Dummy Metal Filling

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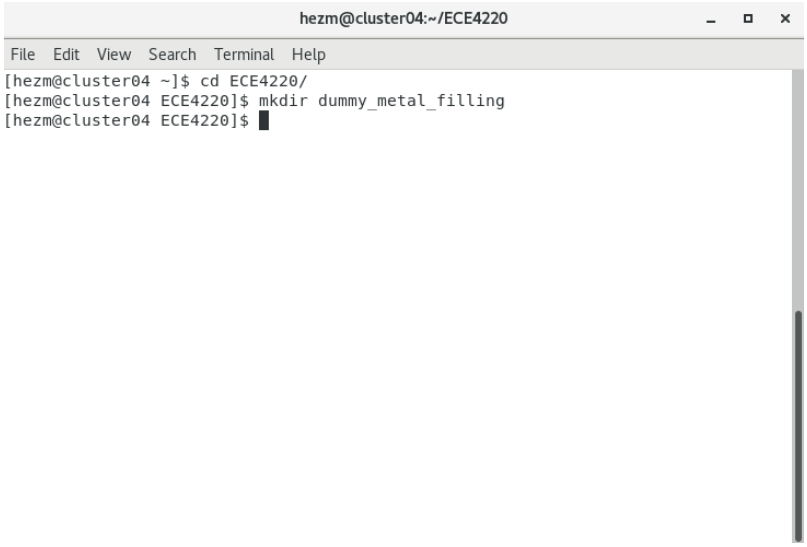
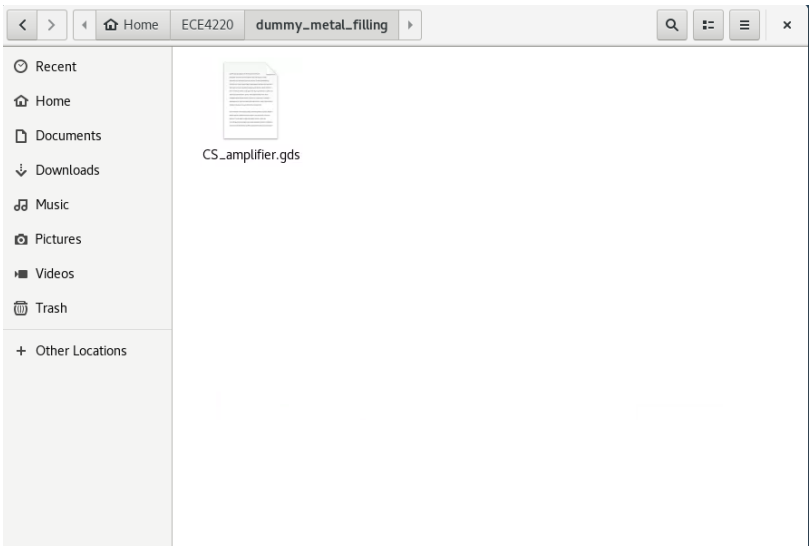
Before the design is ready to be sent to a foundry for fabrication, there is one last thing to do, which is the dummy metal filling. The dummy metal filling for a CS amplifier is used as an example in this tutorial.

