programs distributed in SuSE Linux are individually available to download without cost. This approach is not recommended for beginners. The distribution however as a whole, including installation process and the packaging and configuration of software, is not available to download without cost All of the core parts of SuSE and most of the additional software distributed is covered under the GPL or OSI compatible licences. There is some software, such as the Acrobat reader, which are included in SuSE Linux. Such software is available without cost, but issues concerning redistribution should be checked at the local level.

7.5.vii   Community

The SuSE community is not as vocal as other communities, but is still active and provides help to new users. Members of their community are involved in many large open source projects, such as the KDE desktop and OpenOffice.

Community rating:
A: Active and friendly

7.5.viii Summary

SuSE Linux distribution is friendly, easy to use and provides much useful software. However SuSE differs in its licensing and cost. They do not seem to provide a zero cost supported distribution.

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> *Case study: Noarlunga Downs and Christies Beach Primary Schools*
>
> I have been using various versions of SUSE for the past three years at both Noarlunga Downs and Christies Beach Primary Schools. In both schools, SUSE is being used for the server which supports 60 to 70 desktops, respectively. I like SUSE because it has nice management tools that have a GUI interface provided by YAST. These tools enable an easy to use graphical configuration process. I have not taken any classes specifically in using SUSE but have found it easy and straightforward to use and manage, by learning on the job. SUSE is very reliable: it has not crashed once in either school. The purchase price of SUSE pays for the well-prepared documentation that accompanies the software. There are two manuals: a user and an administration manual. These manuals are perfect for beginner users, and while I don't refer to them that often now, they nonetheless are good support for technical officers such as myself.
>
> *Kieran Farrell: IT Administrator*

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8. Software applications

This section reviews the technical documentation associated with open source applications software. The following applications are reviewed:
1. OpenOffice 1.1.0
2. Moodle
3. Gimp
4. Audacity

8.1   OpenOffice Version 1.1.0   http://www.openoffice.org/

OpenOffice and its cousin StarOffice are both available for many operating systems and platforms. They will run on all of the Linux and BSD distributions reviewed above. StarOffice is available from Sun Microsystems within a package of software and services. The focus of this review is on OpenOffice which is available by downloading it from the OpenOffice website. Comparisons are made with StarOffice.

OpenOffice provides a word processor, a spreadsheet, presentation and drawing programs. It is able to open and save MS-Word, MS-Excel and MS-Powerpoint documents. It also includes an equation editor, and a lightweight graphics editor. It does not provide a database program comparable to MS-Access.

Many distributions of Linux make small customisations to OpenOffice to integrate it into the look and feel of their desktop offering.

8.1.i   Background to the distributor of the software

OpenOffice shares the same code as StarOffice. This code was originally proprietary software developed by German company Stardivision before being bought by Sun, who in turn publicly released the source code. Sun sell boxed versions of StarOffice with documentation and support. StarOffice has extra features not found in OpenOffice such as a built-in database of extra fonts, templates and a different spell-checker thesaurus.

StarOffice has recently become available to schools without a cost to install and run as long as the licence agreements are met. This cost-free licence however is not available to corporate education sites.

8.1.ii   Hardware compatibility

OpenOffice will run on any hardware that can support the underlying open source including Linux, BSD, Windows, Solaris, and Mac OSX. OpenOffice recommends computers have at least 64Mb of RAM installed.

8.1.iii   Technical documentation

Setup guide: http://www.openoffice.org/docs/setup_guide/toc.html
The setup documentation is targeted at Windows users. It was written for the last stable release of OpenOffice 1.0. It is useable on OpenOffice 1.1.0 as there are only small changes made to the installation process between it and OpenOffice 1.0. This documentation guides you through the steps of installing OpenOffice onto a multi-user Windows machine.

Online Help system
The online help is comparable to the help system that is included with the MS-Office programs. You can search, view an index or find via keywords. Most help sections

focus on one specific topic and provide links to similar sections.

This help section is comprehensive and familiar to anyone who has used MS office applications before. The online help system provides the documentation required to configure the software.

User guide

There appears not to be many user guide documents for OpenOffice, although many features and interfaces are very similar to MS-Word. The user guide for StarOffice however is freely available at http://www.docs.sun.com. This documentation is thorough and complete. There is a community effort creating a user guide for OpenOffice, but this is in its early stages and is not yet complete. See http://www.math.umd.edu/~dcarrera/openoffice/docs/

Technical documentation rating:

B: *Support manuals are provided by distributor, the documentation is available on the web or in the distribution package, they cover the core requirements but are some are complicated to locate. Documentation may not be available for the most current version.*

8.1.iv   Technical documentation's ease of use

All documentation found is written for end users, and is non-technical in its language. Online Help documentation is a strong point, however documentation for other areas is either hard to find or lacking.

