
Fedora 14

Release Notes

Release Notes for Fedora 14



Edited by The Fedora Docs Team

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Abstract

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1. Welcome to Fedora 14

1.1. Welcome to Fedora

You can help the Fedora Project community continue to improve Fedora if you file bug reports and enhancement requests. Refer to [Bugs And Feature Requests](#)¹, on the Fedora wiki, for more information about bug and feature reporting. Thank you for your participation.

To find out more general information about Fedora, refer to the following pages, on the Fedora wiki (<http://fedoraproject.org/wiki>):

- [Fedora Overview](#)²
- [Fedora FAQ](#)³
- [Help and Discussions](#)⁴
- [Participate in the Fedora Project](#)⁵

¹ <http://fedoraproject.org/wiki/BugsAndFeatureRequests>

1.2. Overview

As always, Fedora continues to develop (*RedHat contributions*⁶) and integrate the latest free and open source software (*Fedora 14 Features*)⁷. The following sections provide a brief overview of major changes from the last release of Fedora. For more details about other features that are included in Fedora 14 refer to their individual wiki pages that detail feature goals and progress:

<http://fedoraproject.org/wiki/Releases/14/FeatureList>⁸

The following are major features for Fedora 14:

- **Spice** - Spice aims to provide a complete open source solution for interaction with virtualized desktops and provides high-quality remote access to QEMU virtual machines.
- **Mobility options** - This release includes software from the MeeGo™ project which is designed to support platforms such as netbooks, nettops, and various embedded devices.
- **Amazon EC2** - For the first time since Fedora 8, Fedora will release on the EC2 cloud.
- **D Compiler** - Support for D, a systems programming language. Its focus is on combining the power and high performance of C and C++ with the programmer productivity of modern languages like Ruby and Python.

Some **other features** include:

Updating Perl to version 5.12, Python to version 2.7, Boost to version 1.44, Netbeans to version 6.9, KDE to version 4.5, Eclipse to the Helios Release, and Sugar to version 0.90.

1.3. Hardware Overview

1.3.1. Processor and memory requirements for x86 Architectures

The following CPU specifications are stated in terms of Intel processors. Other processors, such as those from AMD, Cyrix, and VIA that are compatible with and equivalent to the following Intel processors, may also be used with Fedora. Fedora 14 requires an Intel Pentium Pro or better processor, and is optimized for i686 and later processors.

- Recommended for text-mode: 200 MHz Pentium Pro or better
- Recommended for graphical: 400 MHz Pentium Pro or better
- Minimum RAM for text-mode: 256 MiB
- Minimum RAM for graphical: 384 MiB
- Recommended RAM for graphical: 512 MiB

1.3.2. Processor and memory requirements for x86_64 architectures

- Minimum RAM for text-mode: 256 MiB
- Minimum RAM for graphical: 384 MiB

⁶ http://www.fedoraproject.org/wiki/Red_Hat_contributions

⁷ <http://www.fedoraproject.org/wiki/Features>

⁸ <http://fedoraproject.org/wiki/Releases/14/FeatureList>

- Recommended RAM for graphical: 512 MiB

1.3.3. Hard disk space requirements for all architectures

The complete packages can occupy over 9 GB of disk space. Final size is entirely determined by the installing spin and the packages selected during installation. Additional disk space is required during installation to support the installation environment. This additional disk space corresponds to the size of `/Fedora/base/stage2.img` (on Installation Disc 1) plus the size of the files in `/var/lib/rpm` on the installed system.

In practical terms, additional space requirements may range from as little as 90 MiB for a minimal installation to as much as an additional 175 MiB for a larger installation.

Additional space is also required for any user data, and at least 5% free space should be maintained for proper system operation.

1.4. Feedback

Thank you for taking the time to provide your comments, suggestions, and bug reports to the Fedora community; this helps improve the state of Fedora, Linux, and free software worldwide.

1.4.1. Providing Feedback on Fedora Software

To provide feedback on Fedora software or other system elements, please refer to [Bugs And Feature Requests](#)⁹. A list of commonly reported bugs and known issues for this release is available from [Common F14 bugs](#)¹⁰, on the wiki.

1.4.2. Providing Feedback on Release Notes

If you feel these release notes could be improved in any way, you can provide your feedback directly to the beat writers. There are several ways to provide feedback, in order of preference:

- If you have a Fedora account, edit content directly at [Docs-Beats](#)¹¹ page on the wiki.
- Fill out a bug request using [this template](#)¹² - *This link is ONLY for feedback on the release notes themselves*. Refer to the admonition above for details.
- E-mail the Release-Note mailing list at relnotes@fedoraproject.org

2. Changes in Fedora for Desktop Users

2.1. Desktop Changes

2.1.1. Major package changes

2.1.1.1. man to man-db package exchange

The package *man* is substituted by package *man-db* which provides similar functionality:

⁹ <http://fedoraproject.org/wiki/BugsAndFeatureRequests>

¹⁰ http://fedoraproject.org/wiki/Common_F14_bugs

man description: The *man* package includes three tools for finding information and/or documentation about your Linux system: **man**, **apropos**, and **whatis**. The **man** application formats and displays on-line manual pages about commands or functions on your system. **apropos** searches the **whatis** database (containing short descriptions of system commands) for a string. The **whatis** searches its own database for a complete word.

man-db description : The *man-db* package includes five tools for browsing man pages: **man**, **whatis**, **apropos**, **manpath** and **lexgrog**. **man** preformats and displays manual pages. **whatis** searches the manual page names. **apropos** searches the manual page names and descriptions. **manpath** determines search path for manual pages. **lexgrog** directly reads header information in manual pages.

2.1.1.2. Pino

Due to changes in Twitter's authentication mechanisms Pino is no longer able to utilize this service. Due to this degraded functionality, Pino has been removed as the default program for social networking services such as identi.ca and Twitter. Other programs, such as *gwibber*, are available from the Fedora repositories that can be utilized as a replacement for Pino. To install *gwibber* or another such package, use the **System** → **Administration** → **Add/Remove Software** tool from the main menu.

2.1.2. KDE 4.5

Fedora 14 includes the updated KDE SC ("Software Compilation") version 4.5. The KDE developers worked on usability and stability for version 4.5. The result is a faster, easier, and more stable desktop experience. Many bugs are fixed and subtle but important improvements made to hidden components, so KDE now works the way you want.

