



# OpenJDK™ Project Report

**Mark Reinhold**

Java SE Chief Engineer  
Sun Microsystems  
<http://openjdk.java.net>

TS-2800  
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# Why?



How?  
What?  
When?

Code, or code and community?  
Who makes decisions?  
What does it look like?  
Is it really free?  
If not, why not?  
What comes next?  
How can I get involved?

# Quick answers

## **How:** Build a vibrant OpenJDK Community

- Transparent, meritocratic governance
- Non-Sun committers

## **What:** Create a fully-free OpenJDK

- Merely fully-buildable right now
- Need conformant (and usable!) free replacements for encumbered code
- Goal: An OpenJDK-derived distribution in Debian Main and Fedora Core

## **When:** Over the next year (or so)



# Governance Code Plans

# Governance

Where we are today:

- Sun in control
- External contributions submitted as patches
  - Via e-mail; handled by a Sun sponsor

Where we want to go:

- OpenJDK Community in control
  - Transparent, meritocratic governance
- External contributions integrated directly by committers

How do we get there? Where, exactly, is *there*?

# Governance

## Possible structures

- Benevolent dictator (Linux)
- Highly structured republic (Apache, OpenSolaris)
- Loosely structured republic (GNOME)
- Friendly anarchy



# Governance

*“A republic, madam,  
if you can keep it.”*

— B. Franklin

# Governance Board

- Ultimate point of dispute resolution
  - Hopefully rarely needed
- More like a judiciary than an executive
  - Does not set technical direction
- Significant non-Sun representation
  - Two Sun employees, appointed by Sun
  - Three elected from the Community

# Bootstrapping: The OpenJDK Charter

- Legal document executed by Sun
- Creates an Interim Governance Board (IGB)
- Empowers the IGB to:
  - Write a Constitution
  - Get it ratified by the community
  - Hold elections for open seats
- Sun remains the benevolent dictator in the meantime
  - Has veto power over the Constitution

# The OpenJDK Charter

WHEREBY Sun Microsystems, Inc. (“Sun”) has granted license to a particular subset of its Java SE Development Kit, known henceforth as OpenJDK, to all under terms compatible with Open Source ideals, and whereby open and constructive development and dissemination of this code base is desired by all, Sun does by the execution of this Charter all of the following: First, establish an OpenJDK Governance Board (“GB”) to supervise the OpenJDK Community (“Community”) in its efforts to improve upon and advocate in favor of OpenJDK, so that the Community may long endure. Second, grant to the GB certain powers and rights as are necessary to discharge its duties. Third, appoint to the GB a suitable interim membership until such time as a Constitution may be constructed and ratified. Last, establish a time at which this Interim GB shall have discharged its responsibilities and ceded to its successor the powers and rights granted herein.

1. The GB shall be comprised of five natural persons. The GB shall conduct its affairs in accordance with democratic principles and shall represent the interests of the Community.

1.1. Two members of the GB shall be employees of Sun. These appointees shall be selected by Sun and may be replaced at any time by Sun, at its sole discretion. These appointees shall represent Sun's interests but shall not have the power to speak for Sun Microsystems, Inc.

1.2. The three remaining members of the GB shall be members of the Community who shall be elected via a democratic process defined in a properly ratified Constitution.

1.3. Should the GB number fewer than five persons at any time then Sun shall, at its

# OpenJDK Interim Governance Board

**Prof. Doug Lea**

*SUNY Oswego*

**Fabiane Biznella Nardon**

*CTO, ZILICS*

**Dalibor Topić**

*Max-Planck Institute for Computer Science*

**Simon Phipps**

*Chief Open-Source Officer, Sun Microsystems*

**Mark Reinhold**

*Java SE Chief Engineer, Sun Microsystems*

# Interim governance: Groups

Group: A collection of participants who share a common interest

- Might be associated with some code—or not
- Members participate in governance
  - Ratify Constitution
  - Elect GB members
- Has web content, mailing list(s)
- Does not have a file repository
  - May sponsor one or more projects, which do

# Interim governance: Projects

Project: A collaborative effort  
to create an artifact

- Artifact = Code, documents, graphics, ...
- Typically bounded in time
- May be sponsored by one or more Groups
- May have web content, mailing list(s), and a file repository
- Has committers, but not Members

# The big bang

- Initial Groups are Sun's existing teams
  - More or less
  - HotSpot, Compiler, Networking, Security, I18n, 2D, AWT, Swing, ...
- Initial Projects
  - Free font rasterizer
  - Free graphics rasterizer
  - Free sound engine
  - Modules (JSRs 277 & 294)
  - JDK 7 (soon)