8.1.v   Installation

Installation of OpenOffice can be achieved in two ways:
- Obtaining OpenOffice in distribution specific packages such as Debian, Free BSD and Red Hat[9]; or
- By using the installer program available by downloading OpenOffice from the Internet. This approach can be used with any open source operating system and is recommended for Windows users.

8.1.vi   Software licence requirements

The source code for OpenOffice is available under two different licenses: the GPL and the Sun Industry Standards Source Licence (SISSL). This dual licencing is required so Sun can sell the StarOffice software.

The native file format of OpenOffice documents is under an open licence.

8.1.vii   Community

The OpenOffice community is focused around the OpenOffice website and a set of mailing lists. There are developers from Sun, Apple, IBM as well as volunteers from all over the world participating in the software's development. There is no lead developer for OpenOffice as it is split into core software groups. There is a community leader who lives in France and organises the website and co-operation between the various software development groups.

---

[9] OpenOffice is included with each of the open source operating systems software packages reviewed here

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8.1.viii.   Summary

OpenOffice is the leading office productivity software available for Linux systems. Much work has gone into making installation very easy. The online help documentation is complete and detailed.

Case study: Stuart High School, South Australia

Since 2003, OpenOffice has been available on all 200 desktops available for student use at Stuart High School along with Microsoft Office. These computers are networked desktops. I have used OpenOffice because it is cross-platform: it will work on MacIntosh computers as well as on Windows and open source operating systems. I have found the functions available in OpenOffice are very similar to those available in MS Office. A strength of OpenOffice however, is the PDF creator which enables documents to seamlessly be turned into PDFs.

Comment:
The Australian dictionaries for OpenOffice recognise some eastern states Aboriginal words like Koori and Murri, but at this point doesn't recognise Anangu or Nunga words. We should get a list of common South Australian indigenous words to submit to the Myspell dictionary maintainers. This might be a good school project.

Paul Shirren: ICT consultant to Riverland schools, South Australia

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8.2   Moodle   http://www.moodle.org

Moodle is a learning management system: the software can be used to develop Internet-based courses and websites. The word 'Moodle' is an acronym for Modular Object-Oriented Dynamic Learning Environment (Moodle). The design and development of Moodle is guided by constructivist approaches to pedagogy. Moodle has prerequisite systems: it uses the PHP scripting language and requires a database server – either MySQL or PostgreSQL. It also requires a webserver which can be either Internet Information Server (Windows IIS) or Apache. Given that Moodle uses PHP, Apache works well with Moodle.

8.2.i   Background to the distributor of the software

The Moodle community was initiated by Martin Dougiamas, based in Western Australia. He has established a commercial site for his business at http://www.moodle.com. The developers site for Moodle is at http://www.moodle.org. Moodle is growing in its use both in Australia and internationally.

8.2.ii   Hardware compatibility

Moodle will run on servers using either the Linux, Mac OS, or Windows platforms. It will run on any computer that can run PHP and can support many types of database (particularly MySQL and Postgres). Client access is via a browser interface. The compatibility of the software is dependant on the plug-in requirements of lesson content and learning objects used.

8.2.iii   Technical documentation: http://moodle.org/doc/?frame=philosophy.html

Moodle documentation is available for download from Moodle.org. There is very good built in documentation provided. The prerequisite systems of PHP scripting language (http://www.php.net/) and either database servers (MySQL (http://dev.mysql.com/doc/) or PostgreSQL (http://www.postgresql.org/docs/)) also have comprehensive documentation available on their sites.

Technical documentation rating

A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

8.2.iv   Technical documentation's ease of use

The technical documentation is well written, regularly updated, and is supported by FAQs and online forums.

8.2.v   Installation

The installation is straight forward on all platforms, and upgrades require almost no user interaction. Moodle provides a preservation of conf files.

8.2.vi   Software license requirements

The software is available at no cost under the GNU GPL license as published by the

Free Software Foundation. This software can redistributed and/or modified under the terms of the GNU General Public License as published by the Free Software Foundation: either version 2 of the Licence, or (at your option) any later version.

8.2.vii Community
There is an active developer community of 50 or so people working on both core and extension modules. It is available in 34 languages, and there are 1322 registered sites across 83 countries. The number of sites using Moodle is growing and developers conferences are being held.

> Community rating:
> *A: Active and friendly*

8.2.viii Summary
Several schools across Australia are using Moodle. It has a user-friendly interface and a growing developers community. Moodle is stable and provides excellent tools for creating online learning activities.

