Efficient BIM import to IDA ICE without IFC- Preparations before the course

Before the course there are several programs that need to be installed on your own computer and some services to register to. You will also need to verify the process by sending data from BIM-tools like Revit and ArchiCAD via Speckle and Blender into IDA ICE.

Step 1 - Installation

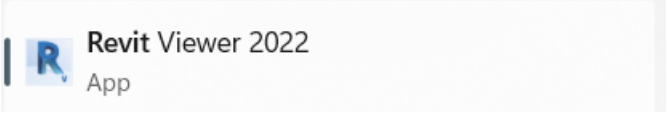
Unless you already have the following programs installed on your computer, download and install them on your PC. More information how to install plugin to Blender can be found at https://docs.blender.org/manual/en/latest/editors/preferences/addons.html

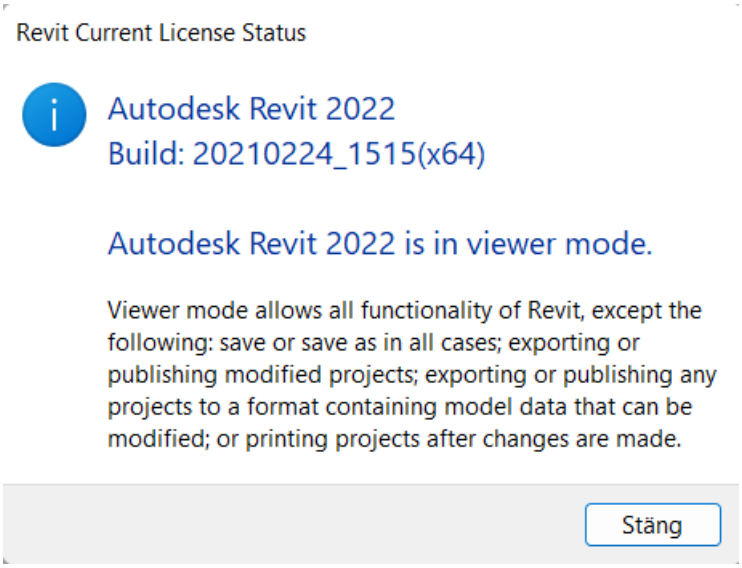
1. IDA ICE 4.8 SP2.
2. Revit. You can download and install a free 30 day trial version of Revit 2022 at https://www.autodesk.com/products/revit/free-trial After this period, you can run Revit in demo mode. Before you can use Revit you need to register for an Autodesk Account. This is done during the installation process.
3. Blender. You can download and install the latest version of Blender from https://www.blender.org/download/ Blender is free and open source.
4. BlenderBIM. You can download and install the latest version of BlenderBIM from https://blenderbim.org/download.html Blender is free and open source.
5. Create a Speckle account. This can be done at https://speckle.xyz/authn/register Speckle is free and open source. This is needed to run Speckle connectors for Blender and Revit.
6. Speckle connector for Revit. You can download and install this from https://speckle.systems/tag/revit/
7. Speckle connector for Blender. You can download and install this from https://speckle.systems/tag/blender/
8. ICE Bridge for Blender. This can be downloaded from https://github.com/maxtillberg/ICEBridge ICE Bridge is free and open source.
9. IDA NKS Extension v0.3. This can be downloaded here.
10. Download the following patches for IDA ICE 4.8, download here, extract tem and place them in the ice.patches folder). This should be located at <ida>\lib\ice\ice.patches\ (<ida> is the installation folder, probably “IDA48” or something similar). Create the folder ice.patches If this does not exist. Restart IDA ICE after the files is installed. Due to security settings in Windows, you might extract the files in a separate folder and move them manually.

Step 2 – Verify installation

In this step we will make sure that the workflow works by sending data from Revit to IDA ICE. In detail we will open a demo Revit file, send some rooms to a Speckle steam, download the rooms from Speckle to Blender, convert the rooms into 3D OBJ-files, create a script and using this in IDA ICE to create thermal zones and building bodies like Revit->Speckle->Blender->Script-file-IDA ICE

Step 2.1 - Start Revit or Revit Viewer.