2.1.2.1. KDE Background Components

Some of the enhancements to background components include:

- Phonon, the sound server for KDE applications, can now directly use the PulseAudio sound server.
- An enhanced memory-cache feature that helps to speed up different applications using the same resources (like icons).
- The WebKit web page rendering engine, as used in other popular web browsers like **Safari** and **Chrome**, is now available in **Konqueror** and other KDE applications. **Konqueror** also features improvements that enable it to load web pages faster.

2.1.2.2. KDE Plasma Workspaces

Some of the enhancements to the "Plasma" desktop and netbook workspaces include:

- An improved notification area and system tray. Application icons are now monochromatic, making them easier to see. Visual progress bars have been added to the widgets for long-running operations like file transfers and downloads.
- The KWin window manager features many improvements:
 - You can add or remove virtual desktops in the "Desktop Grid" view.
 - You can lay out your windows without overlap by using the window-tiling feature.
 - You can move windows by dragging any empty area in the window, rather than just the title bar.

- You can save and restore "activities," which are a set of plasma widgets. Use this feature to gather all of your social networking widgets in one activity, and all of your hardware monitor widgets in one activity, for example.

2.1.2.3. KDE Applications

Some of the enhancements to background components include:

- A new game, **Kajongg**, is a four-player version of mahjongg. This is the first KDE game to take advantage of the KDE programming language extensions for Python, which allow programmers to write software more easily and with fewer bugs.
- The **Marble** desktop globe application has support for planning trips, based on OpenStreetmap and OpenRouteService. You can also load this information before you start on a trip, meaning that you can access map and route information even when you cannot access the internet.
- The **Gwenview** document viewer now runs smoothly even while using processor-intensive visual effects. It is also more configurable and stable in all conditions. You can even share your pictures online more easily with the integrated Flickr upload feature.
- The **Dolphin** file manager, and other KDE components, offer better integration with semantic meta-data provided by the Nepomuk Semantic Desktop.

2.1.3. LXDE

Lightweight X Desktop Environment, or LXDE, is available in Fedora 14.

Changes to LXDE include:

- *lxappearance* has been updated to version 0.5. The "Look and Feel" configuration was completely rewritten and now supports many more features including setting mouse cursor themes, custom colors, icon sizes in menus and buttons, turning icons in menus and buttons on and off, and enabling event sounds.
- The display manager *lxdm* has been updated to version 0.3.0. It now has a user list and a timeout, so we can select the language and the keyboard setting on the login window. This is very handy for the livecd.
- *lxterminal* has been updated to version 0.1.9 and now has new features like true transparency for composite window managers.

2.1.4. MeeGo™

Fedora 14 contains a selection of software from the MeeGo™ project.

*MeeGo™*¹³ is an operating environment and development kit for next-generation mobile and device platforms, formed from the merger of Intel's Moblin project and Nokia's Maemo project, and backed by the *Linux Foundation*¹⁴. It includes a rich set of software and libraries that support multiple architectures and multiple app stores, and are well aligned with a variety of upstream free and open source software projects. Fedora 14 offers an integrated subset of software from the MeeGo project. Users can try the software on any personal computer, including netbooks or other small systems, and interested developers can contribute to the development of this exciting new platform. Note that a small portion of software from MeeGo is not included to improve integration with other Fedora applications, and therefore this subset is not expected to achieve 100% MeeGo compliance.

¹³ <http://meego.com/>

¹⁴ <http://linuxfoundation.org>

2.1.5. Sugar

Fedora 14 includes the latest *Sugar Learning Environment*¹⁵ (0.90), including an enhanced activity set to provide a stable demo environment for Sugar as well as an environment for developers.

This version provides major usability improvements for the first login screen and the control panel, as well as new features such as support for 3G networks.

2.2. Networking

2.2.1. awstats

Version 7 of *awstats* beta is now available. This version allows detection of Windows 7 clients, can format numbers according to localization, and many other new features. These are detailed in the *awstats-changelog*¹⁶.

2.2.2. chatzilla

Fedora 14 now includes *chatzilla*, an IRC client. *chatzilla* may be installed alone, or with *chatzilla-gnome*, allowing `irc:` addresses to be handled in GNOME.

2.2.3. clamz

clamz is new to Fedora. It is an open source replacement for Amazon's MP3 downloader. *clamz* may be used to download individual songs or complete albums that you have purchased from Amazon's Music Store.

For more informations, refer to *clamz*¹⁷ website.

2.2.4. claws-mail

claws-mail 3.7.6 includes new filtering features, a number of user interface enhancements, and several new translations. Refer to the *summary news*¹⁸ for of all the new features.

2.2.5. ekiga

ekiga has been updated to 3.2.7. This release includes a large number of fixes, including a number of user-visible changes, mostly in the area of more sensible defaults. For complete details refer to the official *ekiga release notes*¹⁹.

2.2.6. emacs-w3m

The *emacs-w3m* pager is now available, which has WWW capability. It is said to be faster than the old W3 browser, making it a preferable alternative.

For more informations, refer to *emacs-w3m*²⁰ website.

¹⁵ <http://www.sugarlabs.org/>

¹⁶ http://awstats.sourceforge.net/docs/awstats_changelog.txt

¹⁷ <http://code.google.com/p/clamz/>

¹⁸ <http://www.claws-mail.org/news.php>

¹⁹ <http://git.gnome.org/browse/ekiga/plain/NEWS>

²⁰ <http://emacs-w3m.namazu.org/>

2.2.7. eurephia

eurephia is new to Fedora 14. *eurephia* is an authentication plug-in for OpenVPN. You may learn more, on [eurephia](http://www.eurephia.net/)²¹'s web-site.

2.2.8. gnome-applet-netspeed

gnome-applet-netspeed is just a little GNOME-applet that shows how much traffic occurs on a specified network device. *gnome-applet-netspeed* is new to Fedora 14. You can learn more, on gnome.org-netspeed²² web-site.

2.2.9. gnome-applet-remmina

Also new to Fedora 14 is *gnome-applet-remmina*. This is a remote desktop client supporting RDP, VNC, NX, XDMCP and SSH. Find out all about it at remmina.sourceforge.net²³.

2.2.10. gnome-gmail

gnome-gmail adds Gmail support to the GNOME desktop. Also new to Fedora 14, view [here](#)²⁴ for the details.

