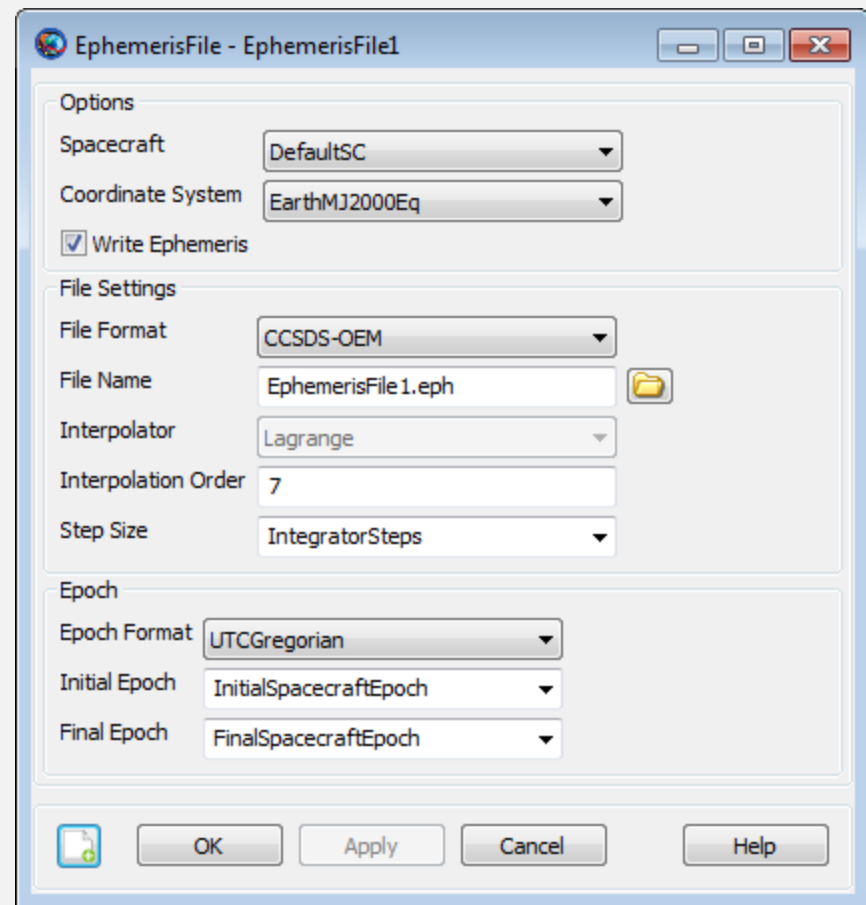
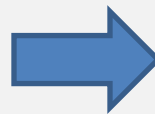
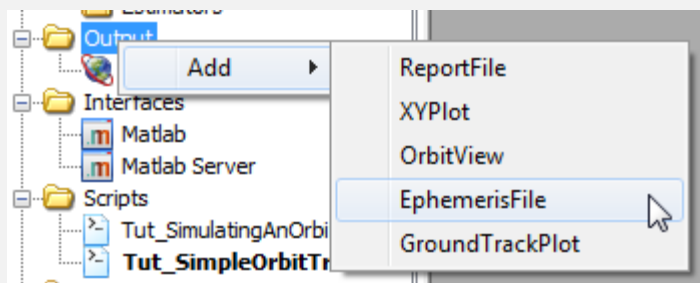


Simple Orbit Transfer (extra exercises)

