

# Stratmas Development Environment

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This document describes the development environment used when developing Stratmas. It also contains instructions for how to build Stratmas from source code.

## 1 Development Environment

### 1.1 Stratmas Client

Building the Stratmas client requires an environment capable of running *Apache Ant* and a Java compiler (for instance Windows, Linux or Mac OS X). The list below contains the relevant tools, applications and their versions used when developing the Stratmas client.

- Java Development Kit 5.0 from Sun (or Sun and Apple in the Mac OS X case).
- JSR-231 (also known as JOGL) release 1.0.0, see section 1.1.1.
- Xerces2 Java Parser version 2.8.1.
- JFlex version 1.4, see section 1.1.2.
- Cup Parser Generator for Java version 0.10k, see section 1.1.3.
- JavaDBF, see section 1.1.4.
- Apache Ant version 1.6.5, see section 1.1.5.

#### 1.1.1 JSR-231 (or JOGL)

JSR-231 (or JOGL as it was formerly known) provides OpenGL bindings for Java. It gives full access to the APIs in the OpenGL 2.0 specification as well as nearly all vendor extensions and integrates with the AWT and Swing widget sets. JSR-231 currently supports at least four platforms — Linux (on x86), Mac OS X, Solaris and Windows.

The current version used in the Stratmas client is JSR-231 1.0.0. More information about JSR-231 can be found at <https://jogl.dev.java.net/>

#### 1.1.2 JFlex - The Fast Scanner Generator for Java

JFlex is a lexical analyzer generator (or scanner generator) for Java. It is used in the Taclan 2 parser for lexical analysis of Taclan 2 files. For more information on JFlex, see <http://jflex.de/>

#### 1.1.3 Cup Parser Generator for Java

Cup is a parser generator for Java, comparable to YACC. It is used in the Taclan 2 parser for syntactic analysis of Taclan 2 files. For more information on Cup Parser Generator for Java, see <http://www2.cs.tum.edu/projects/cup/>

#### 1.1.4 JavaDBF

JavaDBF is a Java library for reading and writing Xbase (dBase/DBF) files. It is used to extract data from the DBF files that are a part of the ESRI format. JavaDBF is released under the GNU Lesser General Public License. More information on JavaDBF may be found at <http://sarovar.org/projects/javadbfs/>

#### 1.1.5 Apache Ant

Apache Ant is a Java based build tool mainly (but not exclusively) used to build projects developed with Java. Since it is written in Java it is usually the case that it is available on the same platforms that the projects deliverables is supposed to run on. For more information, see <http://ant.apache.org/>.

### 1.2 Stratmas Server

The following sections lists the different tools and applications used for building the Stratmas server on different platforms. External libraries and tools used for other purposes than the actual build are also described. In short the dependencies are:

- Boost C++ Libraries 1.33.1 — used mainly for platform abstraction. See 1.2.1.
- Xerces C++ Parser 2.7.0 — used for XML processing. See 1.2.2.
- A reasonably modern C++ compiler. Versions known to work include gcc 3.4.3 on Linux, gcc 4.0.0 on Mac OS X - PowerPC, Intel C++ Compiler on Linux and Windows or Microsoft Visual Studio 2005 on Windows. See 1.2.3.
- GNU Make on Linux and Mac OS X or Microsoft nmake on Windows. See 1.2.4.
- Doxygen on Linux or Mac OS X is used to build documentation (this is currently not supported on Windows). See 1.2.5.

#### 1.2.1 Boost C++ libraries

A subset of the Boost C++ libraries is used for inter-platform abstraction between posix-like OS's (i.e. Linux and Mac OS X) and Windows. The version used on all platforms is 1.33.1. For more information, see <http://www.boost.org>.

#### 1.2.2 Xerces C++ XML Parser

The Xerces C++ XML Parser library is used in the Stratmas server. This is a freely available library providing XML parsing capabilities for C++ programs. The version of the library used in this distribution is 2.7.0 for Linux, Mac OS X and Windows. Xerces was chosen because it is a widely used, freely available product created and maintained by an active community. More information on Xerces C++ XML Parser may be found on the following site: <http://xml.apache.org/xerces-c/>.

