



Documentation

of version 0.8



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CHANGELOG

Date	Description	Author
'2009-10-25	Fresh start for 0.8 version	Léon van Berlo
'2009-12-21	Updated screenshots	Léon van Berlo

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1 INTRODUCTION

This is the introduction.

1.1 LICENCE

The open source BIMserver is free and open source. It is licensed under GNU GPL version 3. See gnu.org or opensource.org for the license text. E-mail license@bimserver.org for more information.

This distribution of the open source BIMserver has the IFCEngine library DLL implemented. The ifcengine.DLL file is NOT open source. The ifcengine.dll is not part of the open source bimserver project but a separate project from the Netherlands Organisation for Applied Scientific Research TNO.

Bimserver.org uses the DLL (with permission of the creator) to compile geometry. We use it because it is the fastest renderer of IFC in the world. The IFCEngine might become open source in the future and is therefore a great way to render geometry server side.

Installation notes: It should run without trouble, but on some systems (when you use tomcat) you should put the DLL files in your windows/system32 directory (or on linux in the system folder) and restart tomcat (or jetty, or whatever you use).

1.2 WIKI

Because the knowledge of the open source BIMserver is constantly evolving, please check our wiki regularly.

The wiki is the best place for the latest documentation on this project.

The adres is **wiki.bimserver.org**

2 UPDATING FROM 0.1

Updating from a previous version is very difficult.

The database structure of the 0.8 version is very different from the 0.1 version. It is possible to write an updatescript, but nobody did so far.

When you want assistance on updating from a previous version to the latest version, please e-mail us at support@bimserver.org

3 INSTALLATION

There are two possibilities to install the bimserver: stand alone (with a build-in Jetty server) or deploy the WAR file (for example on a tomcat server).

This chapter will describe both options.

3.1 STANDALONE VERSION

3.1.1 REQUIREMENTS

Download and install the latest **Java version 6** on <http://java.com/>

Download the latest **JAR file** on <http://download.bimserver.org/>

Optional:

Download the client on <http://download.bimserver.org/>

Download the free IFCviewer on <http://www.ifcbrowser.com>

3.1.2 STARTING

Open the JAR file in a Java virtual machine (for most PC's the means that you just double click on it).

At some point in this process, you might be warned with a firewall message. Of course you should choose 'do not block'.

You get a small window called 'BIM Server Starter'.

When your computer has a lot of RAM memory (internal memory) you might want to change the memory settings for a better performance. We recommend a heap size of 1600m and a stack size of 1024k.

Choose your options (if you don't know what to do, don't change them) and click start.

Installation

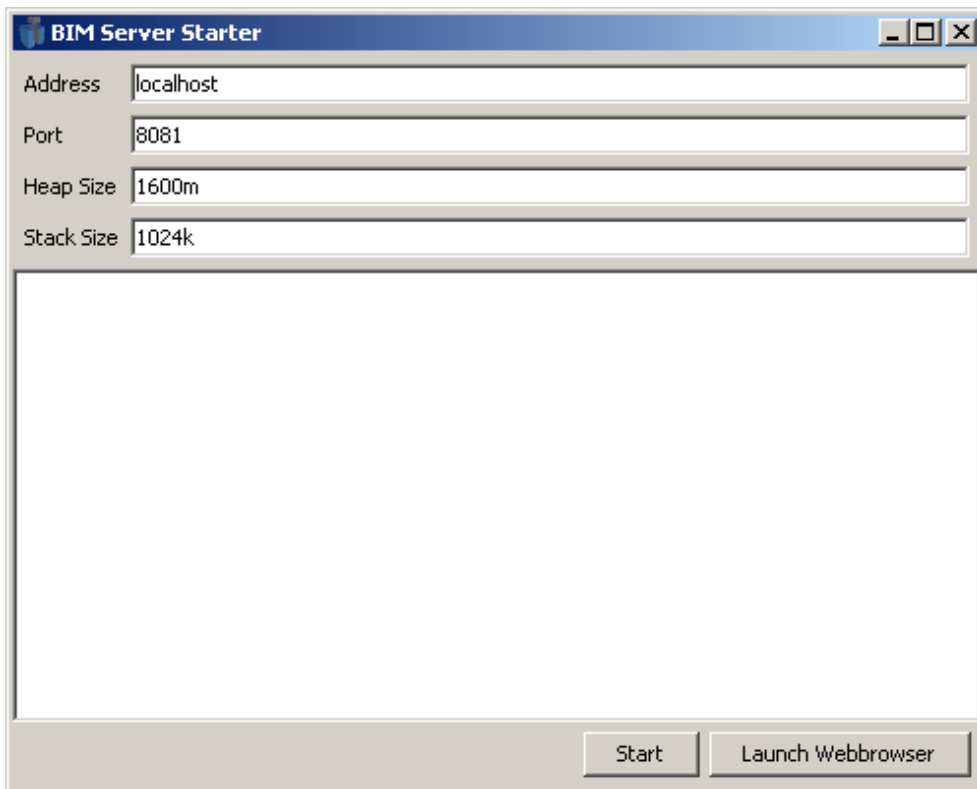


Illustration 1: The stand-alone (JAR file) starter

The server will start the deployment and during this you will see some messages. There will be a database-directory deployed. A directory called 'bimserver-08' will be created. The directory will have several subdirectories and data in it.

At the end you will see '*org.bimserver.Server - Server started succesfully*'. You are now running your own bimserver!