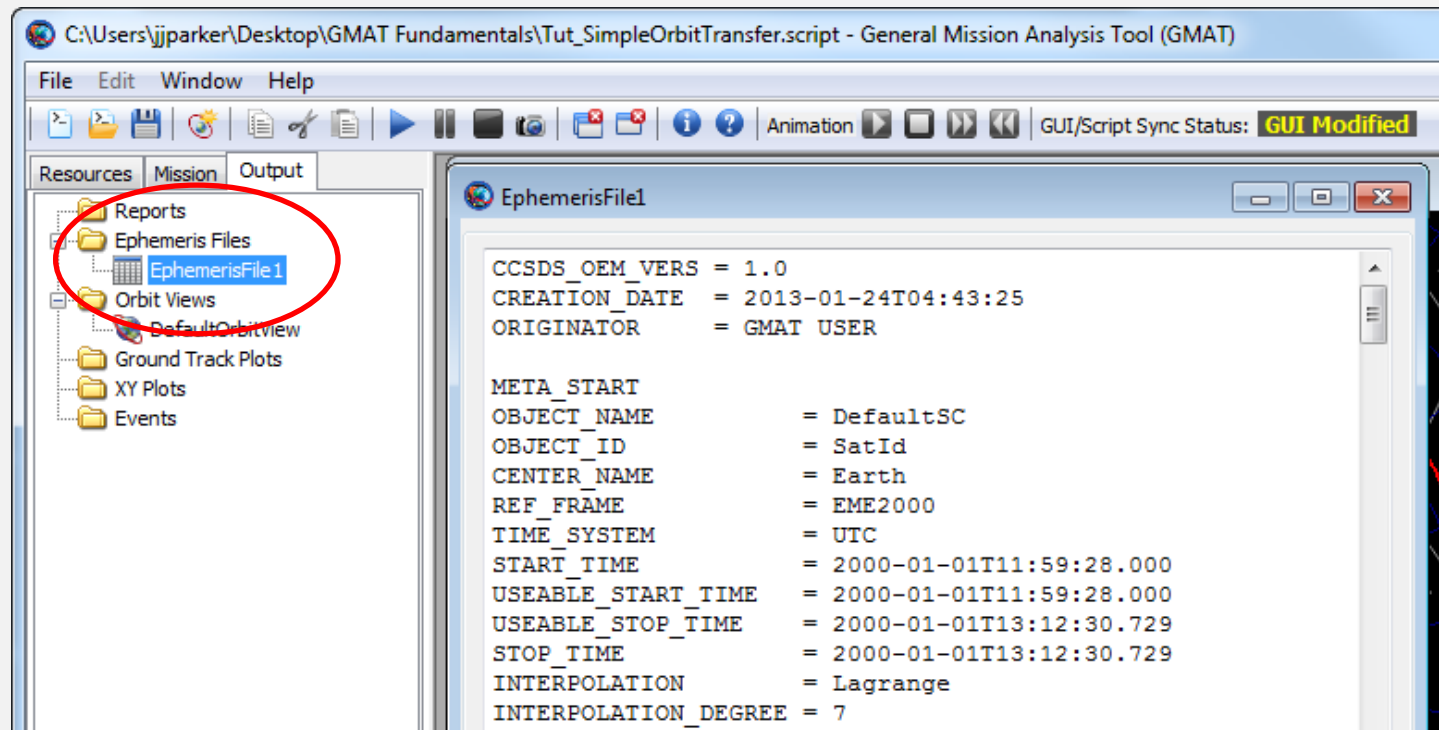
GMAT Fundamentals
Jason Laing and Mojtaba Abedin
Oct 29, 2014

NASA Goddard Space Flight Center

1. Write Ephemeris File

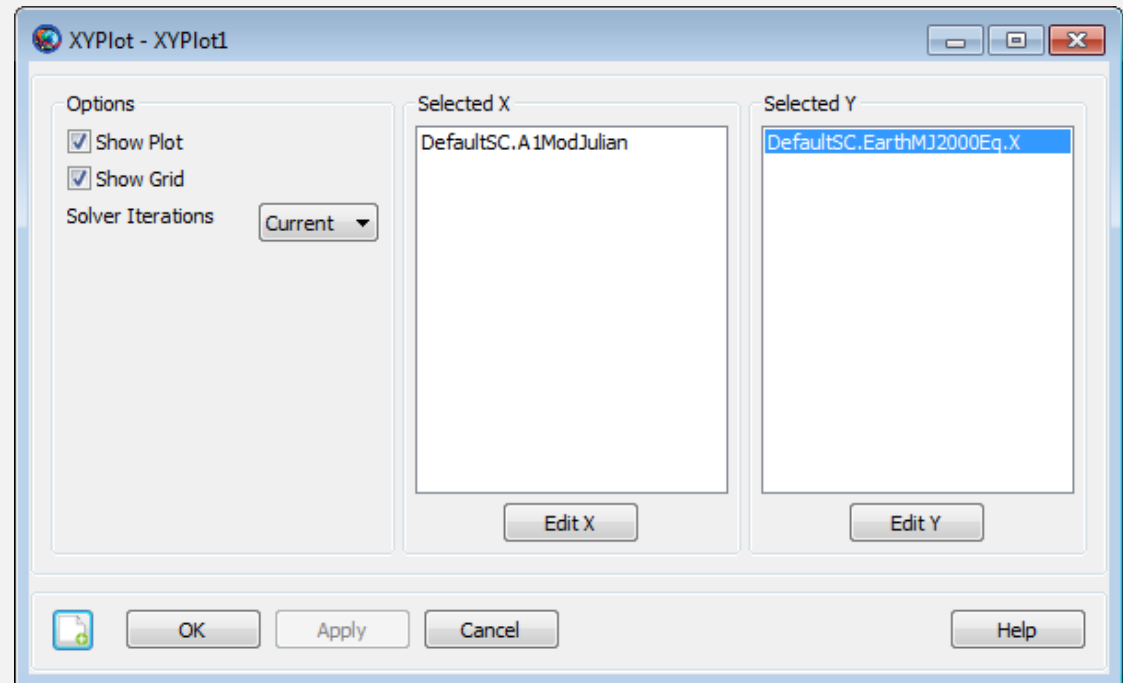
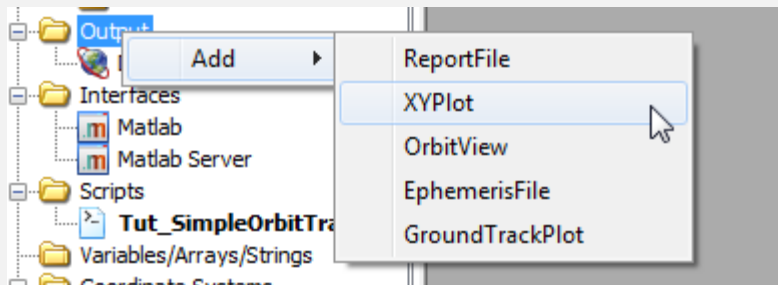


