

OpenJDK

The Making of Open Source JDK 7

Dalibor Topic

Sun Microsystems GmbH

8901

JAZOON09

THE INTERNATIONAL CONFERENCE ON JAVA TECHNOLOGY
JUNE 22-25, 2009 ZÜRICH



netcetera





OpenJDK

What?

Open Source

GPL v2

Classpath Exception

**Works As
Advertised**

Fostering Contributions

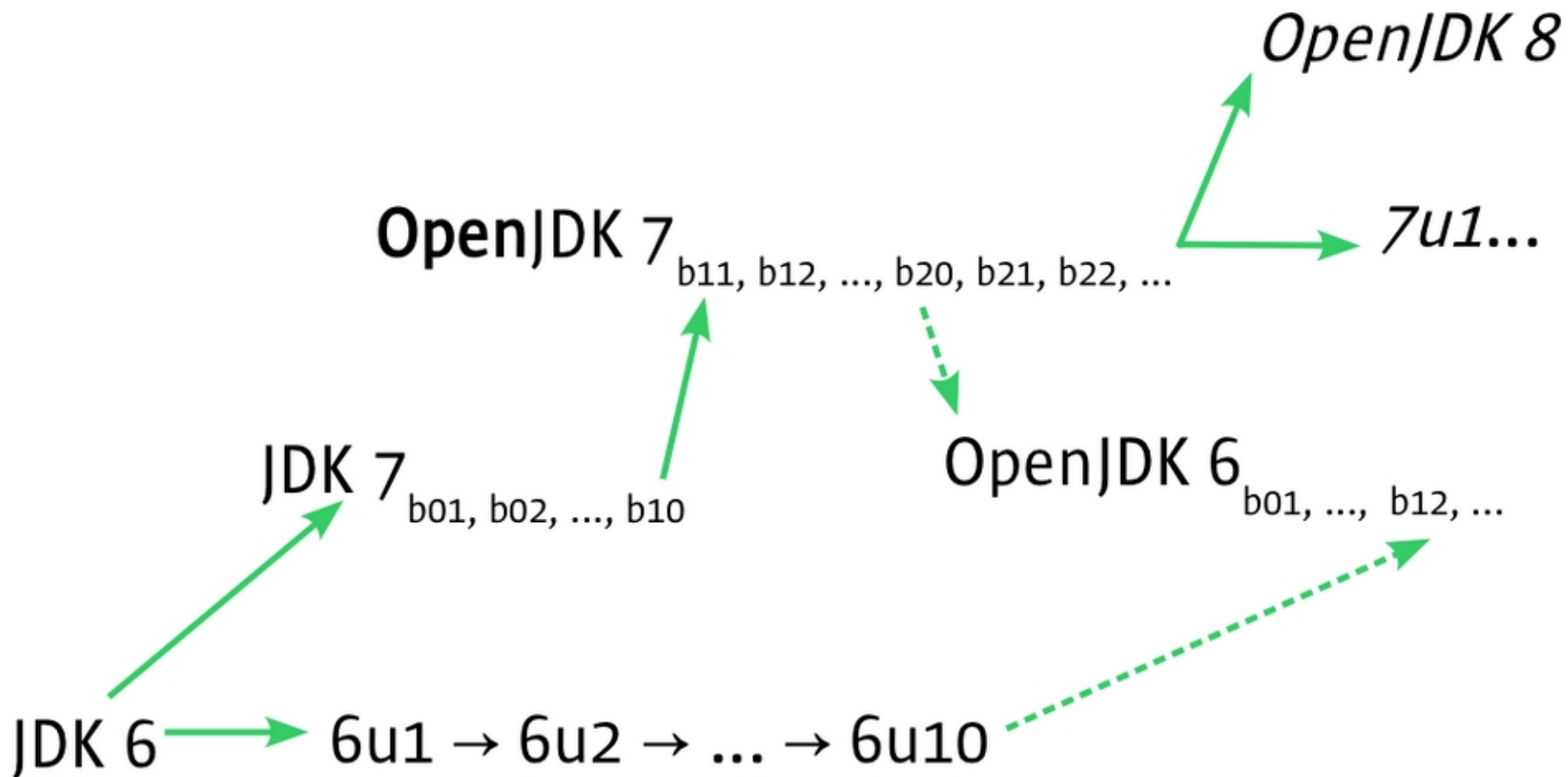
Growing Community

Increasing Adoption

No Forks

OpenJDK 6

Genealogy



OpenJDK 7

JDK 7

Who?