1. Create a new folder under your working directory. You may do it with either the GUI or command lines.



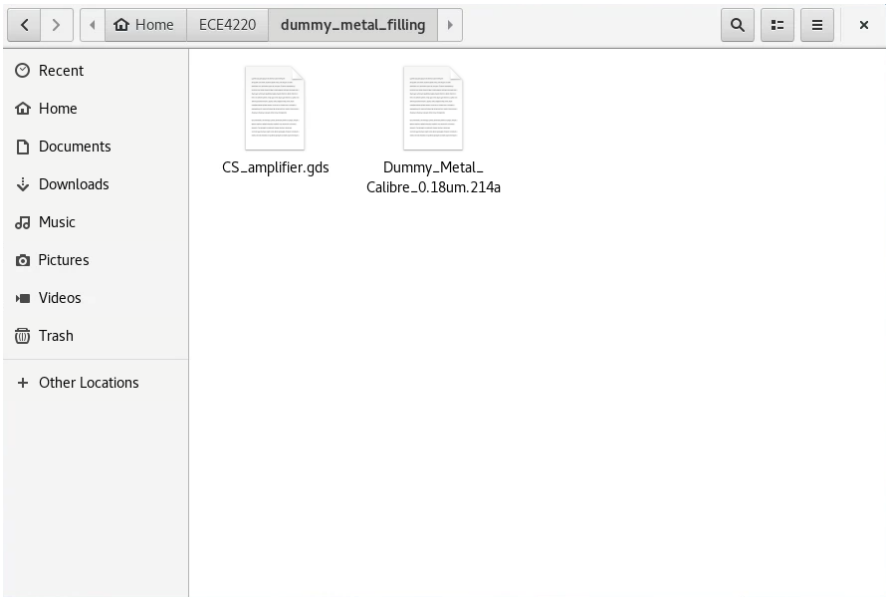
2. Extract the GDS file of the layout that you want to fill the dummy metal on and save it to the folder that you just create.

Note: if you do not know how to do so, please refer to “11_GDS File Extraction”.

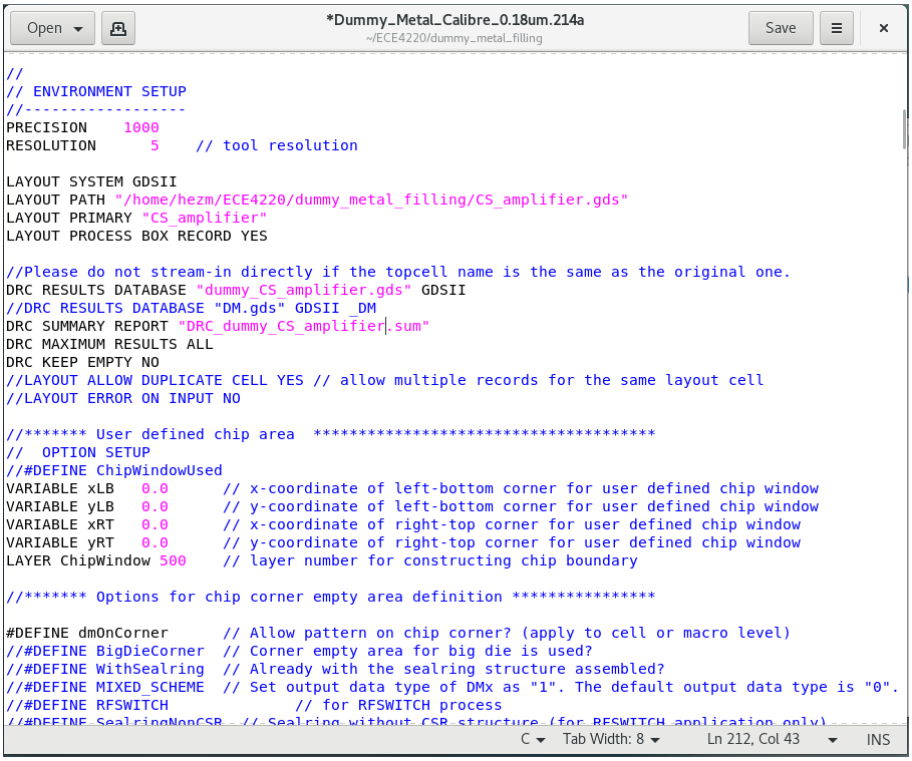


3. Copy the dummy metal filling script to the folder that you just create. And now you should have two files under the folder.

Note: for different PDKs and different environment setups, the location of the script may differ. If you cannot find the script, talk to the TA.



4. Open the file "**Dummy_Metal_Calibre_0.18um**" and scroll down all the way the **Environment Setup** part (pink words).
5. Setup the environment as below and **Save**.



