

BLIS Review : IMSvr

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Introduction

The IFC Model Server (IMSvr) is a web based server designed specially for sharing IFC models. The server was developed during 2001-2002 as a collaboration project between VTT in Finland and Secom Co. Ltd in Japan, and has now reached its first release.

Software developers can use IMSvr services in their software products by creating clients that talk with the server using standard web technologies (XML, web service/SOAP). End users don't see IMSvr directly; for them it simply appears as the ability of the software they are using to share IFC models over networks.

Why a model server?

A large number of software products have implemented support for file based exchange of IFC models, i.e. IFC read and write functionality. When file based exchange is used in real projects its limitations become evident. There is a need to distribute very large files to a number of project participants and to ensure that all participants are using the latest version of the model. Pilot projects have shown that, although this approach works, it is cumbersome and prone to human mistakes.

The Web based model server approach solves this problem. With this approach, there is a central repository of the IFC model data and everybody has instant access to the most up-to-date information that is relevant to their discipline. Additionally, data management features such as partial model exchange, merge, append, and change tracking become possible. It is these additional features that make IMSvr much more than a 'document management system' for IFC models. Model servers such as IMSvr are the next logical step in the implementation of IFC based interoperability.

Which IFC releases are supported?

IMSvr supports all IFC releases, IFC R2.0 and IFC2x have been tested. The database behind IMSvr is able to use any EXPRESS schema, but some of the server side functions are schema dependent.

Why should I use IMSvr

IMSvr provides the same ease of use for software developers as the traditional file based IFC toolboxes. The requirement to map data between the IFC format and the application's internal data format remains; reading and writing of files is just replaced by sharing data over the web.

IMSvr is built on well known technologies (SQL Server 2000, XML, SOAP) and the server is completely free to use and to distribute. There are also some sample client applications with source code available.

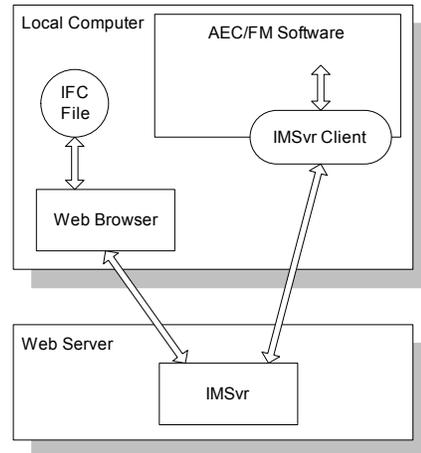
Can I still exchange IFC files?

Even though sharing IFC models over the web provides many advantages end users will still need to exchange IFC models as files in some cases. Software developers

should take this into consideration. IMSvr only supports web based model sharing, but there are several strategies for also supporting file based exchange scenarios.

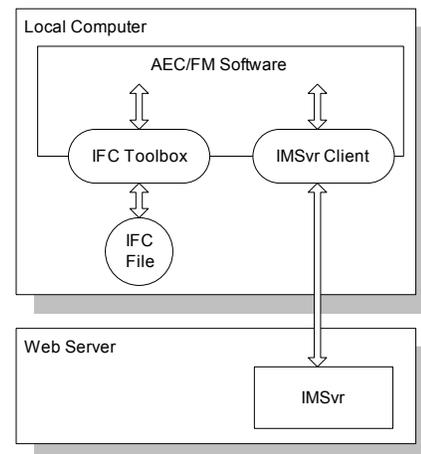
1. **Uploading an IFC model file to IMSvr**

It is possible to upload the IFC file to IMSvr using a web browser. The server supports uploading models through a web page that does not require client software. Once a model is on the server it can be downloaded by client applications. The disadvantage of this approach is that the model is send twice through the web, which may be slow, or even impossible if there is no network connection available.



