

GDLnucleus for MAC OS

Task for Visual Studio Code for MAC OS X for parallel editing of GDL Objects in ArchiCAD and Visual Studio Code

For the free text editor Visual Studio Code from Microsoft there is a syntax package from Graphisoft for GDL developers.

Visual Studio Code (VSC) is considered the ultimate editor by many free and professional developers of all kinds of programming languages, but primarily for web applications.

VSC is extremely versatile and extremely customizable, and also has the ability to automatically install extensions and keep them up to date.

The package from Graphisoft (<https://marketplace.visualstudio.com/items?itemName=GRAPHISOFT.gdl>) contains the complete syntax highlighting for all GDL commands and global variables. There are also code snippets and autocomplete code.

For VSC to be used effectively for GDL programming with the present package from Graphisoft, there should be some form of direct connection to ArchiCAD. Since external editors can theoretically only connect directly to ArchiCAD via the API interface, and since this solution seemed to us too complex and, above all, too expensive, we have established an indirect link with ArchiCAD, whereby the GDL objects are transferred from ArchiCAD to VSC and visa verve via the LP_XML converter tool (referred to below as the XML converter).

The automation of this process is taken over by the task system described here, which performs all necessary conversion steps at the push of a button and thus allows a smooth work in such a way that it is possible to switch from ArchiCAD to VSC and back at any time without any loss.

This manual only describes the functionality of the task system for VSC and MAC OS X.

Functions and Features

- Triggered by a task in VSC, GSM files that have been created or edited in ArchiCAD are converted into XML files by XML converter and then split into individual script files (3D script, 2D script, master script, etc.) so that they can be edited directly in VSC. Old XML files are saved as

a backup, so that a backup is always available for each triggered task process.

- Triggered by a task in VSC, all individual script packages including parameters, headers, etc. are reassembled into a single XML file and converted back into a GSM file via XM-Converter. Old GSM files are saved as backup, so that a backup is always available for each triggered task process.
- Triggered by a task in VSC, a complete parameter list is output in CSV format.
- Triggered by a Task in VSC, the graphics stored in special folders are automatically embedded in the GSM files in binary format.
- Simultaneous parallel processing of several GSM files within a VSC project

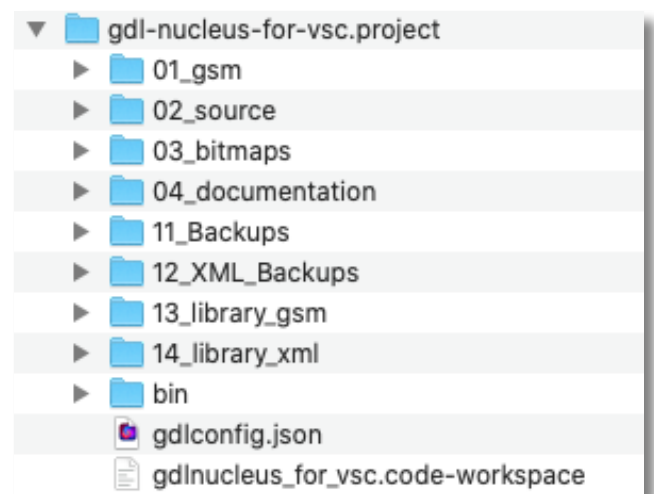
Installation

The first thing you need to do is install VSC if you have not already done so. Download the latest version of VSC from <https://code.visualstudio.com/> and install the program according to the manufacturer's instructions.

The second thing you need to do is install the GDL-VSC package from Graphisoft. To do this, go to Extensions >> Search >> GDL in VSC and select and install the GDL extension from Graphisoft.

Furthermore it is recommended to install the extension "Taskrunner" or "Task Explorer" for VSC, as well as the extension "Trigger Task on Save".

You have received a zip file from us, which contains the following directory structure.



Copy the unzipped folder as a template for each new GDL object you are working on. All necessary global adjustments that you make yourself, please play back to this template at the end of the adjustments, so that you are always up to date.

The following customization steps are required so that you can adapt your template to your needs and always start projects with this basis:

1. Open the `gdlconfig.json` file in the root directory. Change the path of your preferred XML converter here. Attention: The default setting is the XML-Converter for ArchiCAD 22. If you create objects in ArchiCAD 23 or higher, you have to use the XML-Converter 23 or higher.

In this file you can also assign a password for the encryption of the GDL object according to the given example. If the object already has a password, it is mandatory to enter it here, otherwise the conversion will fail.

Furthermore, the names of additional backup directories are specified in this file.

2. You can change some defaults in the `gdlconverter.py` in the `bin` folder if needed, but you don't have to.

Line 15 you have to adjust every time in every project anyway. This is the path of the GSM files and their macros. Please choose different names of the subfolder "gdlNucleus" in each project, please leave "01_gsm".

Line 16 - 24: Here you can adjust the folder names in quotation marks if necessary, but then you have to rename the folder names yourself.

Lines 33 - 40: The front part contains the names of the source files, which are arranged in the order 0-9, A-Z in the source folder;

recommendation: important scripts on top, unimportant ones on the bottom. In the back part you find the script names: please do NOT change them.

3. After this step you should save everything and update your template file. Changes to the template are then only necessary if you want to change the version of the XML converter or make other global adjustments.

