THE GRAPHICAL INTERFACE FOR CREATING AND VIEWING HOPS TO THE STELLAR OBJECTS

USER MANUAL

Contents

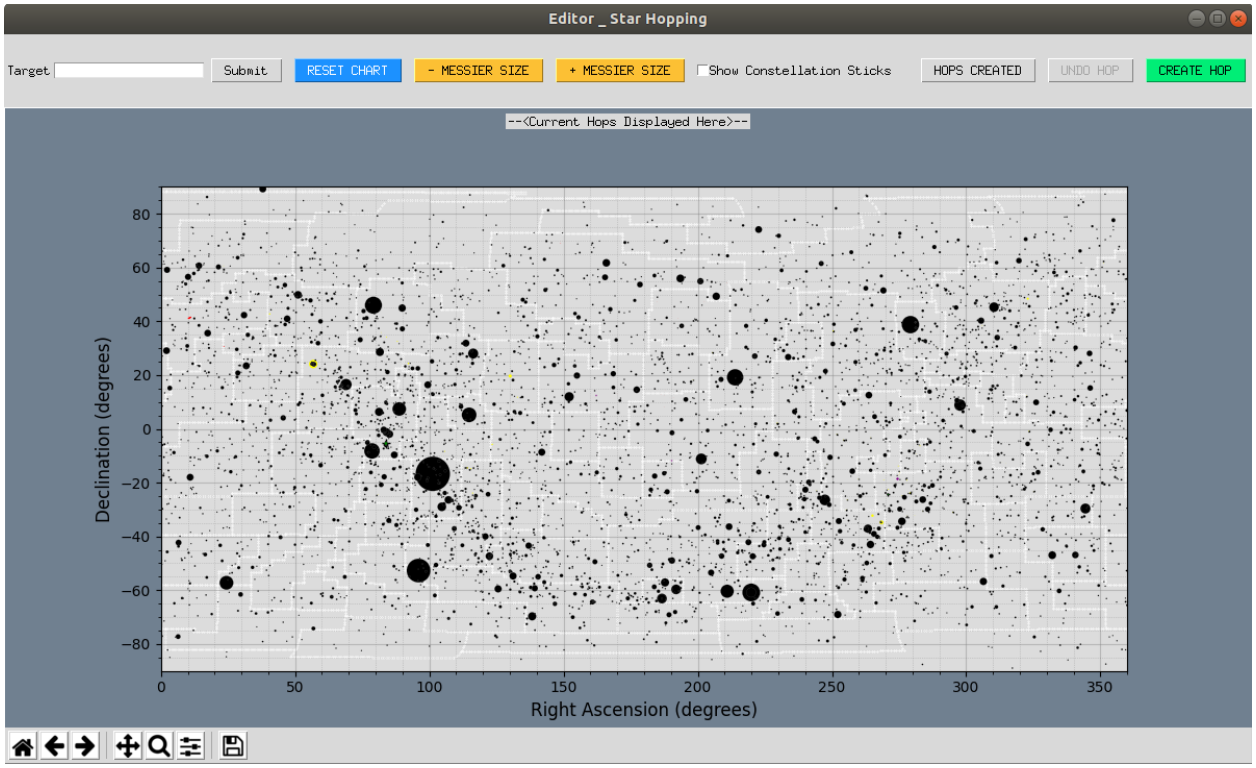
Database and other requirements

Download the following files into a directory:
The Editor
Datafiles Program
IAU-CSN.csv
Constellation Stick Figures
Virtual Environment .txt

The editor interface uses Tycho-1 up to 6 magnitude. This can be changed in the source code of the editor.

Running the Datafiles Program would download all files in the working directory automatically except Tycho catalogs from upwards of 6 magnitude for which user input is necessary.
Install the environment with necessary packages using Virtual Environment .txt

The Editor



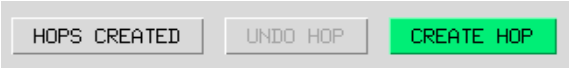
The Editor interface is used to create hops for the 110 objects which can be viewed in The Viewer interface.