1. Write Ephemeris File

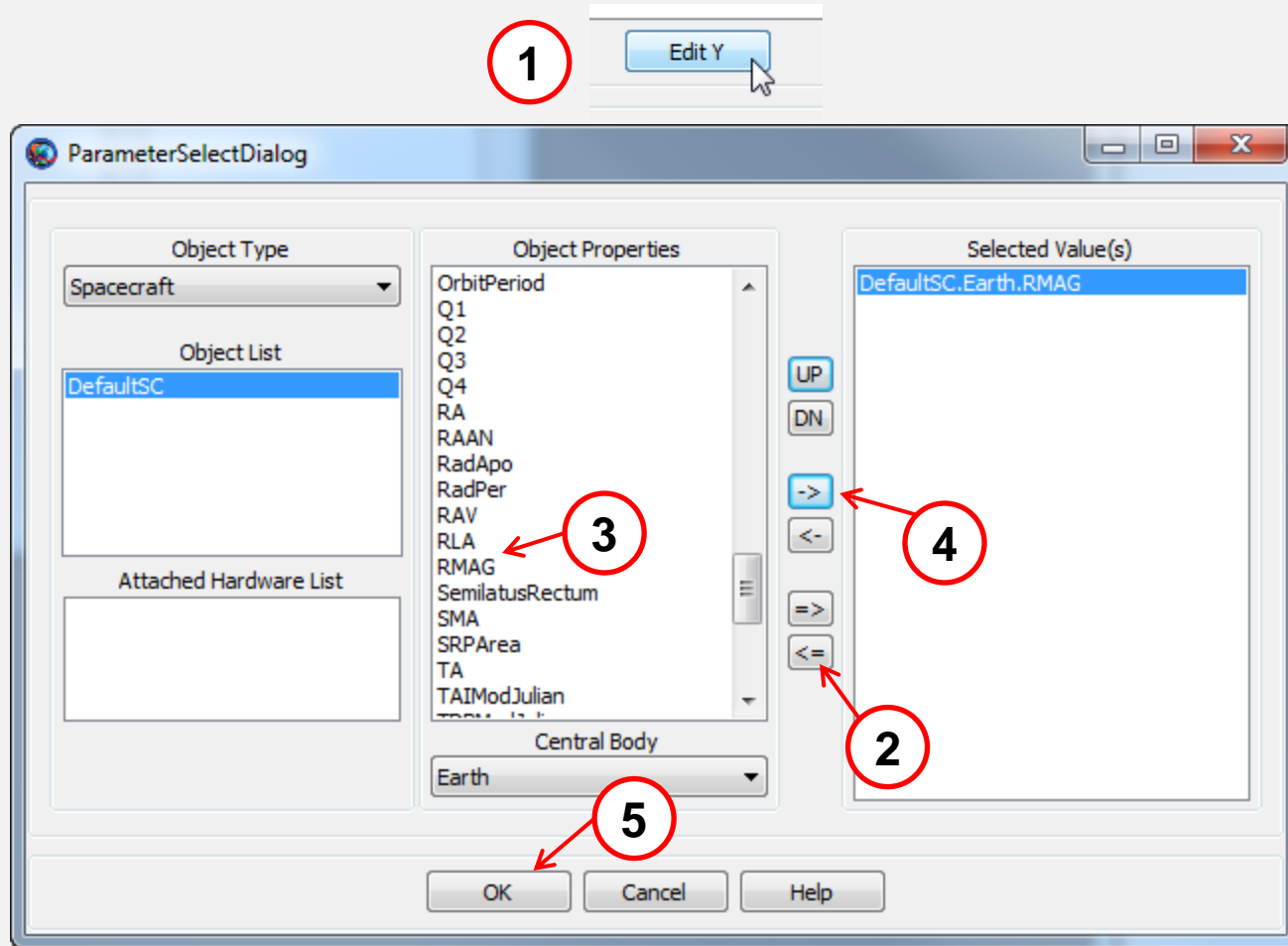


```
Create EphemerisFile EphemerisFile1
EphemerisFile1.Spacecraft = DefaultSC
EphemerisFile1.FileFormat = CCSDS-OEM
```

