Step by Step Guide to generate image for display on E-paper

Step 1: Download and Install required software

To do this process we need GIMP image editor, ImageMagick and Python 3 in your PC/laptop

Go ahead and respective files from download link given below for your operating system

1. **Python 3** download link -> https://www.python.org/downloads/
2. **GIMP** download link -> https://www.gimp.org/downloads/
3. **ImageMagick** download Link -> https://imagemagick.org/script/download.php

Note: for ImageMagick various options will be shown, download static one as shown in below image

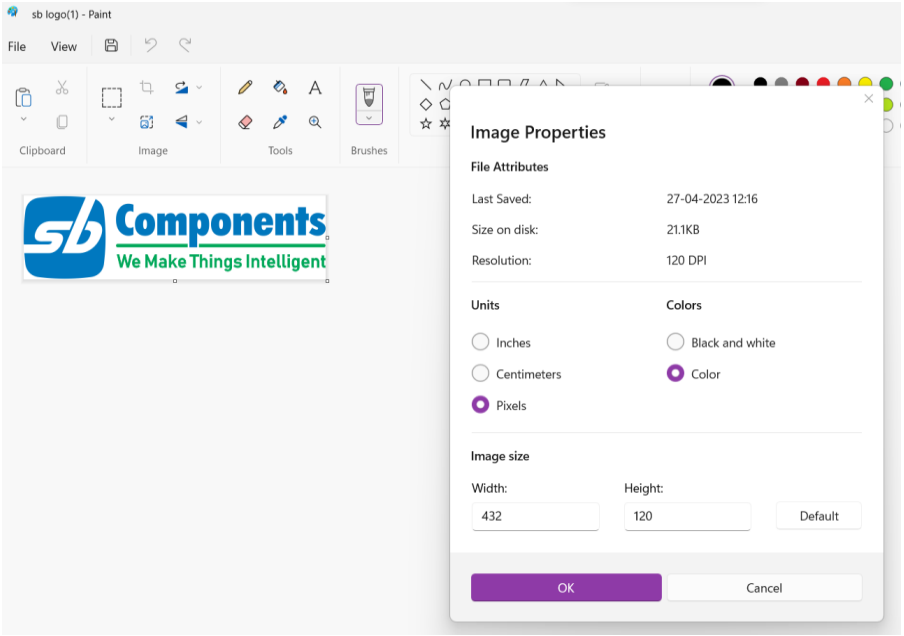
ImageMagick-7.1.1-8-Q8-arm64-static.exe	ARM64 static at 8 bits-per-pixel component

Step 2: Adjust Resolution of Image to display

Take your Image for corresponding E-paper size, and set resolution accordingly using any of paint or image editor.

For your reference:

Example for E-paper 7.5” resolution is 800x480 and for 2.9” resolution is 296x128

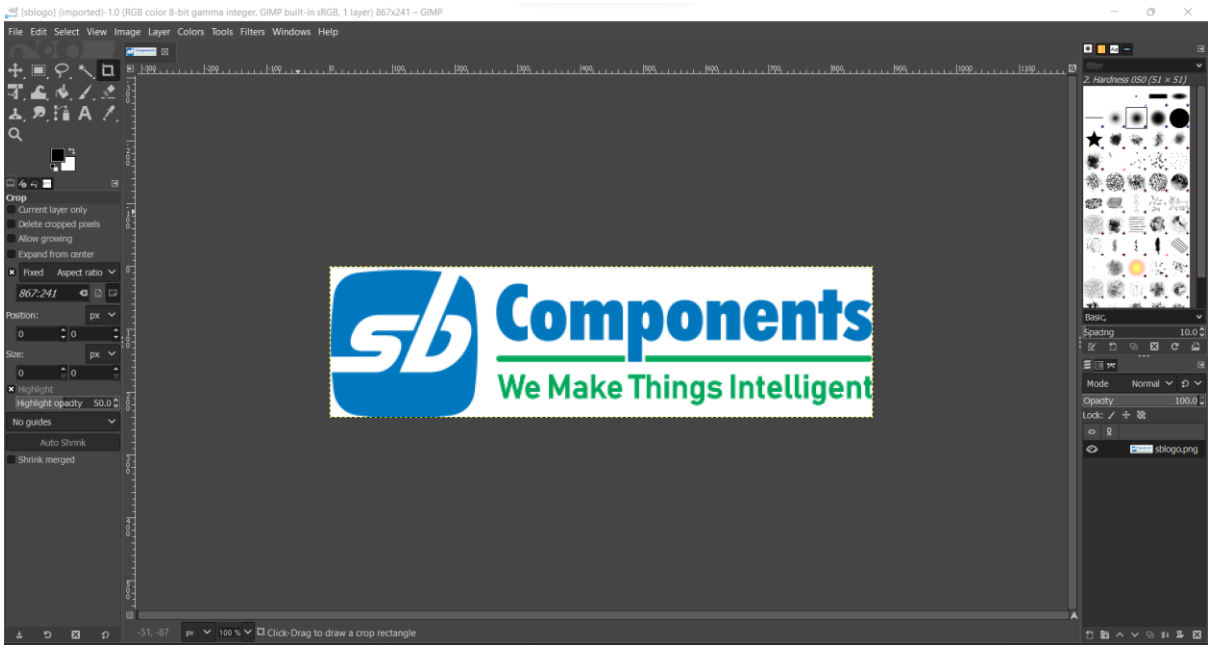


Save with suitable name.