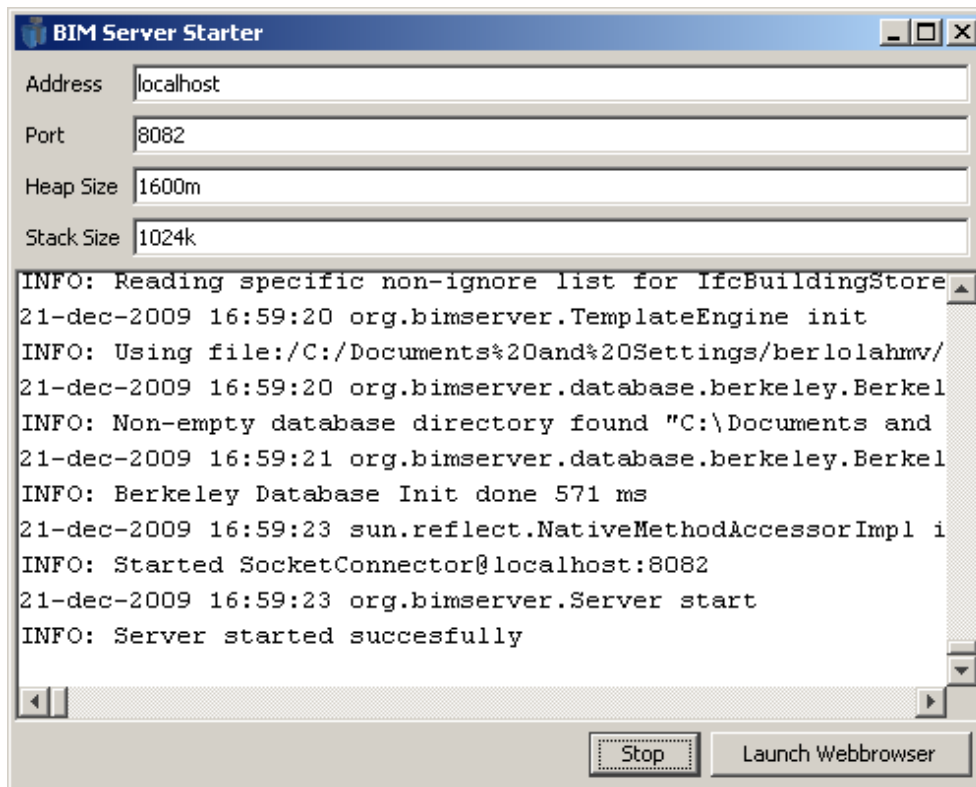


Illustration 2: your server is running!

3.1.3 TESTING THE INSTALLATION

Click on the 'Launch Webbrowser' button (next to the 'Start' button that is now showing 'Stop'). You will get the loginscreen. You can login as the administrator using admin/admin as the username/password.

Installation



Illustration 3: The login screen

You are now logged into your own BiMserver. It will look something like this:

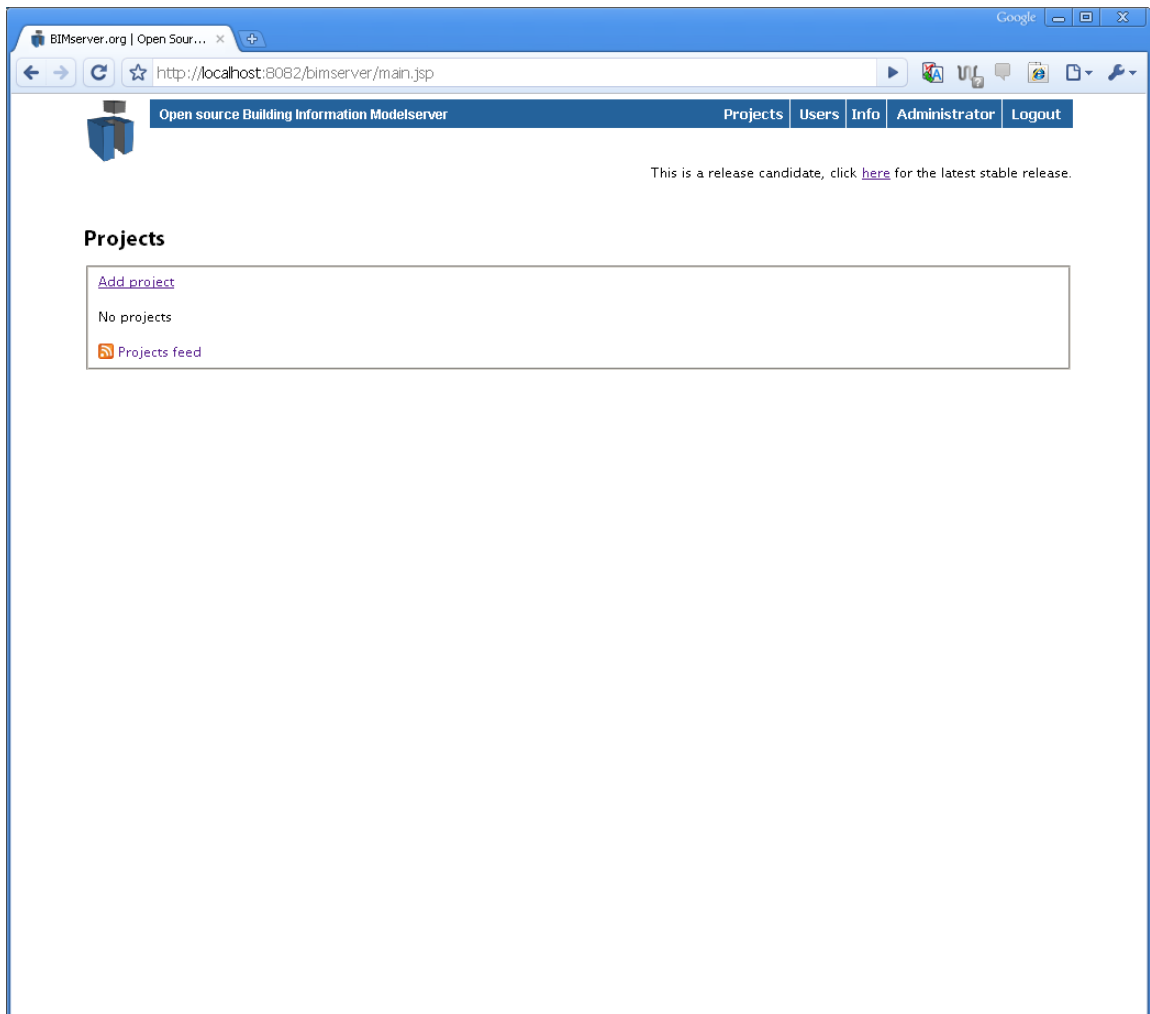


Illustration 4: first time login

After your first login, make sure to change the default password into something else!