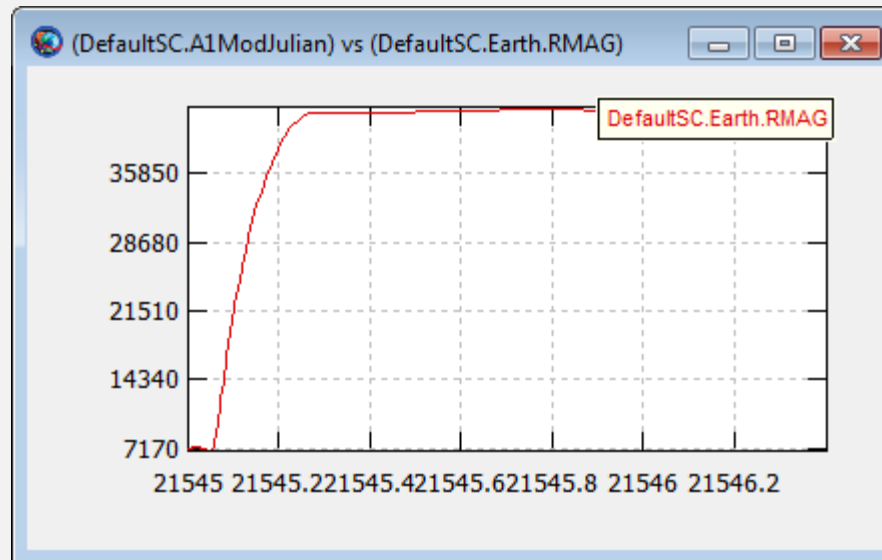
2. Create Plot



2. Create Plot

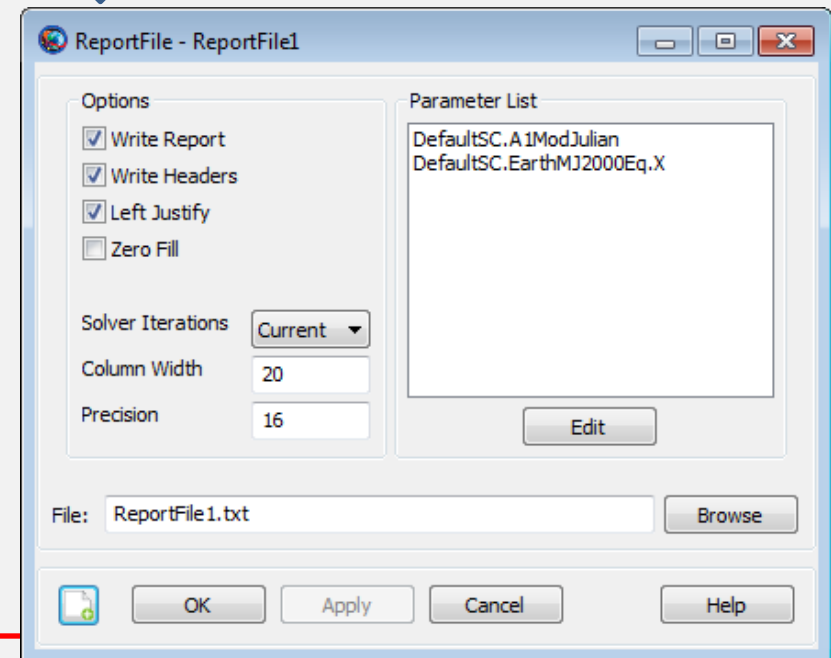
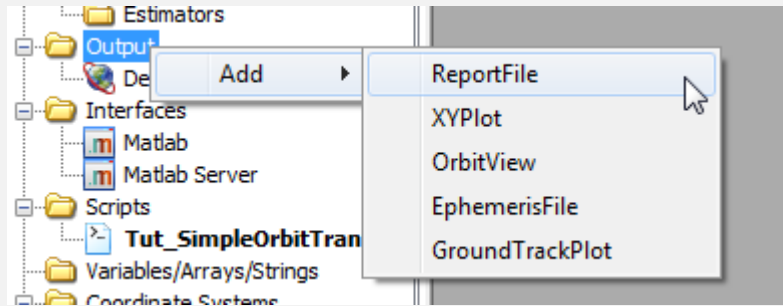