2.2.11. maildirproc

maildirproc is a mail processing agent, with similar functionality to *procmail*, but unlike *procmail*, *maildirproc* operates on already delivered mail. For more information visit [upstream site](#)²⁵.

2.2.12. openconnect

openconnect has been upgraded from version 2.22 to 2.24. In addition to bugfixes, there are a number of security enhancements. The full details may be reviewed at [openconnect](#)²⁶ website.

2.3. Internationalization

2.3.1. On-screen input

*Input-pad*²⁷ is a tool to input symbols and other characters hard to type with a keyboard.

*eekeyboard*²⁸ is new virtual keyboard, which supports X keyboard layout switching.

The new *ibus-handwrite*²⁹ package supports on-screen input of Chinese hanzi and Japanese kanji characters.

²¹ <http://www.eurephia.net/>

²² <http://projects.gnome.org/netspeed/>

²³ <http://remmina.sourceforge.net/>

²⁴ <http://gnome-gmail.sourceforge.net/>

²⁵ <http://joel.rosdahl.net/maildirproc/>

²⁶ <http://www.infradead.org/openconnect.html>

²⁷ <http://code.google.com/p/input-pad>

²⁸ <http://ueno.github.com/eekeyboard>

²⁹ <http://code.google.com/p/ibus-handwrite>

2.3.2. Input methods

Users of *input-methods* upgrading from earlier versions of Fedora may need to install GTK3 versions of their GTK immodules, like *ibus-gtk3*, in order for *input-methods* to continue working normally on their desktop.

im-chooser (via *imsettings*) now allows to fully disable *input-methods* for users that do not need XIM for X locale compose support: so Unicode input with Control+Shift+u works again in GTK applications by default when not using input-methods like *ibus*.

2.3.3. Fonts

2.3.3.1. Chinese

For Simplified Chinese, the default desktop font is WenQuanYi ZenHei; for Traditional Chinese, the default desktop font is UMING.

For WenQuanYi ZenHei, a simple tool *zenheiset* has been introduced, which allows changing its rendering between the default anti-aliased outline and bitmap rendering.

2.4. Multimedia

2.4.1. amarok

The *amarok* music player has been updated to 2.3.1 with new features like an automated playlist generator, a context view and an upcoming events view. The amarok.kde.org³⁰ website may be reviewed for additional details.

2.4.2. audacity

audacity has been upgraded to 1.3.12. Included are user interface improvements, the ability to import file lists, and more. The complete details may be found in the official [audacity features-1.3](#)³¹, on the website.

2.4.3. calibre

The *calibre* bookreader 0.7.10 includes more customization options, saving of column layouts and more.

Refer to the [full details](#)³² for all the changes since 0.6.42.

2.4.4. clementine

New to Fedora 14, *clementine* is a full featured music player and library organizer. *clementine* is a port of an old favorite version of *amarok*, with additional features.

For more informations, refer to [clementine](#)³³ website.

³⁰ <http://amarok.kde.org/>

³¹ <http://audacity.sourceforge.net/download/features-1.3-a>

³² <http://calibre-ebook.com/whats-new>

³³ <http://www.clementine-player.org/>

2.4.5. gst123

gst123 is a command line player intended to be simple and small. It understands all formats supported by gstreamer.

For more informations, refer to [gst123](http://space.twc.de/~stefan/gst123.php)³⁴ website.

2.4.6. radiotray

radiotray, also new to Fedora 14, is a simple radio streaming player. Details may be found at radiotray.sourceforge.net³⁵

2.4.7. xnoise

xnoise is yet another media player, this time with a different view on managing audio tracks. More information on this player may be found at xnoise-media-player.com³⁶.

2.5. Entertainment

2.5.1. bsp

bsp, the most popular node builder for Doom, is now available in Fedora. Information on *bsp*'s capabilities, as well as instructions, may be found at games.moria.org.uk:bsp³⁷.

2.5.2. flaw

The Fantastic League of Almighty Wizards is now available in Fedora. Refer to flaw.sourceforge.net³⁸ for complete details.

2.5.3. hedgewars-server

hedgewars-server version 0.9.12 is now available in Fedora. Learn about hedgewars, and review the official trailer, at hedgewars.org³⁹ website

2.5.4. pmars

Also new to Fedora is *pmars*. For more informations refer to koth.org:pmars⁴⁰ website.

2.5.5. VoR

vor (Variations on Rockdodger) is new to Fedora 14. This is a fast-paced, simple game reminiscent of Asteriods. Find more informations on the [website](http://jasonwoof.org/vor)⁴¹.

³⁴ <http://space.twc.de/~stefan/gst123.php>

³⁵ <http://radiotray.sourceforge.net>

³⁶ <http://www.xnoise-media-player.com/>

³⁷ <http://games.moria.org.uk/doom/bsp/>

³⁸ <http://flaw.sourceforge.net/>

³⁹ <http://www.hedgewars.org/about.html>

⁴⁰ <http://www.koth.org/pmars/>

⁴¹ <http://jasonwoof.org/vor>

3. Changes in Fedora for System Administrators

3.1. Security

3.1.1. OpenSCAP

3.1.1.1. Abstract

Fedora 14 brings in support of the SCAP (Security Content Automation Protocol). A library called *OpenSCAP* that provides development framework and several SCAP scanning tools are included in the distribution. OVAL and XCCDF contents specific for Fedora 14 that can be used for automated system configuration checking are also provided.

3.1.2. Description

OpenSCAP is an open-source framework for SCAP developers. SCAP is a line of standards managed by *NIST*⁴² (National Institute of Standards and Technology). It was created to provide a standardized approach to maintaining the security of systems, such as automatically verifying the presence of patches, checking system security configuration settings, and examining systems for signs of compromise.

The SCAP suite contains multiple complex data exchange formats that are to be used to transmit important vulnerability, configuration, and other security data. Historically, there have been few tools that provide a way to query this data in the needed format. The OpenSCAP project aims to create a framework of libraries to improve the accessibility of SCAP and enhance the usability of the information it represents.

The tools based on OpenSCAP library which are included in this Fedora feature are:

- *oscap-scan* - command line scanner driven by OVAL/XCCDF content
- *secstate* - tool that attempts to streamline the Certification and Accreditation (C&A) process of Linux systems by providing a mechanism to verify, validate, and provide remediation to security relevant configuration items.
- *firstaidkit-plugin-openscap* - Plugin for *FirstAidKit*⁴³ which allows user to perform basic automated security audit and evaluate the results in text or graphical environment.

