

3D GIS cityvu – versions

Notes on the modes of operation

3D GIS cityvu is a **3D GIS data viewer** able to load CityGML data format from any compatible data source. It runs on mainstream operative systems as *Microsoft Windows XP and Vista, Apple Mac OS X and GNU Linux*. It offers comprehensive support to the Internet **without need of installation**, as it only *requires Java Runtime*.

3D GIS cityvu features 3D hardware rendering using OpenGL with a complete navigation system that allows automated tour of the rendered scene. It has been designed to be used to develop customized software solutions, built on the specific needs. **3D GIS cityvu** supports in addition to CityGML, multiple 3D pure geometrical data formats as 3D Studio Max, Wavefront OBJ, COLLADA.

Being Java based, **3D GIS cityvu** could be employed in multiple environments as follows.

Browser plug-in using Java Applet

A Java Applet is a program written in the Java programming language that can be included in an HTML page, much in the same way an image is included in a page. When you use a Java technology-enabled browser to view a page that contains an Applet, the applet's code is transferred to your system and executed by the browser's Java Virtual Machine (JVM). This allow tight browser integration and portability but 3D rendering in Applet is slower than in a native window.

On the fly deployment with Java Web Start

3D GIS cityvu can be deployed using Java Web Start, a framework developed by Sun Microsystems, which allows users to start application software for the Java Platform directly from the Internet using a web browser.

Unlike Java applets, Web Start applications do not run inside the browser, and the sandbox in which they run need not have as many restrictions, although this can be configured. Web Start has an advantage over applets in that it overcomes many compatibility problems with browsers' Java plug-ins and different JVM versions. On the other hand, Web Start programs cannot communicate with the browser as easily as applets.

Using **3D GIS cityvu** with Java Web Start makes deployment easy as it can be considered a normal software installation without having an installation procedure. It automatically updates if something changes on the server so everyone always have the latest software release. In our opinion this is the best option to deploy **3D GIS cityvu** over the Internet.

Standalone Installation

3D GIS cityvu could be obviously installed as a normal desktop application. This deployment method allows offline usage as it not relies on the Internet and CityGML files could be associated to the application directly.

Model deployment

3DGIS cityvu can load models for viewing in multiple ways. The general use viewer can open models from the hard disk or it could download them from the internet using HTTP or WFS services (in development).

A specialized version, used for specific purpose as model presentation or public participation, automatically embeds models in the software package in native format or binary cityvu format, the latter is suggested for massive model deployment as it ensures faster loading and smaller files.

We are also working to manage external loading from HTTP or WFS services.