2. Create Plot

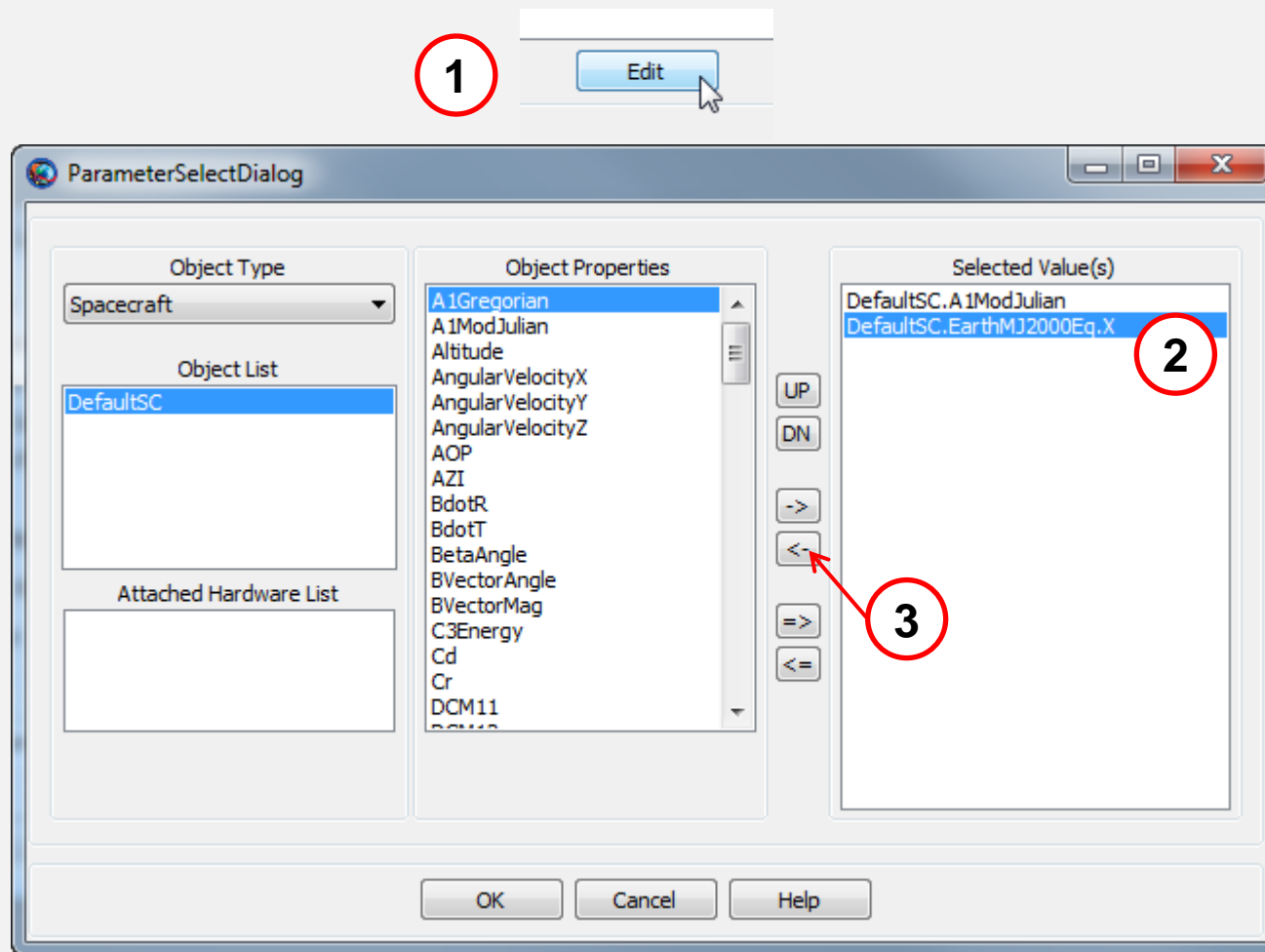


```
Create XYPlot XYPlot1
XYPlot1.XVariable = DefaultSC.A1ModJulian
XYPlot1.YVariables = {DefaultSC.Earth.RMAG}
```