### 1.2.3 Compiler

By platform, the following compilers are known or expected to work with the current version of the Stratmas server:

**Linux** Most versions of GCC more recent than 3.4.3 should work. However the build-time libraries compiled and delivered with the Stratmas distribution are quite specific with regard to compiler and distribution, hence it may be necessary to recompile Boost and or Xerces if other compilers are used (recompiling the external libraries are not covered by the build scripts described below).

- gcc version 3.4.3 20050227 on Fedora Core 3.
- gcc version 3.2.2 20030222 on Redhat Linux 9.
- Intel C++ Compiler 9.0 for Linux on Fedora Core 3.

**Mac OS X** gcc are either installed by default or may be accessed by installing the Developer Tools from the Developer Tools CD of the Mac OS X installation. Apart from this the same issues as for Linux applies.

- gcc version 4.0.0 (Apple Computer, Inc build 5026) - PowerPC.

**Windows** Please note that at least Visual Studio 2005 is required, prior versions are not expected to work.

- Microsoft Visual Studio 2005 (sub-version confirmed to work, Professional Edition 8.0.50727.42).
- Intel C++ Compiler 9.1 for Windows (on top of Microsoft Visual Studio 2005).

### 1.2.4 Make

The compilation of the Stratmas Server is guided by Make. On Linux and Mac OS X GNU Make (of any reasonably modern version) is used and on Windows Microsoft nmake (which is supplied as part of Microsoft Visual Studio). Most Linux distributions install GNU Make as a matter of course. On Mac OS X it may be necessary to install it from the Developer Tools from the Developer Tools CD.

### 1.2.5 Doxygen

Doxygen version 1.3.4 and 1.4.3 have been used for generating the html and pdf versions of the source code documentation. Doxygen is a freely available tool. More information on Doxygen may be found on the following site: <http://www.stack.nl/~dimitri/doxygen/>. It is also possible to download Doxygen from this site.

## 2 Building Stratmas

### 2.1 Building the Stratmas Client

The following sections describe how to build the Stratmas client on the different supported build platforms.

### 2.1.1 Linux

To build the Stratmas client from source code under Linux perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Open a shell.
2. Go to the directory `StratmasClient/build`
3. Type `./BuildClient.command`

The shell will now display the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasClient/` and may then be run as described in the Stratmas Client User Manual.

### 2.1.2 Mac OS X

To build the Stratmas client from source code under Mac OS X using Finder, perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Go to the directory `StratmasClient/build`.
2. Double click on the `BuildClient.command` icon.

A Terminal window will now open showing the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasClient/` and may then be run as described in the Stratmas Client User Manual.

### 2.1.3 Windows

To build the Stratmas client from source code under Windows, perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Go to the directory `StratmasClient/build`.
2. Double click on the `BuildClient.bat` icon.

A Terminal window will now open showing the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasClient/` and may then be run as described in the Stratmas Client User Manual.

## 2.2 Building the Stratmas Server

The following sections describe how to build the Stratmas server on the different supported platforms.

### 2.2.1 Linux

To build the Stratmas server from source code under Linux perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Open a shell.
2. Go to the directory `StratmasServer/build`
3. Type `./BuildServer.command`

The shell will now display the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasServer` and may then be run as described in the Stratmas Server User Manual.

### 2.2.2 Mac OS X

To build the Stratmas server from source code on Mac OS X using Finder, perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Go to the directory `StratmasServer/build`
2. Double click on the `BuildServer.command` icon.

A Terminal window will now open showing the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasServer` and may then be run as described in the Stratmas Server User Manual.

### 2.2.3 Windows

To build the server from source code using Microsoft Visual Studio, perform the steps listed below. All references to directories are given relative to the Stratmas distribution root directory.

1. Start a Visual Studio Command Prompt.
2. Go to the directory `StratmasServer/build`
3. Type `BuildServer.bat`

The terminal window will now display the progress of the build. After the build is completed, the newly built executable will be copied to the directory `StratmasServer` and may then be run as described in the Stratmas Server User Manual.