3.2 WAR INSTALLATION

3.2.1 REQUIREMENTS

Download and install the latest **Java version 6** on <http://java.com/>

Download and install the latest **Tomcat** on <http://tomcat.apache.org/>

Download the latest BIMserver **WAR file** on <http://download.bimserver.org/>

Optional:

Download the client on <http://download.bimserver.org/>

Download the free IFCviewer on <http://www.ifcbrowser.com>

3.2.2 STARTING

Make sure your tomcat JVM has enough memory to run BIMserver. We recommend a heap size of 1600m and a stack size of 1024k.

Installation

Deploy the WAR file in tomcat (if you don't know howto, read the tomcat instructions). The starting of the bimserver takes about 20 seconds. There will be a directory deployed called 'database'.

3.2.3 TESTING THE INSTALLATION

Open your favorite webbrowser and go to <http://localhost:8080/bimserver-0.8/>

Attention: when you run tomcat on a different port you should go to the other port. When you deploy a different filename (like *bimserver-x.xxx*) you should also use a different URL depending on the filename you deployed.

You will get the loginscreen. The loginscreen looks like Illustration 3. You can login as the administrator using admin/admin as the username/password.

You are now logged into your own BIMserver. It will look something like Illustration 4.

After your first login, make sure to change the default password into something else!

3.3 INSTALLATION-ISSUES

My standalone server won't start (testing the installation doesn't give results). What's wrong?

When you are using windows (try ubuntu and/or) make sure the firewall isn't blocking the bimserver software and the port you run the software.

I get some strange errors when I try this new version. How about that?

You should delete the database of the old version, before deploying (starting) the new one.

There are some other strange errors... What's this all about?

Make sure you have enough memory available for your JVM. We recommend a heap size of 1600m and a stack size of 1024k.

4 GETTING STARTED

Now that you are running your own BIMserver, you can get start using it. In this chapter we will guide you through the first steps of using it.

4.1 CHANGING PASSWORD

First of all, you should change the administrator password to something not so default. After login you should click on 'Administrator' in the top right corner of the screen. You will get the userdetails for the 'Administrator'-user. It will look like Illustration 5.

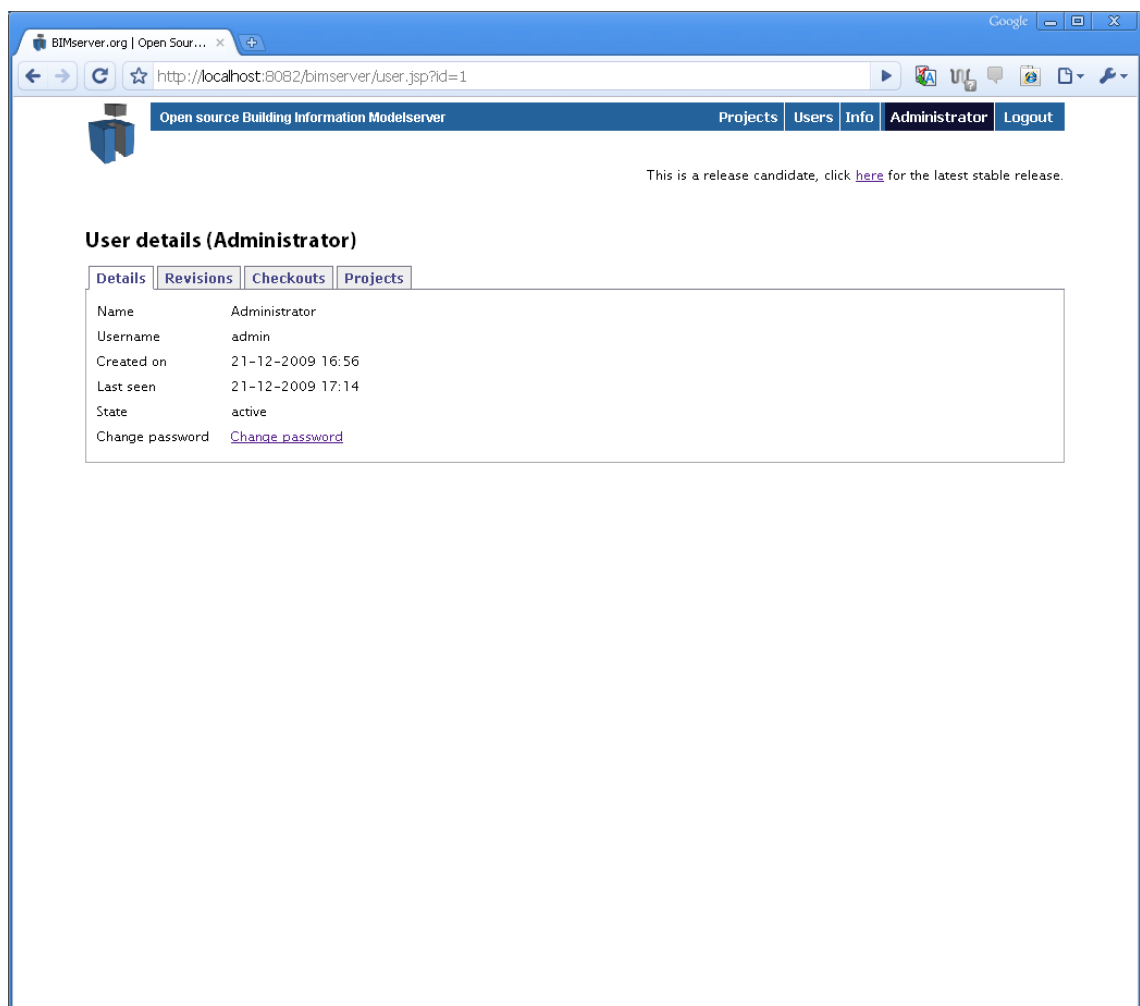


Illustration 5: User details for 'Administrator'

Now click on 'Change password' and you will get another screen with 3 boxes. Fill in the old password ('admin') and your own chosen new password twice (to make sure you don't mistype) .

