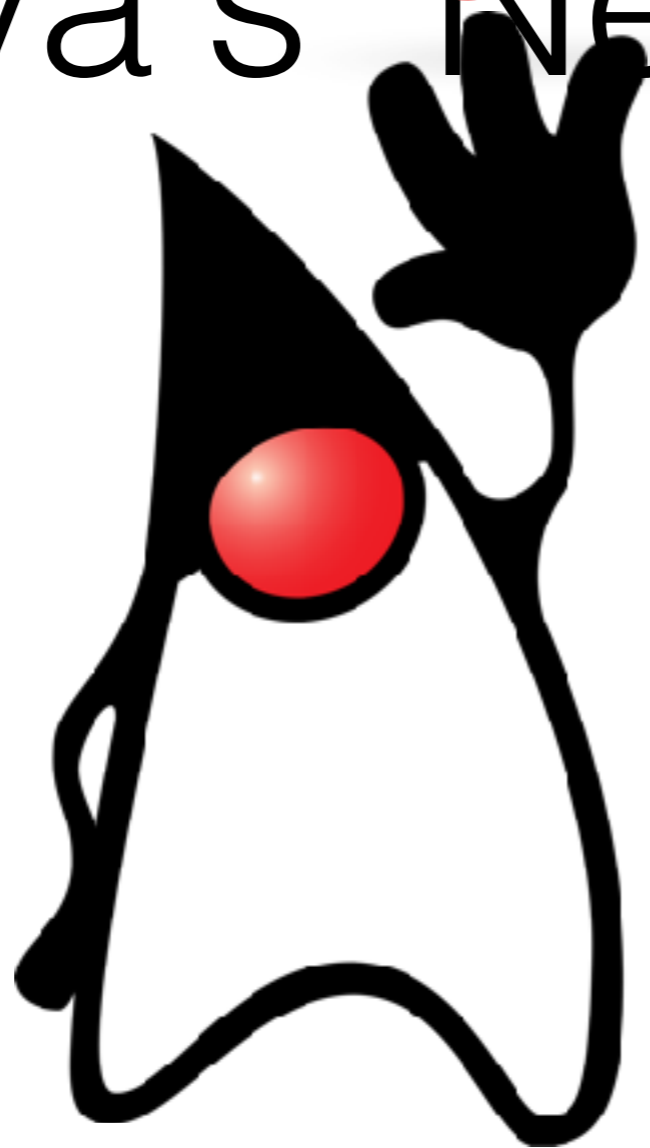


Java's **OLD** New Feature



*Eltöri-e a Jigsaw
a meglévő
rendszerünket?
(spoiler: lehet)*



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Dolphin: JavaSE 7, 2011.

- OpenJDK
- invokedynamic
- Project Coin
- Diamond operator `<>`
- nio2
- fork-join
- ~~Project Lambda~~
- ~~Project Jigsaw~~



JavaSE 8, ~~2013~~ 2014

- **Project Lambda**
- `java.util.stream`
- **~~Project Jigsaw~~**
- Project Nashorn (JS runtime)
- Date and Time API
- Garbage first collector



JavaSE 9, ~~2015~~ ~~2016~~ 2017

- **Project Jigsaw**
- stb (Jshell)



Modulok definiálása

`module-info.java:` `-> javac -> module-info.class`

```
module hu.dpc.hwsw {}
```

```
module hu.dpc.hwsw {  
    requires com.example.foo;  
}
```