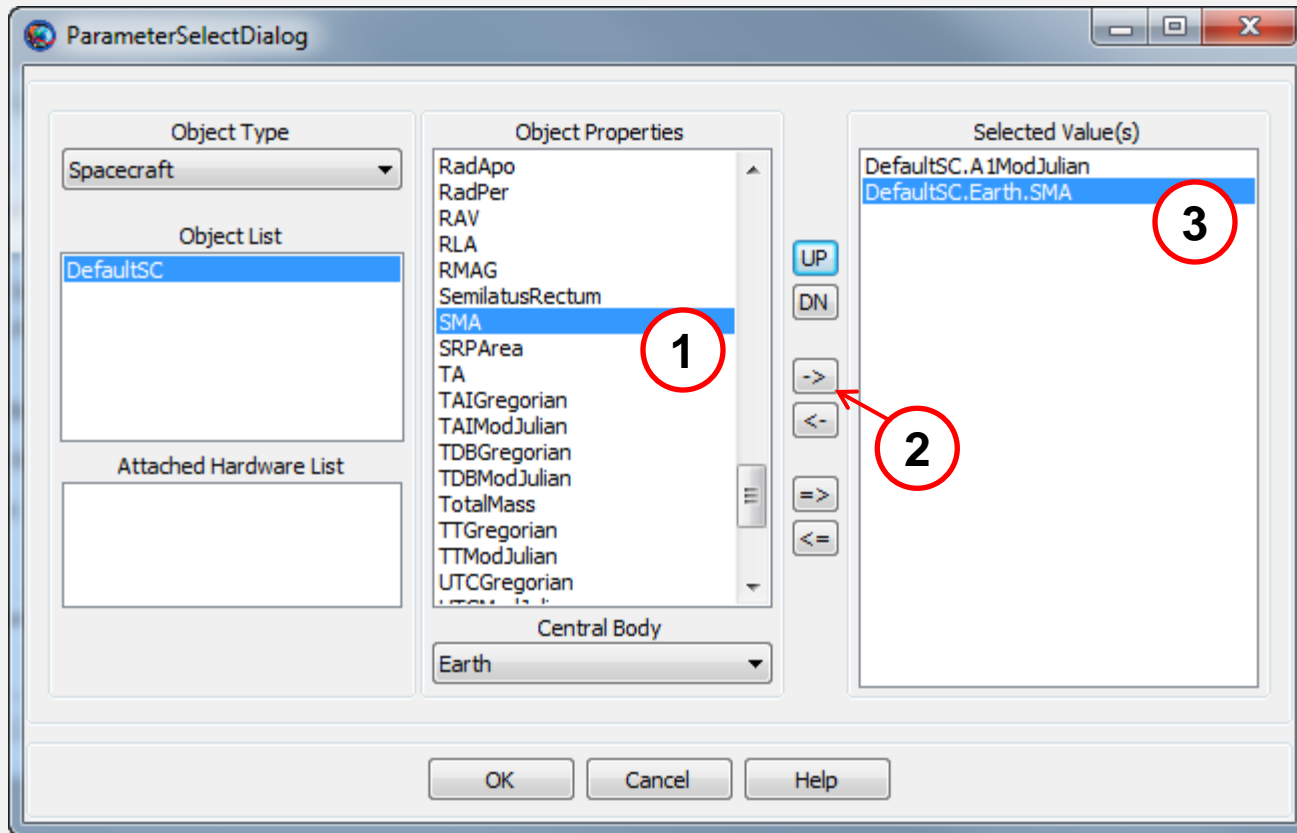
3. Create Propagation Report



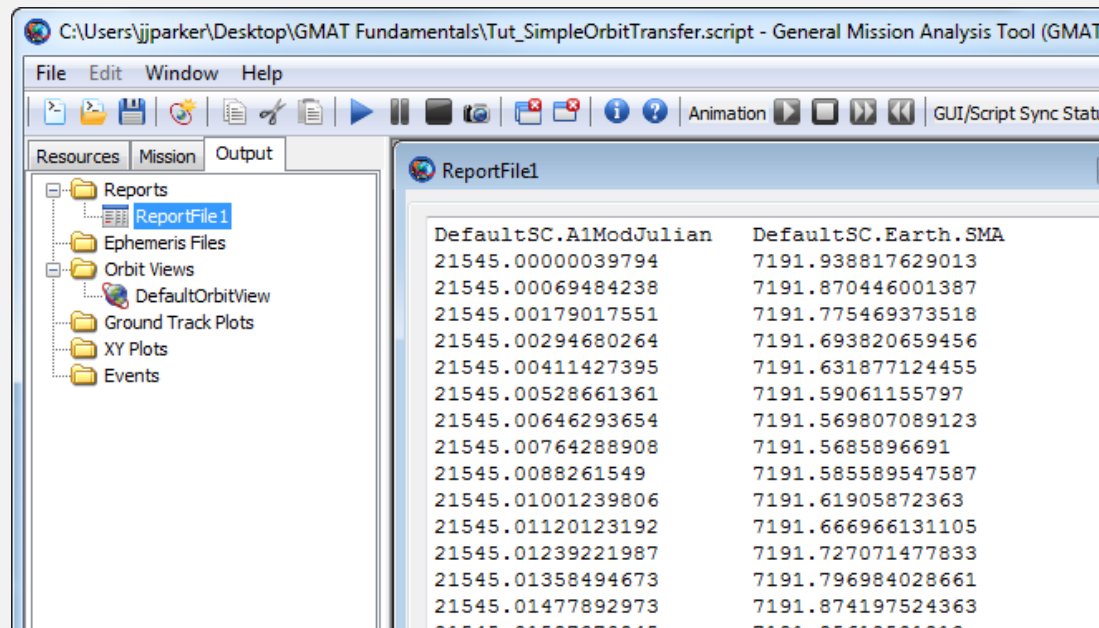