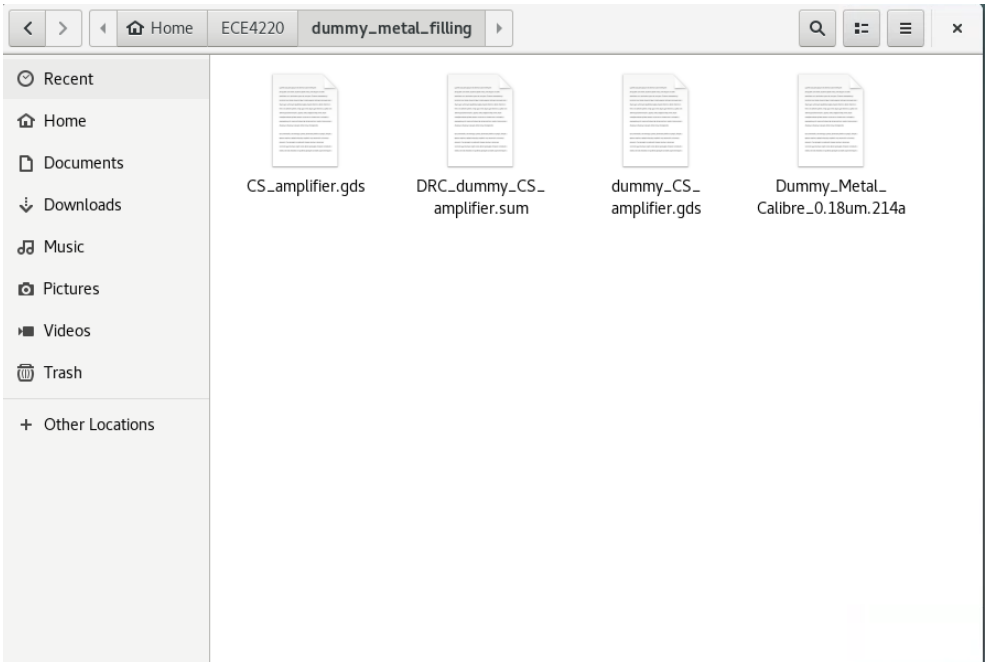
LAYOUT PATH: the path of the layout that you want to fill the dummy metal on
LAYOUT PRIMARY: the top cell name of the layout that you want to fill the dummy metal on
DRC RESULTS DATABASE: a dummy metal layout that the script generates (this name must be different from the layout that you want to fill the dummy metal on)
DRC SUMMARY REPORT: a report that the script generates

6. Open **Terminal** under this folder, and enter commands,

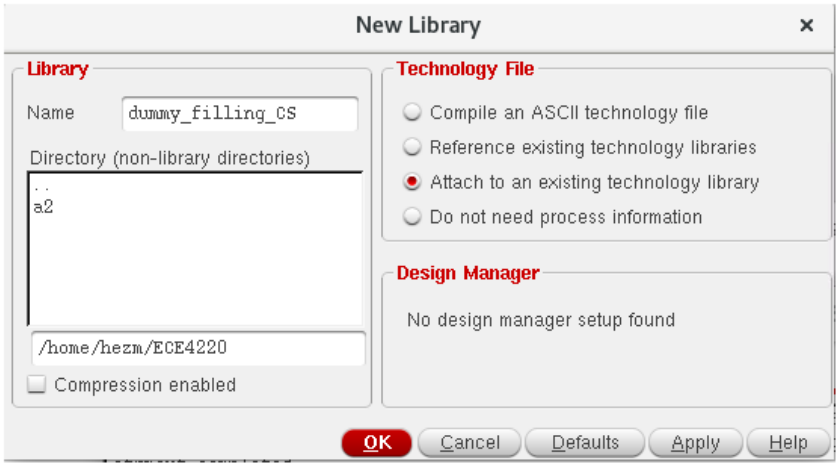
calibre -drc Dummy_Metal_Calibre_0.18um.214a

```
[hezm@cluster04 dummy_metal_filling]$ calibre -drc Dummy_Metal_Calibre_0.18um.214a
```