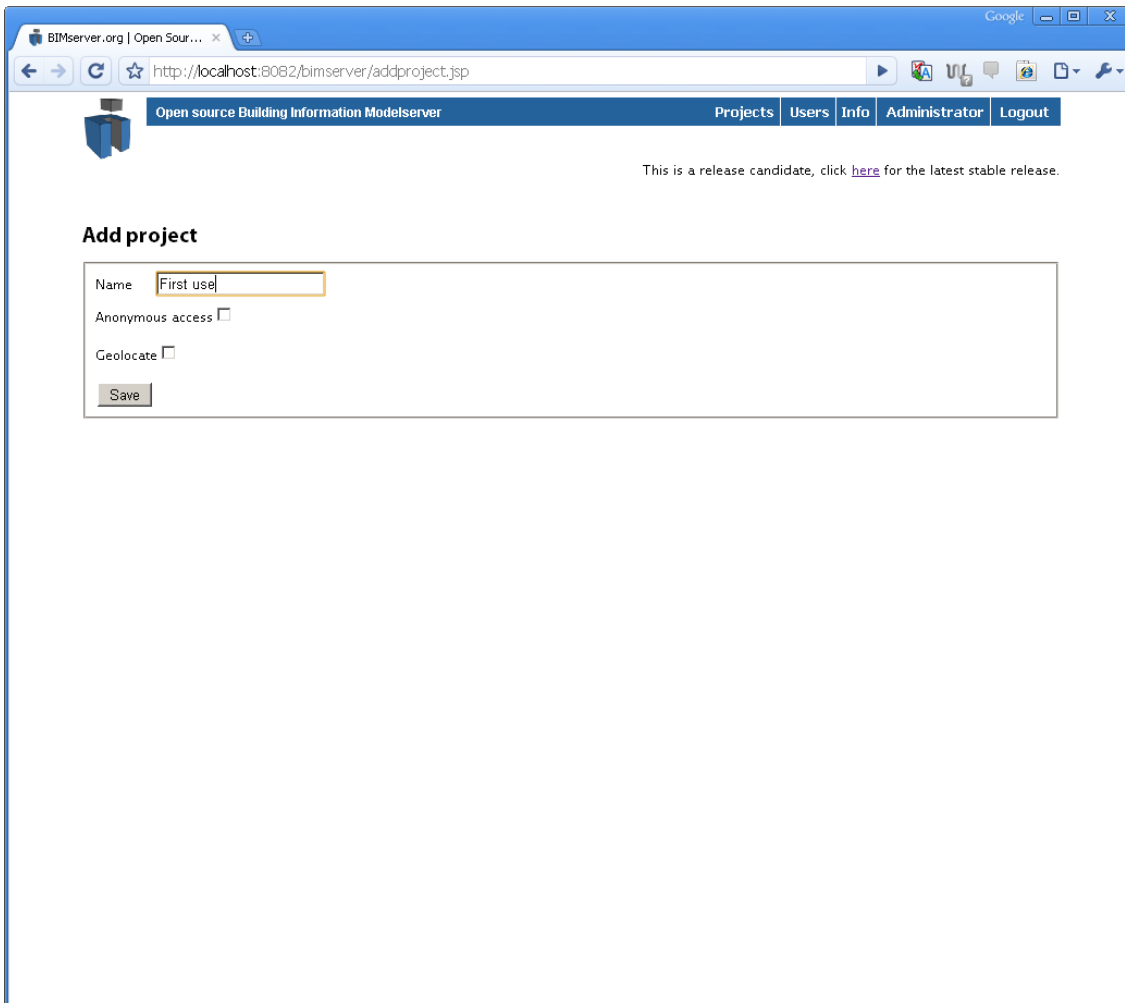
After this you will return to the Userdetails page again, and you will see a message "Password successfully changed"

Getting started

After doing this, click on the BIMserver logo on the topleft and you will return to the main page (looking like Illustration 4).

4.2 STARTING A PROJECT

As you can see, there are no projects in your BIMserver so far. You can start a new project by clicking 'Add project'. After clicking this you will be asked a project name. Give your project a name (for example 'first use').



The screenshot shows a web browser window with the URL `http://localhost:8082/bimserver/addproject.jsp`. The page title is "Open source Building Information Modelserver". The navigation menu includes "Projects", "Users", "Info", "Administrator", and "Logout". A message states: "This is a release candidate, click [here](#) for the latest stable release." The main content area is titled "Add project" and contains a form with the following fields and options:

- Name:
- Anonymous access:
- Geolocate:
- Save:

Illustration 6: starting a project

Furthermore you can give your project 'anonymous access' and 'geolocate'.

When you check 'anonymous access' you give anonymous users the ability to view (parts of) your model. This can be handy to give people the KMZ-networklink for example to view the latest status of your project on google earth (without having to login). Advanced users can use the BIMserver as an object library by giving anonymous access.

When you click on 'Geolocate' some x,y,z fields appear. To geolocate your project, fill in in the x,y,z fields. These numbers are the real world placement coordinates of the building you are modeling. But just forget about them for a moment.

Click 'Save' to send your data.

The project is now being created in the database. After this is done you will get a screen that looks like Illustration 7.