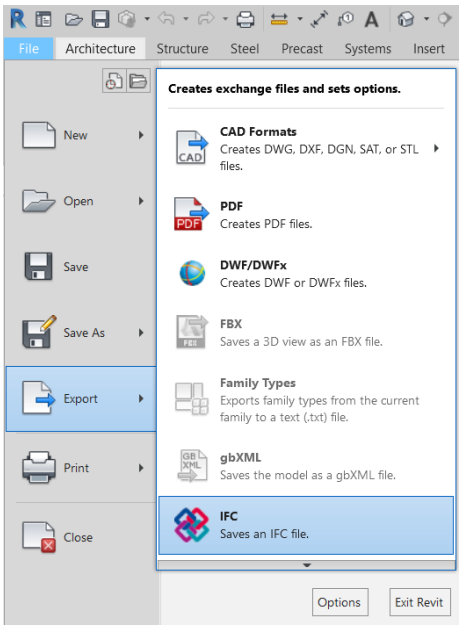


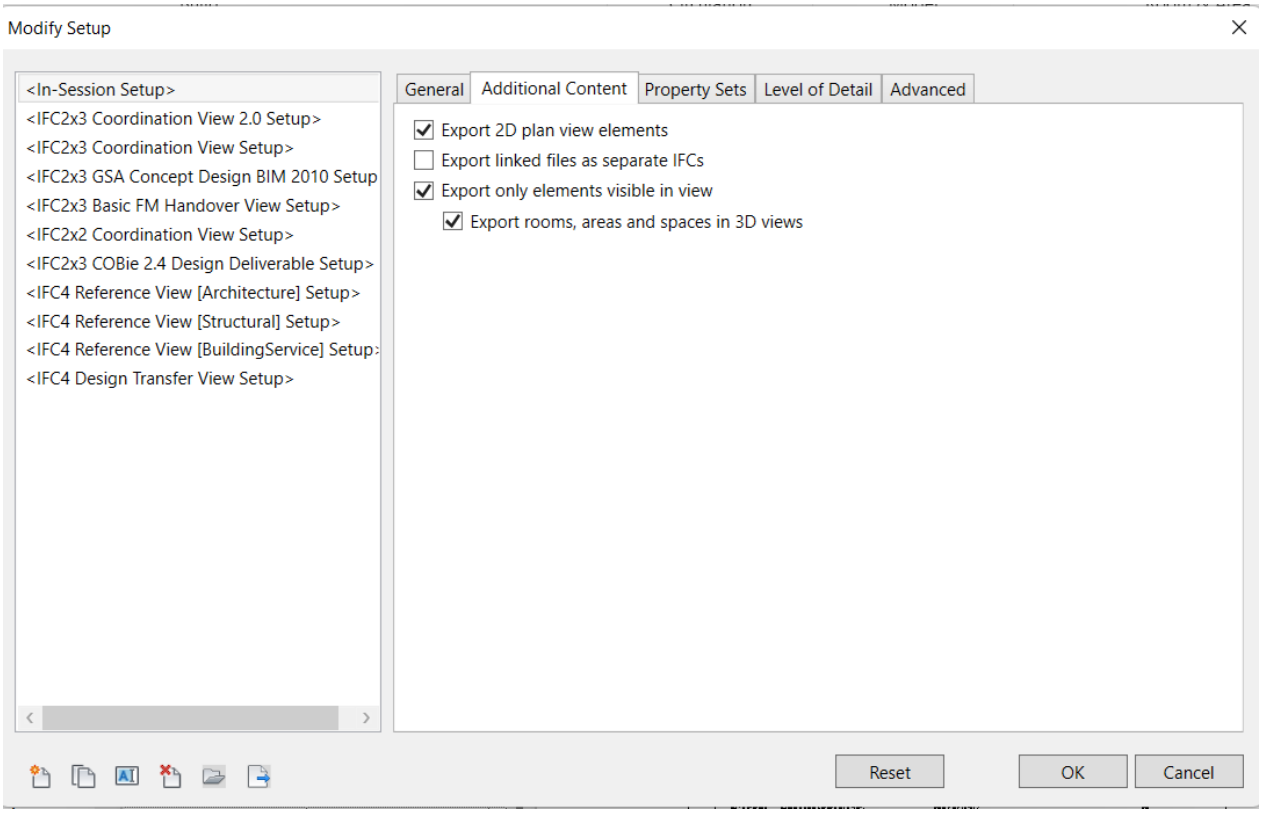


Open the RAC basic sample project.