With this feature installed, the user can use different ways to perform automatic scan of his system and make sure the system is in compliance with defined security configuration. The user is enabled to automatically remediate the system.

3.1.3. References

- *OpenSCAP*⁴⁴ on Fedora wiki
- *Documentations*⁴⁵ on project site
- *open-scap*⁴⁶ library documentations on project site
- *secstate*⁴⁷ (Security State) on Fedora Hosted

⁴² <http://scap.nist.gov/index.html>

- [FirstAidKit](#)⁴⁸ on Fedora wiki

3.2. Virtualization

3.2.1. Amazon Elastic Computing Cloud

Fedora 14 and later versions will now be available for users of the Amazon Elastic Computing Cloud service.

For more information, refer to:

- [Fedora 14 Feature: EC2](#)⁴⁹, on Fedora wiki
- [EC2 \(Elastic Computing Cloud\)](#)⁵⁰, on Amazon website

3.2.2. Spice Framework for Desktop Virtualization

The Simple Protocol for Independent Computing Environments (SPICE) is used for client-server communication and enhances interaction with virtual machine guests. Spice adds a QXL display device to QEMU and provides drivers for this device for both X and Windows.

The Spice framework for desktop virtualization aims to provide a complete open source solution for interaction with virtualized desktops.

For more information, refer to:

- [Fedora 14 Feature: Spice](#)⁵¹, on Fedora wiki

3.2.3. Xen to KVM Migration

virt-v2v is a command line tool that enables Xen domUs (ie. guests) to be migrated to use KVM. Users with Xen guests can try out KVM. Users can also migrate from Xen to KVM for its enhanced ease of use.

For more information, refer to:

- [Fedora 14 Feature: Xen to KVM Migration](#)⁵², on Fedora wiki

3.2.4. Other Improvements

3.2.4.1. Virtualization Technology Preview Repo

The Virtualization Preview Repository exists for people who would like to test the very latest virtualization related packages. This repo is intended primarily as an aid to testing and early experimentation. It is not intended for 'production' deployment.

For further details refer to:

- [Fedora 14 Feature: Virtualization Technology Preview Repo](#)⁵³, on Fedora wiki

3.2.4.2. Xen Kernel Support

The *kernel* package in Fedora 14 supports booting as a guest domU, but will not function as a dom0 until such support is provided upstream.

The most recent Fedora release with dom0 support is Fedora 8.

Booting a Xen domU guest within a Fedora 14 host requires the KVM based *xenner*. Xenner runs the guest kernel and a small Xen emulator together as a KVM guest.

For further details refer to:

- [Fedora paravirt_ops-based kernel-xen](#)⁵⁴, on Fedora wiki
- [Fedora Dom0-paravirt_ops-based kernel-xen](#)⁵⁵, on Fedora wiki
- [kvm](#)⁵⁶, on sourceforge.net
- [xenner](#)⁵⁷, by kraxel on fedorapeople.org

3.3. Web Servers

3.3.1. Varnish

Varnish was updated to 2.1.3. Improvements include better scalability and a new log function.

The main changes you can read [here](#)⁵⁸, from Varnish website.

3.3.2. Apache

httpd was updated from 2.2.14 to 2.2.16. This version includes *mod* and *security* fixes, and *core* change:

- Filter init functions are now run strictly once per request before handler invocation. The init functions are no longer run for connection filters.

For more information refer to [CHANGES 2.2](#)⁵⁹ from Apache website.

3.4. Server Configuration Tools

3.4.1. ipmiutil

ipmiutil performs a series of common IPMI server management functions to allow administrators to perform management functions without a learning curve. It can gather FRU inventory data, SEL firmware log, sensors, watchdog, power control, health, monitoring, and has an SOL console. It can write sensor thresholds, FRU asset tags, and supports a full IPMI configuration save/restore. Ease-of-use examples with *ipmiutil*: configuring the IPMI LAN requires a single command, and a soft-reboot can be easily performed instead of a hard reboot. This utility can use various existing IPMI drivers, or run in driverless mode, which is useful for boot media or test environments. The decoding of IPMI events includes a severity, and any events not recognized at least return the data, rather than just Unknown. Features compared to other IPMI packages: <http://ipmiutil.sourceforge.net/docs/ipmisw-compare.htm>

3.5. X Display System

3.5.1. vbetool not installed by default

Due to problems with *vbetool*, this package has been removed from the default installation of Fedora. This change may impact users with suspending and resuming their computers. These problems should only affect users of uncommon VGA adaptors and not users of nVidia, ATI, or Intel adaptors.

⁵⁸ <http://www.varnish-cache.org/wiki/WikiStart#a2010-07-28Varnish2.1.3Released>

⁵⁹ http://www.apache.org/dist/httpd/CHANGES_2.2

3.5.2. Mouse Behavior

The latest version of *evdev*, version 2.5, changed the default for the middle mouse button emulation code. This change has disabled emulation of the middle mouse button by clicking the left and right mouse buttons.

3.5.2.1. Enabling the middle mouse button emulation

Middle mouse button emulation can be enabled by the addition of a *xorg.conf* snippet:

```
Section "InputClass"
Identifier "middle button emulation class"
MatchIsPointer "on"
Option "Emulate3Buttons" "on"
EndSection
```

4. Changes in Fedora for Developers

4.1. Development Overview

Fedora includes a wide range of tools for software development in all popular languages. This section highlights some of the new features in Fedora 14.

4.1.1. New Programming Language

Fedora 14 introduces support for *D*, a systems programming language combining the power and high performance of C and C++ with the programmer productivity of modern languages such as Ruby and Python.

For more details, refer to *D Programming Language*⁶⁰.

4.1.2. Support for GNUStep

The GNUstep development environment arrives on Fedora, allowing easy development of cross-platform applications on Fedora using the Cocoa (formerly NeXTSTEP/OpenStep) APIs and tools. GNUstep's main development language is Objective-C, but GNUstep is not limited to that.

4.1.3. Other improvements

- Updates to the *Python*, *Erlang* and *Perl* languages and the *Netbeans* and *Eclipse* development environments.
- The *gdb* debugger has been extended with new commands that make it easier to track down and fix excessive memory usage within programs and libraries, as well as an index that greatly speeds up debugging.

These features complete a rich set of development tools that further extends the possibilities for developers. For a complete list of the hundreds of updated development components see the Fedora 14 Technical Notes at <http://docs.fedoraproject.org>⁶¹.

