The system and relevant folders

I. Description

The package named "Eclipse-workspace" contains the source code for a prototype system that can be used for automatic quality checking of IFC models against Chinese standard.

It deserves to explain that the prototype system can be used to check only a wall component in a specified IFC model at present, in which the information of the wall component has been hard-coded. The reason for not being able to execute quality checking on all components is that, although we have completed the function of parsing IFC model to extract the information of all classes of components in IFC models, the function has not been integrated into the prototype system yet. However, we will finish the integration and update the current version of the prototype system soon to make the full functions available.

II. Installation

1. Download and unzip the package "Eclipse-workspace" at some appropriate folder in your computer.

2. Make sure that Eclipse IDE 4.30.0 and JDK 1.8.0_401 have been installed in the computer, and corresponding environment variables of Java programming have been configured.

3. Execute Eclipse IDE 4.30.0, and select the project file in the package "Eclipse-workspace" to open the source code.

4. Check and repair the dependencies

The dependencies in the project file have been correctly added, configured and managed by the "Maven" in the package before the package was uploaded. However, when you download and run the project file in the package, there may be some problems, like, some dependencies cannot be found. The reason may be that the version of dependencies is incompatible or the dependencies are mistakenly deleted. In such a case, you need to add them manually. You can do this by checking the error messages that come out when you compile the source code in the compiler, and then based on the error messages, you can download the dependencies from the "Maven" website and add them in the compiler.

III. Configuration

In the compiler, run "Eclipse-workspace\BIMserverMaster\bimserverjar\SRC\org\bimserverLocalDevBimServerStarter.Java" file. To do this, you should select this file from the tree view of files on the left side of the compiler window, and click "Run > Run Configurations" in the compiler menu. Then the following interface will appear.
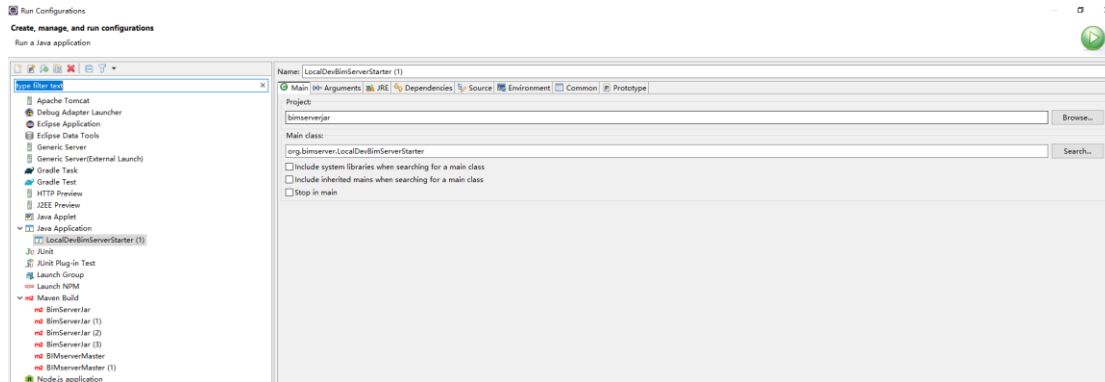
Click the "Arguments" menu at the top of the interface, then the following interface will appear. In the interface, you can see the "Program arguments" field at the top of the interface.
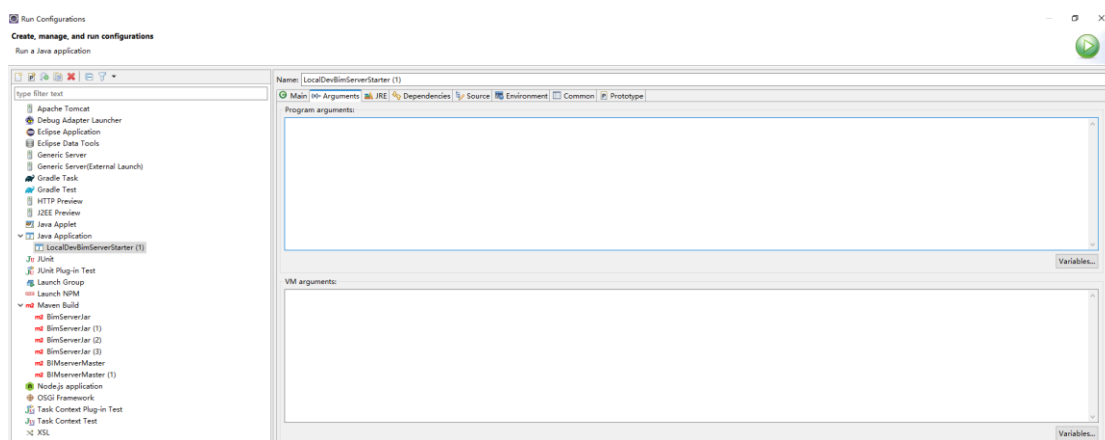
Add file paths of some folders into the "Program arguments" field. To do this, taking "bimvie.ws" folder for example, you should select this folder from the tree view of files on the left side, and use the shortcut "Alt + Enter" on your keyboard to view the properties of this folder. Then the following interface will appear.