# Expanding the universe

- Becoming a Member of a Group
  - Three-vote consensus (three yays, no nays) of the existing Members
- Creating a new Group
  - Proposed by a Member of an existing Group
  - Seconded by two others
  - Simple majority of the IGB
- Creating a new Project
  - One or more Groups decide to sponsor
  - or: Simple majority of all Members



# Governance

# **Code**

# Plans



```
naskeag % unzip -q openjdk-7-ea-src-b12-06_may_2007.zip
naskeag % cd openjdk
naskeag % ls
ASSEMBLY_EXCEPTION  README.html          hotspot/
LICENSE              THIRD_PARTY_README  j2se/
README-builds.html  control/
naskeag % head LICENSE
The GNU General Public License (GPL)
```

Version 2, June 1991

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```
naskeag %
```



```
naskeag % cd control/make
naskeag % time make ALT_BOOTDIR=/opt/sun-jdk-1.6.0 \
> ALT_CLOSED_JDK_IMPORT_PATH=/w/tmp/jdk1.7.0 >&log
real    23m1.273s
user    25m40.176s
sys     3m1.175s
naskeag % ../build/linux-amd64/bin/java -version
openjdk version "1.7.0-internal"
OpenJDK Runtime Environment (build 1.7.0-internal-b00)
OpenJDK 64-Bit Server VM (build 1.7.0-internal-b00, ...)
naskeag %
```



