



# QCon

2016.10.20~22

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## 全球软件开发大会 2016

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# 7折

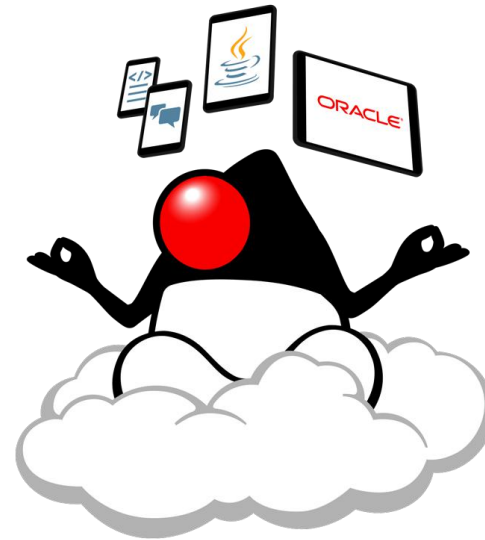
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# QCon 全球软件开发大会 【北京站】2016

## JDK 9, 变化与未来

Xuelel Fan

# Java 20-Year



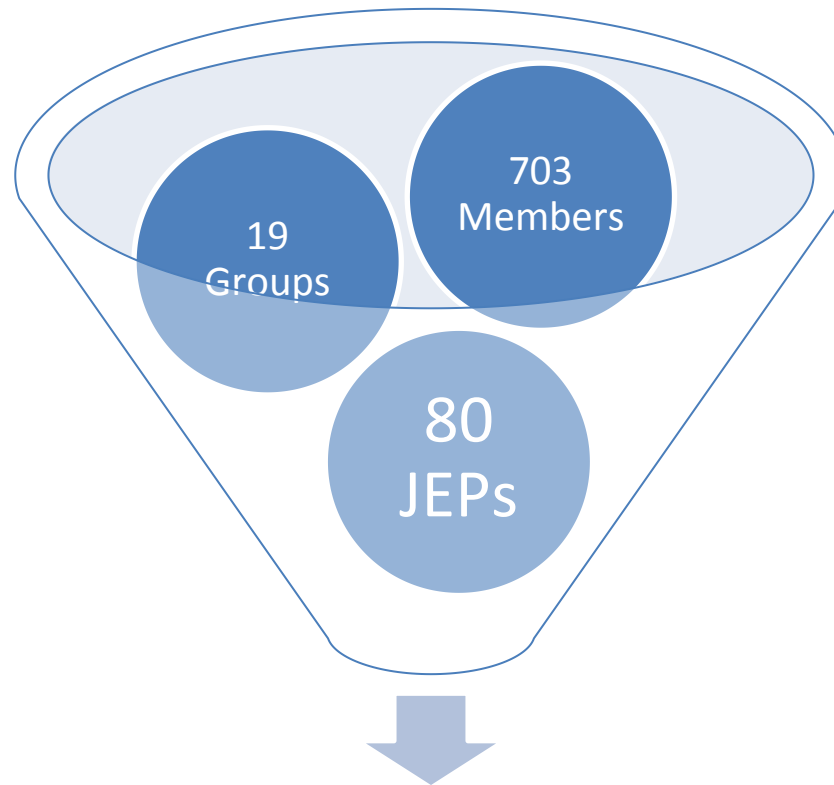
# Topics

- JDK 9
- OpenJDK Community

# JDK 9 Schedule

2016/05/26	Feature Complete
2016/08/11	All Tests Run
2016/09/01	Rampdown Start
2016/10/20	Zero Bug Bounce
2016/12/01	Rampdown Phase 2
2017/01/26	Final Release Candidate
2017/03/23	General Availability

# JDK 9



JDK 9

# JEP 223: New Version-String Scheme

- Motivation
  - Which release contains all of the most recent security fixes: JDK 7 Update 55, or JDK 7 Update 60?
  - What's the difference between releases named "JDK 7 Update 60", "1.7.0\_60", and "JDK 7u60"?
- Purpose
  - Revise the JDK's version-string scheme so that it is easier to distinguish major, minor, and security-update releases.