acorn alanb alexp amenkov andreas andrew ant anthony
apangin apetrusenko aph art asaha avu bae bchristi billyh
blacklion bpatel bristor campbell ccenotti ccheung ceisserer cfang
cgruszka chegar chrisphi christos coleenp cquinn darcy dav
dcherepanov dcubed denis dfuchs dgu dholmes dice dl dougfelt
duke emcmanus faryad flar forax gafter gbenson glewis gsm
hawtin hdong herrick hualan idk igor ikrylov iris iveresov jasper
jccollet jcoomes jeff jenda jfdenise jferaud jgodinez jjb jjg jjh
jmasa jmelvin johnc jqzuo jrose jrufus jtusla kalli kamg katleman
kbr kevinw ksrini kurosaki kurt kvn lana lancea landonf langel
ldayne leifs lmalvent loneid lstadler lucyzhao malenkov mali
martin mchung mcimadamore mernst mfang michaelm minqi
mlapshin mr mullan naoto neugens never newell ogino ohair
okutsu parrt paulk pbk peterjones peterz peytoia phh pjr poonam
prp psoper ramap rasbold rkennke robilad rupashka sbohne
sgoldman sherman sjiang slions son srl sspitsyn stanleyh stayer
sundar swamyv tbell tdv thurka tonyp trims twisti uta valeriep
vasya vinnie volk weijun wetmore xdono xlu xuelel yan yangjiang
yhuang yjoan ysr

Diverse Community

Individual Developers

BSD Port

Landon Fuller

Greg Lewis

Kurt Miller

Christos Zoulas

Academia

Type Annotations

Mahmood Ali
Michael Ernst

Corporate Contributors

**Sun, Red Hat,
Google, AMD**

Community Stat(u)s

Committers

db.openjdk.java.net/people

Total: 165

**! @Sun.com:
38**

**23% of
Committers
outside Sun**

After 1 Year Of Mercurial Access

Projects

Total: 25

Sun led: 13

**OpenJDK 6,
OpenJDK 7,
Da Vinci VM,
Coin, NIO2, ...**

**Non-Sun led:
12**

**BSD Port, Zero,
Caciocavallo,
IcedTea,
Type Annotations,
XRender Pipeline,**

...

Where?

Ubiquity

**OpenJDK 6
included in**

...

Big 6 Distros

Gentoo

Ubuntu

Fedora

OpenSUSE

Mandriva

Debian

+ Derived Distros

Linux Mint

Simply MEPIS

Red Hat Enterprise Linux

CentOS

+ New OSes

FreeBSD Ports Collection

MacPorts

**sudo port
install
openjdk6**

OpenBSD

NetBSD

Compatibility

OpenJDK Community TCK License Agreement

Java SE 6

+

GPL v2

+

**Substantially derived
from OpenJDK**

Google
Red Hat
Canonical
Tarent
CACAO

Announced Passing Builds

OpenJDK 6

**Fedora 8
x86**

OpenJDK 6 + IcedTea

Fedora 9

x86 & x86-64

OpenJDK 6 + IcedTea

RHEL 5.3

x86 & x86-64

OpenJDK 6 + IcedTea

**Ubuntu 9.04
x86 & x86-64**

***OpenJDK 6 +
IcedTea + Zero***

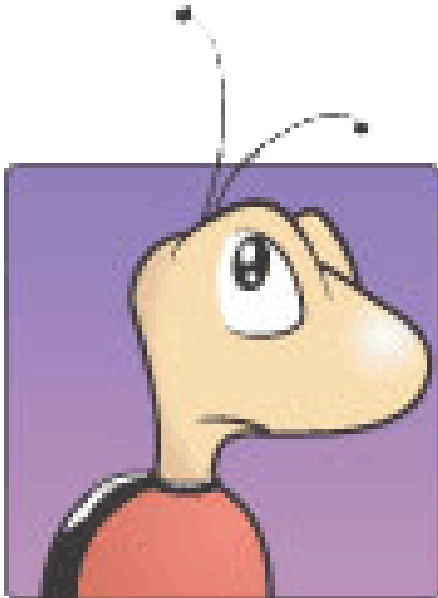
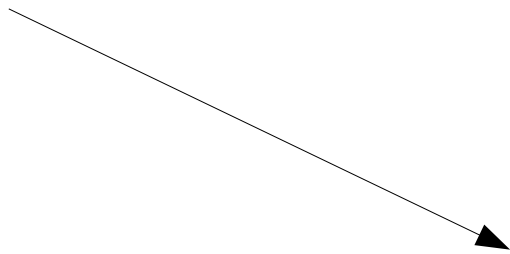
**Fedora 10
ppc & ppc64**

<http://openjdk.java.net/groups/conformance/>

Infrastructure



SUBVERSION



hg.openjdk.java.net

hg fclone <http://hg.openjdk.java.net/jdk7/jdk7>

cr.openjdk.java.net

bugs.openjdk.java.net

Bugzilla

First Phase: Patches

**A patch every
two days**

Next phase: Bugtracking

Project Coin

small language changes

Productivity

Coin-dev Mailing list

Some proposals:

