



OpenJDK – The Future of Open Source Java on GNU/Linux

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Blog aggregated on
<http://planetjdk.org>



Java Implementations Become Open Source



JavaTM

Java ME, Java SE,
and Java EE



Why now?

Maturity

Java is everywhere

Adoption

F/OSS growing globally

Innovation

Faster progress
through participation

Why GNU/Linux?



Values

Freedom as a core value



Stack

Free Software above and below the JVM



Demand

Increasing demand for Java integration

Who profits?

Developers

New markets, new possibilities

Customers

More innovations, reduced risk

Sun

Mindshare, anchoring Java in GNU/Linux

License

GPL v2

- No proprietary forks
- Popular & trusted license
- Compatible with GNU/Linux
- Fostering adoption

+ Classpath Exception (for SE, EE)

- Programs can have any license
- Improvements remain in the community
- FSFs license for GNU Classpath

A Little Bit Of History

Jun 1996: Work on gcj starts

Nov 1996: Work on Kaffe starts

Feb 1998: First GNU Classpath Release

Mar 2000: GNU Classpath and libgcj merge

Dec 2002: Eclipse runs on gcj/Classpath

Oct 2003: Kaffe switches to GNU Classpath

Feb 2004: First FOSDEM Java Libre track

Apr 2004: Richard Stallman on the 'Java Trap'

Jan 2005: OpenOffice.org runs on gcj

Mai 2005: Work on Harmony starts

Sun & Open Source Java RIs

Juni 2005: Java EE RI

Glassfish goes Open Source

Mai 2006: First Glassfish release

Mai 2006: Java announced to go Open Source

November 2006: Java ME RI

PhoneME goes Open Source

November 2006: Java SE RI

Hotspot und Javac go Open Source

Mai 2007: The rest of Java SE follows suit

Status: JavaOne, Mai 2007

OpenJDK can be fully built from source,
'mostly' Open Source

25,169 Source code files

894 (4%) Binary files (“plugs”)

1,885 (8%) Open Source, though not GPLv2

The rest is GPLv2 (+ CP exception)

Sun couldn't release the 4% back then as free software.

“Encumbrancies”

Encumbrancies (2007)

Font rasterizer
Graphics rasterizer
Sound engine
Crypto providers
Some SNMP code
Imaging APIs

Status 2008: Fixed Encumbrancies

Font rasterizer
Graphics rasterizer
Sound engine
Crypto providers

Imaging APIs

Leftover Encumbrances (2008)

Some SNMP code

(Any volunteers?)

Contributing

- Sign the SCA (See <http://sca.dev.java.net> for FAQ)
- Pick an issue from the bugtracker (Currently <http://bugs.sun.com>)
- Or pick a project to contribute to
- Or send us your patches for OpenJDK
- Or start a new project with your idea
- Pick the right mailing list from your project's web site
- If in doubt: discuss@openjdk.java.net
- IRC: #openjdk on irc.oftc.net

8 May 2007, 9:29am PDT

OpenJDK source code published

8 May 2007, 9:29am PDT

8 May 2007, 2:46pm PDT

OpenJDK source code published

Gentoo OpenJDK ebuild

8 May 2007, 9:29am PDT

8 May 2007, 2:46pm PDT

9 May 2007, 3:06am PDT

Quelltext des JDK publiziert

Gentoo OpenJDK ebuild

Fedora source RPM

7 Juni 2007

IcedTea
icedtea.classpath.org

“We intend this build repository, based on OpenJDK, to provide a basis on which to experiment. It’s not a fork from OpenJDK, and doesn’t contain the OpenJDK source code.”

— Andrew Haley



9 August 2007

OpenJDK Community TCK License

OpenJDK Community TCK License

For 'substantially derived'
implementations

Have to be distributed under GPLv2

Gratis access to the TCK

Compatible implementations may use
the “Java Compatible” brand under a
separate trade mark license
agreement



OpenJDK Community TCK License

For testing compatibility to Java SE 6

TCK is not Open Source

Licensees may help each other

But the test code is confidential

No claims of relative compatibility (x
%, etc.)