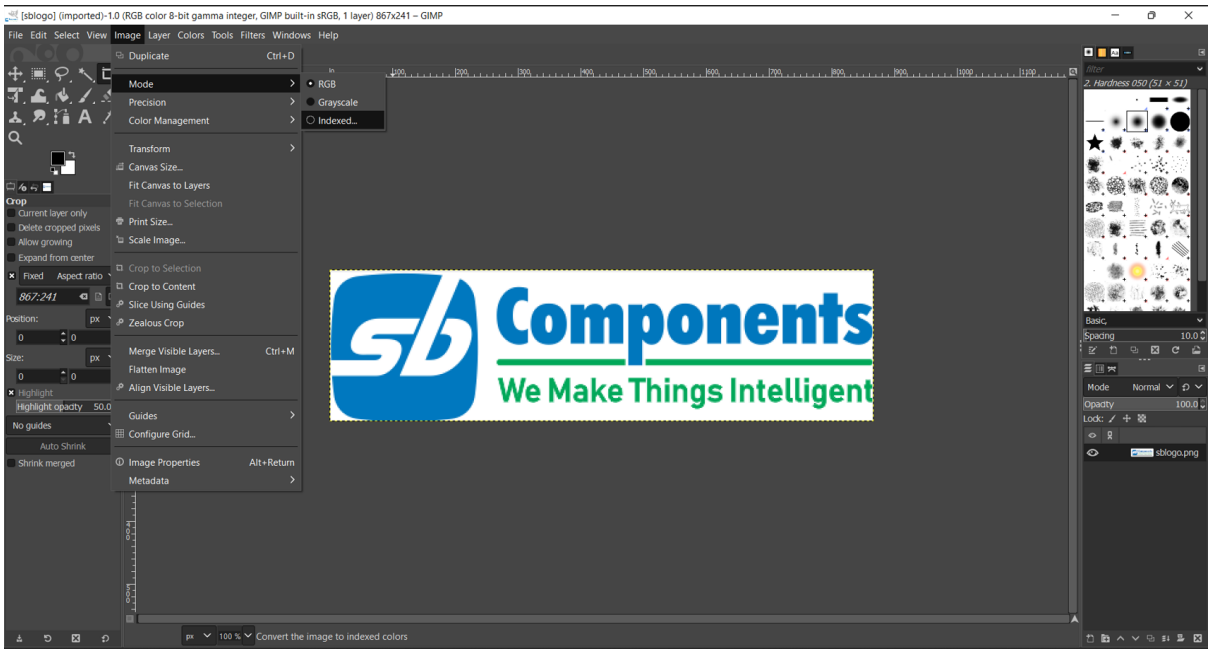
Step 3: Convert image to 1 bit image

Open GIMP software follow below steps shown in screenshot

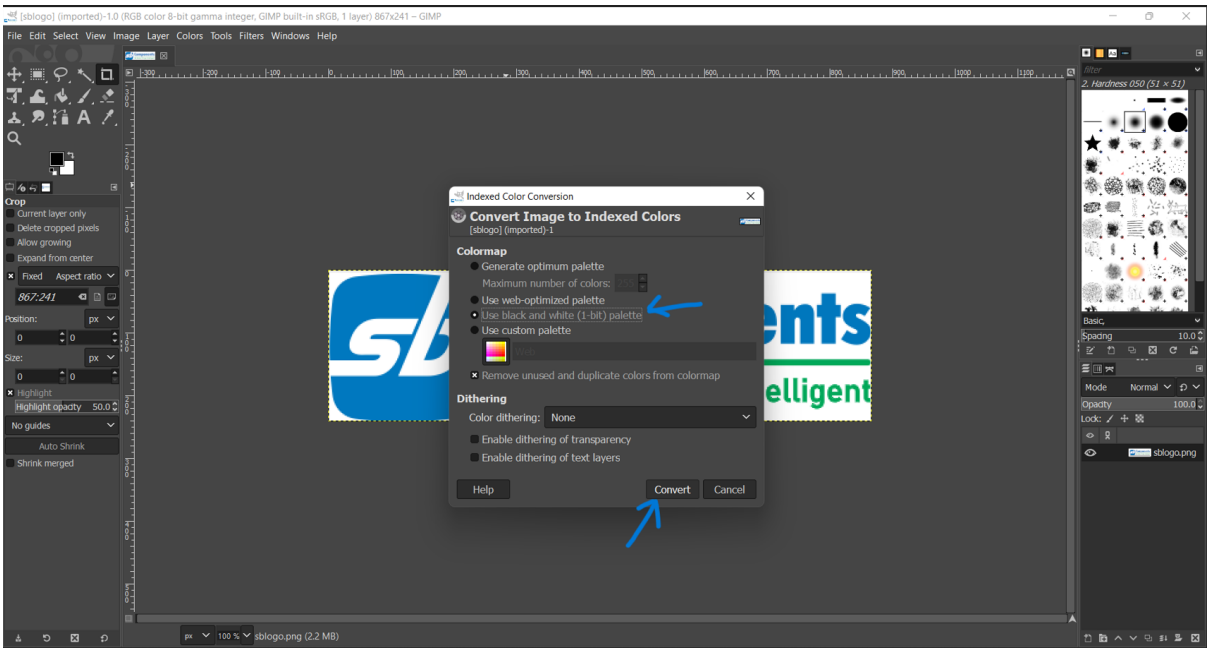
- Open image file you want for display in GIMP