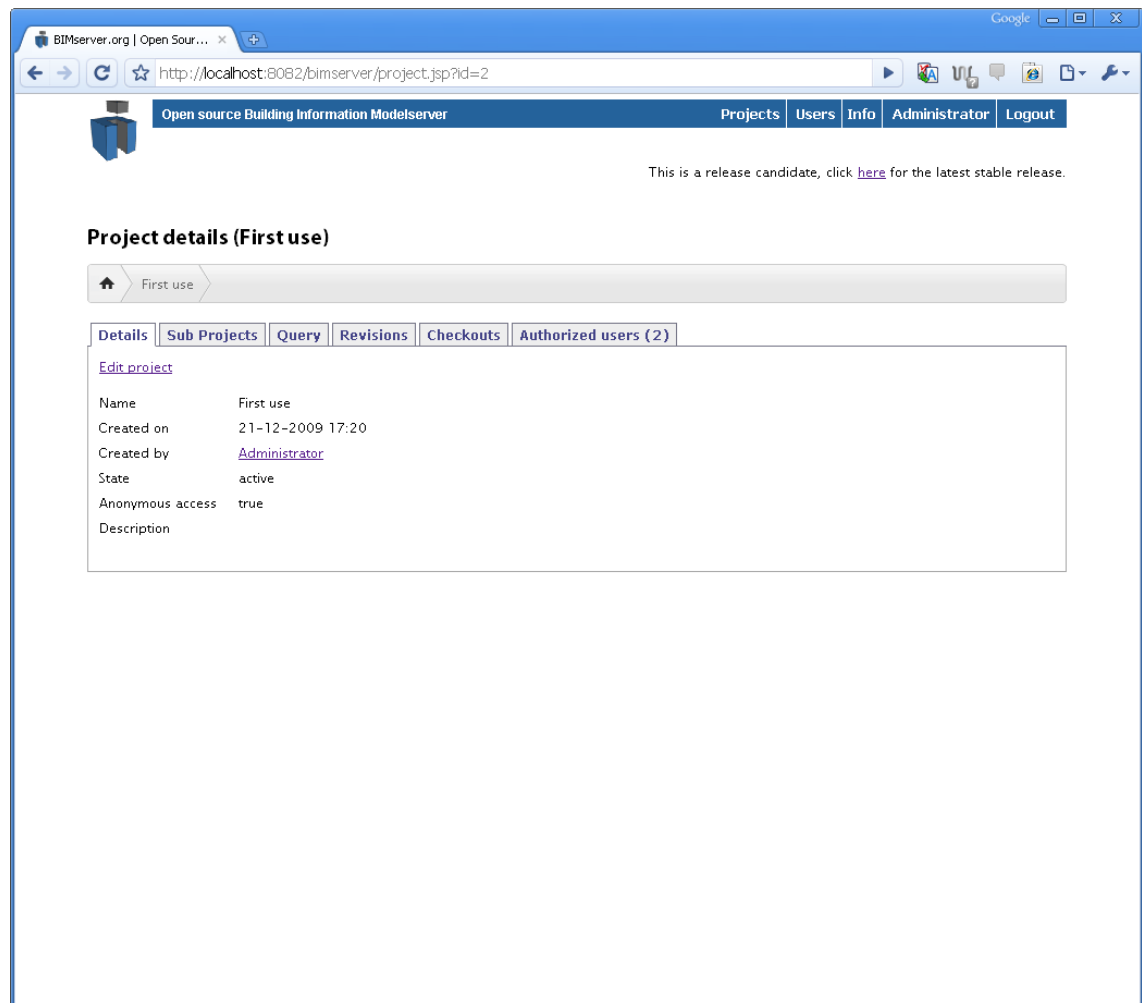


Illustration 7: First project created

You can see the name, the date and time it was created, the user that created it, its status (active), whether your project has anonymous access and a description.

To change this data, click on 'Edit project'.

This screen has six tabs. You can explore the tabs by clicking on them. When you click on 'Revisions' you will see that there are no revisions, same goes for 'Checkouts'. In the tab 'Authorized users' you can find the list of users that have authorization on this project. For now this is only one (the Administrator).

4.3 UPLOADING YOUR FIRST MODEL

Your project is still empty. You have to make an initial upload of a model first. The most common way to do this is to upload an IFC file.

Do this by clicking on the 'Revisions' tab.