⁶⁰ <http://www.digitalmars.com/d/>

⁶¹ <http://docs.fedoraproject.org>

4.2. Runtime

4.2.1. boost

The *boost* C++ libraries have been upgraded to 4.4. which includes numerous changes. For details, see the release notes:

- [Boost 4.4](#)⁶² on the Fedora wiki
- http://www.boost.org/users/history/version_1_44_0⁶³
- http://www.boost.org/users/history/version_1_43_0⁶⁴
- http://www.boost.org/users/history/version_1_42_0⁶⁵

Some key features include new libraries for UML2 FSMs, Polygons, Factory and Forward adapters, and a UUID library. Existing libraries have been updated with many new features as well as performance improvements.

4.2.2. libjpeg-turbo

The *libjpeg* library has been replaced by *libjpeg-turbo* library which has same API/ABI but is at least twice faster on all primary architectures and about 25% faster on secondary architectures. For more details view [libjpeg-turbo](#)⁶⁶, on the Fedora wiki.

4.3. Development Tools

4.3.1. D Programming Language

D is a systems programming language. Its focus is on combining the power and high performance of C and C++ with the programmer productivity of modern languages like Ruby and Python. The D language is statically typed and compiles directly to machine code. It's multiparadigm, supporting many programming styles: imperative, object oriented, and metaprogramming. It's a member of the C syntax family, and its appearance is very similar to that of C++.

- LLVM D Compiler

LDC is a compiler for the D programming Language. It is based on the latest DMD frontend and uses LLVM as backend. LLVM provides a fast and modern backend for high quality code generation.

- The library

Tango is a cross-platform open-source software library, written in the D programming language for D programmers. It is structured as a cohesive and comprehensive library for general purpose usage, and is supported by a growing number of recognized D enthusiasts. Availability of solid and extensive documentation represents a prime factor in library accessibility, and thus this project is as much about documentation production as it is about top-notch functionality.

For more informations:

- [Fedora 14 Feature: D Programming](#)⁶⁷

⁶⁶ <https://fedoraproject.org/wiki/Features/libjpeg-turbo>

- [D Programming Language](#)⁶⁸

4.3.2. python

The system *python* 2 stack has been upgraded to 2.7. For a list of changes see [Whats new in 2.7](#)⁶⁹.

4.3.2.1. Caveat: PyCObject and warnings

Python provides various APIs for use by C extension modules. One of these APIs, `PyCObject`, was deprecated in Python 2.7, but there are a [number of key modules that have not yet been ported to its replacement](#)⁷⁰.

By default, deprecation warnings are ignored, so this will not cause problems.

However, if the standard warnings settings are overridden, you may see problems with these modules. In particular, if warnings have been set to "error", it is possible to make the Python interpreter abort or even segfault when importing these modules.

If you need to enable errors-for-warnings, please also add an override so that a `PendingDeprecationWarning` is merely logged rather than raising an exception:

```
>>> import warnings
>>> warnings.simplefilter('error')
>>> warnings.simplefilter('default', PendingDeprecationWarning)
```

4.3.3. python-migrate

python-migrate was updated to version 0.6. Support for SQLAlchemy 0.6 and Firebird database, custom templates and use of python logging are among many new features. New version also introduces some backwards incompatible changes:

- `api.test()` and schema comparison functions now all accept url as first parameter and repository as second.
- python upgrade/downgrade scripts do not import `migrate_engine` magically, but receive engine as the only parameter to function (eg. `def upgrade(migrate_engine):`)
- `Column.alter` does not accept `current_name` anymore, it extracts name from the old column.

For complete list of changes refer to the [changelog](#)⁷¹

4.3.4. Erlang

New version of Erlang/OTP is available in Fedora 14. For details, view [Erlang R14](#)⁷², on the Fedora wiki.

4.3.5. gdb

gdb has been enhanced to remove the unnecessary indices from the `.debug` files, and will replace them with an index that greatly speeds up *gdb*.

⁶⁹ <http://docs.python.org/dev/whatsnew/2.7.html>

⁷⁰ https://bugzilla.redhat.com/showdependencytree.cgi?id=620842&hide_resolved=1

⁷¹ <http://packages.python.org/sqlalchemy-migrate/changelog.htm>

⁷² https://fedoraproject.org/wiki/Features/Erlang_R14

The *gdb* debugger has been extended with new commands that make it easier to track down and fix excessive memory usage within programs and libraries. This functionality was created by Fedora contributor David Malcolm, and we believe it is unique to Fedora 14.

For more informations, refer to [Gdb Index](#)⁷³, on the Fedora wiki.

4.3.6. GNUstep

This Feature offers the possibility to create GNUstep applications on Fedora. *GNUstep* is an open source reimplement of Nextstep. It's provide an GUI framework base of the Objective-C programming language.

The Objective-C programming language is part of the GNU compiler collection (*gcc*).

A list of applications based on GNUstep you may find at [List of GNUstep applications](#)⁷⁴.

Detailed introduction to the GNUstep project you may find at [GNUstep Introduction](#)⁷⁵.

4.3.7. perl

Notable changes in *perl* 5.12 include:

- Perl now conforms much more closely to the Unicode standard. Additionally, this release includes an upgrade to version 5.2 of the standard.
- New experimental APIs allow developers to extend Perl with "pluggable" keywords and syntax.
- Perl now has a better sense of time and will be able to keep accurate time well past the "Y2038" barrier.
- New syntax allows developers to specify package version numbers directly in "package" statements
- Perl now warns the user about the use of deprecated features by default.

Perl 5.12.x features numerous new features, optimizations and bugfixes. You can find a complete list of these changes on the web at:

[Changelog perl-5.12.0](#)⁷⁶

[Original Release Notes perl-5](#)⁷⁷ (2010/04)

4.3.8. rakudo

Fedora comes with Rakudo Perl, an implementation of the Perl 6 specification based on the Parrot virtual machine, which enables developers to write new applications or port existing ones to Perl 6. To install *rakudo*, use the *Add/Remove Software* tool or run: **su -c 'yum install rakudo'** For information of command line options run: **man perl6man rakudo**

For more indormation, view [Fedora 14 Feature: Rakudo](#) *⁷⁸.