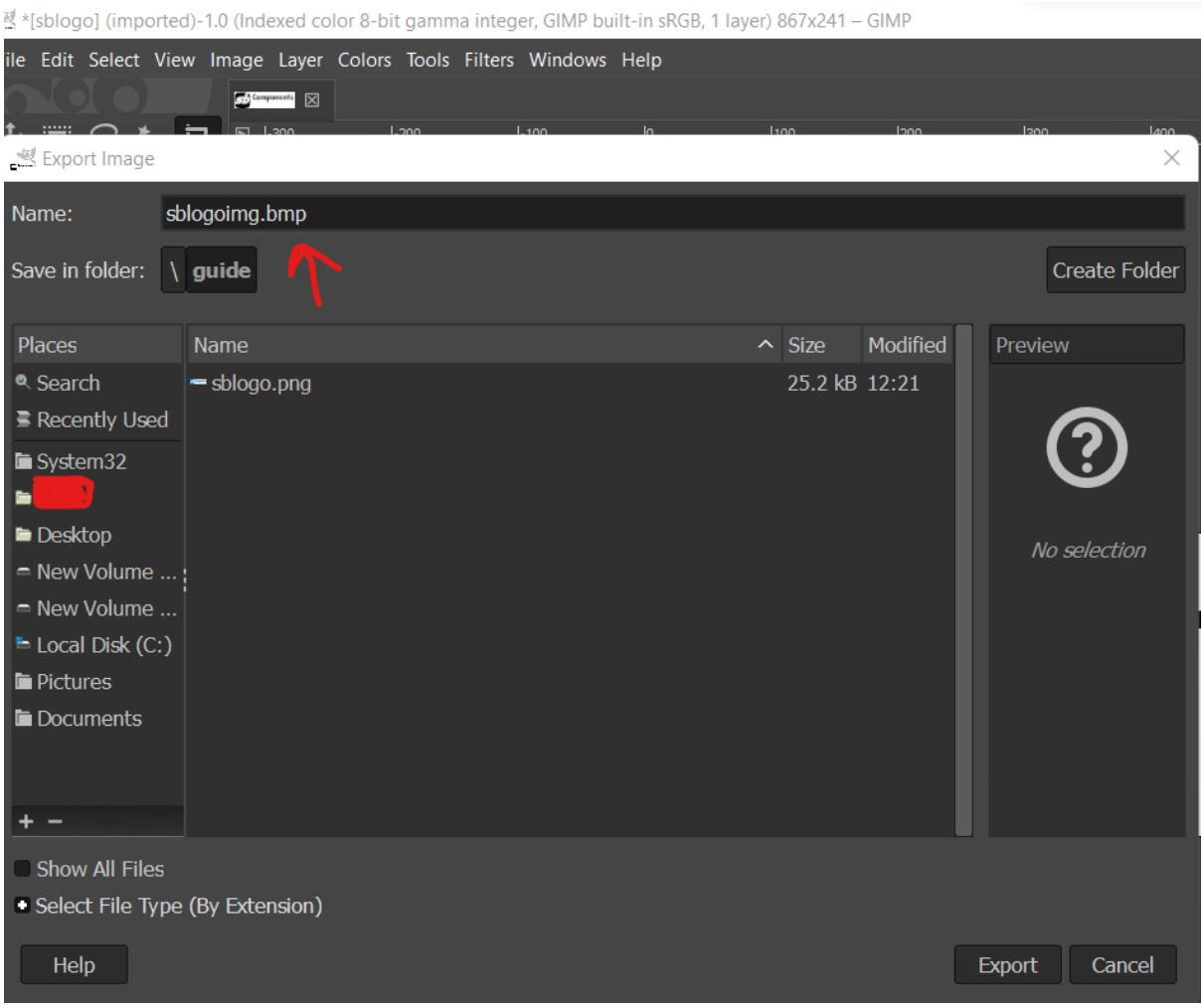
- Select Image > mode > indexed

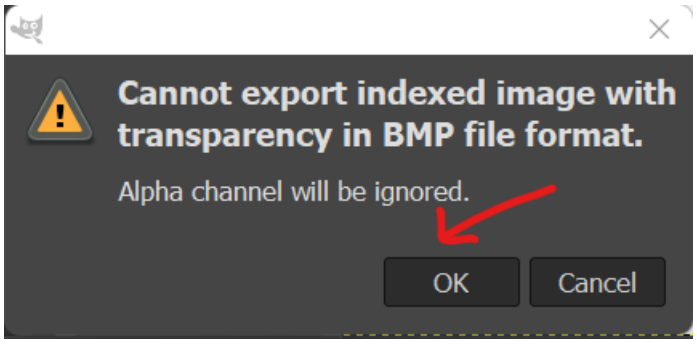


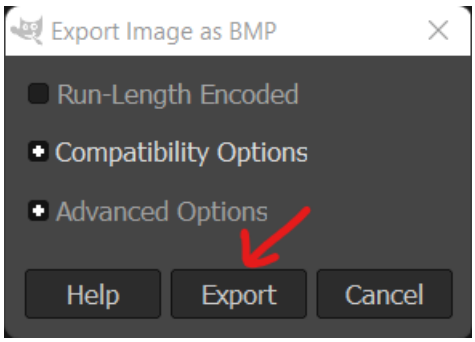
- Select option use black and white (1-bit) palette and then click on convert

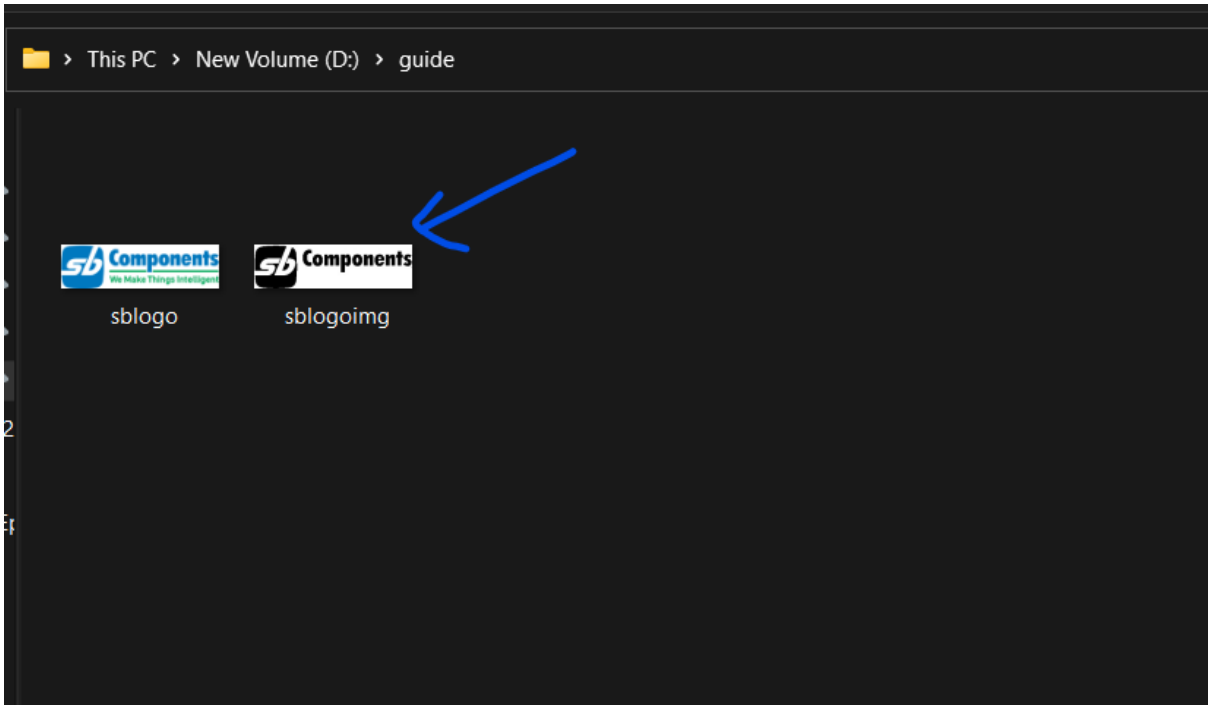


- Now your Image will look like below one and now export image as **.BMP,** warning message will pop up ignore and click OK


*[sblogo] (imported)-1.0 (Indexed color 8-bit gamma integer, GIMP built-in sRGB, 1 layer) 867x241 – GIMP
File Edit Select View Image Layer Colors Tools Filters Windows Help
Export Image
Name: sblogoimg.bmp
Save in folder: \ guide
Create Folder
Places
Search
Recently Used
System32
Desktop
New Volume ...
New Volume ...
Local Disk (C:)
Pictures
Documents
Name
Size
Modified
sblogo.png
25.2 kB
12:21
Preview
No selection
Show All Files
Select File Type (By Extension)
Help
Export
Cancel


Cannot export indexed image with transparency in BMP file format.
Alpha channel will be ignored.
OK
Cancel


Export Image as BMP
Run-Length Encoded
Compatibility Options
Advanced Options
Help
Export
Cancel

