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User Guide: gds2pdf.py

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Prior Operating System setup for Linux

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- Have Python3 installed with devel options:

>su

>yum install python3-devel

- Installing gdspy

>python3 -m pip install --user gdspy

- Installing pandas

>python3 –m pip install pandas

- Installing GDSLatexConverter

>python3 -m pip install:l git+https://github.com/Aypac/GDSLatexConverter.git

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Installing TeXLive

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- Using a Linux installation guide from https://www.tug.org/texlive/quickinstall.html
- Download https://mirrors.chevalier.io/CTAN/systems/texlive/tlnet/install-tl-unx.tar.gz

> tar -xzvf install-tl-unx.tar.gz

>cd install-tl

> pearl install-tl -gui

- Installation is completed at /usr/local/texlive/2021
- Please check if the 2021 version is installed in the default path using

>tex --version

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Generating a GDS file

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- Open on Virtuoso window

  File->Export->Stream

- Configure the stream file to be: cellName.gds
- Select your library and the topcell to be exported

  Library: Mylib

  Cell: cellName

  View: Layout

- Click on <Apply>

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LayerColors file

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- The LayerColors.csv file is created for a specific Process Design Kit (PDK)
- If the available PDK has the layers:
  - diffusion is lime,
  - poly-Si is red,
  - n-type implantation is gold,
  - p-type implantation is pink
- File format is:

```
GDSNumber!Layer!Collor
4!DIFF!{rgb:red,0;green,255;blue,0}
5!POLY!{rgb:red,255;green,0;blue,0}
6!NIMP!{rgb:red,217;green,204;blue,0}
7!PIMP!{rgb:red,255;green,191;blue,242}
```

Creating LayerColors file

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- Obtain the GDS layer number using

  Technology Tool Box->Manager->Dump…->Save
- Obtain the colors from Virtuoso layout using

  Display Resources Tool Box->Edit->File->Save
- Compare the *.tf file and the *.drf
- Write a new layerColors_PDK.csv according to the example
- Missing layers will be neglected

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Running gds2pdf

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- Have all files:
  - gds2pdf.py
  - LayerColors_PDK.csv
  - cellName.gds
- On a Terminal, please run:

>python3 gds2pdf.py

- Enter both the cellName and the layerCollors file name (no extension)

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Execution of gds2pdf

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- The tool gds2pdf.py do
  - confirm the entered values
  - convert the *.gds to a *.tex file
  - call LuaTeX or pdflatex to generate a *.aux, and *.pdf
- Output file is a compiled *pdf using tikz Latex package
- TeXLive may present compilation errors:
  - Verify installation
  - Verify the required *.cls and *.sty

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Thank your very much for using our tool

Please remember to cite to the tool in your paper