Step 2.2 – Export IFC-file

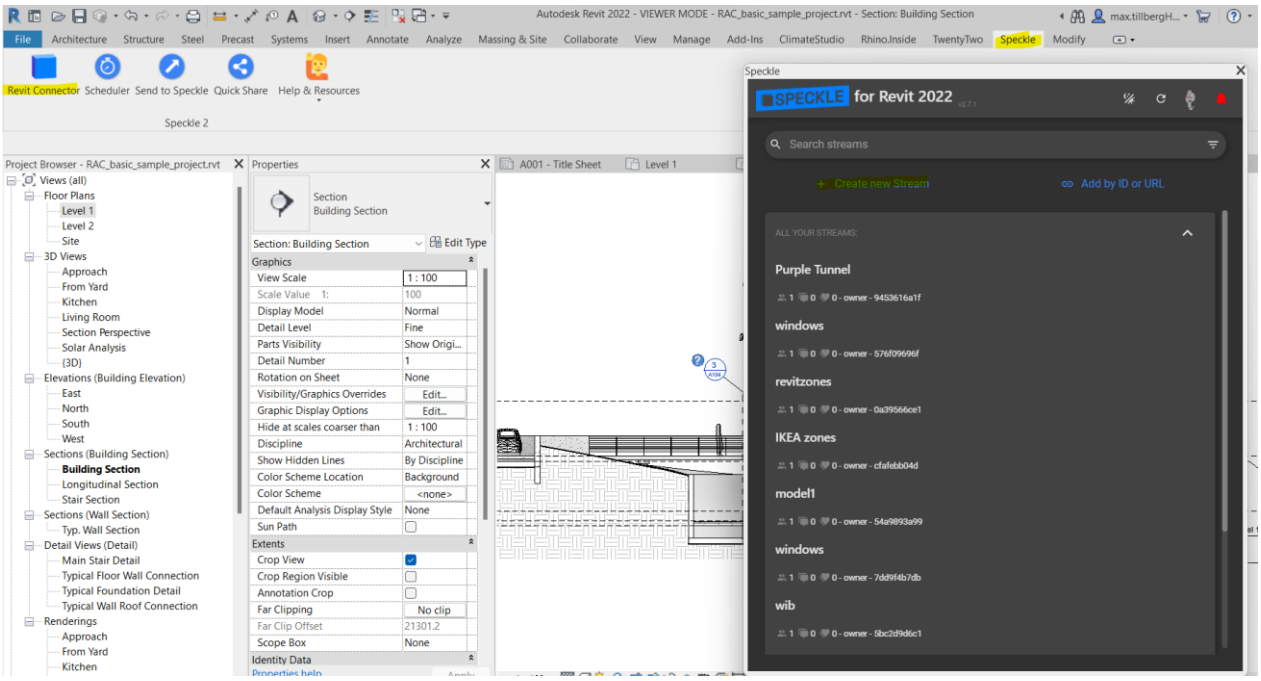
Before doing any changes to the model, export a default IFC from the 3D view before you export but do not make any changes in the model if you are in demo mode. Please note the path and filename and change these if these if needed.