> *Case study: Department of Education and Children's Services (DECS) (SA)*
>
> During 2003, and in 2004, trials of Moodle are being conducted with primary, secondary and Area schools with the support of DECS(SA). Moodle is being used to teach Macedonian at Woodville High School and is being evaluated by the Music and Science faculties. Tourism is being taught using Moodle at Grant High School.
>
> To date the DECS findings show that Moodle is a very flexible open source Learner Management System which has a number of excellent features. We have found for DECS schools, these features include Moodle's ability to be integrated into the key operating system environments found in schools; Windows, Mac OS X, Linux and Unix. The setup model is also flexible and enables educators to set up learning sequences in themes or by weeks or topics. A calendar is included in the current build which enable all uses to see deadlines. The Moodle environment is extensible and has the ability to have functions added to it including the ability to integrate SCORM objects and directory information.
>
> Many digital learning activities are integrated into Moodle including Chat, Forums, Surveys, Multiple Choice, Choose and Match, Polls, Glossaries, Up-loadable assignments and the ability to include digital media. A benefit of Moodle is the increasingly large and responsive development community that exists around Moodle and updates and modules are being added to it all the time. In summary, to date, we have found Moodle is easy to install, use and extend, and supports learning in a rich and effective way.
>
> *Gawain Duncan, Technical Strategist*

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Login

moodle

English (en)

Main menu

- Community Forums
- Frequently Asked Questions
- Documentation
- Download
- Languages
- Modules and add-ons
- Development
- Donations
- Ratings
- Moodle Buzz
- Moodle Sites

Course categories

English Language

Moodle News

Moodle 1.3.1 is available
by Martin Dougiamas - Saturday, 5 June 2004, 04:14 PM

Moodle 1.3.1 is a new bug fix release that fixes a couple of issues that some people experienced in Moodle 1.3. See the release details and get it from the download page.

Moodle 1.3 is now available!
by Martin Dougiamas - Tuesday, 25 May 2004, 08:19 PM

Moodle 1.3 is finally done! 😄 We've been busy tuning and polishing for a long time but it's now ready for production sites. All users of existing Moodle sites

Moodle is a course management system (CMS) - a software package designed to help educators create quality online courses. Such e-learning systems are sometimes also called Learning Management Systems (LMS) or Virtual Learning Environments (VLE). One of the main advantages of Moodle over other systems is a strong grounding in social constructionist

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8.3 Gimp Version 2   http://www.gimp.org/

The GNU Image Manipulation Project (GIMP) is a graphics manipulation program. It performs similar functions to Adobe Photoshop. It shares a similar interface and workflow to Photoshop. Red Hat Linux has bundled GIMP in its distribution since version 5.0.

GIMP features:
- 16 and 24 bit editing of a large range of image types, including Photoshop files;
- Multiple layers per image;
- A range of filters for manipulating images; and
- Allows printing to many printers (including network printers).

8.3.i   Background to the distributor of the software

The GIMP has been in development since February 1996. Version 1 was released in 1998 and version 2 was released in March 2004. Almost all developers are volunteers. There is no published commercial interest in the GIMP. The GIMP has been used in the post-production of some large budget films including Scooby-Doo, Harry Potter and Stuart Little. For the film Scooby Doo, the animators at the Los Angeles post-production studio Rhythm & Hues used Maya, Houdini, Film GIMP and other Linux-based production tools.

8.3.ii   Hardware compatibility

The GIMP will run on any computer capable of running:
- Windows 98 and more recent versions of Windows;
- Any version of Linux;
- Most Unix systems using X11; and
- Recent versions of Apple Macintosh.

8.3.iii Technical documentation

The technical documentation is complete and covers every tool and option found in the GIMP version 2. It includes context sensitive help and loads in a web browser, but there is no searching available.

There are 6 published books for the gimp. http://gimp.org/books/
One is available for a free download at http://manual.gimp.org/ This manual was published in 1999. It is a 924 page manual for GIMP version 1.1 which is two versions old. Much of the information in this book still applies to the most recent version. This manual has been published under an open licence.

Technical documentation rating

A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

8.3.iv   Technical documentation's ease of use

As much of the information in the GIMP manual has been written for version 1.1 the user has to determine that the manual still applies to the most recent version.

Nonetheless, the manual for GIMP is written by users for end users and contains straightforward step by step instructions for achieving common tasks using the software.

8.3.v   Installation
There are standalone installers for GIMP available for Windows and Macintosh computers. Installation for Linux systems is easiest using the packages specifically designed for each distribution.

8.3.vi   Software licence requirements
The GIMP is under an open licence and is built using only open source software. Some file formats (such as gif files), require a separate piece of software (under a different licence). There are no restrictions regarding redistribution of the GIMP.

8.3.vii   Community
The GIMP community consists of two groups: developers and users. GUG is the Gimp Users Group. The developers focus on the technical issues and the planning and implementation of new features.