OpenJDK Community TCK License

- Apply at the Conformance Group's website in OpenJDK for access
- Sign the OpenJDK CTLA
- Get access to the TCK
- Set the TCK up (the official docs are online, as well as Red Hat's)
- Feedback and Support:
Conformance Group
- OpenJDK Java Compatible
Trademark License

OpenJDK Community TCK License

- Red Hat & several others
- Initial setup took Red Hat 3 months
- Status: passing all the tests on x86/x86_64 on Fedora
- Published a 'JDK distilled' document
- Cut setup time to days
- Red Hat's patches are continuously going back to OpenJDK
- So that other distributions can follow suit

Regression Tests

- Part of OpenJDK
- Getting published as well
- Test tools are Open Source, too
- Jtharness seit 2007
- Jtreg seit 2008
- Included in GNU/Linux distribution builds in IcedTea
- Build logs bei Ubuntu & Fedora

December 2007

New source code management system: Mercurial

Allow us to have external committers

12/4/07: Read-only repositories

2/27/08: Read/write repositories

April 2008: First external committers

~20 now

<http://hg.openjdk.java.net>

<http://selenic.com/mercurial>



January 2008

- OpenJDK Community Innovator's Challenge
 - > Up to \$175,000 for up to 7 projects
 - > Proposals were due until mid-March
 - > Projects ran until beginning of August
 - > Lone developers as well as teams
 - > Proposals accepted in selected areas:
 - > API, Java language or OpenJDK Implementation improvements
 - > Replacing encumbered code
 - > Ports to new platforms
 - > Academia

March 2008: Innovator's Challenge

- Closures for Java - Neal Gafter
- Implement XRender pipeline for Java2D - Clemens Eisserer
- Provide date and time library from JSR-310 - Stephen Colebourne, Michael Nascimento Santos
- Portable GUI backends (Caciocavallo) - Roman Kennke, Mario Torre
- Virtual Machine Interface - Andrew John Hughes
- Free Software synthesizer implementation for OpenJDK - Karl Helgason
- OpenJDK on Windows - Ted Neward

October 2008: Challenge Results

- Gold (USD 75k): Implement XRender pipeline for Java2D - Clemens Eisner
- Silver (USD 50k): Closures for Java - Neal Gafter
- Bronze (USD 25k): Provide date and time library from JSR-310 - Stephen Colebourne, Michael Nascimento Santos
- Bronze (USD 25k): Portable GUI backends (Caciocavallo) - Roman Kennke, Mario Torre

February 2008

**Developer's Guide:
<http://openjdk.java.net/guide>**

OpenJDK 6

FOSDEM 2008 and Java Libre Devroom

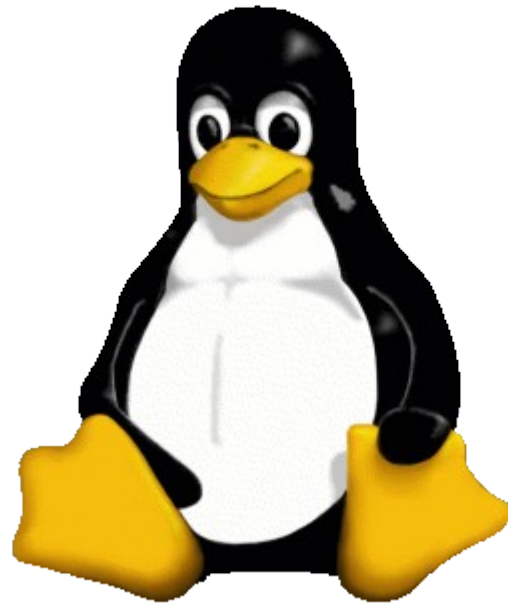
OpenJDK 6

- Only Free Software – No encumbered code
- Stable – Support by the GNU/Linux distributions
 - > Patched for security, compatibility and ugly issues
 - > Remove/replace non-free code in OpenJDK
 - > Better Java Integration with GNU/Linux distributions
- Compatibility – getting very close
 - > A handful of failures left to verify as fixed for b13
- Quality – close to Java SE 6, tested using applications like NetBeans, GlassFish, Tomcat

jdk6-dev@openjdk.java.net

New Groups and Projects

- Groups
 - > Porters
 - > Conformance
- Projects
 - > Type annotations, Compiler Grammar
 - > Multi-language VM
 - > JDK 6
 - > VisualVM
 - > BSD port, Haiku port, MIPS port, Zero
 - > Modules
 - > Closures