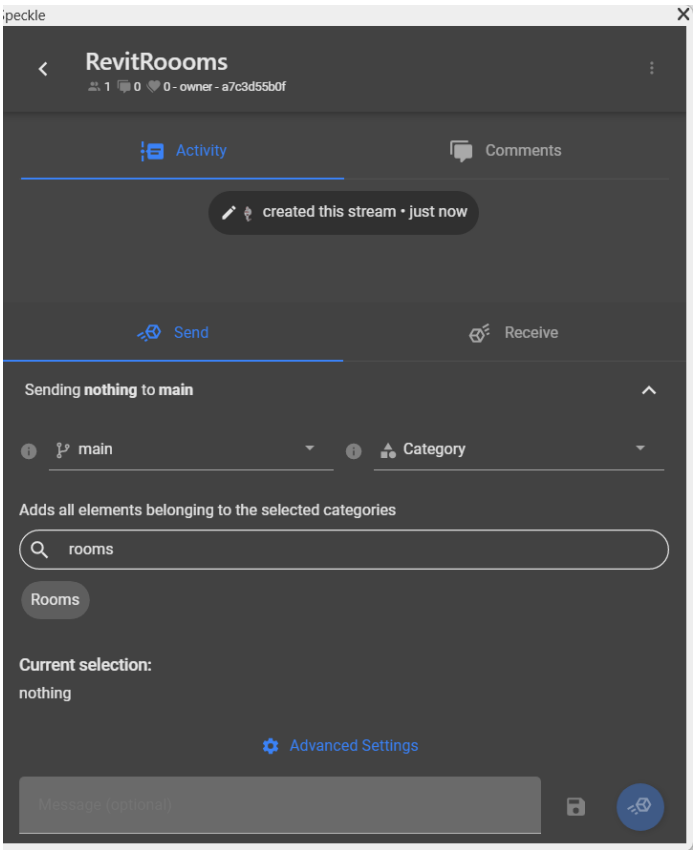


Step 2.3 – Export rooms as speckle Stream

- Open the Speckle plugin
- Create a new stream



- Select the category rooms and send. View online to verify the data sent.