> Community rating:
> *A: Active and friendly*

8.3.viii.   Summary
The documentation provided with the GIMP is straightforward and useable albeit written for an earlier version of the same software. It is compatible with many different file formats.

> *Case Study: Woodville High School, South Australia*
>
> I am using GIMP2 with my year 9 - 12 classes for web page design and for Game Maker sprite construction. (Game Maker has a free release but is not open source). At Woodville High in South Australia, we make GIMP available to students on a borrow-able CDROM, along with other open source software. This means the students can have the use of this powerful image manipulation software at home, without breaking copyright laws.
>
> The latest version of GIMP 2.0.1 incorporates Spryogimp, which emulates a children's toy called Spyrograph, consisting mainly of two rings with teeth. A comprehensive three page tutorial which includes some beautiful graphics of end products, is available on the Gimp Users Group (GUG) site.
> See: http://gug.sunsite.dk/articles/spyrogimp/
>
> GIMP has all the features of Photoshop. While some find the user interface comparatively clunky, the Filters and Script-Fu are more extensive than those available in Photoshop. In addition, you can make GIF animations using GIMP which is not possible to do in Photoshop.
>
> I'm finding more students wanting to make or tweak GIF animations for their games, particularly those who download animation sheets from the Game Maker forum.
>
> *Bill Kerr: Computing Teacher*

the GIMP

News
About The GIMP
  Splash archive
Screenshots
Downloads
  Resources
Documentation
  Books
  Tutorials
  Mailing Lists
Getting Involved
  Bugs

GIMP from Source
GIMP for Unix
GIMP for Windows
GIMP for MacOSX

Links

The GIMP is the GNU Image Manipulation Program. It is a freely distributed piece of software for such tasks as photo retouching, image composition and image authoring. It works on many operating systems, in many languages.

This is the official web site of the GIMP, and contains information about downloading, installing, using, and enhancing it. This site also serves as a distribution point for the latest releases. We try to provide as much information about the GIMP community and related projects as possible. Hopefully you will find what you need here. Grab a properly chilled beverage and enjoy.

Pre-Releases of Perl bindings, Help pages and GAP for GIMP 2.0	2004-03-26

Pre-releases of the GIMP Perl bindings, the new help pages and the GIMP Animation Package are now available at ftp.gimp.org and its **mirror sites**. These pre-releases are all updated to work with GIMP 2.0.

Gimp Perl is an extension for writing GIMP Plug-ins in Perl. **GIMP Help** is user documentation designed for use with the internal GIMP help browser or a web browser. The **GIMP Animation Package** is a collection of plug-ins to extend the GIMP with capabilities to edit and create animations as sequences of single frames.

The GIMP Hits 2.0	2004-03-23

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Audacity   http://audacity.sourceforge.net/

Audacity is an open source audio editing program. It is available without cost by downloading it from the Internet. Audacity enables you to record sounds, play sounds, import and export WAV, AIFF, Ogg Vorbis, and MP3 files. It can be used to edit sounds using Cut, Copy and Paste (with unlimited Undo), mix tracks together, or apply effects to recordings. It has a built-in amplitude envelope editor, a customisable spectrogram mode and a frequency analysis window for audio analysis applications. Built-in effects include Echo, Change Tempo, and Noise Removal, and it also supports VST and LADSPA plug-in effects.

Audacity was built using wxWidgets[10], which is a software library that releases software under the GNU Lesser General Public Licence (LGPL).

8.4.i   Background to the distributor of the software
The Audacity project was started in 1999 by Dominic Mazzoni while he was a graduate student at Carnegie Mellon University in Pittsburgh, Pennsylvania, USA. Working on a research project with his advisor, Professor Roger Dannenberg, they identified the need for a research tool that would allow them visualise audio analysis algorithms. Over time, it is this program that developed into a general audio editor.

Currently, Audacity is being further developed using the online development site Sourceforge.[11]. Dozens of people have contributed to Audacity, and progress is continually accelerating.

8.4.ii   Hardware compatibility
Audacity provides installation downloads from the Audacity homepage: http://audacity.sourceforge.net/

Audacity can be run on either Windows, Linux, Macintosh or Unix computers.

8.4.iii Technical documentation
The Audacity home page provides information for both the user community and for developers. Available through the website are up to date release notes, online help, FAQ's, and tutorials to support its use. The online help includes a full user manual and quick reference documentation. There is also an Audacity-Wikki which includes publicly-editable documentation, as well as tips and tricks in using Audacity. These resources are comprehensive and easy to use by most computer users. Screenshots are available of what Audacity looks like when used on Windows, Macintosh and Linux operating systems.

