Fly Scripting System Documentation

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The Fly web application includes a simple scripting system that allows animating camera rotations and movements, displaying text and toggling on and off mesh and star group displays.

It uses a simple three field csv file that must always start with the line:

action,target,duration

The target field can contain any Gaia EDR3 id, eg.

Gaia EDR3 4075141768785646848

or any Simbad ID or one of 13 special position targets:

Sun,In,Out,Top,Bottom,Right,Left,NearIn,NearOut,NearTop,NearBottom,NearRight,NearLeft

Sun is the position at (0,0,0) at the centre, In, Out, Top, Bottom, Right and Left are 300 pc away, and NearIn, NearOut, NearTop, NearBottom, NearRight and NearLeft are 100 pc away.

Duration is usually a number representing seconds.

Here is a list of the available action values:

rotate

Rotate the camera towards the given target. If the duration is 0, the camera is rotated immediately. Otherwise the rotation is animated over the given duration time.

fly

Move the camera near the given target. If the duration is 0, the camera is moved immediately. Otherwise the move is animated over the given duration time. The position is calculated so that it is actually just in front of the target (so that you can actually see a star for example if you are rotated towards it.)

You can optionally add a specific target distance in the duration field using a pipe (|) delimiter. For example,

fly,Capella,5|15

would fly to within 15 parsecs of Capella in 5 seconds. This is especially useful in combination with the orbit action so that you can fly around a central object at a given distance.

wait

Do nothing for the duration in seconds. The target field is ignored for this action.

orbit

Orbit the camera around the current focal point (set by the rotate action) for duration seconds (30 seconds is approximately a full rotation). If you rotate to an object and then use the option to fly to it with a given distance, orbiting the camera effectively spins the stars around the focus object. This can be useful if you want to showcase an object like a star cluster.

text

Display the text given in the target field at the centre of the display for duration seconds. You can surround the text in double quotation marks if it includes commas (most csv exporters will do this automatically). The text will be automatically wrapped. You can force line breaks by including \n within the text.

bottomtext

Display the text given in the target field at the bottom of the display for duration seconds. You can surround the text in double quotation marks if it includes commas (most csv exporters will do this automatically). The text will be automatically wrapped. You can force line breaks by including \n within the text.

This is intended for shorter bits of text. If you specify a duration of 0 seconds, the script will leave the bottomtext in place and immediately proceed to the next action. This can be used to comment on activities (eg. during a fly or rotate).

You can clear existing bottom text with the line:

bottomtext,,0

meshes

This can be used to show or hide meshes. Specify the meshes in the target field. You can include multiple mesh targets with the pipe (|) separator, for example:

meshes,sun|hyades,show

For this action, the duration field is repurposed and can take on the values *show* or *hide*.

The allowable mesh targets are:

hyades : Hyades

coma : Coma

tha : Tucana and Horologium association

32_ori : 32 Ori group

eta_cha : eta Cha association

uma : Ursa Major moving group

sun : Sun

pc5 : Stars out to 5 pc

pc10 : Stars out to 10 pc

pc25 : Stars out to 25 pc

You can also use the convenience target *all* to show or hide all the meshes at once.

Keep in mind that these meshes include the Sun mesh. If you want to hide all the meshes except the Sun you can do this in two lines:

meshes,all,hide
meshes,sun,show

stars

This can be used to show or hide star selections. Specify the star selections in the target field. You can include multiple mesh targets with the pipe (|) separator, for example:

stars,C1|P,show

For this action, the duration field is repurposed and can take on the values show or hide.

The allowable star selection targets are:

C1 : Hyades

C2 : Coma

C3 : Tucana and Horologium association

C4 : 32 Ori group

C5 : eta Cha association

C6 : Ursa Major moving group

C7 : AB Dor moving group

C8 : beta Pic moving group

C9 : Carina Near moving group

O : Intrinsically hot OBA stars

G : Solar like stars

M : Example main sequence stars

W : White dwarfs

R : Red giants

S : Sub dwarfs

U : Ultra cool dwarfs

B : Wide binary systems

P : Stars with known planets

H : Halo objects

I : Inner galaxy objects

T : Thick disk and halo

E : Enceladus stream

N : Nearby 25 parsecs sample

D : Distant objects at the 100 parsecs border

V : Stars visible to the eye

K1 : K1 strip

K2 : K2 strip

K3 : K3 strip

K4 : K4 strip

K5 : K5 strip

K6 : K6 strip

ZO : Non-GCNS, intrinsically hot OBA stars

ZN : Non-GCNS, nearby 25 parsecs sample

ZZ : Non-GCNS, other stars

You can also use the convenience target *all* to show or hide all the star selections at once.