

JPLClone.BAS ... By Aldo Vitagliano, May 2019

Includes the source code and a sample of input file.

This utility creates a SOLEX .SLX file of any number of "clones" of a given minor planet or comet whose keplerian elements and covariance table in ASCII format has been built by copying and pasting the data from the JPL small body database browser:

<https://ssd.jpl.nasa.gov/sbdb.cgi#top>

The program can be unzipped and run in any folder, provided its input file(s) are stored in the same folder, and its output file(s) go to the same folder.

Unlike the Neodys/Astdys sites, the JPL site does not provide a machine-readable file, but only an HTML page for each requested small body. It is therefore necessary to build up the input file for JPLClone by copying and pasting the appropriate data from the screen of the HTML page to a Notepad page.

Here is a description of the structure of the file to be created:

Line 1: Epoch of the elements, as JD.

Optionally it is possible to add to the line two more items, using spaces as separators: The diameter in km, starting at column 15 (set as negative if comet), and the absolute magnitude (starting at column 25).

Lines 2 to 9: The block of lines copied from the HTML table given for elements from e to Tp, erasing the further line appearing below Tp (giving the date of Tp).

Line 10: Type "A1" (without quotes) from keyboard, enter the value (if present) starting after column 8, or nothing if A1 is not given.

Line 11: Same as line 10 for A2.

Line 12: Same as line 10 for A3.

Line 13 and following: Copy and paste the whole Table of the covariances, including its heading line (7 lines if non-grav parameters are absent).

The edited file must be saved as a text file and stored in the working directory of the program.

Thanks to Tony Dunn, the whole process of creating the input file can be made quick and simple using an utility available online at his website:

<http://orbitalimulator.com/BA/JPLCLONE.html>

A sample file is enclosed (Bennudat.txt).

The program prompts for three entries, that must be typed from keyboard:

- 1) The input filename
- 2) The output SLX filename (must be entered without the SLX estension)
- 3) The number of clones to be generated.

The program prints on the screen a summary of the input data, so that you can make sure that the input file was correctly built.

The output SLX file can then be imported by SOLEX as such.