The following adjustment steps are required before you can start with a GDL object:

1. Rename the copied folder "gdl-nucleus-for-vsc.project" to the name of your project, e.g. "Flat-roof-hoods.project".
2. Rename the subfolder "gdlNucleus" in the folder "1_gsm". This folder is to be loaded later together with the subfolder into the loaded ArchiCAD library, e.g. into „Flat-roof-hoods“.
3. Open the file `gdlconverter.py` in the folder `bin`: Change line 15 according to point 2 of the General Settings.
4. Drag at least one GSM file into the folder `01_gsm/flat-roof-hoods`; drag macros into the `macros` folder. (All GSM files must be created in ArchiCAD before using them in VSC).
5. Start VSC. In VSC: File -> Open workspace from file -> „Flat-roof-hoods.project“.
6. Select Task --> GSM2XML (all Files) in TaskRunner or Task Explorer; the first task process starts and converts the GSMs to XML files and creates the necessary single scripts in the source folder, each object in its own subfolder.

Trigger Task on Save

With the extension "Trigger Task on Save" you can trigger the conversion from XML to GSM automatically every time you save one of the `.gdl` files in the folder "02_source". This will save you the click on the taskrunner.

After installing "Trigger Task on Save" go to "Code >> Preferences >> Settings ", select there "Extensions >> Trigger Task on Save", then scroll down a bit and click on „Edit in settings.json“.

There please insert the following:

```
"triggerTaskOnSave.tasks": {
  "XML2GSM (all files)": [
    „02_source/**/*.*.gdl"
  ]
},
```

and save the file, which in the end looks like this:

```
28 "security.workspace.trust.untrustedFiles": "open",
29 "editor.accessibilitySupport": "on",
30 "liveServer.settings.donotVerifyTags": true,
31 "open-php-html-js-in-browser.selectedBrowser": "Chrome",
32 "python": {
33   "editor.formatOnType": true
34 },
35 "triggerTaskOnSave.tasks": {
36   "XML2GSM (all files)": [
37     "source/**/*.*.gdl"
38   ]
39 },
40 "VsCodeTaskButtons.tasks": [
41 ],
42 "taskExplorer.includeAnt": ""
43
```

Use

The first project is now ready for use.

Start ArchiCAD. Load the folder 1_gsm/Flat-roof-hoods to your loaded library.

In ArchiCAD, create one or more GSMs each with its own GUID in addition to the file already created in point 4 above and create the parameters there. Save this GSM file to the 1_gsm/Flat-roof-hoods folder or to the macros folder (if they are macros).

Switch to VSC and select there in TaskRunner -> GSM2XML.

Now all GSMs created in ArchiCAD should be available in VSC with all scripts and the parameter list, each file in a separate subfolder of the source folder. You can now edit all scripts in VSC, theoretically also add parameters manually (but this is easier in ArchiCAD; transferring parameters from one file to another is of course much faster in Parameters.xml).

Switch to ArchiCAD

You have edited some scripts in VSC and now you want to have the scripts checked in ArchiCAD, test the 3D model or check the user interface.

First save all changed .gdl files. If you have installed and configured "Trigger Task on Save", the process "XML2GSM" should now be triggered automatically.

If not, select the command >> XML2GSM (all Files) under Taskrunner. This causes the task process to write all the individual files back into a single XML file and starts the XML converter, which converts the XML file into a GSM file, creating a backup of the old GSM file with a time stamp in its name.

In ArchiCAD you now click on your shortcut for "Reload libraries" and all changes you have made in VSC are available in ArchiCAD.

Another change to VSC

You have created some new parameters in ArchiCAD or made script changes that needed to be checked more frequently in 3D Preview. Now you want to continue working in VSC.

I M P O R T A N T : Now be sure to save your GSM file in ArchiCAD: unsaved GSM files are not covered by the Task System backup.

Now select TaskRunner -> GSM2XML. This starts the Task process XML converter, which converts the GSM file(s) into one (or more) XML file(s), creating a

backup of the old XML file with a timestamp in its name.

In VSC you can then continue working immediately.

Embedding graphics

- First manually add a preview image to the GSMs in ArchiCAD.
- Then GSM2XML (all Files)
- Now the preview image is in a subfolder of "bitmaps" (respectively the preview images)
- In the same folder you put all pictures, which should also be in the object(s).
- If you now trigger the Picture-Task (Update Picture.xml), the bitmap scripts will be written into GDLPict.xml.
- and with the next XML2GSM the bitmaps are included.

Generate a parameter list as CSV

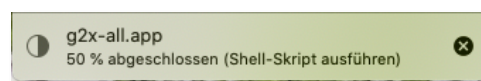
- Use the task "Parameter.csv". The output ends up in the documentation folder.
(Open Office displays the CSV better than Excel for me).

Automatic conversion of GSMs

It is also possible to have the GSMs automatically converted to XMLs the moment they are saved.

To do this, proceed as follows:

- Save the file "entr-install.sh" from the subfolder "21_auto" in the downloads folder.
- Open the terminal
- run this there: `bash ~/Downloads/entr-install.sh`
- Put the file "g2x-all.app" on your desktop or a shortcut from it.
You can open and edit the file in Automator.
- Double-click the file or its shortcut to start a process that appears in the taskbar.



- A dialog box opens where you have to specify the main project folder of your GDL objects (in our case „Flat-roof-hoods.project" or its renaming).
- As long as there is a folder "01_gsm" there, in whose subfolder gsm files are located, the process GDL2XML in the "gdlconverter.py" is triggered.

System requirements

The present tool works in MAC OS X on which Python 3 is installed.

You also need a version of ArchiCAD that allows saving files.

Questions and suggestions

Questions and suggestions are exceedingly welcome, as I would like to hear how users are using the tool, what are the drawbacks, limitations, improvement requests, etc.

Exclusions and licenses

This software is delivered "as is". The tool has been extensively tested, but the programmer makes no warranty for possible data loss, data corruption, or hardware damage and other damages including damages from lost profits, business interruption, loss of business information or of data, or from other financial loss.

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