At the top of the interface, you can find the "Location" property and you should copy its corresponding file path. Then go back to the "Program arguments" field following the steps mentioned above and paste the file path into the "Program arguments" field. Then click "Apply" at the bottom of the interface. Thus, you can make sure that the plugins in "bimvie.ws" folder can be loaded and executed. The "Program arguments" field in the following interface shows the folders whose file paths need to be added, and the steps for adding the file paths are as the same as above.

After adding all file paths, run "Eclipse-workspace\BIMserverMaster\bimserverjar\SRC\org\bimserverLocalDevBimServerStarter.Java" file. To do this, you should select this file from the tree view of files on the left side of the compiler, and click "Run > Run As > Java Application" in the compiler menu. Then the following interface will appear.

IV. Usage

Only when there are no error messages coming out in the interface above, enter "localhost:8080" in the address bar of the browser, then the following interface will appear.

Click "bimviews" in the middle of the interface, then the following interface will appear. The default account is admin@bimserver.org and its password is admin.

BIM Views

Login

Username	@	admin@bimserver.org
Password	🔒	•••••

☑ **Remember me**

Sign in   Reset password

After login, the following interface will appear. Two IFC model files in the project file are displayed in the interface.
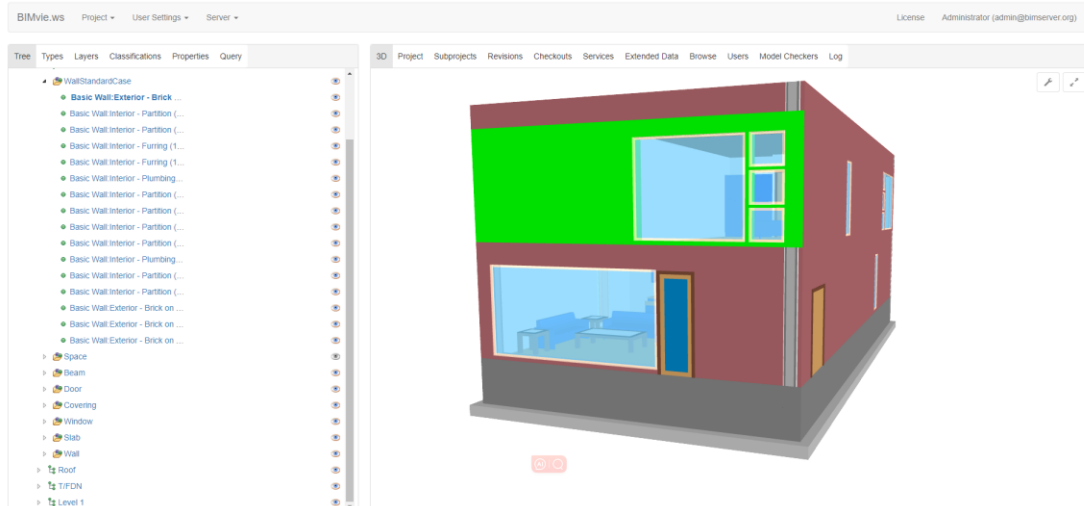

Click the "Duplex_A" file in the middle of the interface, then the following interface will appear.
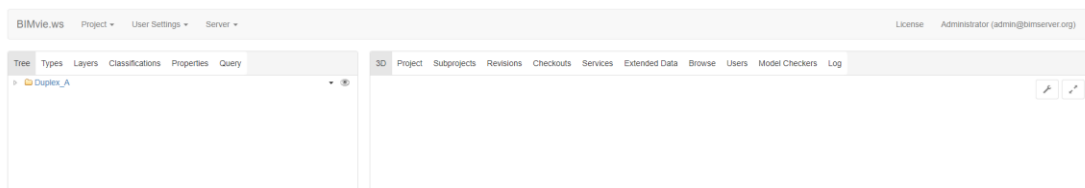
Click the eye-like button on the left side of the interface, then the following interface will appear.
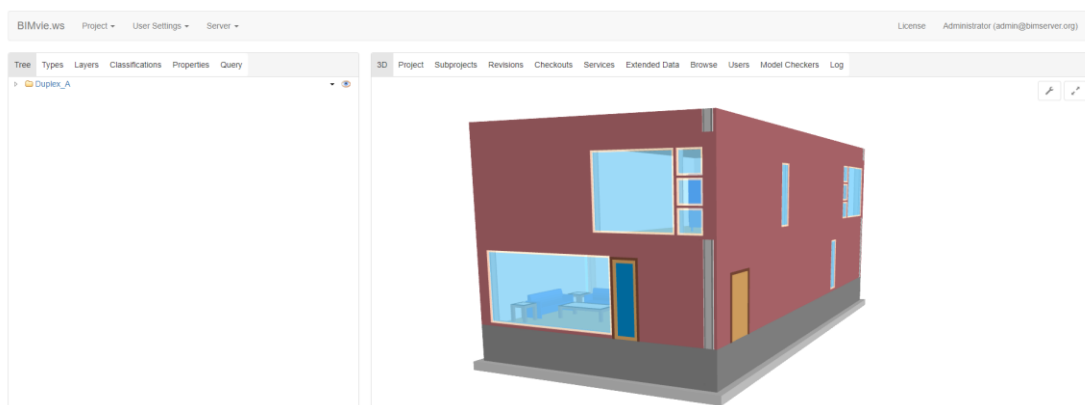
Click a wall component in the 3D model, then the following interface will appear.

