Import DXF File Tutorial

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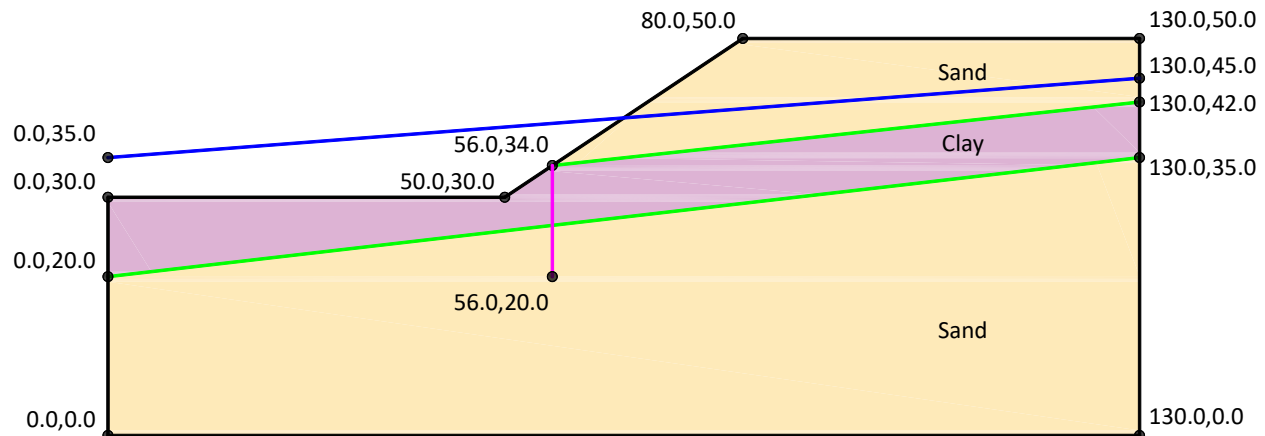
This tutorial will demonstrate how to import DXF file into ***HYRCAN*** using the Import DXF wizard tool. In this tutorial ***LibreCAD***, a free Open Source CAD application is used for DXF generation but please note that HYRCAN is compatible with ***AUTOCAD*** as well. ***LibreCAD*** can be downloaded from https://librecad.org/

Create DXF File

First let's create the DXF file. In order to create a simple geometry using ***LibreCAD*** let's follow the sequences below:

1- Before start drawing let's specify some layer names. From menu select ***Layer List->Add a Layer*** and then specify ***EXTERNAL*** as a layer name. Please note that the DXF file must contain only one external boundary otherwise the DXF won't be generated by program. In ***HYRCAN***, the external boundary must be CLOSED (i.e. must form a closed polygon with the first vertex equal to the last vertex). However, ***HYRCAN*** will automatically close an open-ended ground surface polyline. Please repeat the same steps and create other layers and name them ***MATERIAL, WATER_TABLE*** and ***ANCHOR*** for the rest of the boundaries. You can optionally specify the color, width or line type for each layer for better presentation. Table 1 shows the conventions for layering while creating objects.