⁷³ <https://fedoraproject.org/wiki/Features/GdbIndex>

⁷⁴ <http://gnustep.org/experience/apps.html>

⁷⁵ <http://gnustep.org/information/aboutGNUstep.html>

⁷⁶ <http://search.cpan.org/~jesse/perl-5.12.0/pod/perl5120delta.pod>

⁷⁷ <http://www.nntp.perl.org/group/perl.perl5.porters/2010/04/msg158820.html>

⁷⁸ https://fedoraproject.org/wiki/Features/Rakudo_Star

4.3.9. bash debugger

The Lisp sources for the *emacs* bash debugger, *emacs-bashdb-el* are now included in Fedora. The debugger has been upgraded to version 4.1_0.4.

4.3.10. Pyjamas

New to Fedora 14 is *pyjamas*, a Rich Internet Application (RIA) Development Platform for both Web and Desktop. Read all about this new capability at pyjs.org⁷⁹ website.

4.4. GCC

4.4.1. gcc

Fedora 14 includes version 4.5 of *gcc* and the various compilers which depend on *gcc*. The full details of the changes may be found in the [Change Logs](#)⁸⁰, but some main points follow.

4.4.1.1. Obsoleted support and features

The following ports for individual systems on particular architectures have been obsoleted:

- IRIX releases before 6.5 (*mips-sgi-irix5**, *mips-sgi-irix6.[0-4]*)
- Solaris 7 (**.*-solaris2.7*)
- Tru64 UNIX releases before V5.1 (*alpha*-dec-osf4**, *alpha-dec-osf5.0**)
- Details for the IRIX, Solaris 7, and Tru64 UNIX obsoletions can be found in the announcement.
- Support for the classic POWER architecture implemented in the original RIOS and RIOS2 processors of the old IBM RS/6000 product line has been obsoleted in the *rs6000* port. This does not affect the new generation Power and PowerPC architectures.

Support has also been removed for a number of features obsoleted in 4.4.



Reduced performance with C99 conformance

On x86 targets, code containing floating-point calculations may run significantly slower when compiled with GCC 4.5 in strict C99 conformance mode than they did with earlier GCC versions. This is due to stricter standard conformance of the compiler and can be avoided by using the option **-fexcess-precision=fast**.

4.4.2. Optimizer improvements

- The **-save-temps** now takes an optional argument. The **-save-temps** and **-save-temps=cwd** switches write the temporary files in the current working directory based on the original source file. The **-save-temps=obj** switch will write files into the directory specified with the **-o** option, and the intermediate filenames are based on the output file.

⁷⁹ <http://pyjs.org/>

⁸⁰ <http://gcc.gnu.org/gcc-4.5/changes.html>

- Debugging dumps are now created in the same directory as the object file rather than in the current working directory.
- A new link-time optimizer has been added (`-f1to`). When this option is used, GCC generates a bytecode representation of each input file and writes it to special ELF sections in each object file.
- The automatic parallelization pass was enhanced to support parallelization of outer loops.
- GCC now optimize exception handling code.

Reference the changes page above for more details on these and other optimizations.

4.4.3. Language-specific improvements

There are new language-specific features for Ada, C, C++, Fortran and Java.

4.4.4. New targets

There are new target processors within the AIX, ARM, AVR, IA32, M68K, MeP, MIPS, RS/6000 and RX processor families.

4.4.5. Installation Changes

The move to autotools has resulted in some artifacts changing the directories where they are found. For details, as in all of the above details, refer to the changes page.

4.5. Java

4.5.1. NetBeans

NetBeans IDE 6.9 is a significant update of *NetBeans IDE 6.8*⁸¹.

NetBeans IDE 6.9 introduces OSGi interoperability for NetBeans Platform applications and support for developing OSGi bundles with Maven; support for JavaFX SDK 1.3 with new JavaFX Composer, a visual layout tool for visually building JavaFX GUI applications, similar to the Swing GUI builder for Java SE applications, also support for PHP Zend framework, and Ruby on Rails 3.0; as well as improvements to the Java Editor, Java Debugger, issue tracking, and more.

For more about this release, refer to:

- [NetBeans IDE 6.9 Release Information](#)⁸²
- [NetBeans IDE 6.9 Release Notes](#)⁸³

4.5.2. yydebug

yydebug, a debugger for parser code generated by *jay* is new to Fedora. For full details review [yyDebug](#)⁸⁴ from cs.rit.edu.

⁸¹ https://fedoraproject.org/wiki/Features/NetBeans_6.8

⁸⁴ <http://www.cs.rit.edu/~ats/projects/lp/doc/jay/yydebug/yyDebug.html>

4.6. Haskell

*GHC*⁸⁵ has been updated to [6.12.3](#)⁸⁶, and *haskell-platform*⁸⁷ to [2010.2.0.0](#)⁸⁸ stable release.

Some further improvements have been made to *ghc-rpm-macros* and *cabal2spec*, including merging the `-doc` subpackages into `-devel`.

The easiest way to install Haskell support in Fedora is to install the Haskell yum group from Anaconda or YUM.

```
yum install @haskell
```

4.7. Eclipse

eclipse has been upgraded to the Helios release. New features include better support for C/C++, an app store, support for git, a web tools platform, improved support for JavaScript, and much more.

For more informations:

- [Fedora 14 Feature: Eclipse Helios](#)⁸⁹
- [Eclipse Helios Release 2010-06-23](#)⁹⁰

4.8. Kernel

Fedora 14 features version 2.6.35 of the Linux kernel.

5. Changes in Fedora for Specific Audiences

5.1. Amateur Radio

5.1.1. aldo

The Morse code tutor, *aldo* now includes support for additional punctuation, better sound card selection, and uses a new Koch sequence.

5.1.2. fldigi

fldigi 3.20.20 includes a large number of changes, new features and bug fixes. Find more on the [complete list of features](#)⁹¹ and in [change log](#)⁹².

5.1.3. linpsk

linpsk now includes support for RTTY and MFSK, and uses a new graphics layer to improve performance. Logging may be done through LinLog.

⁸⁵ <http://haskell.org/ghc/>

⁸⁶ http://darcs.haskell.org/download/docs/6.12.3/html/users_guide/release-6-12-3.html

⁸⁷ <http://hackage.haskell.org/platform/>

⁸⁸ <http://hackage.haskell.org/platform/changelog.html>

⁹¹ <http://www.w1hkj.com/Fldigi.html>

⁹² http://www.w1hkj.com/downloads/fldigi-flarq/fldigi_changes.txt

5.1.4. twlog

New to Fedora 14 is *twlog*. This is a simple day-to-day logger rather than a complex contesting logger. The menus can be customized to make operation quicker. Details on *twlog* may be found at [twlog](#)⁹³ website.