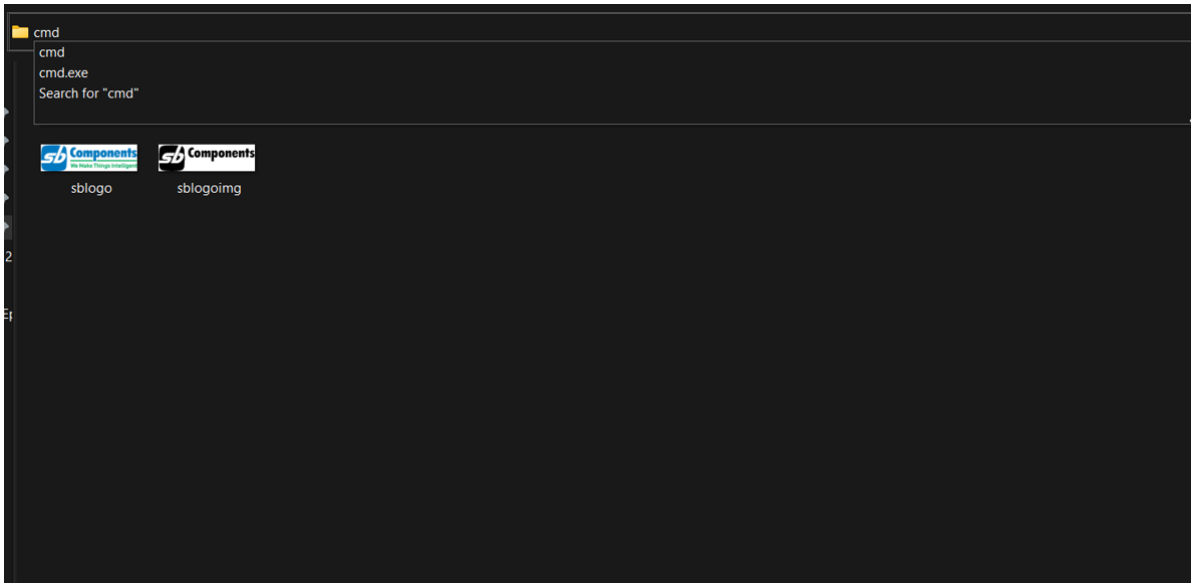


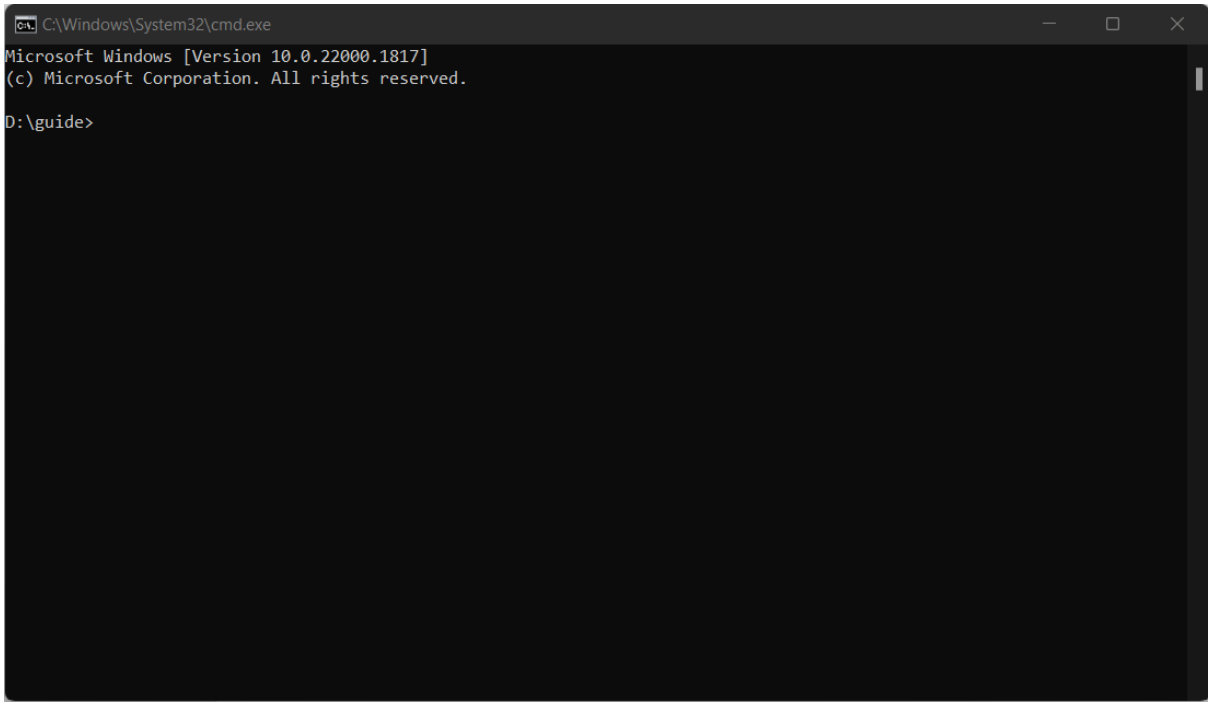
Now .bmp image file created, so we are ready for next step 4

