# GDS3XTRUDE for KLayout

gds3xtrude takes the layers of youir layout and converts them into 3D volumes by extrusion. And can be used in two ways:

- as a standalone tool
- as a KLayout extension

gds3xtrude also uses the OpenSCAD 3D modeling tool.

The below instructions will focus on the KLayout integration.

## Setup

1. Start klayout with the special klayout-gds3 command that includes the OpenSCAD and gds3xtrude environment:

   ```
   $ klayout-gds3
   ```

2. In the "Tools" menu of klayout, choose "Manage Packages"
3. Choose "Install New Packages" tab
4. Find gds3xtrude (it may be easiest to type "gds" into the search box at the top)
5. Highlight gds3xtrude
6. Click the checkmark icon above the list of packages
7. Click the "Apply" button, which will also say "one package selected"
8. A "ready for Installation" window pops up showing that gds3xtrude will be installed
   a. Click "OK"
   b. In the "Run Macros" pop up window, choose "Yes" to run these macros now
9. Quit klayout
10. Restart klayout with the klayout-gds3 command

## Making Sure It Works

1. After doing the setup above, open a sample gds file with klayout, or create a simple gds file
2. "Tools" menu - "gds3xtrude" - "Run Script"
3. In your AFS home directory is a folder name ".klayout"  – this folder with the klayout gds3xtrude sample files may not be visible by default because the folder name begins with a dot: ".klayout" .
   a. In the File dialogue that opens, you can type in: .klayout (note the leading dot) and hit return... this will open the possibly hidden ".klayout" folder
   b. In that hidden ".klayout" folder, go into the subfolders: salt - gds3xtrude - example-scripts
   c. You will a sample named: freepdk45.layerstack
   d. Select that sample and click "Open"
4. OpenSCAD now opens having extruded your gds file with gds3xtrude

## Invoking

You will always start klayout with the special "klayout-gds3" command:

```
$ klayout-gds3
```