# JEP 223: New Version-String Scheme

- Version numbers
  - \$MAJOR.\$MINOR.\$SECURITY
    - 9
    - 9.0.2
    - 9.1.2
- Version strings
  - \$VNUM(-\$PRE)?(\+\$BUILD)?(-\$OPT)?
    - 9+100
    - 9.0.2+12
    - 9.1.2+62

# JEP 222: The Java Shell (Read-Eval-Print Loop)

- Motivation
  - Immediate feedback when learning Java
  - Exploration of coding options for developers prototyping code or investigating a new API.
  - learning and exploration is streamlined
- Purpose
  - Provide an interactive tool to evaluate declarations, statements, and expressions of the Java programming language, together with an API so that other applications can leverage this functionality.

# JEP 222: The Java Shell

```
sca00bkv:/home/xufan 39 % jshell
| Welcome to JShell -- Version 9-ea
| For an introduction type: /help intro

-> class Person {
>>     public String name;
>>     public Person(String name) {
>>         this.name = name;
>>     }
>>     public String toString() {
>>         return this.name;
>>     }
>> }
| Added class Person

-> Person tom = new Person("Tom Field");
| Added variable tom of type Person with initial value Tom Field

-> System.out.println(tom);
Tom Field

-> 
```

# JEP 110: HTTP/2 Client

- Motivation, problems of HttpURLConnection
  - The API predates HTTP/1.1 and is too abstract.
  - The base URLConnection API was designed with multiple protocols in mind, nearly all of which are now defunct (ftp, gopher, etc.).
  - It works in blocking mode only (i.e., one thread per request/response).
  - It is very hard to use and maintain.
- Purpose
  - Define a new HTTP client API that implements HTTP/2 and WebSocket, and can replace the legacy HttpURLConnection API.

# JEP 110: HTTP/2 Client

- Supports HTTP/2
- Support HTTPS/TLS
- Support both synchronous and asynchronous modes
- Easy to set up the WebSocket handshake.

# JEP 264

## Platform Logging API and Service

- Motivation
  - Compared to the `java.util.logging` API, most modern logging frameworks (e.g., Log4J 2.0, Logback) are separated into a facade and an implementation. An application that logs through such an external framework should create loggers and perform logging through the facade provided, or supported, by that framework.
  - The proposed service enables applications to configure the JDK to use the same logging framework as the application.

# JEP 264

## Platform Logging API and Service

- Purpose
  - Define a minimal logging API which platform classes can use to log messages, together with a service interface for consumers of those messages.
  - A library or application can provide an implementation of this service in order to route platform log messages to the logging framework of its choice.
- `System.Logger getLogger(String name)`

# JEP 266(part): Reactive Streams

- Motivation
  - Interfaces supporting the Reactive Streams publish-subscribe framework, nested within the new class Flow, along with a utility class SubmissionPublisher that developers can use to create custom components.
- Purpose
  - An interoperable publish-subscribe framework



# JEP 266(part): Reactive Streams

```
package java.util.concurrent;  
public final class Flow {  
    public static interface Publisher<T>;  
    public static interface Subscriber<T>;  
    public static interface Subscription;  
    public static interface Processor<T,R>  
        extends Subscriber<T>, Publisher<R>;  
}
```

# JEP 219

## Datagram Transport Layer Security

- Motivation
  - Satisfy secure-transport requirements for the increasing number of datagram-compatible applications.
  - In many cases, the most desirable way to secure client/server applications would be to use TLS; However, the requirement for datagram semantics automatically prohibits use of TLS. Thus, a datagram-compatible variant of TLS is very desirable.
  - DTLS over DCCP/SCTP/SRTP, CoAP, WebRTC
- Purpose
  - Define APIs for Datagram Transport Layer Security (DTLS) version 1.0 (RFC 4347) and 1.2
- Reuse SSLEngine

# Java Platform Module System

- The primary goals
  - Make the Java SE Platform, and the JDK, more easily scalable down to small computing devices;
  - Improve the security and maintainability of Java SE Platform Implementations in general, and the JDK in particular;
  - Enable improved application performance; and
  - Make it easier for developers to construct and maintain libraries and large applications, for both the Java SE and EE Platforms.
- JSR 376 and OpenJDK Project Jigsaw