Technical documentation rating

A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

---

[10] wxWidgets is a cross-platform library which allows Audacity's GUI (menus, buttons, windows, drawing, etc.) to run natively on Mac, Windows, and Unix systems. See http://wxwidgets.org/
[11] Sourceforge (http://sourceforge.net/index.php) is an online site that allows people around the world to collaborate on free software projects

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8.4.iv Technical documentation's ease of use

The technical documentation is easy to locate and to use. There is an Audacity developers mail list as well as uptodate developers news items posted to the website. There is a discussion list for the user community and this list is a place for Audacity users to post questions for other Audacity users to answer. The Audacity website has a search engine which enables quick location of specific information sought.

The Audacity website can be viewed in 17 different languages apart from English.

8.3.v   Installation

The Audacity technical documentation, online help and FAQs include comprehensive installation information for loading the software with Windows, Macintosh, Unix and Linux operating systems. These notes are easy to follow.

8.4.vi   Software licence requirements

Audacity is released under the GLP licence.

8.4.vii   Community

The Audacity website supports both the user community and developers of Audacity. Discussion lists and mail lists support both groups. The user community includes an email list for asking questions and seeking answers to issues that may arise.

> Community rating:
> *A: Active and friendly*

8.4.viii.   Summary

Schools around Australia and New Zealand are using Audacity as a classroom tool for teaching students how to record and edit sound online. The Audacity software is reliable and robust and has an appealing look and feel. This software is easy to use for most competent computer users.

> *Case study: Penola High School*
>
> Years 10,11 and 12 drama students are using Audacity to learn how to edit sounds. Year 10 students create soundscapes where they are required to tell stories using sound only to convey the narrative. Students learn how to record, edit, multi-track and convert sounds for production. These experiences provide students with a grounding in the technical aspects of sound editing in preparation for their Drama studies in the South Australian Certificate of Education (SACE) in years 11 and 12, where sound forms part of the courses. Most students do not have a concept of what a sound technicians does, but with Audacity students are able to learn through first-hand experience how to use sound editing software and how to incorporate recorded sounds into live drama productions. Students have really enjoyed using Audacity as it provides a different aspect to Drama, and they have found it easy to learn and use. I have found Audacity a wonderful teaching and learning tool, as it provides various sorts of functionality in one package that previously I had to obtain using several different software packages. Through self-exploration, I initially taught myself how to use the software, and since then I have taken a two hour course at Technology School of the Future (SA) to improve my skills. I feel confident in using the software with my students and my students love learning about sound production and editing as part of their Drama courses.
>
> *Lynette Corletto, Drama Teacher*

Help

What is Audacity?
Screenshots
Online Help
F.A.Q.
Tutorials
Links
Contact Us

Download

Windows
Mac OS 9/X
Linux / Unix
Plug-ins

Get email notifications of new versions:

Email address:

[   ]

[Add] [Remove]

Privacy Policy

Community

AudacityTeam.org
Audacity-Users List
Translation Project
Donate Time

May 8, 2004: Audacity 1.2.1 released

Audacity 1.2.1 is a new stable version of the free Audacity sound editor. This release fixes several minor bugs that were found in Audacity 1.2.0. It also includes several new and updated translations.

Download Audacity for:

- Windows
- Mac OS X
- Linux/Unix

Read the Release Notes to see what's changed, and a list of known problems in this version.

October 28, 2003: COMDEX, Screenshots, Wiki, T-Shirts

We fixed a bunch of bugs in the last public test release, and we will be releasing Audacity 1.2.0-pre3 in the next few days, along with the VST Enabler, finally. In the meantime, here's some other news:

Audacity was nominated as a possible open-source program that O'Reilly could send to COMDEX in Las Vegas, November 17-20. Click here for more information and to vote for Audacity (free registration at O'Reilly required to vote). Voting ends on October 31st.

9. Utilities software

This section reviews the technical documentation associated with open source server side utilities software. The technical documentation for the following two pieces are reviewed:
1. Samba
2. Squid

9.1 Samba   http://www.samba.org

The Samba suite of software provides Windows compatibility for the network. Samba's primary role is as a Windows compatible:

- File server;
- Print server;
- Domain member (which allows Linux to use a windows for the username/password database); and
- Domain Controller (which allows Windows to use the Samba username/password database).

Being a Domain Controller means Windows clients can 'log into' the Samba server at the Windows Ctrl-Alt-Del login screen. Future versions of Samba aim to become an Active Directory compatible domain controller.

Samba version 3.0 software and documentation were reviewed in this document.

9.1.i   Background to the distributor of the software
The Samba project started as a small program written by then Australian PhD student Andrew Tridgell in 1992 to use SMB compatible network file-systems. Samba is now developed by an international team of developers.
See http://www.samba.org/samba/team.html.

