

[Part of GCODE-MAKER-3.0 EXTENSION PACK]

- Written by: vishnus_technologies ©2022
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***Gcode-Maker 3.0* User Instruction Manual**

[Strictly for Gcode Maker version-3.0]

- **Terms and Conditions:**

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- **Softwares depended by Extension:**

1. Inkscape x64bit v1.0.2 or >v1.1 [recommended]
[~88.7MB]
2. Python Run-Time-Environment x64bit v3.10 x64bit
[~26.8MB]
3. UGS Universal-Gcode-Sender v3.0.0 or (v3.0.7-[Recommended]) [~156MB]

• Software Links:

You have to install several softwares depended by the extension. Follow the link below: -

1. Inkscape:

<https://inkscape.org/release/1.1/windows/64-bit/>
<https://inkscape.org/release/inkscape-1.1/>

2. Python v3.10:

<https://www.python.org/ftp/python/3.10/python-3.10-amd64.exe>

3. UGS:

https://winder.github.io/ugs_website/download/

• About Extension:

This is the Open Source Software that is used for generating the gcode data for cnc machines, supporting grbl firmware loaded in boot-loader memory. This software is an extension type, developed in Python Language; it uses external software [inkscape - a vector graphics editor] as a platform for its working.

- o Also this extension contains inbuilt UGS Automation API's:-

It allows hands free Universal Gcode Sender Platform operations.

It will automatically open the 'UGS Platform' or connect to it if already opens.

And check for the COM Port specified; connect to the board in port.

Import the recent selected gcode file to 'UGS Platform'. Hence make things simple! 😊

- **Note:**

This automation modules works only with UGS versions [2.0.0 snapshots Apr 17-2019] and [2.0.7 snapshots Dec 11-2021] releases and with python v3.10 or greater. And make sure that you have downloaded and installed all the required softwares from above link. [Download the .setup file for the software according to your system architecture {x86, x64}]

Gcode-Maker 3.0 Installation Guide

- **Installing extension manually:**

- **Copy and paste source code manually at extension folders**

1. Download the extension [source code](#) package in ZIP archive, and unzip it. (Your computer may unzip the archive automatically for you.)
2. Locate and open your Inkscape user extensions directory. You can find this location as follows:
 - A. Open Inkscape v1.1
 - B. From the menu, select Edit > Preferences
 - C. Select System from the list on the left panel of the *preferences* window.
 - D. On the right-hand panel is a list of directory locations.
 - E. Click the *Open* button to the right of the *User extensions* folder location
3. Copy the contents of the ZIP archive that you downloaded (12 items total; 9 files and 3 sub

directory folder) into your Inkscape extensions directory, overwriting any files and directories with the same names.

4. And close the folder.

○ Setting default Python Interpreter: Inkscape

- In default, Inkscape 1.1 have Python version: Python 3.10 (default, Apr 13 2021, 15:54:59) [GCC 10.2.0 64 bit (AMD64)] on win32

The Grbl Gcode Maker 3.0 extension works only with Python version >3.9.0 x64 bit or (AMD x64)

*[***For automation service to be enabled***]*

✓ Download & install Python Interpreter v3.10 for Inkscape v1.1 x64bit.

- You have to download latest Python from [here](#)
- Install it.

Note: Select **ADD TO PATH** option while installing python setup.exe file. [If asks]. You also have to install some python modules in python v3.10

<See Installation Guide for further>

- Ignore it, if already downloaded.

✓ Setting the above downloaded Python v3.10 as default interpreter for Inkscape.

- Next, you should change the python v3.10 as default python interpreter for inkscape, in **preferences.xml** file.

step1:- Open Inkscape v1.1

step2:- Press **CTRL+SHIFT+P** //opens preferences tab.

step3:- Select System submenu in preferences tab.

step4:- Locate the inkscape *preferences* folder in your system. Before that close all other Inkscape works and open the *preferences.xml* file in your favorite text editor //Use Notepad++

step5:- Search for *<id="extensions"* definition part in preferences.xml file.

Below that *<id="extensions" />* add respective python interpreter's v3.10 path

Example:

Python-Interpreter="C:\Users\%username%\AppData\Local\Programs\Python\Python39\pythonw.exe"

Before: *<id="extensions" />*

**** **** *- Add here. [Next line]*

After: *<id="extensions"*

Python-Interpreter="C:\Users\%username%\AppData\Local\Programs\Python\Python39\pythonw.exe" />

○ Setting Keyboard Short-cut Keys in Inkscape Default.xml file.

- You can update/set keyboard shortcuts for extensions under this pack. [Under Gcode-Utilities] in default.xml file.

[Below file valid only for Inkscape v1.1]

- File name: *default.xml*

- Download this [file](#) and paste it at,

C:/Users/%username%/AppData/Roaming/inkscape/keys/

[Click *Replace the file in the destination* option if prompted]. The above file contains pre-defined short keys for each extension. 'A' for *Gcode-Maker 3.0*, 'F' for *Hatch-Fill*, 'T' for *Hershey-Text*

○ Installing required Python Packages for extension.

step1:- Run *cmd.exe* as administrator.

step2:- Copy the *script folder* location of your python v3.10 on your system. Probably it would be:
C:\Users\%username%\AppData\Local\Programs\Python\Python39\Scripts

step3:- Type *cd* & paste the location of the script folder in *cmd* after a space.