Note: before proceeding with next step 4 make sure ImageMagick already installed

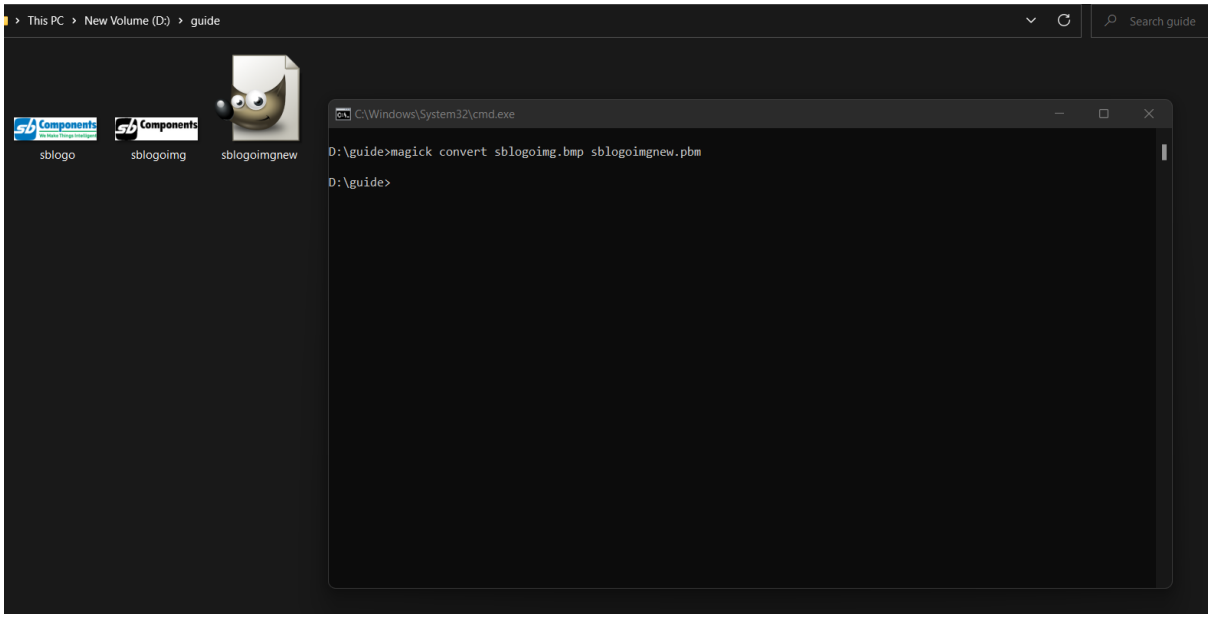
Step 4: Converting .bmp image file to .pbm

- Open cmd terminal and go to location where .bmp image file saved in previous step 3