```
naskeag % java -jar \  
  jdk-7-ea-plug-b12-linux-amd64-06_may_2007.jar  
Bundle size = 70633333  
naskeag % ls jdk1.7.0/  
COPYRIGHT      README_ja.html      db/                jre/      sample/  
LICENSE        README_zh_CN.html   demo/              lib/       src.zip  
README.html    bin/                 include/           man/  
naskeag % ls -l jdk1.7.0/bin  
total 2104  
-rw-r--r-- 1 mr green 50478 May 8 14:49 appletviewer  
-rw-r--r-- 1 mr green 50331 May 8 14:49 apt  
-rw-r--r-- 1 mr green 50110 May 8 14:49 extcheck  
-rw-r--r-- 1 mr green 50078 May 8 14:49 idlj  
-rw-r--r-- 1 mr green 50078 May 8 14:49 jar  
-rw-r--r-- 1 mr green 50110 May 8 14:49 jarsigner  
-rw-r--r-- 1 mr green 48933 May 8 14:49 java  
-rw-r--r-- 1 mr green 50411 May 8 14:49 javac  
-rw-r--r-- 1 mr green 50363 May 8 14:49 javadoc  
-rw-r--r-- 1 mr green 50395 May 8 14:49 javah  
-rw-r--r-- 1 mr green 50427 May 8 14:49 javap  
-rw-r--r-- 1 mr green 50086 May 8 14:49 iconsole
```



# Fully buildable $\neq$ Fully free

# Encumbered code

- Whole JDK = 25,169 source files
- 894 (4%) of these cannot be shipped in source form
  - Sun simply does not have the rights to do so
  - These are the “binary plugs”
- 1,885 (8%) are not under GPLv2
  - Shipped in source form anyway
  - Mostly Apache-derived code
  - Legal analysis continues...

# Encumbered code

Encumbered components include:

- Font rasterizer
- Graphics rasterizer
- Sound engine
- Some crypto algorithms
- Some SNMP code
- Imaging APIs

Projects are already being started to create free replacements for some of these components



# Source-code management

## Present: TeamWare

- Fully-distributed SCM
  - No need for a scalable, centralized server
  - Experiments are cheap
- Supports complex code flows
- But ...
  - Sun-proprietary
    - Yeah, we could open-source it, but ...
  - Does not scale well (relies upon NFS)
  - Old and creaky in other ways

# Source-code management

## Future: Mercurial

- Most mature and performant of the modern distributed SCMs
  - Others: Arch, Bzr, Darcs, Git, Monotone
- Scales well across the net
  - HTTP & SSH, not NFS



<http://selenic.com/mercurial>



# Governance Code **Plans**

# Today

- Fully-buildable JDK 7
  - With “binary plugs” for encumbered code
  - Interim measure until free replacements can be developed
- Source bundles & read-only Subversion
- **openjdk.java.net**
  - Static HTML, mailing lists
  - @Deprecated `openjdk.dev.java.net`
    - Except for Subversion repositories

File Edit View History Bookmarks Tools Help

http://openjdk.java.net/

General FAQ  
Contributing  
Mailing lists

**Source code**  
Bundles  
Subversion

**Groups**  
(overview)  
2D Graphics  
AWT  
Build  
Compiler  
Core Libraries  
Governance Board  
HotSpot  
Internationalization  
JMX  
Networking  
NetBeans Projects  
Quality  
Security  
Serviceability  
Sound  
Swing  
Web

**Projects**  
(overview)  
Audio Engine  
Font Scaler  
Graphics Rasterizer  
Modules

**Tools**  
jTreg Test Harness  
Java SE  
NetBeans  
Subversion

**Community**  
Planet JDK blogs  
The Aquarium  
java.net  
java.sun.com  
Java Community Process

**Related**  
GlassFish  
JavaHelp  
JDK 6 Project

# OpenJDK

## Welcome to the Open-Source JDK Community!

This is the place to collaborate on the open-source JDK, an implementation of the Java Platform, Standard Edition specification defined in the [Java Community Process](#).

### OpenJDK @ JavaOne 2007!

We're here in San Francisco for the JavaOne 2007 conference this week. Lots and lots of stuff is going on ...

#### Signing the Charter

Laurie Tolson, Vice President of the Client Software Group at Sun Microsystems, Inc., will sign the OpenJDK Charter during the *OpenJDK Project Report* session on Wednesday at 6:00pm in Gateway 102/103 in Moscone. The Charter is the legal document that creates the Interim Governance Board and empowers it to create the Constitution.

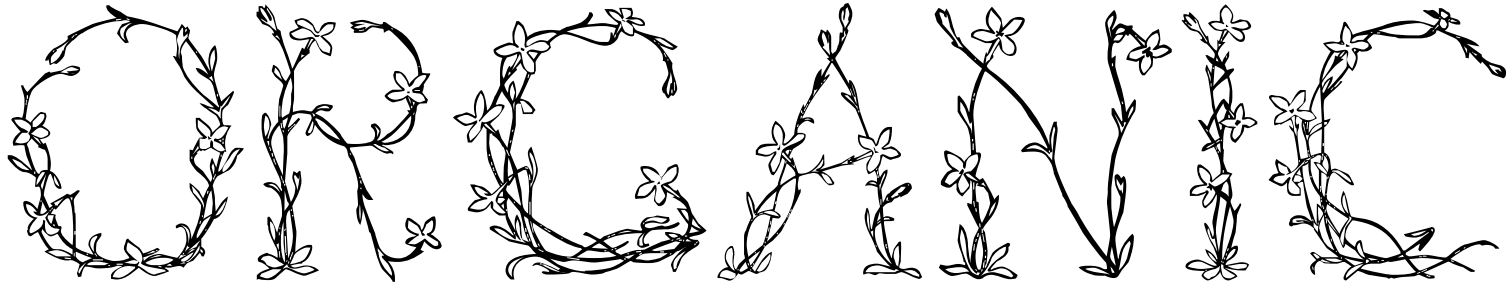
Some additional OpenJDK-related events that you might find interesting:

|   |   |
|---|---|
| <b>Java SE: Present and Future</b>                | <i>Danny Coward</i>                     |
| TS-2383: Tuesday 10:50am, Gateway 102/103         |   |
| <b>Liberating Java</b>                            | <i>Simon Phipps &amp; Patrick Finch</i> |
| TS-7498: Tuesday 3:20pm, Esplanade 305            |   |
| <b>Closures for the Java Programming Language</b> | <i>Neal Gafter</i>                      |
| TS-2294: Tuesday 4:40pm, Gateway 102/103          |   |
| <b>OpenJDK Project Report</b>                     | <i>Mark Reinhold</i>                    |
| TS-2800: Tuesday 6:00pm, Gateway 102/103          |   |

Done

# Sun's priorities for the coming year

- More infrastructure improvements
  - Bug tracking, wiki, source browser, ...
- Public Mercurial repositories
  - With support for external committers
- Externalize processes & tools
- Replace encumbered code
- Java SE 6
- Release deployment code
- Make TCK available
- Draft and ratify a Constitution, and elect a GB



We're probably going to get some stuff wrong  
*Please tell us how we can do better!*



# Governance Code Plans



# How can I get involved?

- Join the conversation!
  - *planetjdk.org*                      Blogs
  - *mail.openjdk.java.net*            Mailing lists
  - *irc.oftc.net #openjdk*            IRC
- Survey the Groups and Projects on **openjdk.java.net**
- Download the code and build it
- Read the NetBeans tutorial
- Contribute a patch to fix a bug or implement an enhancement or define a new feature



# Roll credits ...



Ray Gans  
Tom Marble  
Rich Sands  
Carla Schroer



# Kelly O'Hair

# Xiomara Jayasena

# David Katleman

Iris Clark  
Martin Buchholz  
Jonathan Gibbons  
Phil Race  
Brad Wetmore



# Jeff Dinkins

# Tim Bell

# Fini

**openjdk.java.net**

*Questions?*

# OpenJDK

JavaOne



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