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Installation

-Scilab

<https://www.scilab.org/en/download/Previous-Scilab-Versions>

scroll down, download version 5.5.2 (Compatible on all systems)

-CelestLab

in Scilab Console: atomsInstall("celestlab")

or https://atoms.scilab.org/toolboxes/celestlab

-STL toolboxes

<https://fileexchange.scilab.org/toolboxes/490000>

download “stlfiles.zip”

-SIVP

in Scilab Console: atomsInstall("SIVP")

or <https://atoms.scilab.org/toolboxes/sivp>

-EarthOrbiterSystem

Download package from: /

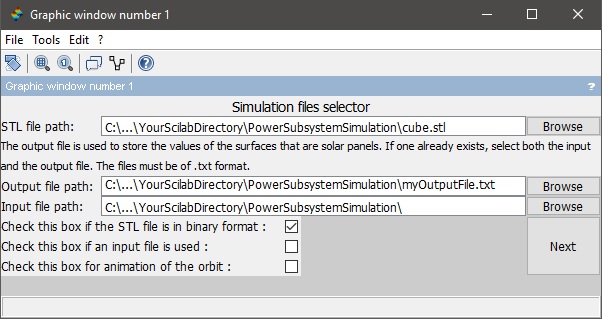
Unzip to Scilab work directory

Operation:

*Satellite Model*

Run “main.sce”

*Using an input file: this will remember the solar panel surfaces selected from a previous sim.* *(Useful for re-simulating complicated models)*

**

1: Select STL file

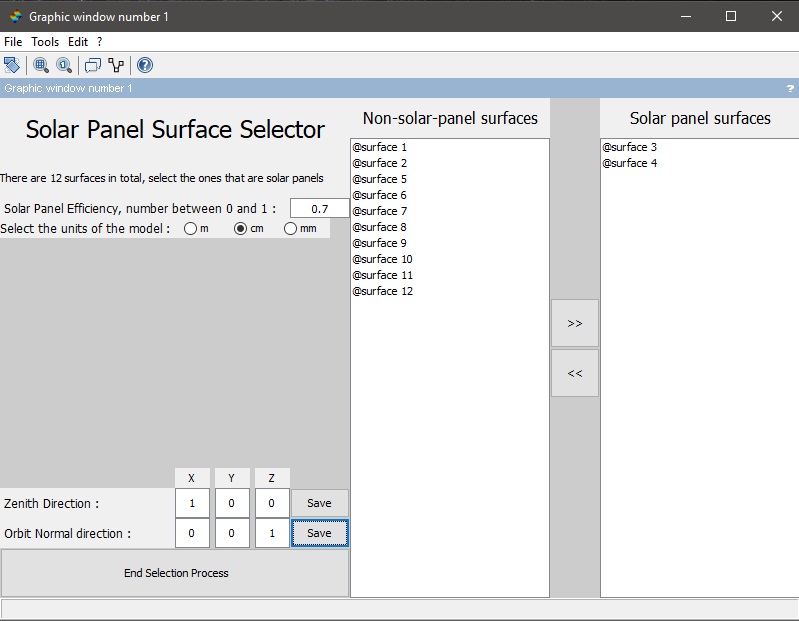
2: Select Output File (must be .txt extension

Optional: Select Input File (must be .txt extension)

3. Check the binary box if applicable (cube.stl is a binary)

4: Click “Next”

Optional: 3D animation of satellite orbit



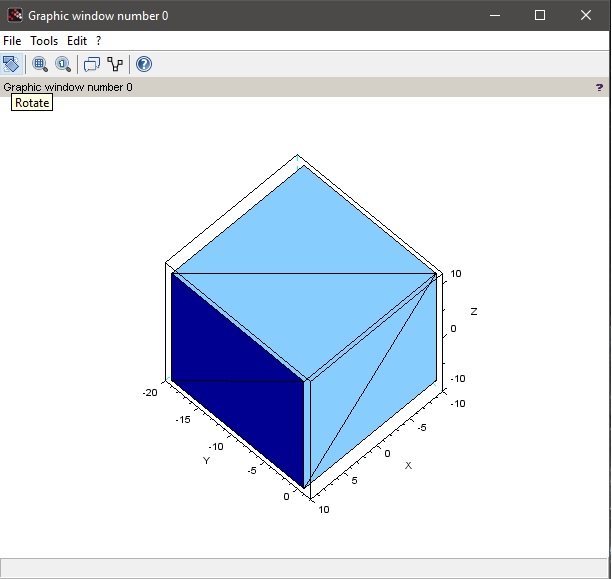
1: Input the Solar Panel efficiency, must be a number between 0 and 1

2: Select the dimensions of the .stl model

4: Using the model axes for reference, input the zenith and orbit normal direction for the body frame.

3: Select desired surface and use the “>>” button to make them act as solar panels. Panel surfaces will appear as dark blue on the model.

5: Make sure you “save” these vectors before continuing.

**

6: Click “End Selection Process”

Model window displays the .stl file. Surfaces in dark blue indicate the user-designated solar panels.

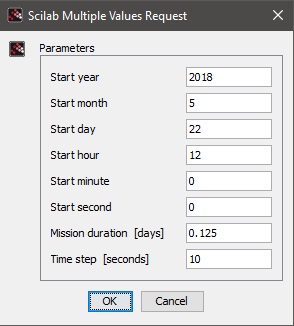
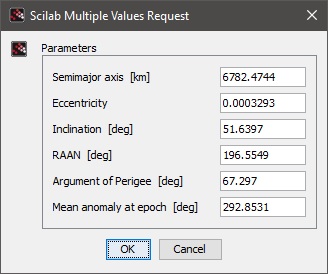
Model can be rotated with right-click to view hidden surfaces.

*Orbit and Time Parameters*

3: Input desired Mission time and duration

1: Input desired Orbital Parameters

(default is set to ISS orbit)



(Timestep is recommended to be between 10 and 30 seconds)

4: Click “OK”

2: Click “OK”