Java 9

@JUGArgentina
meetup/jugargentina
#buenos-aires-tech

Quien soy

- 15+ Software Engineer
- @edgarespina
- J. Walter Thompson
- Java User Group Argentina

jooby.org
@joobyproject

Agenda

- Modules / Jigsaw
- Minor languages improvements
- New APIs and tools
- Future of Java

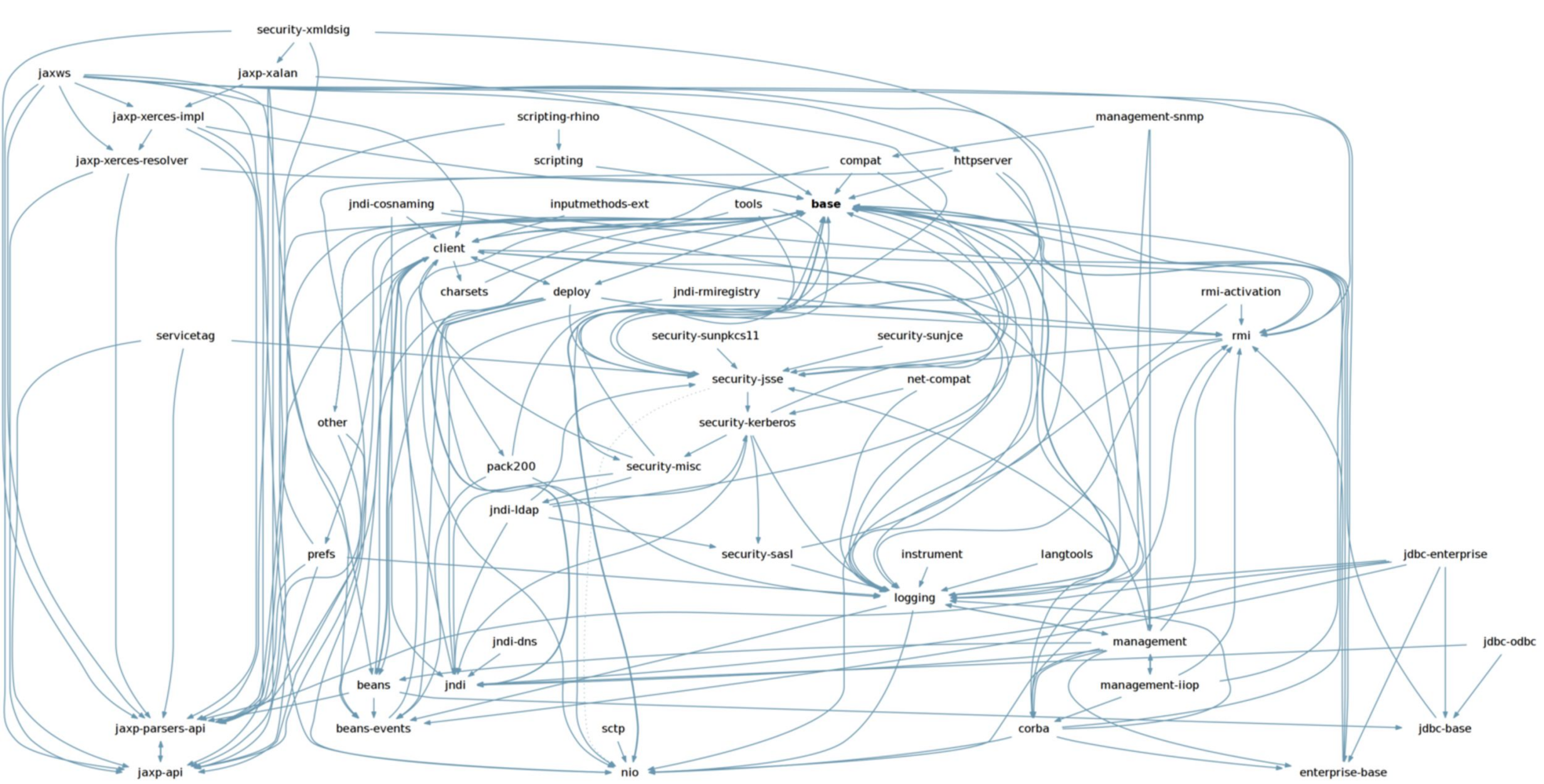
Jigsaw goal

- Strong encapsulation
- Loose coupling
- Modularity and dependency discover at compile time
- Modularize JDK
- Safe classpath (no classpath hell and shadowing of classes)
- Scalable runtimes for small devices