Navigating the sky chart

Using the pan/zoom button  or the zoom-to-rectangle button  in the lower left of the interface

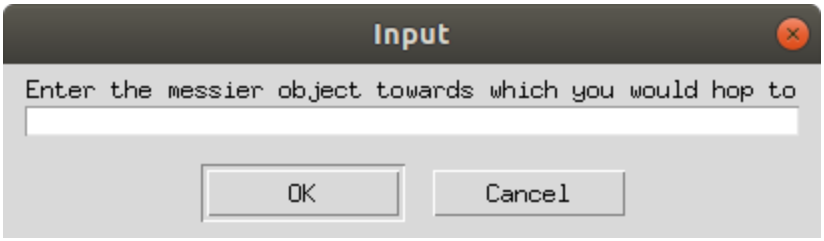
Using the Target field  where one can enter either the common name for a messier or a messier ID which would result in a plot with the messier in the center of the plot and a field of view of around 20 degrees

Creating hops for an object of interest



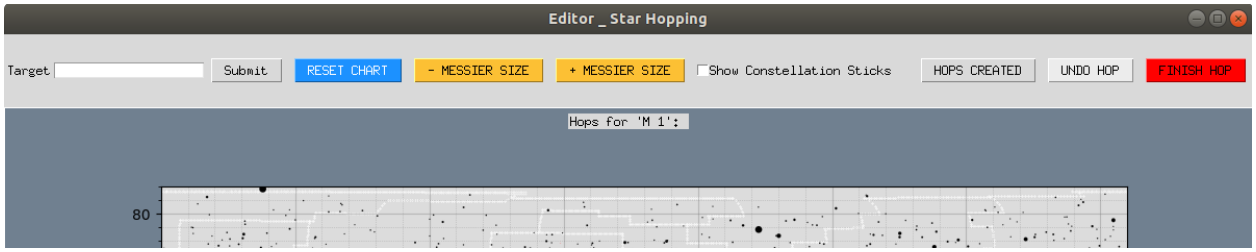
To create hops, first, click on CREATE HOP button;

A prompt asking user to enter the messier ID for which hops have to be created appears on the screen.



The prompt appears repeatedly until either the user entered messier ID gets resolved or user clicks on CANCEL button in the prompt window

If the messier ID gets resolved successfully, It would reflect in the region above the plot as in the



Now the user can use any of the navigation options to reach the selected messier for which hops have to be created. An only feasible option would be to use the Target search bar since the entire sky chart is present on the screen. Then the user can use other navigation buttons such as zoom-in or zoom-out to decrease or increase the field of view as necessary.

The user now has to click on the stars to add them to the hop sequence and should not click on the messier; If the hopping is from A to B to C to Messier, the user has to click on star A followed by Star B and Star C; the algorithm will associate the Stars A, B, C with the messier. The selected stars' coordinates are reflected in the region above the plot in real-time

If the user decides to undo the last selection, the UNDO HOP button can be used. This is also reflected in the region above the plot in real-time.

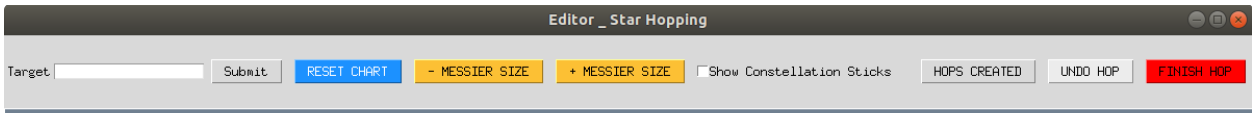
Once all marker stars are selected for a messier, the FINISH HOP button should be clicked. A new prompt asking for 'Further Instruction' is displayed on-screen. A user can enter any directions which would help identify the messier especially in regions where it is surrounded by several other messiers. This prompt is optional.

If a user clicks on the FINISH HOP button without selecting any marker stars for a particular messier, no prompt for further instruction is displayed and if there are hops created for the messier from previous sessions or in the same session, they will be cleared. This is a method to clear hops.

HOPS CREATED button displays all the messier IDs for whom hops have been created. This includes hops created in previous sessions.

To find out how hops are stored, read the documentation.

Miscellaneous features



The RESET CHART button resets the plot to the initial view

MESSIER SIZE* buttons increase or decrease the size of the markers of messier objects in the plot. At the lowest default setting, the sizes of messiers and stars from the Tyco-1 catalog are related to their respective magnitudes with same size factor.
Using these buttons is recommended when the plot is narrowed down to a messier for creating hops to it, so it becomes easier to locate the messier which would otherwise be too small.

Show Constellation Sticks* displays constellation stick figures.

Hovering over any object in the sky chart displays its details.

*both the settings apply on the plot without changing the plot axis limits; using any options mentioned in the Navigating the Sky Chart section will not affect these settings.