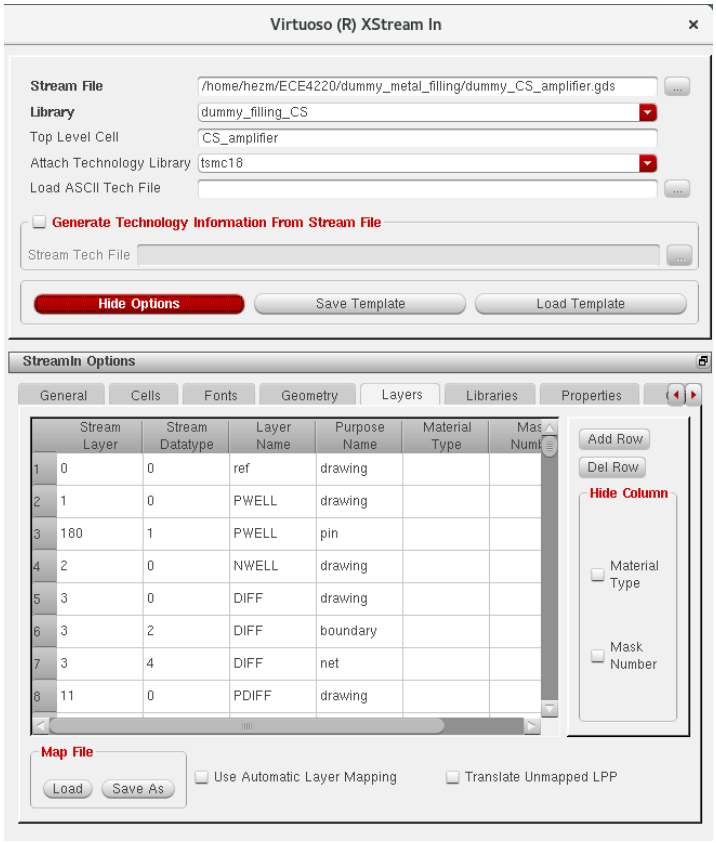
7. If the file is executed successfully, a new .gds file for the dummy metal will be available under the folder, as well as a report file.



8. In CIW, click File -> New -> Library to create a new library for the dummy metal. Attach this library to the technology library **tsmc18**.



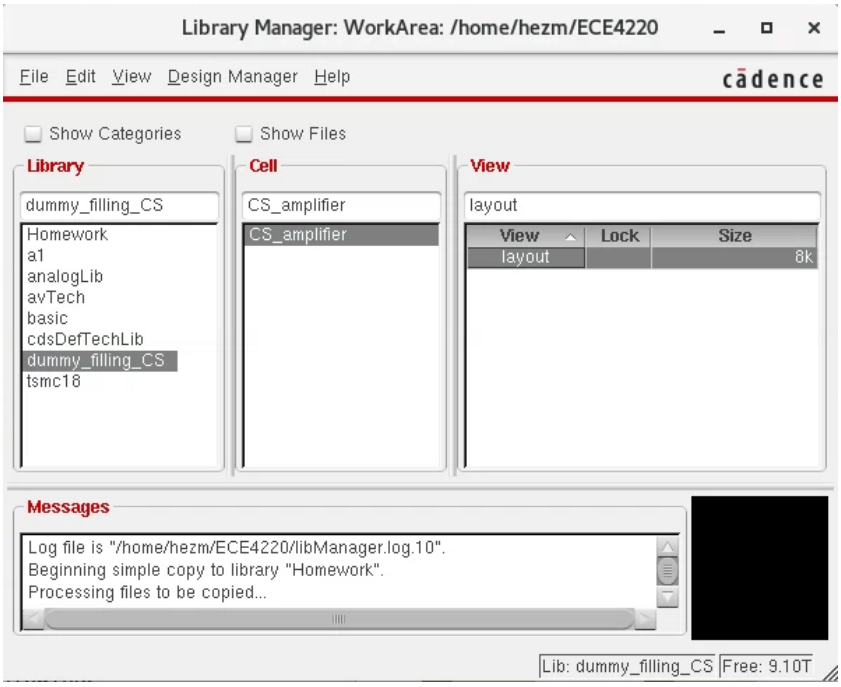
9. In CIW, click File -> Import -> Stream to stream in the .gds file of the dummy metal. Also, make sure you load the layermap file.