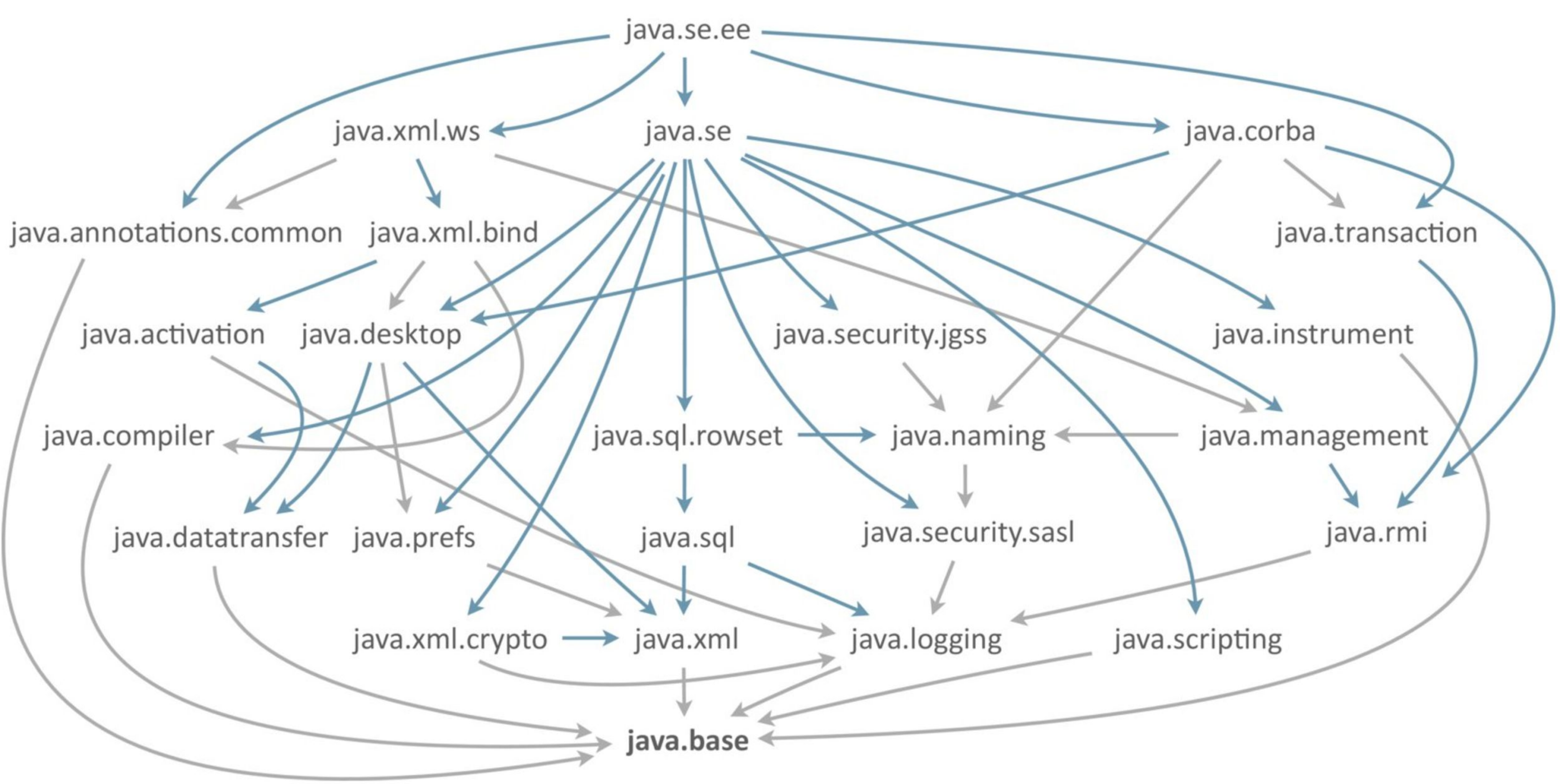
Jigsaw history

- 9-10 years of work (https://mreinhold.org/blog)
- Initially scheduled for JDK 7, JDK 8, JDK 9 (delayed twice)
- Release date: September 21th