5.1.5. xwxapt

xwxapt has been upgraded to version 2. The sound card code has been dramatically rewritten and should reduce issues with sound cards.

5.2. Circuit Design

5.2.1. gtkwave

gtkwave has been upgraded to 3.3.10. New features include a VCD recorder, dynamic zlib compression, support for dual view of waveforms, the ability to use the viewer as a plugin for external applications and more. Review CHANGELOG.TXT for full details.

5.2.2. kicad

2010.05.27 of *kicad* now includes the ability to edit footprint names, enhancements in SVG format output, and VRML export. For details refer to the [CHANGELOG](#)⁹⁴.

5.2.3. ngspice

ngspice 21 includes a compatibility mode for working with other simulators, additional devices, a "pipe" mode and tabulated output. Documentation is now available in pdf form. Read all about it at [ngspice](#)⁹⁵ website.

5.3. Embedded Development

5.3.1. AVR

5.3.1.1. gcc

There are a number of improvements to *gcc* that affect the AVR processor. See the GCC section of this document for further information.

5.3.2. PIC

5.3.2.1. gpsim

gpsim has been updated to 0.25. In addition to many bugfixes, new features include:

- src/ and modules/ license change to LGPLv2+
- ECCP implemented

⁹³ <http://wa0eir.home.mchsi.com/twlog.html>

⁹⁴ <http://bazaar.launchpad.net/~kicad-testing-committers/kicad/testing/annotate/head%3A/CHANGELOG.txt>

⁹⁵ <http://ngspice.sourceforge.net/>

Release Notes

- video module resurrected
- Added back HLL source browser support
- DS1307 realtime clock extra added
- extras compiled and loaded as part of gpsim

Support has been added for:

- PIC16F882
- PIC16F883
- PIC16F884
- PIC16F886
- PIC16F887

5.3.3. piklab

piklab includes a number of new features including:

- New processor support
 - 18F14K22
 - 18F13K22
 - 33FJ06GSxxx
 - 33FJ128MC802
- Improvements to ICD2 including support for additional targets
- New log and replay features
- Direct programming support for 16F88x family

For complete details including the list of many bug fixes, refer to the changelog at [piklab](http://piklab.org)⁹⁶ website.

5.4. Musicians

5.4.1. jack2

Fedora 14 moves from jack to jack2, formerly called jackdmp. jack2 offers many improvements over previous versions available in Fedora. Current jack-capable programs can take advantage of these improvements without modification.

- jack2 takes advantage of multi-processor and multi-core systems. The result is fewer audio glitches when more than one jack-enabled program is run.
- You can now modify connections without interrupting the audio stream. This means that you do not need to stop recording or playback in order to change how your programs connect to each other.

⁹⁶ <http://piklab.sourceforge.net/changelog.php>

- "Asynchronous" activation prevents audible audio glitches. If a program does not provide a sample in time, jack2 automatically repeats the previous sample. The old jack server would have produced an audible glitch, but with jack2, you may not even hear the missing sample.
- You can use jack2 and PulseAudio on the same computer. When the jack server starts, it automatically takes control of your audio hardware from PulseAudio. When the jack server stops, it automatically returns control of your audio hardware to PulseAudio. There is no longer a benefit to removing PulseAudio.

The move to jack2 is another example of the behind-the-scenes improvements that are a part of Fedora 14.

5.4.2. Musicians' Guide

Created as a Fedora Summer Coding project, the *Fedora Musicians' Guide* is released for the first time with Fedora 14. The *Musicians' Guide* shows you how to use several popular audio and music applications available in Fedora, and it explains some basic concepts you need to know when using audio software on any computer.

Each application has a tutorial, designed to show a typical use of the application by creating an actual musical project. In the **Ardour** tutorial, for example, you learn how to mix and master a recording of a real song. In the **Qtractor** tutorial, you learn how to create a MIDI-based accompaniment for a recording of a Beethoven piano sonata.

More advanced users - especially programmers who wish to create music - will appreciate the detailed coverage of **SuperCollider**, a programming language designed for audio synthesis. The tutorial shows you how to create a piece of music, from inspiration to completion. There is also a section explaining the syntax and usage of many language features, designed to be used as an introduction to **SuperCollider**, and as a reference while you program. Combined with the extensive documentation available from the developers, the Musicians' Guide chapter help to make **SuperCollider** on Fedora easier than ever!

All musicians who want to improve their skills will want to use the ear-training application **Solfège**. **Solfège** offers a wide variety of exercises, from hearing and singing intervals and chords, to taking dictation of a series of chords, or even detecting a tuning discrepancy between pitches. Whether you want to build your aural skills for the first time or just want help in maintaining them, **Solfège** can help you.

The *Musicians' Guide* is available from the *Docs Project Website*, located at <http://docs.fedoraproject.org/>.

5.4.3. Qsynth

Qsynth is a graphical front-end for the **FluidSynth** software-based MIDI synthesizer. **Qsynth** lets you take advantage of the full capabilities of **FluidSynth** more easily. You can change all aspects of a **FluidSynth** setup, and even run multiple instances of the **FluidSynth** synthesizer, from within one **Qsynth** window.

Qsynth is explained in Chapter 10, "FluidSynth" of the new Musicians' Guide (<http://docs.fedoraproject.org/>).

5.4.4. gtick

New to Fedora14, *gtick* is a metronome application supporting different meters and speeds up to 1000 bpm.

Review [here](#)⁹⁷ all the details.

5.5. Scientific and Technical

5.5.1. Asymptote

Asymptote is a powerful descriptive vector graphics language for technical drawings, inspired by MetaPost but with an improved C++-like syntax. *Asymptote* provides for figures the same high-quality level of typesetting that LaTeX does for scientific text. Labels and equations are typeset with LaTeX, for high-quality PostScript output. Fedora-14 includes version-2.04 with many bug fixes. Files generated in in-line tex mode can now be renamed without editing their contents.

For more details, asymptote.sourceforge.net⁹⁸.

5.5.2. Extrema

Extrema is a powerful visualization and data analysis tool that enables researchers to quickly distill their large, complex data sets into meaningful information. Its flexibility, sophistication, and power allow you to easily develop your own commands and create highly customized graphs. Version-4.4.4 has been rebuilt for wxGTK-2.8.11 in Fedora 14.