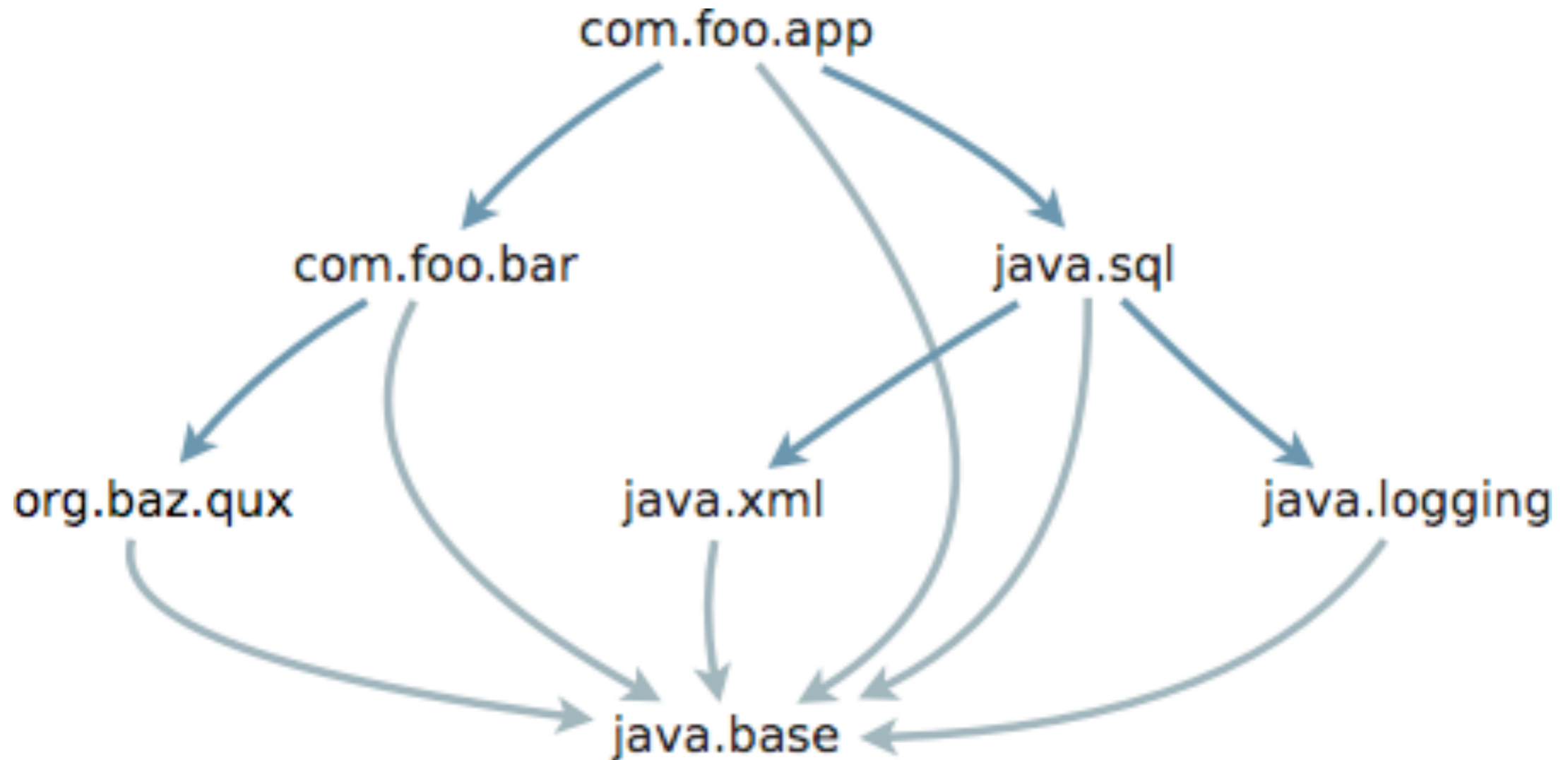
```
module hu.dpc.hwsw {  
    requires com.example.foo;  
    exports hu.dpc.hwsw.api; //publikus package(ek)  
}
```

Modulok definiálása

module-info.java:

```
module hu.dpc.hwsz {  
    requires com.example.foo;  
    requires transitive app.example.bar;  
    exports hu.dpc.hwsz.api; //publikus package(ek)  
}
```


Dependenciák



Service definíció

java.sql module-info.java:

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

App.java:

```
ServiceLoader s =  
    ServiceLoader.load(  
        Driver.class);  
Driver d =  
    s.iterator().next();
```

mysql driver module-info.java:

```
module com.mysql.jdbc {  
    requires java.sql;  
    requires org.slf4j;  
    exports com.mysql.jdbc;  
    provides java.sql.Driver with com.mysql.jdbc.Driver;  
}
```


Platform modulok

```
module java.base {  
    exports java.io;  
    exports java.lang;  
    exports java.lang.annotation;  
    exports java.lang.invoke;  
    exports java.lang.module;  
    exports java.lang.ref;  
    exports java.lang.reflect;  
    exports java.math;  
    exports java.net;  
    ...  
}
```

Project Jigsaw

Sok minden "török"!

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

~~endorsed~~

- implementációk, JDK-hoz csomagolva, de lecserélhető
- `java.endorsed.dirs` system property: az újabbat használja
- pl. JAXP: `org.w3c.dom`, `org.xml.sax`
- `DocumentBuilderFactory.newInstance()`
- helyette **upgradeable modules**

~~.../jre/lib/ext~~
aka extension mechanism

- vizont: Service module (uses / provides)

~~rt.jar, tools.jar~~

- IDE fejlesztőknek lehet gond
- nincs is külön JDK és JRE
 - nincs \$JAVA_HOME/jre sem

internal APIs

- ~~sun.misc.Unsafe~~
- ~~sun.misc.Base64Encoder~~
 - helyette: `java.util.Base64.Encoder`
- és: annotáció `jdk.Exported(true)`
- átmeneti időszakra `java command line`

true encapsulation

- `#ReflectiveAccessToNonExportedTypes`
- no more `AccessibleObject::setAccessible`
- ruby on rails env variables?

Hasznos linkek

<http://blog.codefx.org/java/dev/how-java-9-and-project-jigsaw-may-break-your-code/>

<http://openjdk.java.net/projects/jigsaw/quick-start>

<http://download.java.net/java/jdk9/docs/api/index.html?overview-summary.html>

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

<https://docs.oracle.com/javase/8/docs/jdk/api/javac/tree/jdk/Exported.html>

<http://openjdk.java.net/projects/jigsaw/doc/jdk-modularization.html>

<http://cr.openjdk.java.net/~mr/jigsaw/ea/module-summary.html#java.base>

<https://docs.oracle.com/javase/9/tools/tools-and-command-reference.htm>

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

<http://openjdk.java.net/projects/jigsaw/goals-reqs/03>



Köszönöm a figyelmet

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