# Module declarations

- module-info.java

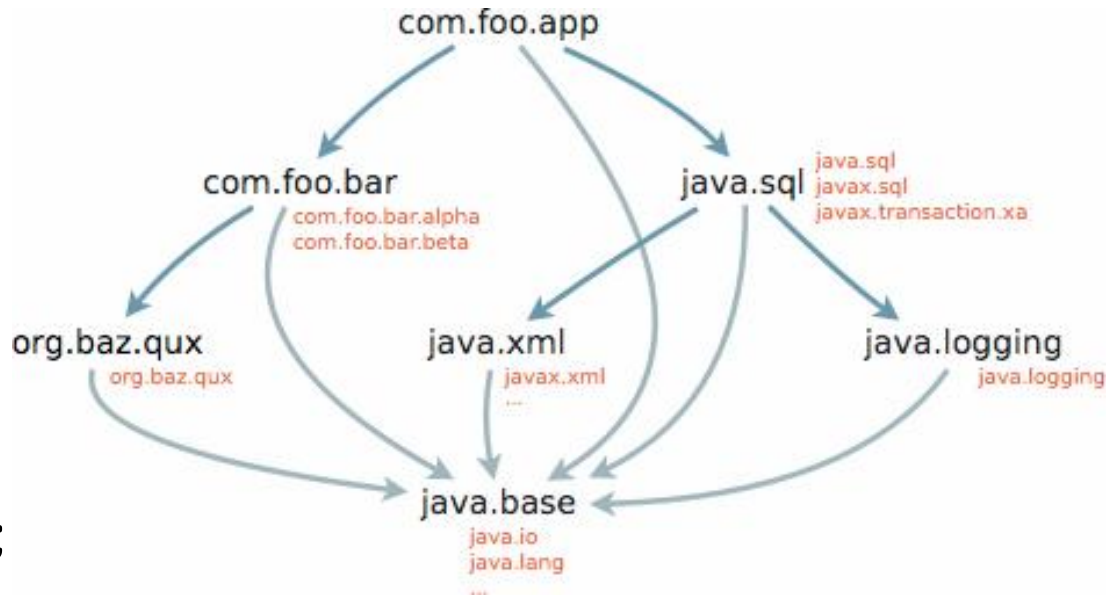
```
module com.foo.bar {  
    requires com.baz.qux;  
    exports com.foo.bar.alpha;  
    exports com.foo.bar.beta;  
}
```
- module code

```
module-info.java  
com/foo/bar/alpha/AlphaFactory.java  
com/foo/bar/alpha/Alpha.java  
...
```

# Module Resolution

```
module com.foo.app {  
    requires com.foo.bar;  
    requires java.sql;  
}
```

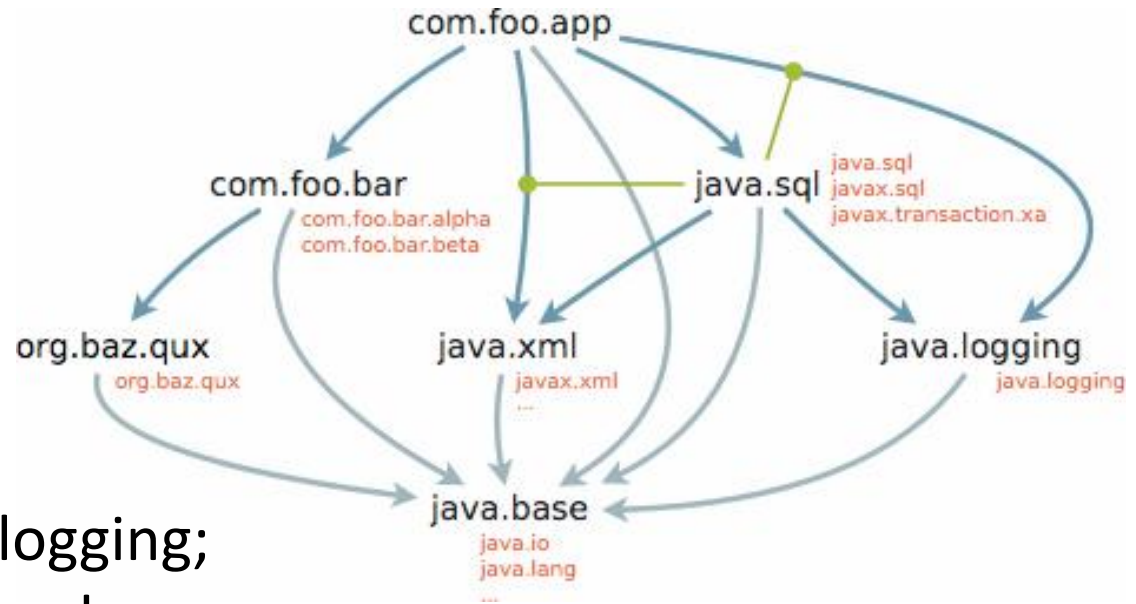
```
module java.sql {  
    requires java.logging;  
    requires java.xml;  
    exports java.sql;  
    exports javax.sql;  
    exports javax.transaction.xa;  
}
```