Since that time, the Samba Team has been working for close compatibility with each successive revision of the the protocol found in each newer version of Windows.

9.1.ii   Hardware compatibility
Samba will run on most computers including any computer capable of running[12]:
- Any version of Linux
- Recent versions of Apple computers
- Unix computers.

Depending on the requirements of the service, the system requirements for Samba vary:
- For using Samba to serve large numbers of files or large files, a computer with more disk-drives are required;
- For serving large numbers of users a faster processor will improve response times and network speeds.

---

[12] Note: as Samba is emulating Microsoft products, Samba does not run on Windows computers. As such, computers using MS operating systems have not been included here.

9.1.iii Technical documentation

The Samba how-to guide is the official source of documentation for Samba. It is available from the Samba website and also in print form under the title "The Official Samba-3 HOWTO and Reference Guide".

This documentation is aimed at technical users and is split into 6 parts:

Installing Samba
- Includes documentation on how to install and test a Samba installation

Quickstart
- Provides the basics to configure a Samba server, with out of the box functionality.

Server configuration basics
- Introduces the basics of network shares and how to setup Samba in common networking environments. It includes information about security and Windows domain controllers.

Advanced configuration
- Introduces the concepts of network browsing and other advanced networking concepts.

Migration
- Covers migration from NT4 to Samba.

Trouble shooting
- A checklist is provided to enable troubleshooting when Samba isn't working correctly.

Technical documentation rating

A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

9.1.iv Technical documentation's ease of use

Samba is a server side program, the user documentation is targeted at a system administrator. The normal user, should never need to know how to use Samba when it is setup correctly. The documentation assumes that the administrator possesses knowledge of networking and file systems. Documentation is written to provide sufficient information to configure Samba properly for its environment.

9.1.v Installation

Installation of Samba is most often performed using pre-compiled packages. These packages are available for all distributions of Linux and BSD reviewed in this document. It is common for Samba to be installed by default by Linux distributions Samba is compatible with Unix variants. Installation can also be performed from the source code.

9.1.vi   Software licence requirements
All Samba source code is released under the GPL.

9.1.vii   Community
The Samba community develops and communicates using the Samba website and mailing lists. Knowledge on operating a Samba server is not limited to the Samba community: help and support of Samba is commonly found from the Linux distributions communities.

> *Community rated here as*
> a.   *Active and friendly*

9.1.viii. Summary
Samba is the only choice for non Microsoft operating systems to share files with Windows computers. This software is not compatible with Novell network shares; other open source software can be used for this purpose. Samba can be used on a wide range of scales, from a small network sever, to a large school wide file system. The documentation is freely available and is of high quality.

Case study:Trinity Gardens Primary School

At Trinity Gardens Primary School we are using Samba as a Windows NT Domain emulator so our Windows 98 boxes can log on to our Windows NT domain. We are using Red Hat Linux 7.1(Seawolf) with kernal 2.4.2-2 for our proxy server as it cost effective, does not require ongoing licence management and the system is reliable. We have never had any downtime with this server.

Nic Carstensen: IT Coordinator – Trinity Gardens Primary School

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samba
opening windows to a wider world

Web Sites

Please choose your closest web mirror site:

- Argentina
- Austria
- Australia
- Canada
- Germany
- Finland
- Belgium
- Greece
- Hungary
- Ireland
- Korea
- Poland
- Russia
- Switzerland
- Bolivia
- Australia (AU only)
- UK
- China
- France
- Sweden
- Singapore
- Turkey
- USA
- USA
- USA
- USA
- Norway

Download sites

These contain the source and binary distributions but not the web pages.

- Australia
- Canada
- Germany
- Belgium
- Singapore
- Japan
- China
- Austria
- Czech Republic
- Poland
- Russia
- Sweden
- USA
- USA
- USA
- USA

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9.2 Squid

Squid is a fully-featured web proxy cache tool. Squid can be downloaded from the Internet via FTP from the primary FTP site or from one of the worldwide mirror sites.

Squid can reliably provide caching of web data for schools. Squid keeps metadata cached in RAM and by using the Internet Cache Protocol, Squid can cache objects arranged in a hierarchy or mesh for additional bandwidth savings.

Squid boxes perform caching and web filtering for most South Australian public schools. Squid features 'pass through' authentication allows it to co-operate with the government system.

Squid supports:
- proxying and caching of HTTP, FTP, and other URL's
- proxying for SSL
- cache hierarchies
- ICP, HTCP, CARP, cache digests
- transparent caching
- WCCP (Squid v2.3 and above)
- extensive access controls
- HTTP server acceleration
- SNMP
- caching of DNS lookups

Version 2.5 of Squid is stable and version 3.0 is under development.