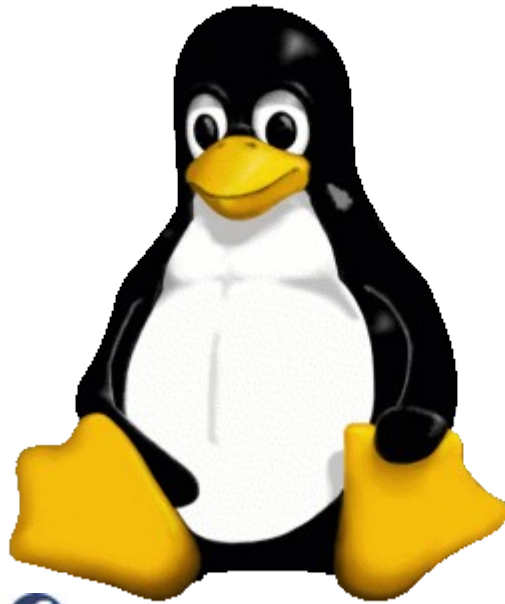


OpenJDK in GNU/Linux

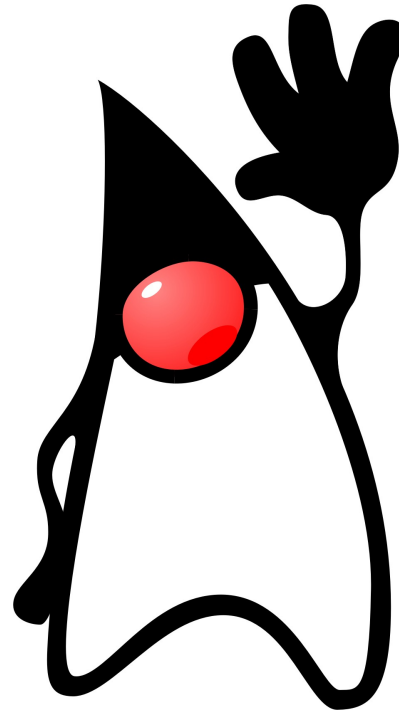
- Requirements
 - > Only Free Software
 - > (Mostly) complete
 - > Packaging done right
 - > Tested and accepted by distros

***Goal: Get into (main) distribution repositories
... step by step.***

OpenJDK



fedora 



 ubuntu

debian



gentoo



What's next?

- OpenJDK as the foundation for other code to follow
 - > NetBeans
 - > GlassFish
 - > Available in Ubuntu since version 8.04
 - > ***Your open source project?***

Goal: allow Java developers to be as productive on Linux out of the box as everyone else is

2008-2009

Improving the infrastructure

Code Reviews, Wiki, Opengrok, Bugzilla

Externalize processes & tools

Replace the SNMP code

Deployment Code (plugin, webstart)

Grow the Community:

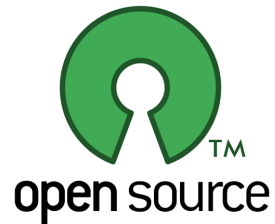
Ports, Committers, Projects

Governance

The Java Community Process stays



Java
Community
Process



OpenJDK, GlassFish,
Mobile&Embedded
Community

OpenJDK has a positive effect

OpenJDK allows expert groups to develop

Reference implementations for JSRs

(Destined for Java SE 6+X)

In the open, transparently with their users

JSR 277 (Modulsystem),

JSR 292 (MLVM, Invokedynamic),

JSR for new NIO APIs,

JSR 308 (Annotations on types)

Into the Future

Java is becoming a piece of GNU/Linux

Part of the Linux toolchain

JVM as a core component of distributions

Full, Free Java Stack

Packages for commonly used libraries

'apt-get install' for Java applications

... it's there, and it just works

Thanks!

<http://OpenJDK.java.net>

dalibor.topic@sun.com

<irc://irc.oftc.net/#openjdk>