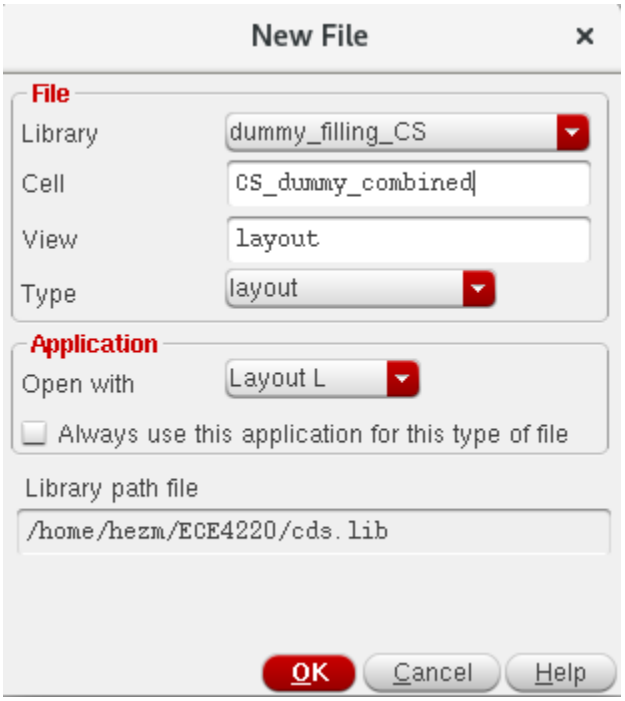
Note: the Top Level Cell name must be the same as the top level cell name of the **original** layout (not the dummy metal layout).

Note: for different PDKs and different environment setups, the location of the layermap may differ. If you cannot find it, talk to the TA.

10. Click **Translate**. Make sure there are no errors.
11. Under the **dummy_filling_CS** library, you should see a **layout** view.

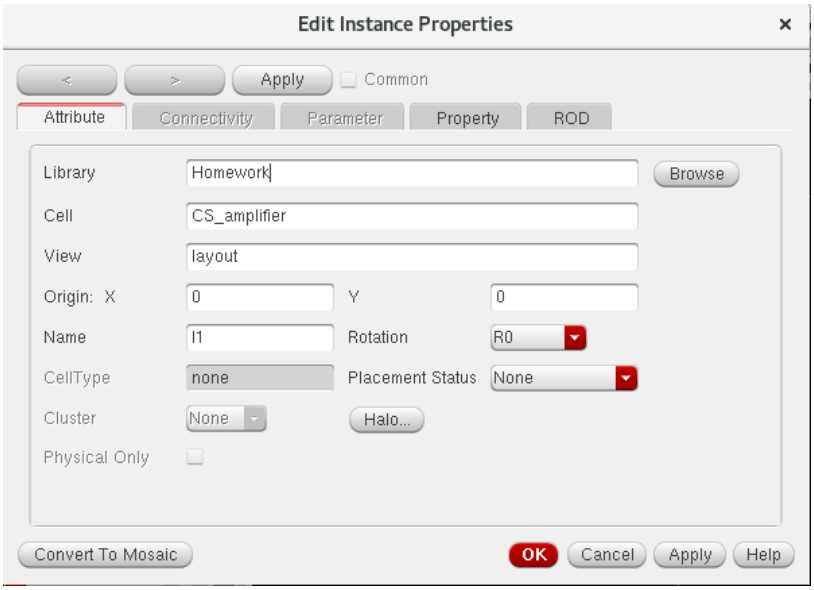


12. You may open the **dummy metal layout** file to see how it actually look like. But as the circuit is very simple. You may not see things easily, which is fine.
13. Create a new layout to combine the original layout with the dummy metal layout



14. In **Layout Suite L Editing** window, create the instances of the layout for both the original layout and the dummy metal layout.

15. Open the **Property** of the instances for both the original layout and dummy metal layout, make their locations both **(0, 0)**.



16. The dummy metal filling is done. Now you can generate a new .gds file and send this to a foundry for fabrication.