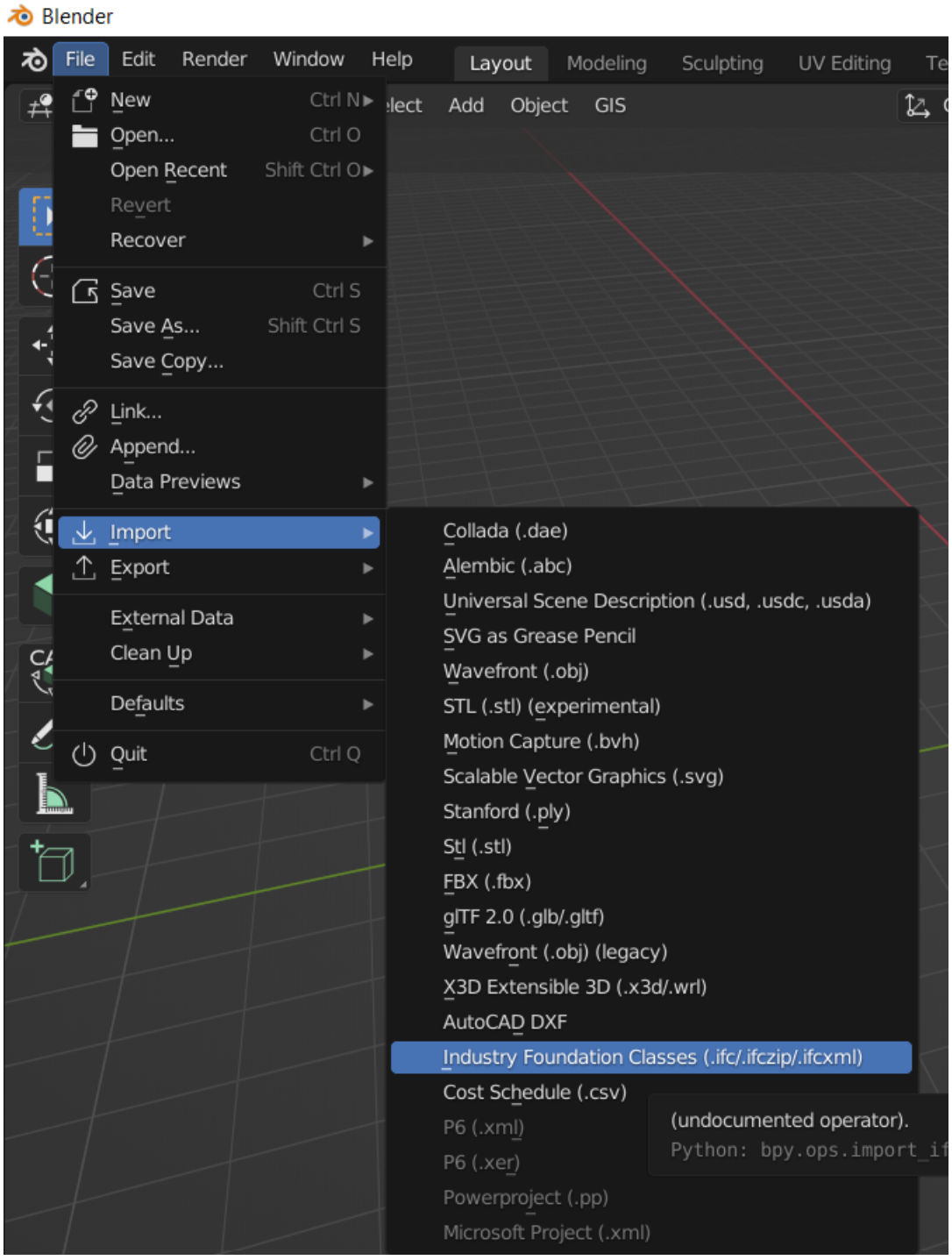


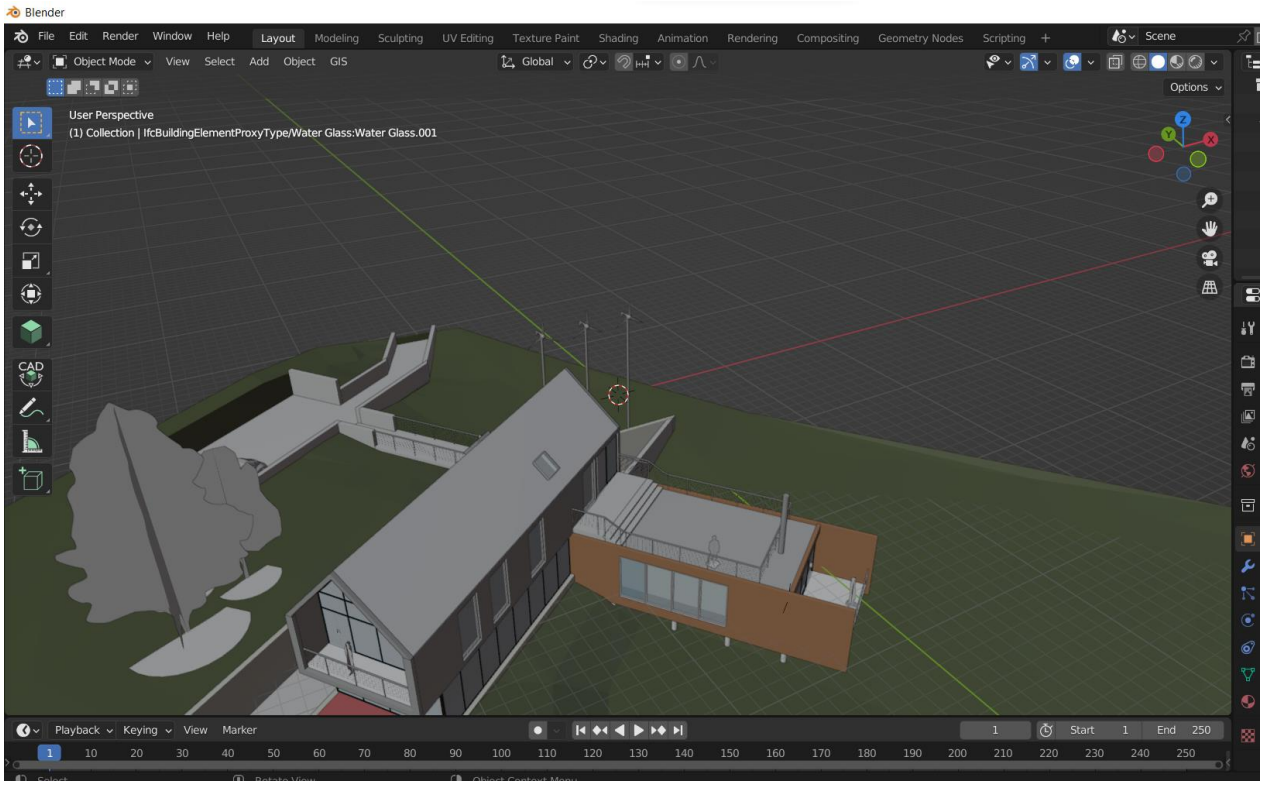
Step 2.4 – Open Blender

- Delete the default objects by pressing “a” on the keyboard and “delete”.