Getting started

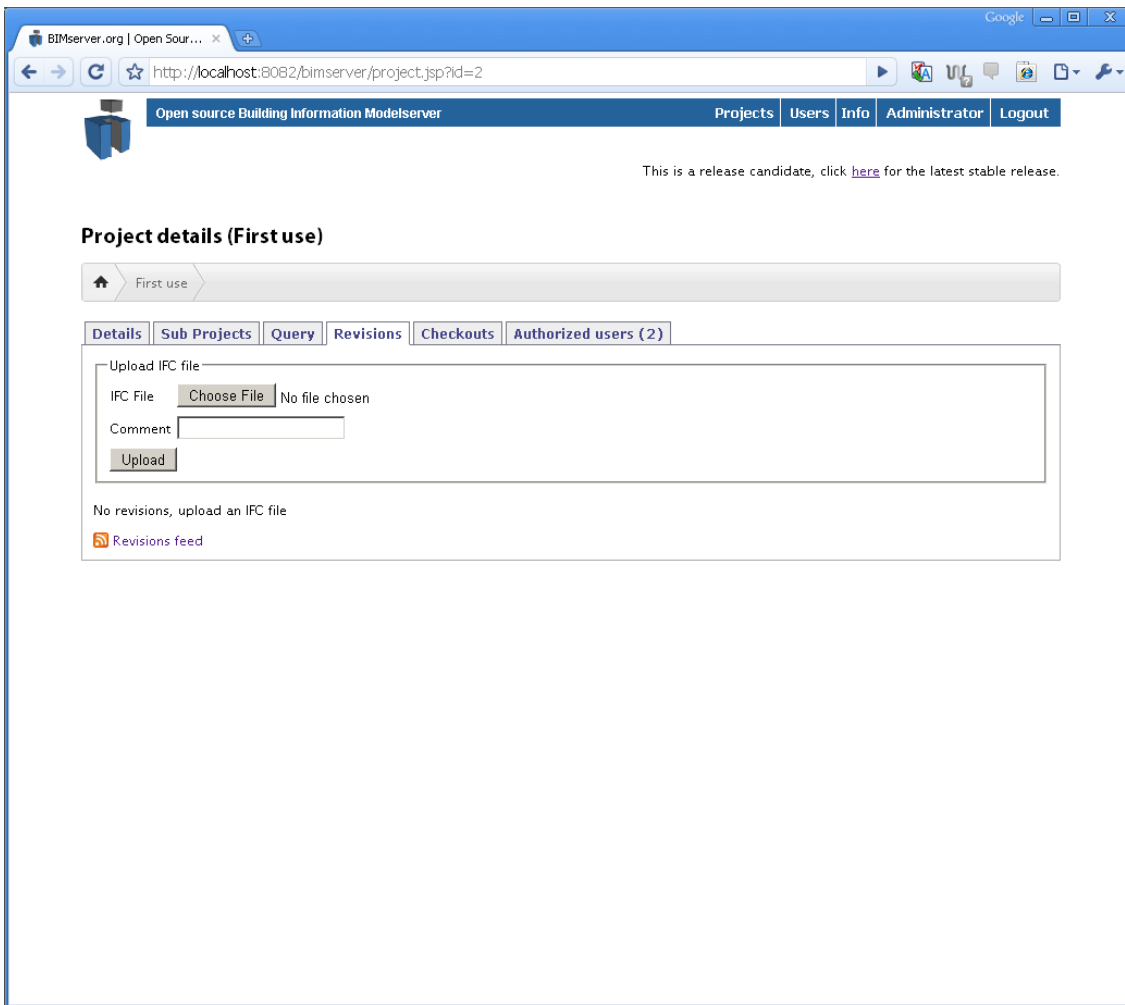


Illustration 8: The revisions tab of a project.

Click on 'Choose File' after the 'IFC File' attribute. Now find a STEP file of an IFC model (normally recognizable by the .ifc extension). If you don't have such a file you can download some on www.ifcwiki.org or on download.bimserver.org.

Optionally you may fill in a comment in the 'Comment'-field. For example the text 'initial upload'.

After this click on 'Upload'. This may take a while, and your browser will give the notice that it is 'working' or 'in progress'.

After this is done your BIMserver will return a screen that looks like Illustration 9.

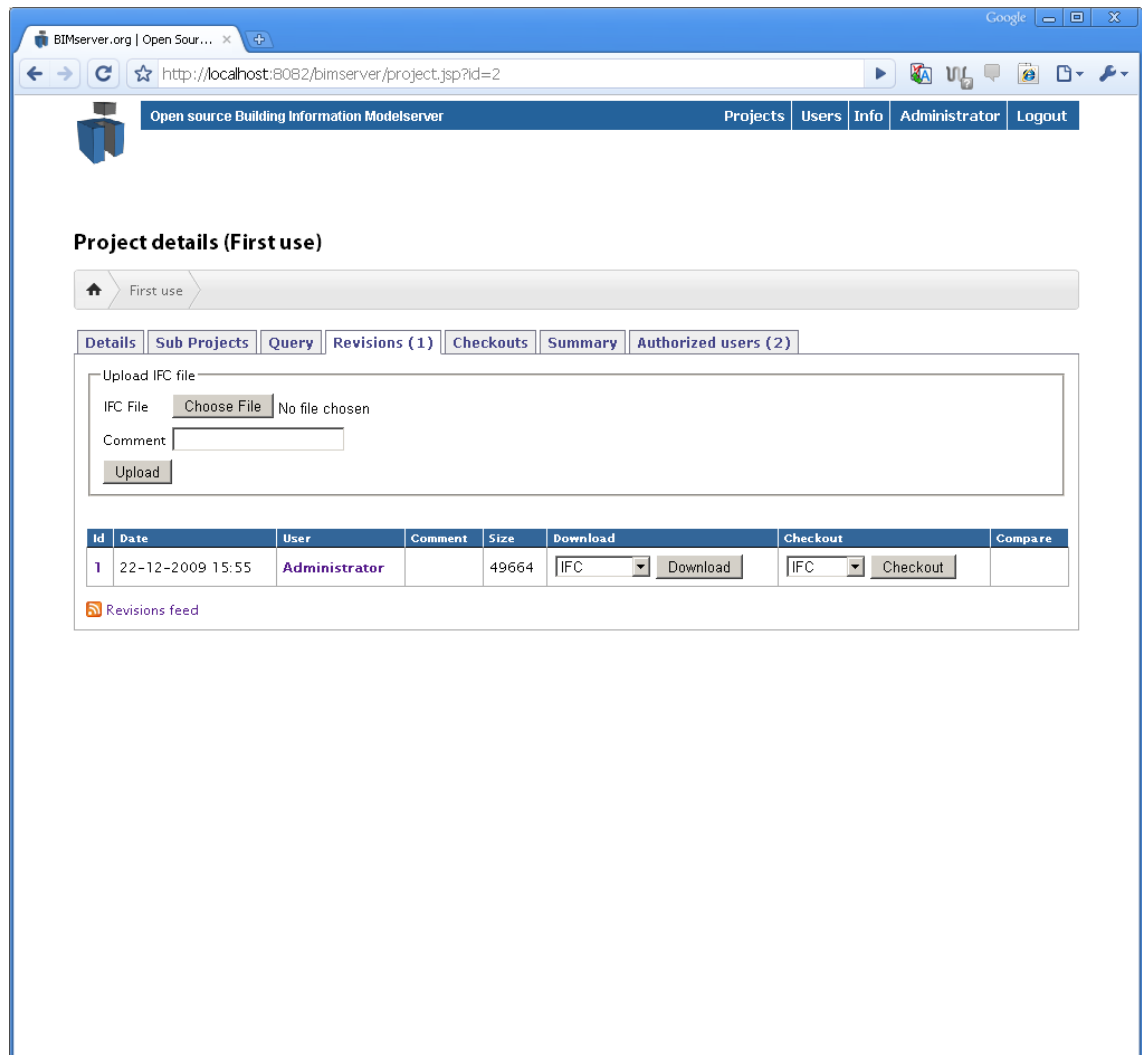


Illustration 9: Project revisions (after first upload of an IFC file)

This screen shows you the revisions (which is only one for the moment) of the project. You see the revision ID, the date and time of the creation, the user that created it, the comment, the size (in Kb) and possibilities to download and checkout the revision.