Strings in switch

```
String s = ...  
switch(s) {  
  case "foo":  
    processFoo(s);  
    break;  
}
```

```
String s = ...  
switch(s) {  
  case "quux":  
    processQuux(s);  
    // fall-through  
  
  case "foo":  
  case "bar":  
    processFooOrBar(s);  
    break;  
  
  case "baz":  
    processBaz(s);  
    // fall-through  
  
  default:  
    processDefault(s);  
    break;
```

Improved Exception Handling for Java

multi-catch

**improved
rethrow**

```
try {  
    doWork(file);  
} catch (final IOException|SQLException ex) {  
    // handle both the same way  
    logger.log(ex);  
    throw ex;  
}
```

Improved Type Inference for Generic Instance Creation

AKA:
Diamond

```
// type less:  
Map<String, List<String>> map = new HashMap<>();
```

Better Integer Literals

// binary:

int mask = 0b1001;

// legible:

int bigMask = b1011_1101;

long reallyBig = 1_234_567_890_123_456_789L;

// unsigned:

byte b = 0xFFu;

Elvis and Other Null-Safe Operators

```
// if the first expression returns sth. != null,  
// we're done, otherwise, we need to compute the  
// second expression:
```

```
Integer i = returnIntOrNull() ?: ultimateAnswer();
```

Automatic Resource Management

```
// Automatically generate try/finally/close block code  
// for the scoped AutoCloseable resources  
static void copy(String src, String dest) throws IOException {  
    try (InputStream in = new FileInputStream(src);  
        OutputStream out = new FileOutputStream(dest)) {  
        byte[] buf = new byte[8192];  
        int n;  
        while ((n = in.read(buf)) >= 0)  
            out.write(buf, 0, n);  
    }  
}
```

Indexing syntax for Lists and Maps

```
List<String> list = Arrays.asList(new String[] {"a", "b", "c"});  
String firstElement = list[0];
```

```
Map<Integer, String> map = new HashMap<>();  
map[Integer.valueOf(1)] = "One";
```

Collection Literals

```
List<String> list = ["a", "b", "c"];  
String firstElement = list[0];
```

```
Map<Integer, String> map = {1 : "One"};
```

Language support for JSR 292

```
Object x = InvokeDynamic.getMeSomething();
```

```
MethodHandle mh = ...;  
mh.invoke();
```

```
int #"strange variable name" = 42;  
System.out.println(#"strange variable name");  
// prints 42
```

**4-5 proposals
to be selected**

<http://openjdk.java.net/projects/coin>

Type Annotations

JSR 308

productivity

Checker framework

@NonNull

@Nullable

javac -processor NullnessChecker MyFile.java

@ReadOnly

<http://openjdk.java.net/projects/type-annotations>

JSR 294

**Improved
modularity
support in the
language**

**Independent
of a module
system**

Explicit Dependencies + Versioning + Accessibility

module-info.java

src/org/openjdk/SomeTool.java
src/module-info.java

```
module org.openjdk.SomeTool @ 1.0  
{  
  requires module SomeLib @ 1.2;  
  requires module AnotherLib @ 2.1;  
  requires module jdk-swing @ 7.0;  
  class org.openjdk.SomeTool;  
}
```

**understood by
javac**

**understood by
java**

**\$CLASSPATH is
dead**

Jigsaw

modularity for the JDK

losing weight

well-defined subsets

**simple &
static**

low level

modules

versioning

dependencies

**once you
have all that**

...

native packaging

jpg

**Now:
deb**

Soon:

RPM

SVR4

IPS

Add your format:
jigsaw-dev@openjdk.dev.java.net

dpkg -m classes -d . -c SomeTool deb org.openjdk.SomeTool

<http://openjdk.java.net/projects/jigsaw/>

JSR 292

DaVinci VM

Invokedydynamic

CallSite

MethodHandle

java.dyn

JRuby Jython & friends

<http://openjdk.java.net/projects/mlvm>

JDK 7

8 milestones

M1
(finished)

Compressed OOPs

Garbage First Garbage Collector

M2
(finished)

NIO2

URLClassLoader.close()

M3
(finished)

InvokeDynamic

Stream Control Transmission Protocol

Sockets Direct Protocol

Unicode 5.1

ClassLoader Architecture Update

M4
(ongoing)

Update the XML stack

Forward-port 6u10 features

**Create new
platform APIs
for forward-
ported 6u10
features**

**Status:
ongoing
development**

<http://openjdk.java.net/projects/jdk7/>

Contribute

<http://openjdk.java.net>

**Stay up to
date**

<http://planetjdk.org>

Discuss development

discuss@openjdk.java.net

`jdk7-dev@openjdk.java.net`

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

Listen In

OpenJDK Forum

discuss@openjdk.java.net

Dalibor Topić

<http://robilad.livejournal.com>

<http://twitter.com/robilad>

Sun Microsystems GmbH

dalibor.topic@sun.com

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