Step 2.5 – Import IFC-file

- Import the exported IFC-file from Revit

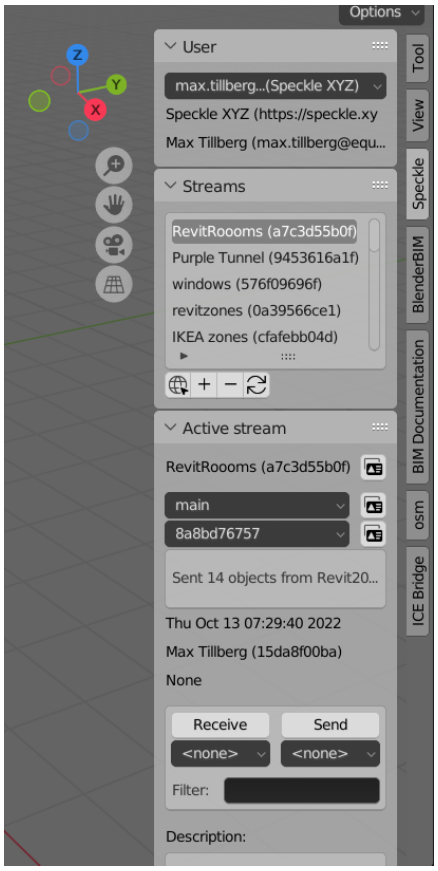




- Delete all objects by pressing “a” on the keyboard and “delete”. This will take some time.

Step 2.6 – Import the Speckle Stream with rooms

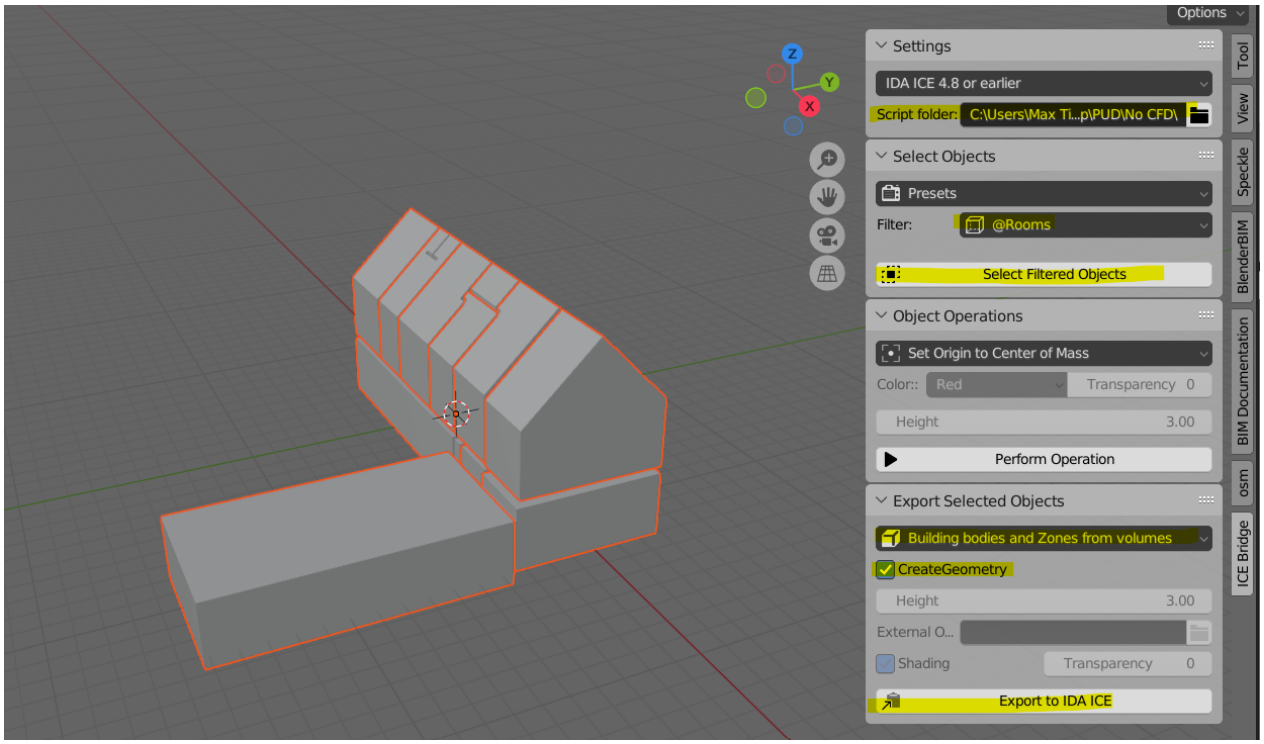
- Press the little arrow on the right of the 3D viewport to show the Speckle Blender Connector and download the stream by pressing “Receive”.