Your first model is now in the database of your BIMserver!

4.4 QUERY YOUR MODEL

In your project click on the 'Query' tab. This tab gives you three possibilities to query your model.

You can query the BIMserver objectID; the IFC Global Unique ID (GUID) or per objectclass.

These query-possibilities work separate from each other. You can not combine them in the webuserinterface.

4.5 GET CHANGES BETWEEN REVISIONS

Still in beta mode.....

4.6 GET A SUMMARY OF YOUR MODEL

This is cool....

4.7 EDIT PROJECTDETAILS (AND WHAT ANONYMOUS ACCESS DOES)

This is what is means to give anonymous access....

5 THE CONCEPT OP SUB-PROJECTS

Subprojects and the automatic merging between them is what makes a BIMserver being a BIMserver.....

5.1 THE CONCEPT

Multiple users, multiple parts of the model, updates, read access, consistency checks, checkouts and of course..... automatic merging.

5.2 AUTOMATIC MERGING OF SUBPROJECTS

This is cool....

5.3 DOWNLOAD AND/OR CHECKOUT

You can now 'download' or 'checkout' your model in the format of your choice (IFC, or ifcXML for example).

5.4 AUTHORIZE OTHER USERS ON YOUR PROJECT

To authorize other users on your project.....

5.5 CHECKOUT AND UPDATEWARNINGS

To keep your model consistent.....

6 ADVANCED FEATURES

Now that you know the basics, it's time to step up.

6.1 GETTING CHANGE NOTIFICATIONS (ON UPDATES)

This is the RSS feed....

6.2 USING XML-LINK AND IFC-LINK

This is cool....

6.3 GEOLOCATE YOUR PROJECT (AND USE GOOGLE EARTH)

KMZ network link for google earth...

6.4 EXPORTING TO DIFFERENT FORMATS

Collada, etcetera....

6.4.1 THE CITYGML EXTENSION FOR BIM & IFC

Reference implementation....

6.5 USING YOUR BIMSERVER AS A PRODUCT CATALOG

This is cool....

6.6 HOW TO USE CHANGESETS

This is difficult....

7 CONFIGURING YOUR SERVER

When the BIMserver does something you do not expect, there is always a way to configure it!

7.1 ADDING OR DELETING DOWNLOAD FORMATS

This can be done by...

7.2 CONFIGURING THE REGISTRATION SETTINGS

This can be done by...

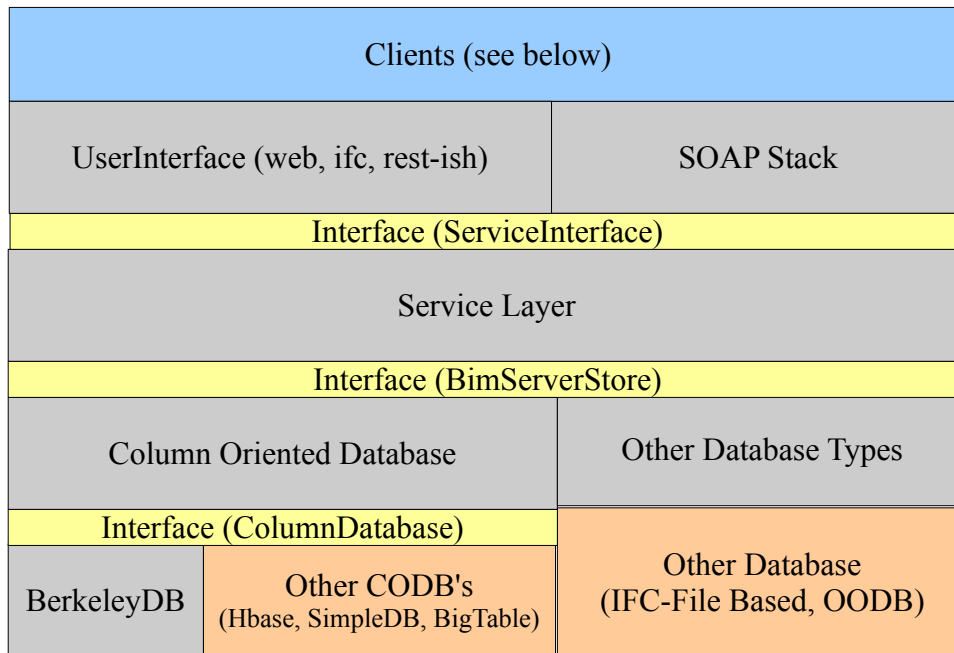
7.3 CONFIGURING QUERY SETTINGS (IGNORE FILE)

This can be done by...

8 ARCHITECTURE

This chapter will describe the global architecture of the software. To get a complete inside view of the technique please read the developer documentation of the wiki.