Click the "Revisions" menu on the right side of the interface, then the following interface will appear. In the interface, click "Run 'IFC Validator' " to start the quality checking.

Click "Extended Data" menu in the same interface, then the following interface will appear. In the interface, inspection report will be automatically displayed by generating a new row.

Click the new row, then the following interface will appear. In the interface, you can view the details in the inspection report. It shows the result of checking against the quality standard.

V. Folder Structure

The following table briefly describes the folder structure of the prototype system to help you understand the coding aspect.

Path in the compiler	Location in the computer disk	Description
/bdb	Eclipse-workspace\BIMserverMaster\Bdb	The folder contains the system class libraries needed to run the project and the Maven dependencies of the project.
/bimserver	Eclipse-workspace\BIMserverMaster\BimServer	The folder contains database migrations, caching, plugin management and so on.
/bimserverclientlib	Eclipse-workspace\BIMserverMaster\BimServerClientLib	The folder contains a Java API for BIMserver. It can use a direct connection to BIMserver, or SOAP, Protocol Buffers or JSON.
/bimserverjar	Eclipse-workspace\BIMserverMaster\BimServerJar	The folder contains specific source code and resources for the JAR build of BIMserver.
/bimserverwar	Eclipse-workspace\BIMserverMaster\BimServerWar	The folder contains specific source code and resources for the WAR build of BIMserver.
/BIMserverMaster/BIM	Eclipse-workspace\BIMserverMaster\B	This folder contains a JavaScript API for

server-JavaScript-API	IMserver-JavaScript-API	the BIMserver.
/BIMserverMaster/BIMsurfer-before2019	Eclipse-workspace\BIMserverMaster\BIMsurfer-before2019	The folder contains a module that can be integrated in 3rd party applications.
/BIMserverMaster/bimvie.ws	Eclipse-workspace\BIMserverMaster\bimvie.ws	The folder contains a JavaScript client for Building Information Modeling, using open standards like IFC, BCF and BIMSie.
/BIMserverMaster/BinarySerializers	Eclipse-workspace\BIMserverMaster\BinarySerializers	This folder contains BIMserver plugins that provide binary serializations of model data.
/BIMserverMaster/Documentation	Eclipse-workspace\BIMserverMaster\Documentation	This folder contains images and other resources that are used on the wiki.
/BIMserverMaster/IfcOpenShell-BIMserver-plugin	Eclipse-workspace\BIMserverMaster\IfcOpenShell-BIMserver-plugin	The folder contains a BIMserver plugin that supports reading, writing, and editing IFC data and can be used to process and parse IFC file.
/BIMserverMaster/IfcPlugins	Eclipse-workspace\BIMserverMaster\IfcPlugins	This folder contains BIMserver plugins that provide IFC serialization or deserialization.
/BIMserverMaster/IfcValidator	Eclipse-workspace\BIMserverMaster\IfcValidator	This folder contains a BIMserver plugin that checks Ifc2x3tc1 models for common requirements.
/BIMserverMaster/IfcValidator/conf	Eclipse-workspace\BIMserverMaster\IfcValidator\conf	This folder contains mapping mechanism we established between BIM-QC ontology and IFC entities.
/BIMserverMaster/IfcValidator/docs/owl	Eclipse-workspace\BIMserverMaster\IfcValidator\docs\owl	This folder contains the BIM-QC ontology and the ruleset that we established for the prototype system.
/BIMserverMaster/IfcValidator/docs/paths	Eclipse-workspace\BIMserverMaster\IfcValidator\docs\paths	This folder contains the information of the wall component we have extracted for quality checking.
/BIMserverMaster/IfcValidator/docs/output/allObjectPropertyAssertionAxiom.owl	Eclipse-workspace\BIMserverMaster\IfcValidator\docs\output\allObjectPropertyAssertionAxiom.owl	This folder contains the instance of the BIM-QC ontology.
/BIMserverMaster/IfcValidator/src/org/bimserver/ifcvalidator/reasoner	Eclipse-workspace\BIMserverMaster\IfcValidator\src\org\bimserver\ifcvalidator\reasoner	This folder contains files that execute checking rules on the instance of the BIM-QC ontology by invoking the library of the reasoner engine (including Jena and OWL

		API).
/pluginbase	Eclipse-workspace\BIMserverMaster\PluginBase	This folder contains code required for building plugins.
/shared	Eclipse-workspace\BIMserverMaster\Shared	This folder contains code that is being shared between both the BIMserver project, and the BimServerClientLib.
/BIMserverMaster/Tests	Eclipse-workspace\BIMserverMaster\Tests	This folder contains both unit tests, and code snippets used for trying things out.
/BIMserverMaster/PluginTest	Eclipse-workspace\BIMserverMaster\PluginTest	This folder contains test files for the plugins.