2- To draw the external boundary, select ***Tools->Polyline->Polyline*** and specify the point coordination for the external boundary. Now double click on the drawn polyline and choose ***EXTERNAL*** in the property dialog.
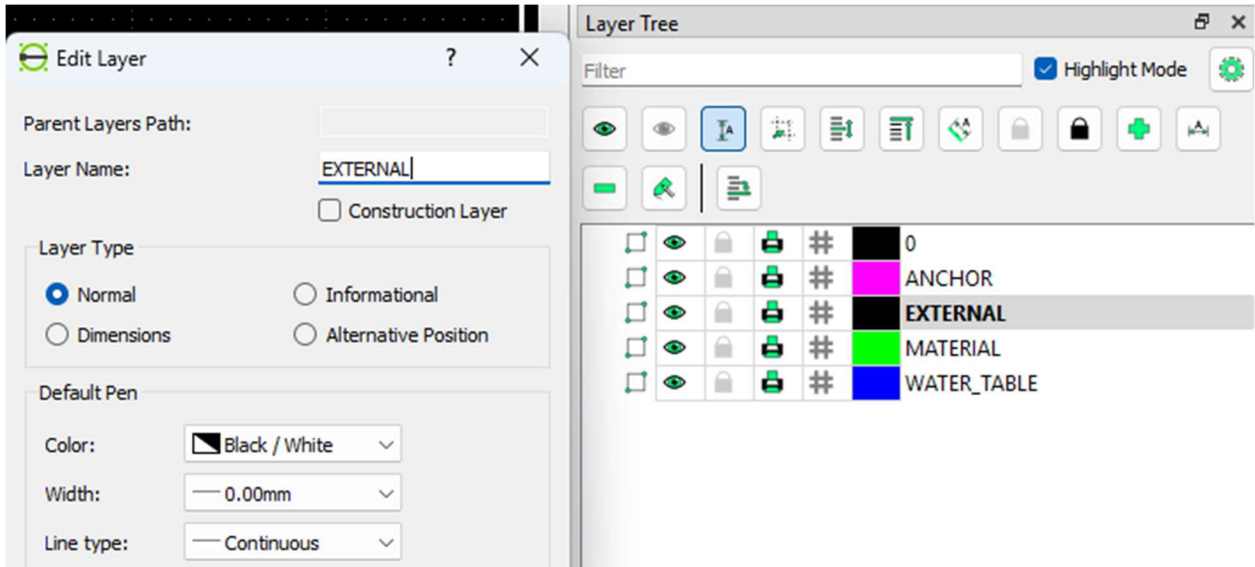
Figure 1- Layers Settings dialog to specify new layers.
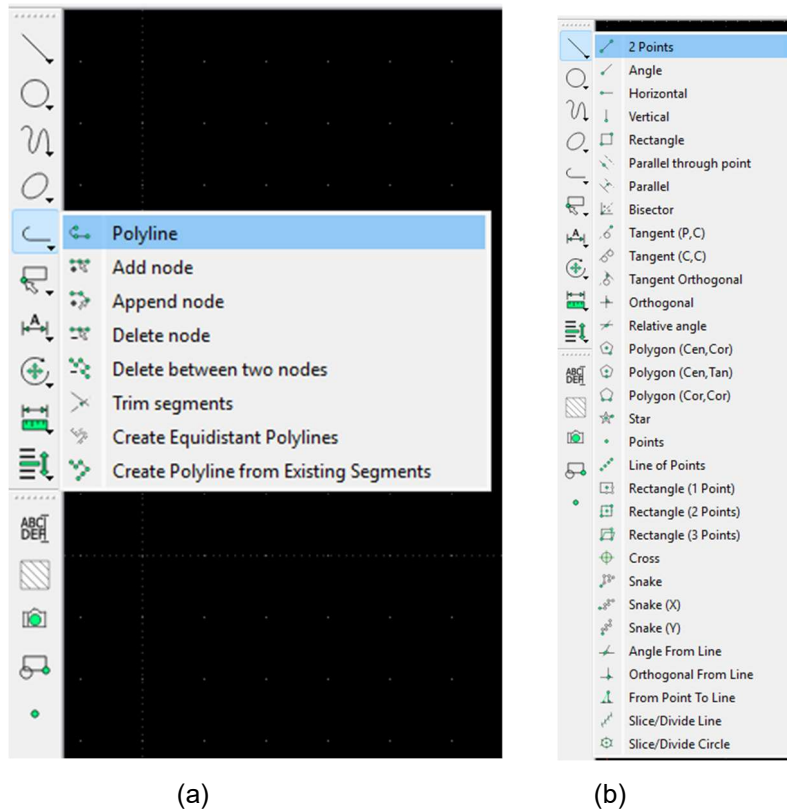

(a)   (b)

Figure 2- (a) draw polyline (b) draw line.

3- To draw the rest of the boundaries (MATERIAL, WATER_TABLE and ANCHOR), select **Tools->Line->2 Points** and specify the coordinates. Now select each boundary and assign the appropriate layer name to it.