For more details, [extrema](#)⁹⁹, on the project website.

5.5.3. gnumeric

Gnumeric has been updated from 1.10.0-1 to 1.10.2-4. The changes include a rebuild for new Goffice and bugfixes.

For more details, [gnome: gnumeric](#)¹⁰⁰.

5.5.4. Gnuplot

Gnuplot is a command-line driven, interactive function plotting program especially suited for scientific data representation. *Gnuplot* has been updated to the 4.4 series (view [release-notes 4.4.0](#)¹⁰¹). Relative the 4.2 version, this version features smoother graphics based on the pango, cairo, and wxWidgets libraries, client-side interactive display using the HTML 5 "canvas" element, better internationalization, support for UTF-8 character encoding, support for transparency and alpha-channel image generation and handling, support for extended command line syntax, including iteration and new plot styles. Further PNG images can be read in and manipulated as plot elements. *Gnuplotpy* is a GUI for this program.

For more details, [gnuplot](#)¹⁰² website.

5.5.5. Mathomatic

Mathomatic is a portable, general-purpose computer algebra system (CAS). The software does automatic manipulations and calculations of mixed symbolic/numeric mathematical expressions,

⁹⁷ <http://www.antcom.de/gtick/>

⁹⁸ <http://asymptote.sourceforge.net/>

⁹⁹ <http://exsitewebware.com/extrema/index.html>

¹⁰⁰ <http://projects.gnome.org/gnumeric/>

¹⁰¹ <http://www.gnuplot.info/announce.4.4.0>

¹⁰² <http://www.gnuplot.info/>

allowing quick and easy solving, differentiation and simplification. [Version-15.1.3](#)¹⁰³ features a number of improvements including improved overflow handling and support for Mathematica-style input.

For more details, [mathomatic](#)¹⁰⁴ website.

5.5.6. Maxima

Maxima is a full featured symbolic and mathematical computation program with its own source level debugger for maxima code. Maxima has been updated from version 5.20.1 to 5.21.1 in Fedora-14. The latest build includes plot3d for plotting multiple surfaces and has built-in spherical transformations. Bessel, Riemann Zeta, signum and hypergeometric functions have all been extended or revised. Many bug fixes have been included in this version.

For more details, [maxima](#)¹⁰⁵ website.

5.5.7. mrpt-apps

The *Mobile Robot Programming Toolkit (MRPT: mrpt-apps)* is an extensive, cross-platform, and open source C++ library aimed to help robotics researchers to design and implement algorithms in the fields of Simultaneous Localization and Mapping (SLAM), computer vision, and motion planning (obstacle avoidance). The latest version 0.9.0-0.5 has been rebuilt against wxGTK-2.8.11-2. The rebuild was necessitated by the new version of Opencv.

For more details, [mrpt.org](#)¹⁰⁶ on project website.

5.5.8. Prover9

The *Prover9* package provides the Prover9 resolution/paramodulation theorem prover and the Mace4 counter-model generator. Prover9 is an automated theorem prover for first-order and equational logic. It uses the inference techniques of ordered resolution and paramodulation with literal selection. The package has been updated to upstream version 200911a. The following have also been added: prover9-complex, prover9-gen_trc_defs and prover9-test_complex.

For more details, [prover9](#)¹⁰⁷ on cs.unm.edu website.

5.5.9. R

The *R* environment is an integrated suite of FOSS facilities for data manipulation, statistical computation, knowledge discovery from databases, data analysis, scientific computing and graphical display. R has been updated to version 2.11.1 in Fedora-14. A large number of new R packages have also been added to the Fedora repository.

For more details, [R](#)¹⁰⁸ on project website.

5.5.10. ROOT

New to Fedora 14 is *root*, an object-oriented open-source platform for data acquisition, simulation and data analysis systems developed by CERN.

¹⁰³ <http://mathomatic.org/changes.txt>

¹⁰⁴ <http://www.mathomatic.org/math/>

¹⁰⁵ <http://maxima.sourceforge.net/>

¹⁰⁶ <http://www.mrpt.org/>

¹⁰⁷ <http://www.cs.unm.edu/~mccune/prover9/>

¹⁰⁸ <http://www.r-project.org/>

Complete details about this package, which includes many plugins for data acquisition, may be found at [CERN](#)¹⁰⁹.

5.5.11. Scientific Python

Scientific Python is a collection of Python modules for scientific computing. The latest version 2.8.11 includes numpy-1.4.0.

For more details, [Scientific Python: Overview](#)¹¹⁰ on project website.

5.5.12. texlive

Texlive is an advanced comprehensive implementation of TeX for GNU/Linux and the Unices. Texlive-2007 is included in Fedora-14. The latest build features minor bugfixes. You can also install TeXlive-2009 from the Texlive-2009 DVD with no hassles.

For more details, [texlive](#)¹¹¹ on project website.

5.5.13. VYM

VYM (View Your Mind) is a tool to generate and manipulate maps which show reasoning patterns. You can use them for time management, to organize tasks, to get an overview over complex contexts. Release-1.12.7 features a number of visualization improvements.

For more details, [VYM \(View Your Mind\)](#)¹¹² on project website.

5.5.14. Weka

Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes. Weka has been updated to version 3.2.6-4 with important bug fixes.

For more details, [weka](#)¹¹³ on project website.

A. Revision History

Revision 14.1 Sun Oct 31 2010

John McDonough

jjmcd@fedoraproject.org

Remove boot section and with it all reference to systemd

Revision 14.0 Fri Oct 15 2010

John McDonough

jjmcd@fedoraproject.org

Preparation for GA
Add mouse changes
Add Pino/Gwibber changes

¹⁰⁹ <http://root.cern.ch/>

¹¹⁰ <http://dirac.cnrs-orleans.fr/plone/software/scientificpython/overview/>

¹¹¹ <http://tug.org/texlive/>

¹¹² <http://www.insilmaril.de/vym/>

¹¹³ <http://www.cs.waikato.ac.nz/ml/weka/>

Mark systemd as preview
Remove draft status

Revision **Mon Sep 13 2010**
13.95

John McDonough
jjmcd@fedoraproject.org

Preparation for beta release

Revision 0 **Sat Sep 4 2010**

John McDonough
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Initial creation of book by publican

Initial wiki conversions

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