- Type command below command ->
  magick convert imagefile.bmp imagefilename.pbm

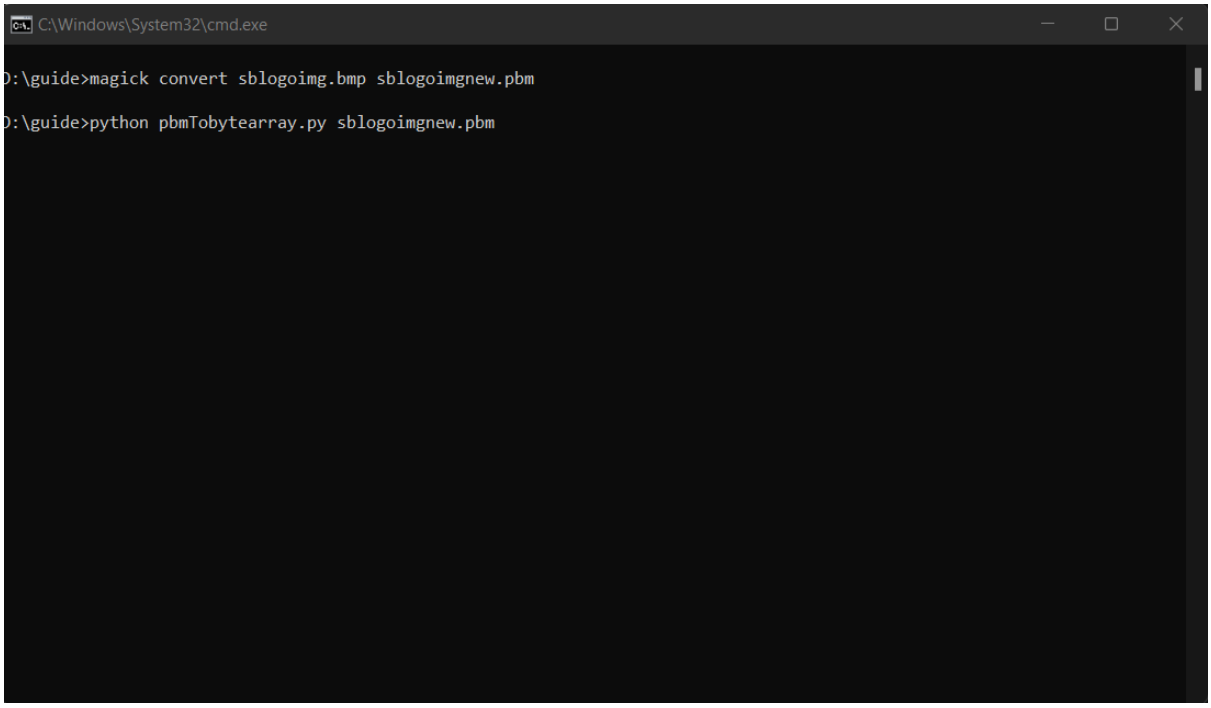


So, you can see in folder **.pbm** file generated.

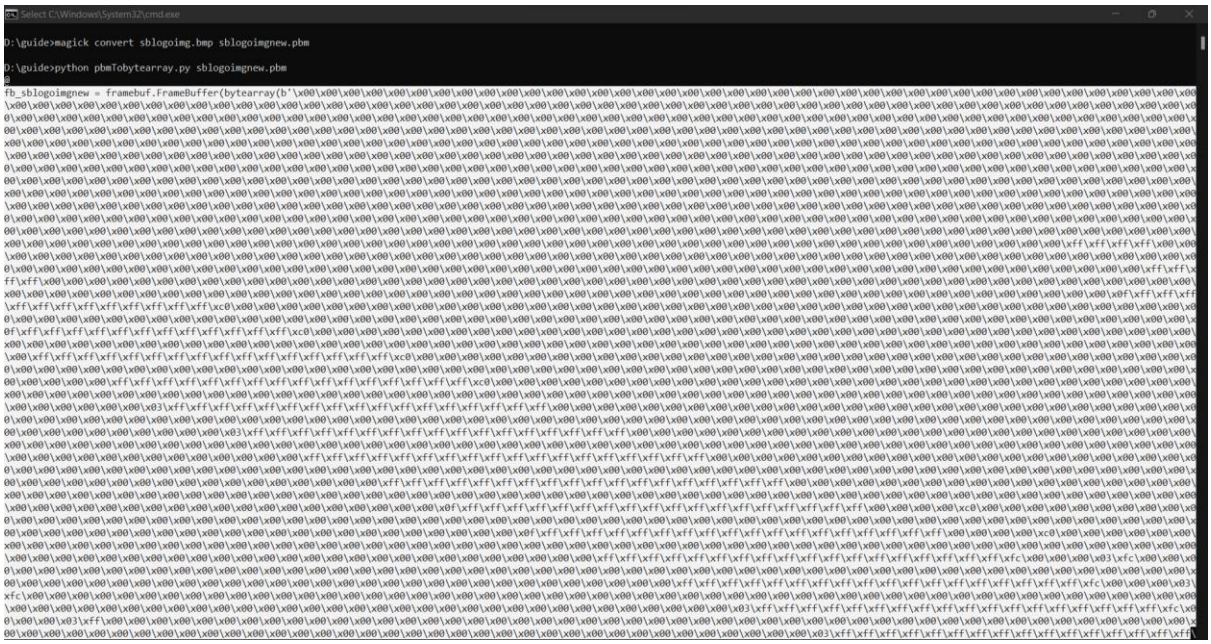
Note: Now make sure you have Python 3 installed in PC/Laptop for next step

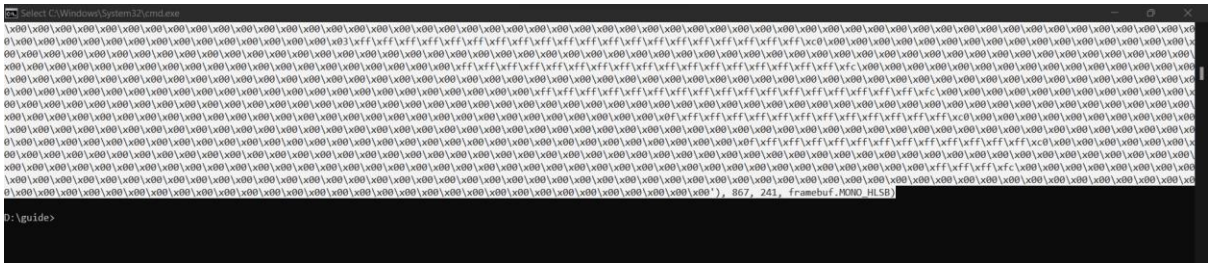
Step 5: Converting .pmb image file to byte array

- To perform this step you also need python script file which you can download from github repo -> https://github.com/sbcshop/EnkPi_2.9_Software/blob/main/Downloads/pbmTobytearray.py
- Copy or move pbmTobytearray.py script into same folder in which ***.pmg*** image present, then run by typing below command in terminal and hit enter
  python pbmTobytearray.py sblogoimgnew.pbm