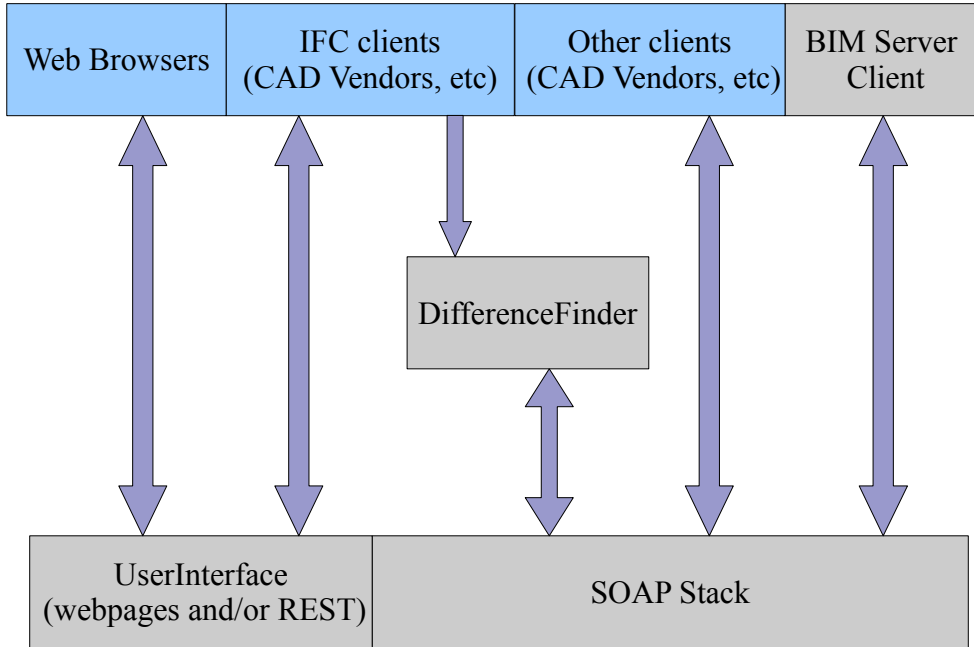
The global architecture looks something like this:



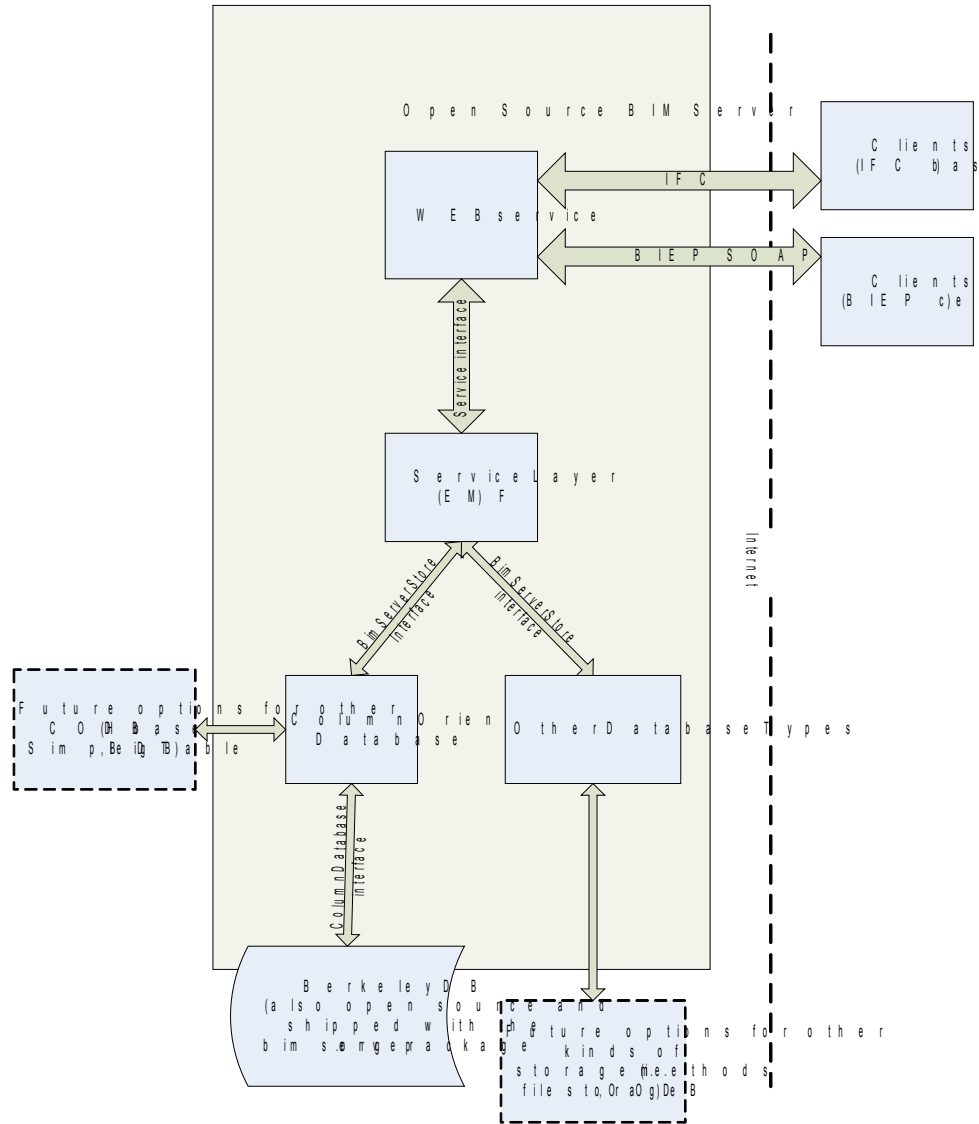
Has yet to be made	Clients
Part of BIMServer.org	Programmatic Interfaces

Architecture

There are some different clients to interface with the bimservers:



A different view on the architecture (but basically the same):



9 EXTRA STUFF

Extra stuff for enthusiastic users.

9.1 USING THE SOAP CLIENT

Besides the Web-user interface, the BIMserver software also has a SOAP interface. You can explore this SOAP interface by using the special client.

Download the client from <http://download.bimserver.org/>

It will be a .jar file.

9.2 USING THE IFC ENGINE VIEWER

tbc

9.3 USING THE CLASH DETECTION TOOL

tbc

10 WHAT DOESN'T WORK

The stuff that doesn't work is listed on the bugtracker at sourceforge:

http://sourceforge.net/tracker/?group_id=224353&atid=1061305

When you find bugs, please report them using the link above.

We have known issues on:

- **Memory management**

The server runs out of stack size on large models. This is the main issue why this version is not a 1.0 release.

- **O3D rendering has issues on multiple objects**

Could be a bug of O3D. We are working on a fix (or workaround).

- **JVM stops when IFCEngine.dll crashes**

The Java Virtual Machine stops running when the IFCEngine library throws an exception. There are several ways to solve this and we are looking for the best one.