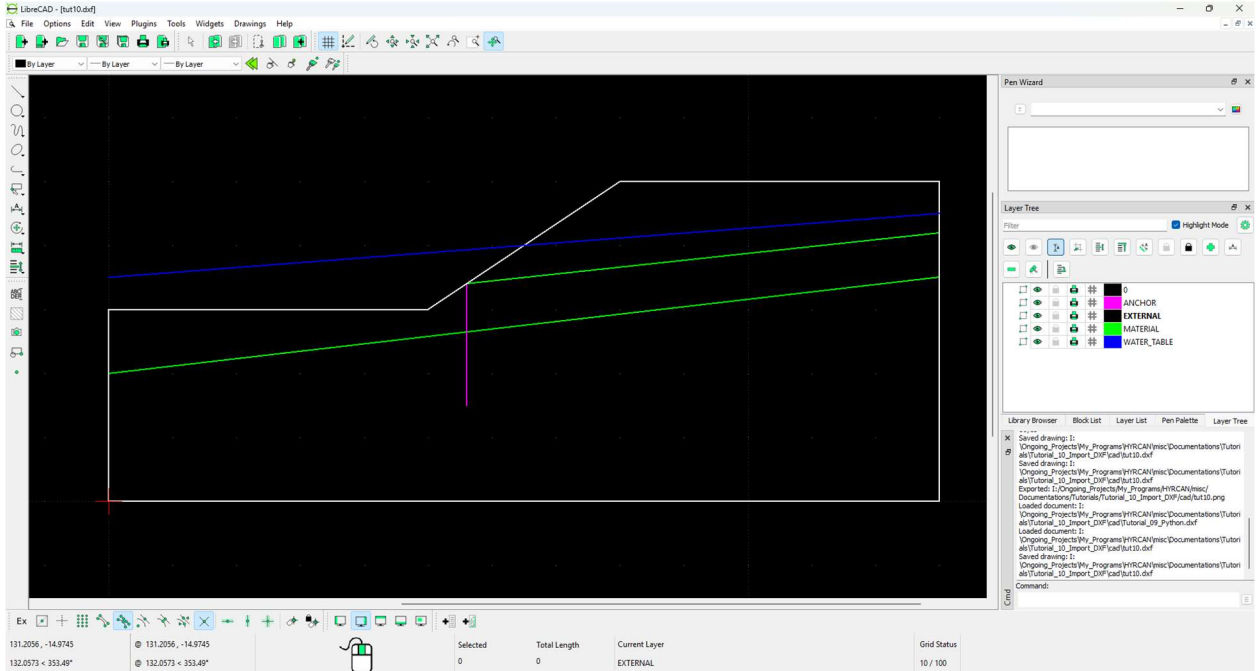4- Save the file in the desired directory and name it "tut10_dxf.dxf"

Figure 4- Final result in the LibreCAD.

Table 1- conventions for layering and entity type

Object	Layer Name	CAD Entity Type
External Boundary	EXTERNAL	Closed LINE / POLYLINE
Material Boundary	MATERIAL	LINE / POLYLINE
Water Table Boundary	WATER_TABLE	LINE / POLYLINE
Support	ANCHOR	LINE

Import DXF

To import dxf file into **HYRCAN** using wizard dialog, select **File->Import DXF** from menu or toolbar

Select:

Then follow the steps below:

1. In the **Import DXF** dialog, click on Select DXF File button and select the required DXF file and press Open.

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2. In case you want to modify the output filename click on **Output Filename** checkbox and specify output script filename. By default, the output filename is identical to the input DXF filename.

3. Then select **Unit System**. Uncheck the **Load Script after Creation** if you don't want to load the created script after generation.