9.2.i   Background to the distributor of the software
The development of Squid is a community effort with the code development led by Duane Wessels of the US National Laboratory for Applied Network Research which is funded by the US National Science Foundation. Duane Wessels has written a book published by O'Reilly called *Squid: The Definitive Guide*. Information about the book is available at http://squidbook.org/index-two.html.

9.2.ii   Hardware compatibility
Squid requires a server that has a good amount of RAM and a high-end hard disk. A SCSI hard drive (if possible with RAID) is recommended. This hardware is preferred because Squid can be affected by disks that are not performing up to the required specifications.

Squid is compatible with the following operating systems:
- Linux
- FreeBSD
- NetBSD
- OpenBSD
- BSDI
- OSF/Digital Unix/Tru64
- IRIX
- NeXTStep
- SCO Unix
- AIX
- HP-UX
- OS/2
- SunOS/Solaris
- Mac OS/X

Recent versions of Squid will compile and run on Windows/NT.

Under school level workloads, Squid can work well on very meager hardware.

9.2.iii   Technical documentation

The most appropriate documentation for Squid configurations is found distributed with the program. A configuration guide is available at http://squid.visolve.com/squid/index.htm and a users guide is available at http://squid-docs.sourceforge.net. The Squid website also provides technical documentation including a FAQ section. There is also good free documentation that can found at http://tldp.org/HOWTO/text/TransparentProxy. This documentation is aimed at systems administrators and assumes prior knowledge of a Linux system. This documentation can be freely reproduced as long as it is reproduced and redistributed in full. It provides information on setting up Squid; different methods for establishing a transparent proxy to a remote box; troubleshooting notes and links to further resources. Squid is updated often and the most recent versions of the software and associated documentation are available from the Squid website.

Technical documentation rating

A: Support manuals are provided by distributor, are easy to find on the web or in the distribution package, and are extensive in their coverage.

9.2.iv   Technical documentation's ease of use

Given the technical documentation is aimed at systems administrators and assumes prior knowledge of a Linux system, for this audience, the documentation is straightforward and easy to use.

9.2.v   Installation

Installation is normally performed when installing a Linux distribution. It is also possible to install from the source code available from the Squid website: http://www.squid-cache.org/

9.2.vi   Software licence requirements

The Squid source code is released under the GNU GPL.

9.2.vii   Community

The Squid community develops code and communicates using the Squid website and through mailing lists. The community is supportive of developers and users.

Community rated here as
a.   Active and friendly

9.2.viii.   Summary

Squid is widely used in the schools and has proved to be reliable and robust. Support in using Squid is easily available through the international communication channels and given the widespread use within Australian schools, there is expertise available through Australian listservs.

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Case Study: Cowell Area School, South Australia

Cowell Area School has an enrolment of approximately 200 students. We have been using SquidNT since the beginning of 2002 with very few issues. Negligible maintenance has been required once we had set it up. We have observed that approximately 25% of our web traffic is being served from the local cache, consequently saving money and improving the usability of the web. Teachers who base lessons around pre-cached sites have noticed increased productivity due to marked reductions in page access time. In 2004 we upgraded from SquidNT 2.3 to 2.5 when we upgraded the server hardware. It now runs on a headless Windows 2000 Server box, remotely managed with TightVNC. 'Pass through' authentication is used to transparently integrate it with DECS proxies. Squid is also used here to filter web content locally, rather than relying on the DECS filtering system, which is less flexible. We started using Squid on a 100MHz Pentium running NT 4. I am planning to move this server over to Linux soon as all of the software it iss running is open source: squid, apache, mysql, php, python and tightvnc.

Chris Goerner: Computer Systems Manager

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Squid is...

- a full-featured Web proxy cache
- designed to run on Unix systems
- free, open-source software
- the result of many contributions by unpaid (and paid) volunteers

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10.1 Bringing it together

The following two case studies illustrate how a range of different sorts of open source software have been brought together to provide an integrated IT infrastructure. The first case study is from Hawker College which is a senior college in the ACT. The second case study provides a jurisdictional approach to using open source software. The second case study outlines the infrastructure used across the Northern Territory for the provision of their curriculum Learning and Technology in Schools (LATIS) environment.

Case study: Hawker College, ACT

At Hawker College we run a Linux/OpenLDAP/Samba Domain to control our network of 170 client computers used by 800 students. We run an Apache webserver which hosts hawkerc.net, or our webmail, assignment upload and web quota administration.

Squid is used for an Internet proxy, with a custom Perl script to enforce user quotas onto LDAP. Transparent NTLMSSP authentication is achieved via winbindd and ntlm_auth (both samba components) to MSIE clients.

CUPS handles our unique printing requirements.