Jigsaw: JDK back in 2010



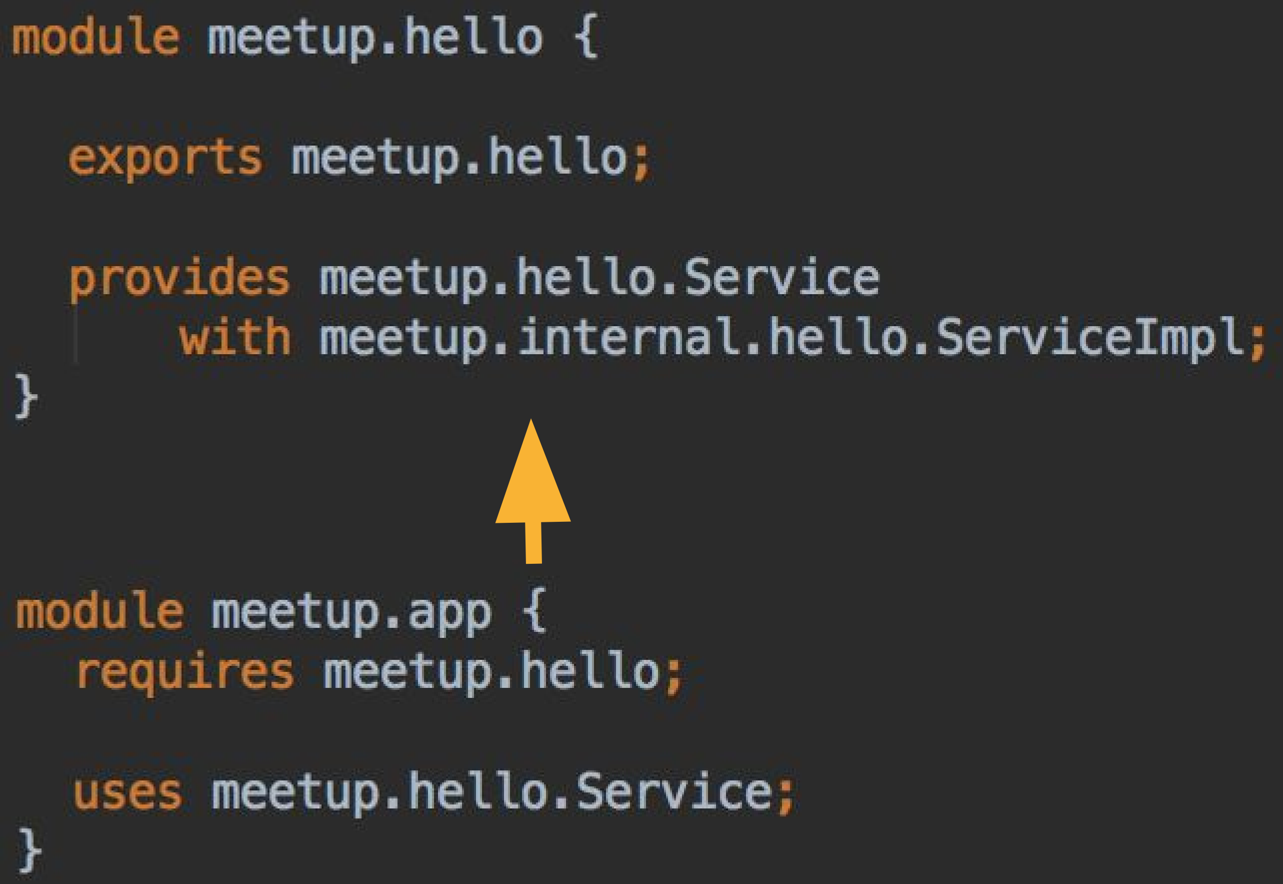
Jigsaw: JDK today



Jigsaw: module

- Collection of packages
- Jar file with a module-info class file
- Accessible or required services and packages must be declared explicitly
- Compiled

Jigsaw: module-info.java



```
module meetup.hello {

  exports meetup.hello;

  provides meetup.hello.Service
      with meetup.internal.hello.ServiceImpl;
}
```

```
module meetup.app {
  requires meetup.hello;

  uses meetup.hello.Service;
}
```

Jigsaw: running a module

- java -p mod1.jar:mod2.jar -m mod/mainClass
- -p or --module-path defines the module classpath
- -m defines the main class in a module
- still possible to use -p with -cp

Jigsaw: module types

- Application
  - module-info.java
- Automatic
  - no module-info.java, name is inferred from file name
- Unamed
  - Every class defined via -cp
- Platform
  - JDK module, like java.base, java.jdbc

Jigsaw: jlink

- Application
  - module-info.java

- Automatic
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- Unamed
  - Every class defined via -cp