# Module Resolution

```
module com.foo.app {  
  requires com.foo.bar;  
  requires java.sql;  
}
```

```
module java.sql {  
  requires public java.logging;  
  requires public java.xml;  
  exports java.sql;  
  exports javax.sql;  
  exports javax.transaction.xa;  
}
```



# ‘public’ != ‘accessible’

- Accessibility 1995 - 2015
  - public
  - protected
  - <package>
  - private
- Accessibility 2015 –
  - public to everyone
  - public but only to specific modules
  - public only within a module
  - Protected\*
  - <package>\*
  - Private\*

# More ...

- Performance improvement
  - Hotspot
  - Core libs
- Security improvement
- Unicode 7.0/8.0
- Fine control and management
  - Java-Level JVM Compiler Interface
  - Stack-Walking API
  - Process API Updates
  - OCSP Stapling for TLS



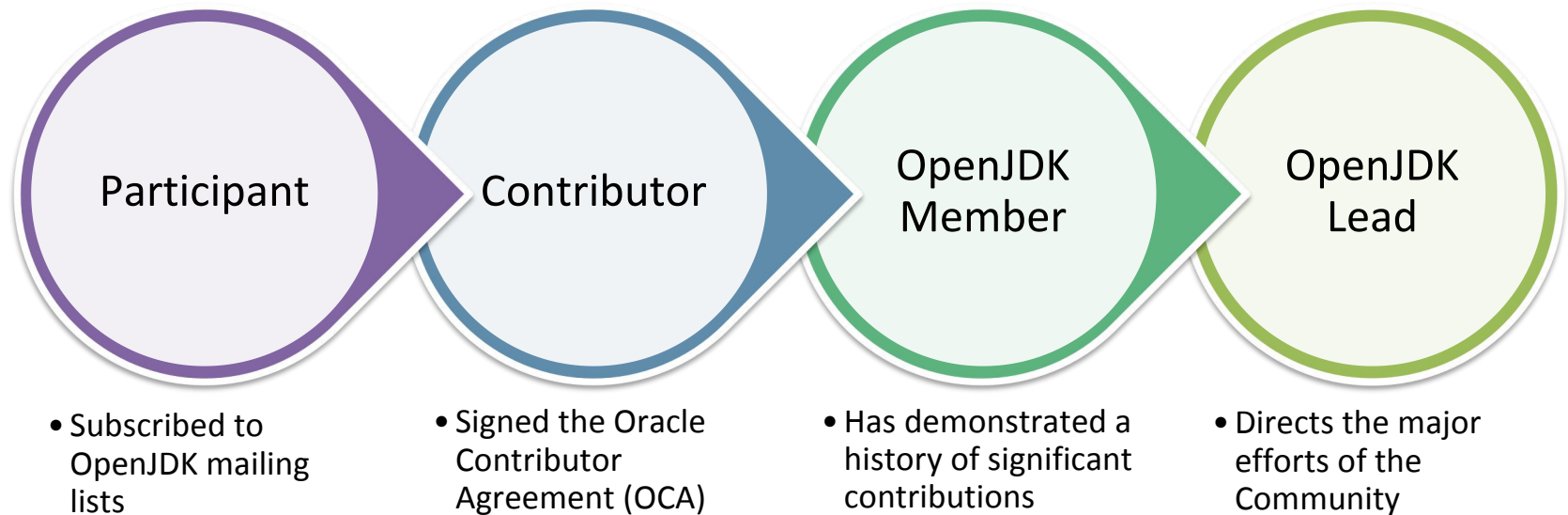