Step 2.6 – Export rooms as script to IDA ICE using ICEBridge

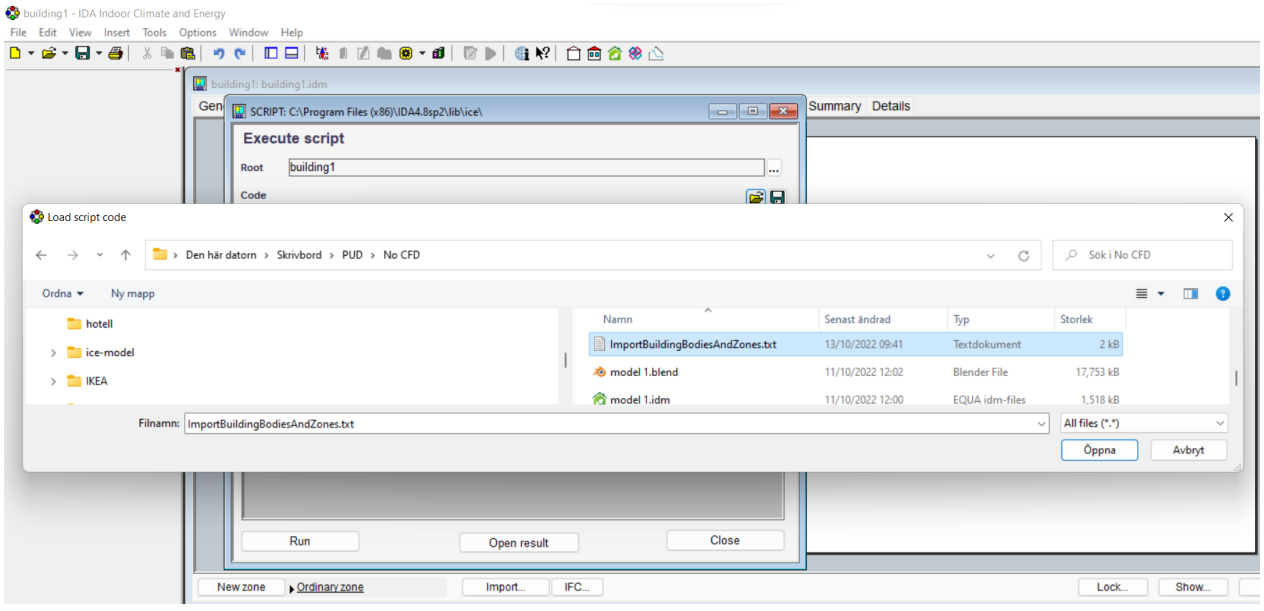
- Open The ICE Bridge Plugin and set a temporary folder for CAD-files and scripts.

Select the rooms by pressing “a” (if it is the only visible objects in the model) or unselect all objects and select “@Rooms” from the Select Objects menu. Select “Building bodies and Zones from volumes” and select CreateGeometry. This will generate one OBJ-file for each room.



Step 2.7 – Import rooms as script to IDA ICE

- Start IDA ICE and delete he default zone and building body
- Load the script file ImportBuildingBodiesAndZones.txt from the temporary script folder that was selected in Blender and press “Run”. The script will take some time to run and there will be some warnings. Note that this script will create one building body for each zone.



Note that one of the zones are not valid as default and this might cause import problems.