- Platform
  - JDK module, like java.base, java.jdbc

Jigsaw: (some) alternatives

- OSGi
  - Powerful but complex
  - Eclipse Equinox, Apache Felix, etc.
  - Good documentation
  - No compiler

- jboss-modules
  - Base for Wildfly (jboss server)
  - Easier than OSGi, still OSGi implementor
  - No documentation
  - No compiler

Jigsaw: migration

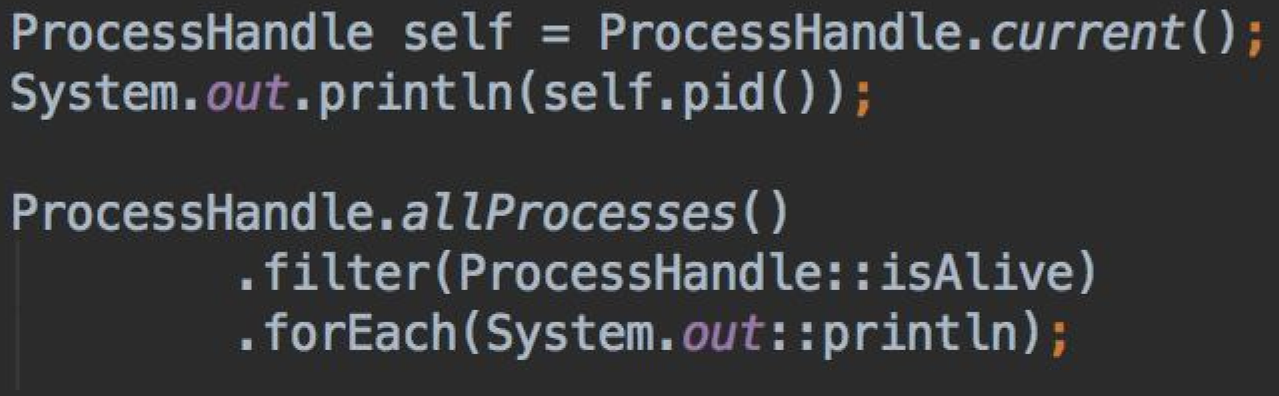
- Automatic and the unnamed module
- java.lang.invoke.VarHandle as alternative to sun.misc.Unsafe
- The big kill switch: --permit-illegal-access (only for 9, won’t work on 10)
- -m defines the main class in a module
- still possible to use -p with -cp

jshell

- Finally a REPL console for Java
- Ideally for learn, test and fast-prototyping
- No need of Java file, compiler or IDE

Process API

- Portable process management API
- Current, children, spawned and system processes

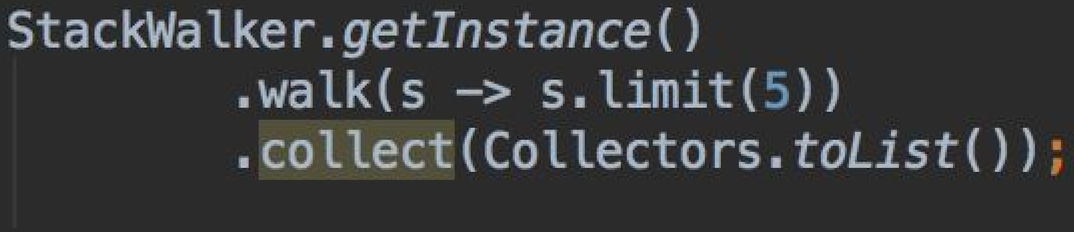


```
ProcessHandle self = ProcessHandle.current();
System.out.println(self.pid());

ProcessHandle.allProcesses()
        .filter(ProcessHandle::isAlive)
        .forEach(System.out::println);
```

StackWalker API

- Access to stack trace via StakWalker API
- No need to create an Exception



```
StackWalker.getInstance()
          .walk(s -> s.limit(5))
          .collect(Collectors.toList());
```

Minor changes

- Private method for interfaces
- Underscore for lambda arguments
- Publish/Subscribe API (Rxjava 2, Reactor)
- Immutable collection factory methods:
  - List.of(1, 2, 3)
  - Set.of(“a”, “b”, “c”)

Future of Java

- Type inference for local variables
  - var foo = new Foo();

- Data classes and Value Objects:
  - value Point {int x; int y}

- Pattern matching

* https://www.youtube.com/watch?v=oGll155-vuQ
* http://cr.openjdk.java.net/~briangoetz/amber/pattern-match.html
* http://openjdk.java.net/jeps/169

Gracias

Preguntas?

Demo: https://github.com/jugargentina/java9-meetup

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