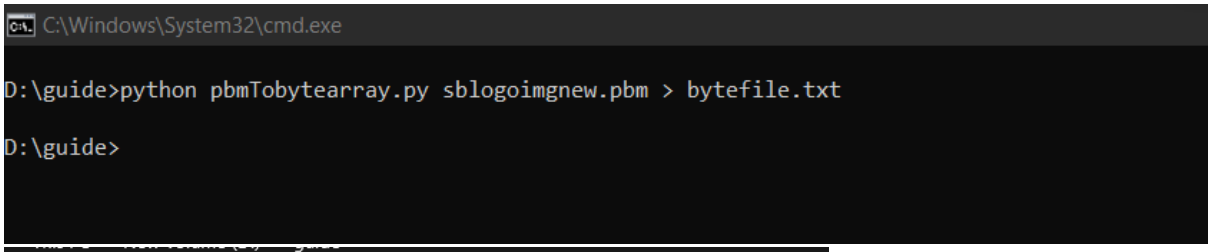


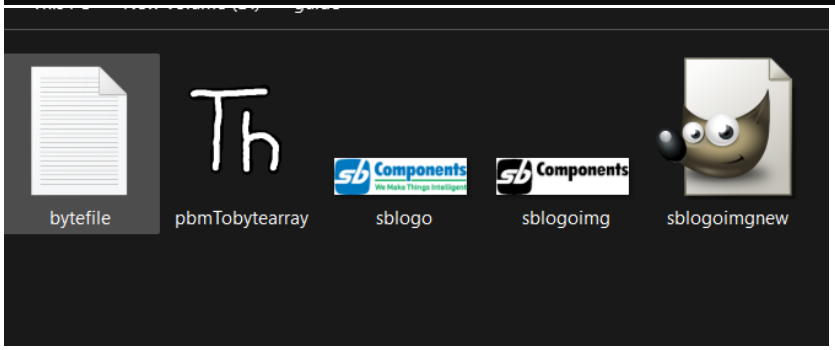
- So, this will generate big byte file which you have to copy in pics.py



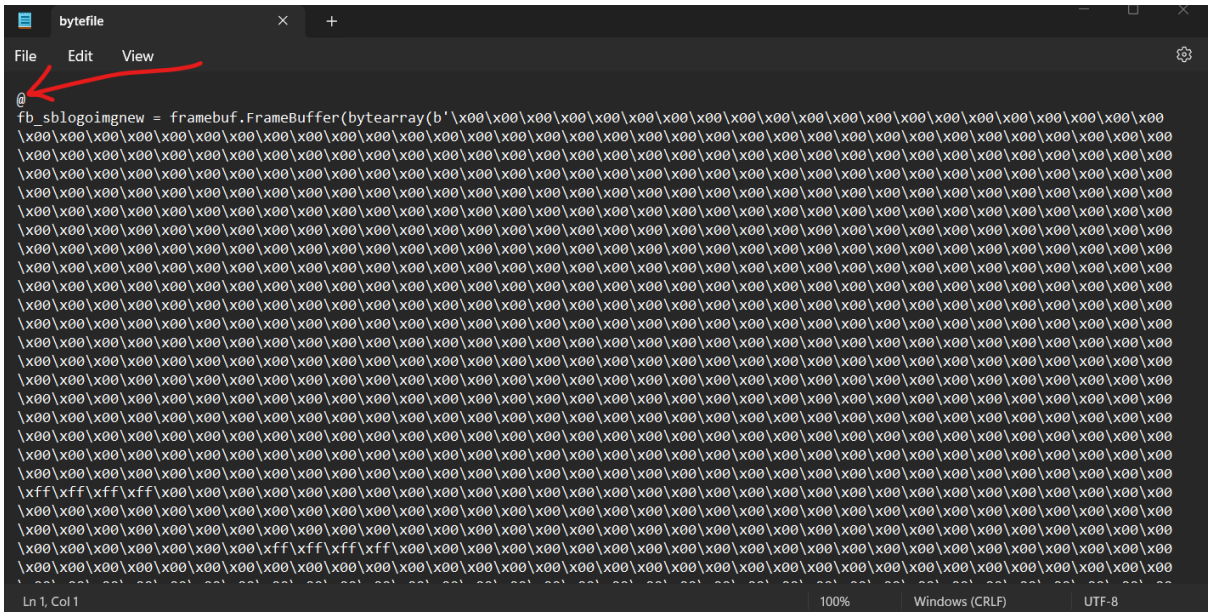


Or If you don't want this trouble then just save this in txt from where you can easily copy it as below





Now this is easy to copy, just checkout by mistake don't copy @ character which comes at start.



Step 6: Transfer this byte array in pics.py file

- So, you need to follow above 5 steps for all variants of EnkPi and Pico Universal E-Paper HAT to create byte array if going for image display code.
- This last step to copy byte array in pics.py will depend on which E-paper variant you are using and following corresponding github page.