LTSP is used to create 'print servers', which are equivalent in function to HP's JetDirect boxes.

Netfilter (Linux 2.4 firewall internals) provides our main firewall gateway.

We operate an internal and external DNS domain, and have a dynamic domain for internal machines, based on DHCP-supplied client hostnames.

We use the software 'Unattended' to fully script the installation of Windows client machines, from network boot to a full install of every piece of software, including MS office, the Macromedia suite and a full set of Windows patches. We find this is better than 'ghosting' because it can work to any client, not just a particular set of hardware.

In summary, at Hawker College we use the following open source software:

Redhat Linux 8.0	OpenLDAP	MySQL
Samba	Apache	Postgresql
CUPS	PHP	Courier-IMAP
dovecot	Perl	Squirrelmail
Squid	LTSP	BIND
OpenSSH	Unattended	ISC-DHCPd
	Heimdal	
	Kerberos	

The Le@rning Federation's Basic E-Learning Tool Set (BELTS). We are currently trialing BELTS: it is not into the production stage at the school.

Using open source software has provided us with a flexible network: a network where a 4-hour outage is a major event, not an everyday outcome.

Andrew Bartlett: IT Technician, Hawker College and Developer, Samba Team.

Case study: Department of Employment, Education and Training (Northern Territory) and CSM Technology

Schools across the Northern Territory use the Learning and Technology in School (LATIS) Environment. This environment is provided by the outsourced company CSM Technology. The LATIS environment is based on a centralised directory; with the environment geographically dispersed throughout the Northern Territory. A centralised management portal has been designed built on a PHP/PostgreSQL base allowing support staff to manage any and all servers regardless of location. These tools include system monitoring, backup reporting, along with service and user management. LATIS utilises many Standard Operating Environment (SOE) and centralised server management tools. Many of these tools are also available on the local school servers allowing teachers and technicians to manage this environment from an intuitive web interface. This approach alleviates the need for users and administrators to be versed in complex command line tools. This is also true for first level support staff, thereby reducing total cost of ownership.

The desktop component is much the same. On the client side the following software is used:
- Windows 98SE
- Windows XP SP1
- Star Office v6

A system has been designed and implemented to eliminate the need for a commercial imaging solution such as Symantec Ghost. The system is based upon the open source TAR libraries. TFTP (Trivial File Transfer Protocol) service runs on each downstream school server. This allows the workstations to PXE (network boot) boot and connect to the server. Schools are then presented with a menu system, allowing the workstation to continue booting into Windows from the local storage device, or allowing the PC to be re-imaged. An option is also available to upload with ease an image of the workstation to shared storage on the server across the environment. The menu system is then updated reflecting this image, allowing it to be deployed.

The majority of the LATIS environment functions are built incorporating many existing open source products including the following:
- On the server side Red Hat 7.2 with all relevant errata and security updates, running Kernel versions 2.4.9-31 and 2.4.20-28 is used.
- OpenLDAP - which among many other things, provides through a centralised directory, authentication, global address books, and mail routing information.
- Sendmail – which uses SMTP gateway software utilising OpenLDAP to route mail between servers
- Squirrel Mail 1.2.10: which is a Webmail client using OpenLDAP authentication.
- BIND - DNS server software is used to maintain the latis.net.au domain name space.
- Apache Web server - which utilises SSL transport.
- PHP - PHP Hypertext Pre-processor. PHP is a widely-used general-purpose, server side scripting language that is especially well suited for Web development and can be embedded into HTML. This provides a simple, concise and standard front end to complex command line tools and OpenLDAP.
- Samba - 2.2.7a (Samba 3.0.2a is in pilot) which enables Windows SMB file transfer emulation. Windows domain authentication is provided via SAMBA which links back to OpenLDAP, file shares and printing occurs from Linux to Microsoft clients.
- Squid - 2.5/STABLE3 is used for Proxy Caching server.
- PostgreSQL - 7.1.3. This SQL server is mainly utilised by PHP (The standard in the LATIS environment).
- MySQL - 3.23.56 - SQL server is also mainly utilised by PHP
- SSH - 3.1p1-6 – which provides secure telnet replacement. It is used for connecting to servers across a public network. All traffic is encrypted, and other services can be tunneled across SSH if they do not natively support encryption.
- Netatalk - 1.5pre6-1 – provides the AppleTalk file transfer suite, thereby providing legacy Macintosh clients with file and print services, tied back to OpenLDAP.
- LPRNG - 3.7.4-28 – which enables printing subsystems and allows client to print via Samba shared printers
- IPTABLES - 1.2.5-3 – which enables packet filtering stateful firewall.

Sandy Cartwright, Manager Online Services and Jim Risby, National Manager, CSM

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