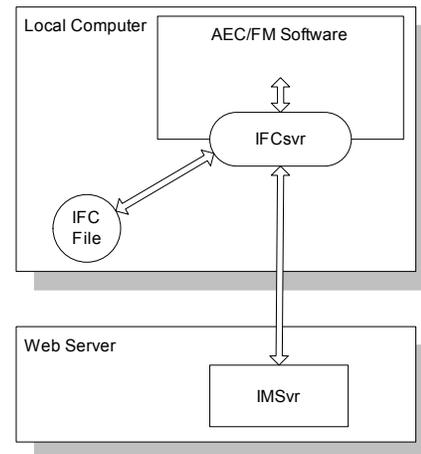
2. **Implementing parallel support for file based exchange**

Software developers have the option to use one of the file based toolboxes to support file based exchange. This might be the best approach for software developers who have already implemented file based IFC support and simply want to compliment this with support for a Model Server. The downside is the need to maintain interfaces to two export subsystems. Good programming techniques can make the task easier, but some level of redundancy is likely.



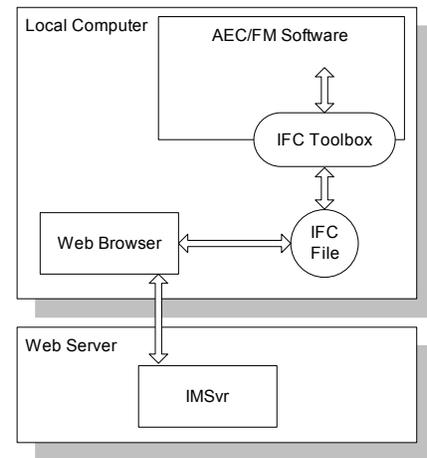
3. **Using the IFCsvr component for file based exchange**

IFCsvr is a free IFC toolbox developed by Secom Co. Ltd. This toolbox is able to both read/write IFC files and to communicate with IMSvr. In this case, the source of the data is 'transparent' to the application using the IFCsvr component. This means that the client application can use both IFC files and data from IMSvr with a single implementation.



4. Only file based exchange

If a software product already has IFC file import/export functionality it is possible to upload/download IFC files to/from IMSvr using a web browser, and to use these just like any other IFC files. This is very easy to implement (can even be done by end users), but the more advanced features of IMSvr can't be used. For example partial model exchange, append and merge are not possible.



How can I test IMSvr?

The easiest way to test IMSvr is to use the test server installed at VTT (<http://ve.cic.vtt.fi/IMSvr/IMSvr.wsdl>). The test server contains some sample IFC models and can be freely accessed by anybody. This server can be tested using a number of sample clients that are distributed with source code. The sample clients include a raw SOAP client that displays the SOAP request and response messages as the client communicates with the server. There is also a tree view client, which shows the structure of the IFC data received from the server. CSIRO in Australia has developed a quantity takeoff application, which is able request IFC data from IMSvr and to display the quantities in tabular format.

You can also write your own client application using any programming language (VB, Java, Pascal etc.) on any platform (Windows, MAC, Linux etc.). This is possible because the communication between the client and the server happens through the standard SOAP protocol.

Finally, it is possible to install IMSvr on your own web server and even to provide your own IFC model sharing services. For this your server platform must use the Microsoft Windows operating system and you must also install SQL Server 2000.

Who is already using IMSvr?

Currently, there are several organizations globally that are testing IMSvr. These include VTT (Finland), Claire 2 -project (France), Salford University (UK), CSIRO (Australia) and Dresden University (Germany). Extensive testing is also expected to begin in Japan and in the United States.

What will happen with IMSvr now?

The first stage of the IMSvr development project was completed at the end of September 2002. VTT and Secom will support further development of the server and client applications." The primary focus going forward will be to encourage a wide array of organizations to develop client applications that use the server.

Where can I get more information about IMSvr?

Secom – Yoshinobu Adachi, yo-adachi@secom.co.jp
 VTT – Ilkka Heinonen, ilkka.ed.heinonen@vtt.fi