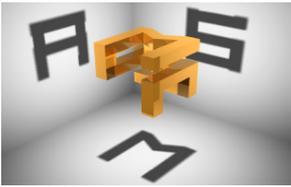


ASM

A JAVA BYTECODE ENGINEERING LIBRARY

Key Words :

- Java bytecode
- Easy to use
- Efficient
- Popular



Project Name

- ASM

Category

- Bytecode

License

- BSD

Users

- Eclipse
- AspectJ
- AspectWerkz
- BEA WebLogic
- IBM AUS
- Oracle TopLink
- OpenEJB
- Cobertura
- BeanShell
- CGLIB
- JRuby
- Groovy
- Fractal
- Proactive
- ...

ASM is a bytecode engineering library for Java. It can be used to dynamically generate stub classes or other proxy classes, or to dynamically modify classes at load time, i.e., just before they are loaded into the Java Virtual Machine.

ASM 3.1

The ASM bytecode engineering library uses a visitor-based approach to generate bytecode and drive transformations of existing classes. It allows developers to avoid dealing directly with a class constant pool and offsets within method bytecode, thus hiding bytecode complexity from the developer and providing better performance, compared to other tools such as BCEL, SERP or Javassist.

The ASM Benefits

- ASM is smaller and faster than the other bytecode libraries. This comes from the visitor-based approach (smaller API and better performance compared with an object-based model).
- ASM automatically manages the constant pool and can compute complex values for you (maximum stack size and stack maps).
- ASM supports all Java 6 features: generics, annotations, stack map tables, etc.
- ASM is fully documented and has a powerful associated Eclipse plugin to analyze and compare classes, and to get the ASM code to generate them.
- ASM is used in many open source and commercial projects and has a large user community that can provide support to new users.

The ASM framework

ASM is divided into several packages that allow flexible bundling:

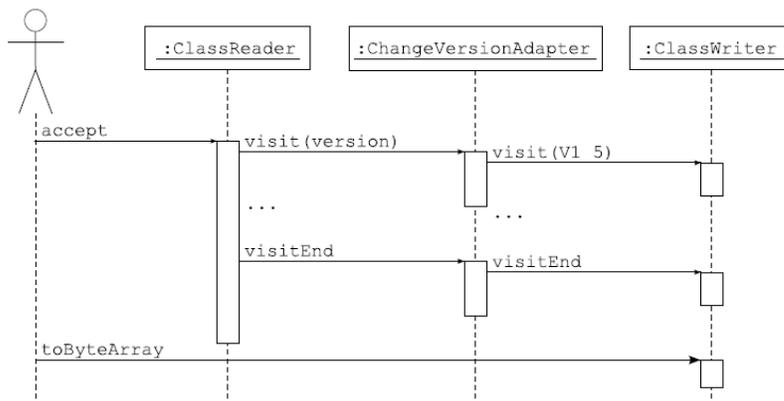


- The **core** package provides an event-based API to read, write, and transform Java classes. It is sufficient to generate classes and to implement the majority of bytecode transformations.
- The **tree** package provides an object-based API that can be used for complex class transformations.
- The **analysis** package provides data and control flow algorithms that can be used for advanced code analysis and transformations.
- The **commons** package provides several commonly used bytecode transformations.
- The **util** package provides several helper classes and bytecode verifiers that can help during development and testing.

Key Features

- Event based API
- Object based API for complex class modifications
- Data and control flow analysis framework for advanced transformations
- Supports all Java 6 features including stack map tables
- Automatic constant pool management
- Debug tools, class verifier
- Extensive test cases
- Robust, efficient, small
- Easy to learn, fully documented
- Eclipse plugin

The core package provides a **ClassReader** to generate events from an existing class, and a **ClassWriter** to generate a class from events. Inserting an **event filter** between the two allows you to write class transformations easily:



```

ClassWriter cw = new ClassWriter();
new ClassReader(inputClass).accept(new ChangeVersionAdapter(cw), 0);
byte[] outputClass = cw.toByteArray();
  
```

OW2

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About OW2

Founded in January 2007 as a result of the merger of ObjectWeb and OrientWare communities, OW2 is an independent industry consortium dedicated to developing open source code middleware and to fostering a vibrant community and business ecosystem. Building on the legacy of ObjectWeb and OrientWare, OW2 federates more than one hundred organizations and 6000 developers in Europe, Asia and the Americas. OW2 hosts over one hundred technology Projects, including Lombok, Sync4j, eXo Platform, XWiki, SpagoBI and JOnAS. Several of the OW2 projects are combined into market-driven Initiatives, such as the ESB/SOA Initiative and the Business Intelligence Initiative, which facilitate their implementation by systems integrators, OEMs and end-users. A typical global open-source organization, OW2 aims to bring together grassroots communities across all continents through Local Chapters. [More information about OW2 is available at http://www.ow2.org.](http://www.ow2.org)