# Prepare for JDK 9

- Testing Early Access builds
- Provide feedback
- Report bugs
- Contribute code

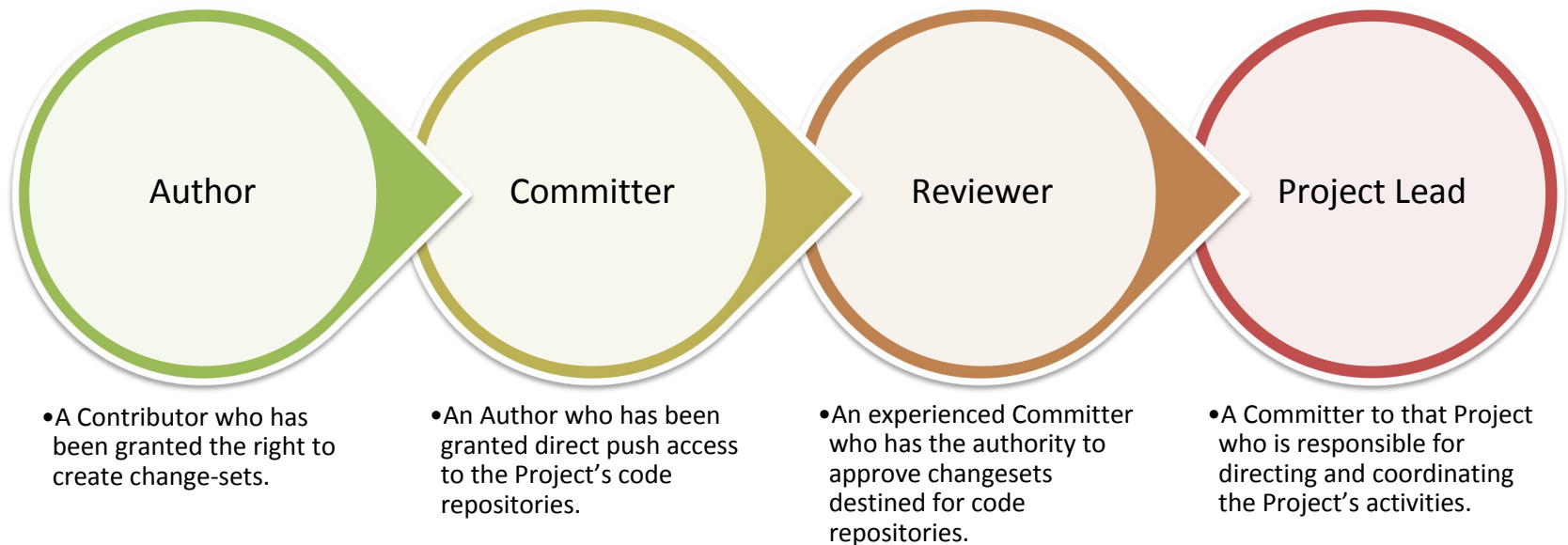
# OpenJDK Community

We need your help and you can  
benefit from the community.

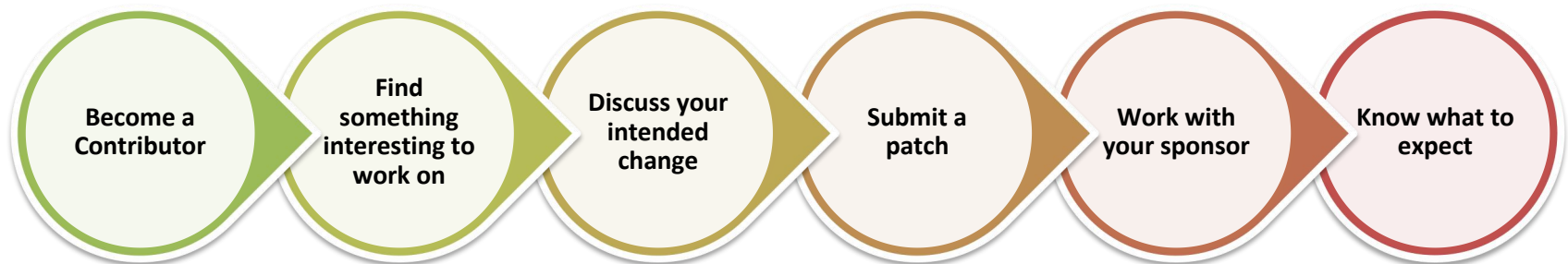
# OpenJDK Roles



# Project Roles



# How to contribute



# More Information

- OpenJDK Bug Database  
<https://bugs.openjdk.java.net/>
- OpenJDK Community Bylaws  
<http://openjdk.java.net/bylaws>
- How to contribute:  
<http://openjdk.java.net/contribute/>
- The OpenJDK Developers' Guide:  
<http://openjdk.java.net/guide/>
- JEP Index:  
<http://openjdk.java.net/jeps>
- JDK 9 Project:  
<http://openjdk.java.net/projects/jdk9>
- OpenJDK Quality:  
<http://openjdk.java.net/groups/quality/>

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