4. Click on **Apply** button, to generate the script file (i.e. *.hjs). Generated script corresponding to selected DXF file can be found in the same directory as input DXF file.
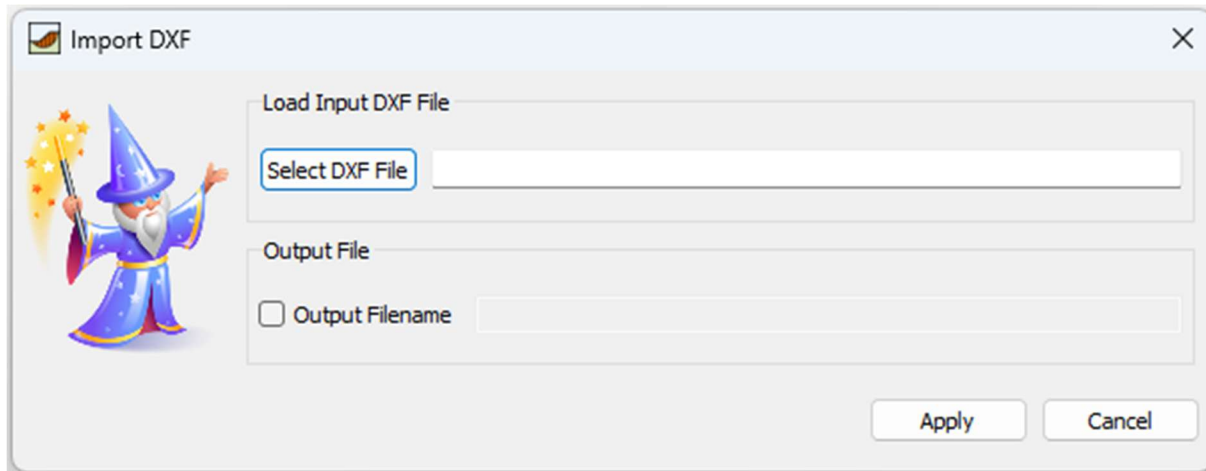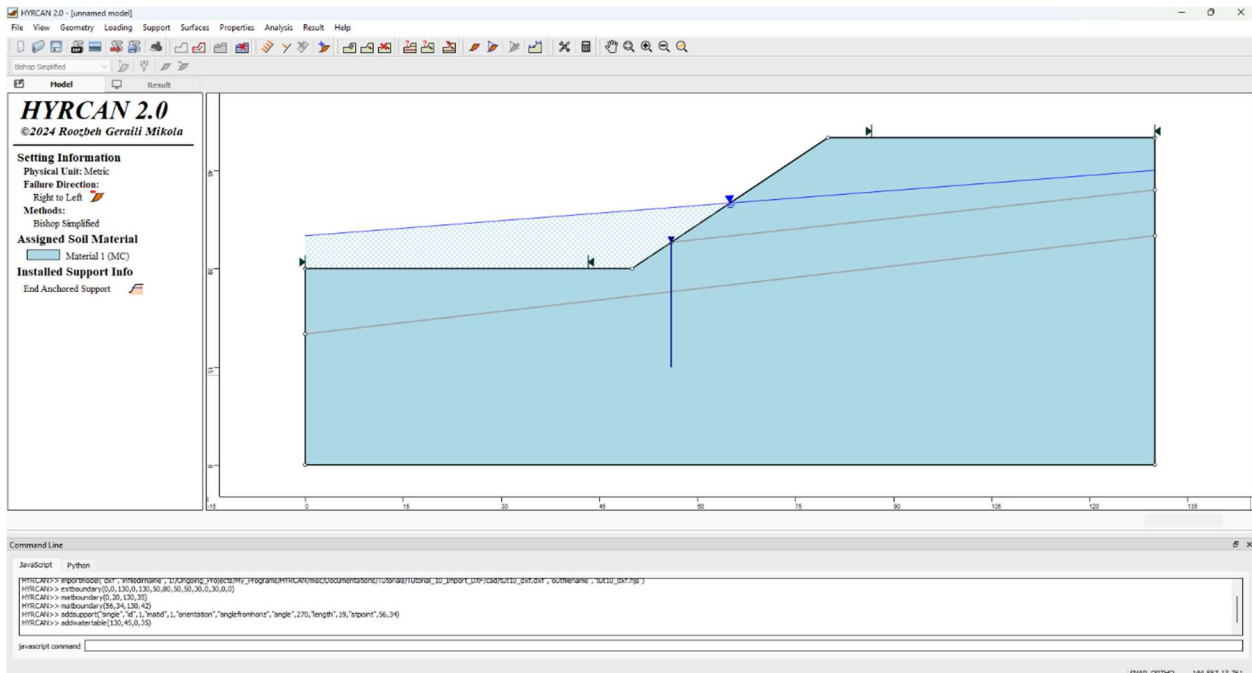
Figure 5- Import DXF dialog in HYRCAN.

Figure 6- Final result in HYRCAN after cleaning up the script.

Script

Now you can open the script file, for instance you can create and specify the material to the solid elements then excavate the tunnel before installing the cable element. The following command lines shows the output from the wizard tool including the modifications made before cable installation:

```
// ***************************
// this part is included after clean up

// create new model
newmodel()

importmodel("dxf","infiledirname","C:/Users/Desktop/tut10_dxf.dxf","outfilename","tut10_dxf.hjs")

// generate external boundary
extboundary(0,0,130,0,130,50,80,50,50,30,0,30,0,0)

// generate material boundaries
matboundary(0,20,130,35)
matboundary(56,34,130,42)

// draw supports
addsupport("single","id",1,"matid",1,"orientation","anglefromhoriz","angle",270,"length",19,"atpoint",56,34)

// generate water table
addwatertable(130,45,0,35)
```