[C:\Users\%username% > cd<space><Python-Script-Folder-Path>]

Example: *cd C:\Users\%username%\AppData\Local\Programs\python\python39\Scripts*

[Type below lines in *cmd.exe*]

C:\Users\%username%>cd C:\Users\%username%\AppData\Local\Programs\Python\python39\Scripts

step4:- Press 'ENTER'.

step5:- Type following commands one after the another and Press *enter* key after each command:

pip install [numpy](#)

pip install [lxml](#)

pip install [keyboard](#)

pip install [pywinauto](#)

pip install [pyautogui](#)

pip install [pyautogui](#)

step6:- You have successfully installed the packages. Close the command prompt window.

- **Installing extension using executable setup:**

- **Installing through windows installer setup**

[NB: Before starting this installation you have to close all inkscape related processes]

1. Download [windows executable](#) [For x64bit]
2. Run *GcodeMaker_30v5.exe* executable file in administrator mode.
3. Read carefully the instruction and proceed.
4. After the successful installation, you can check at *Extension* submenu in inkscape software, Under Gcode-Utilities you can find Gcode-Maker 3.0 extension, and many other.
5. You have successfully installed the extension, if you found the same.

[NB: By running *GcodeMaker_30v5.exe* executable file, it automatically installs respective source codes to the inkscape's extension folder. After the successful installation of the source codes, finally before clicking *Finish* button make sure that *Run Extension Configuration Script* option is selected. It is necessary to select that option before finishing the setup.] [Read 2.Q&A section...]

✓ Questions & Answers

Q. What happens if we select *Run Extension Configuration Script* option while finishing setup?

A. By clicking this option, it executes a python script at foreground thorough Windows-CMD, *[C:/Program Files/Gcode-Maker-3.0/Inkp_config.py]* which run as extension configuration script.

Q. what changes does *Inkp_config.py* file makes after executing?

A. This python script *Inkp_config.py* automatically does three jobs. At first, it sets external python interpreter v3.10 as default inkscape's compiler for extension process and others.

[Changes made at file: C:/User/%username%/AppData/Roaming/inkscape/preference.xml]

Next, it applies some keyboard shortcut-keys for extensions under this pack. ['A' for *Gcode-Maker 3.0*, 'F' for *Hatch-Fill*, 'T' for *Hershey-Text*]

[Changes made at file: C:/User/%username%/AppData/Roaming/inkscape/keys/default.xml]

And finally, the script downloads required python modules with help of *[PyPI - python package index]* through internet. *[Internet connection required]

[Modules downloaded: keyboard, pywinauto, pyautogui, lxml, numpy, inkex]

Q. Is it always necessary to select the option, *Run Extension Configuration Script* before finishing the setup?

A. Yes, you should always make sure that option is selected before finishing the setup. Because this script does numerous of job in your system for the better working of *Gcode-Maker-3.0* extension. If not, extension may misbehave in future.

Gcode Maker 3.0 UI/Parameters Settings

Extension's error handling Section

- In this part, you will know about the types of errors, occurs while using Gcode-Maker 3.0.
- You can make it solved by following appropriate solutions as mentioned.

Error 1:

ErrorMsg: - "Please agree with our terms and conditions"

Error Description: - You have not agreed the software T&C agreement.

Solution: - Please make sure that the '**I AGREE TO TERMS AND CONDITIONS**' option is checked, to debug this error.

Error 2:

ErrorMsg: - "Error in exporting Gcode File! Please select at least one option from 'Export' tab"

Error Description: - You have not selected at least any one exporting option in 'EXPORT' Tab.

Solution: - Go to 'EXPORT' Tab [Tab6] and select any export option. '**EXPORT AS A NEW GCODE FILE**' or '**APPEND GCODE DATA WITH BELOW DIRECTORY FILE**'

Error 3:

ErrorMsg: - "Select at least one importing file type option from 'UGS' tab!"

Error Description: - You have not selected any 'IMPORT FILE TYPE: UGS' option for UGS.

Solution: - Select at least any option under '**IMPORT FILE TYPE: UGS**' option Select '**OPEN NEWLY GENERATED GCODE FILE**' or '**OPEN APPENDED GCODE FILE**'. [Refer Tab5 *6]

Error 4:

ErrorMsg: - "Select only one importing file type option in '*UGS*' tab!"

Error Description: - Here you have selected both the options in '*IMPORT FILE TYPE: UGS*'
UGS cannot open both the exported file at the same time.

Solution: - Select any one option under '*IMPORT FILE TYPE: UGS*' either this '*OPEN NEWLY GENERATED GCODE FILE*' or '*OPEN APPENDED GCODE FILE*' option.

Error 5:

ErrorMsg: - "Invalid UGS application location. Please enter valid file location path at '*UGS Target Path*' tab!!"

Error Description: - You have given invalid *UGS application .exe* target path location.
Unable to find UGS Application location.

Solution: - Please enter valid UGS application (.exe) file location path on '*UGS Target Path*' tab.

#Author:

Developer: -
(Gcode-Maker 3.0)TM
vishnu_sukumar
vishnus_technologies®.in
KL, INDIA - 678622
18-01-2021 (C) 2022
Contact: 954*****35

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