3. Create Propagation Report



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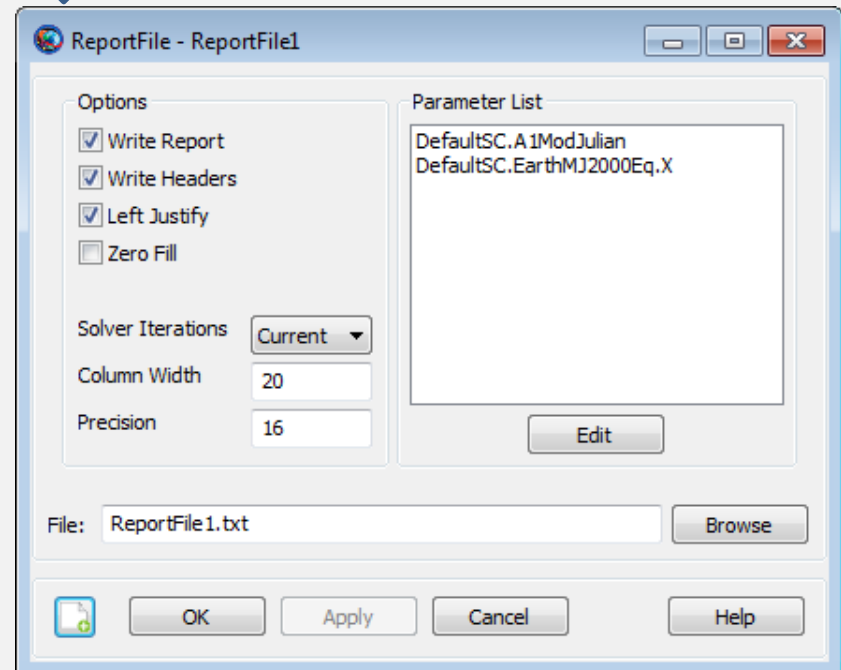
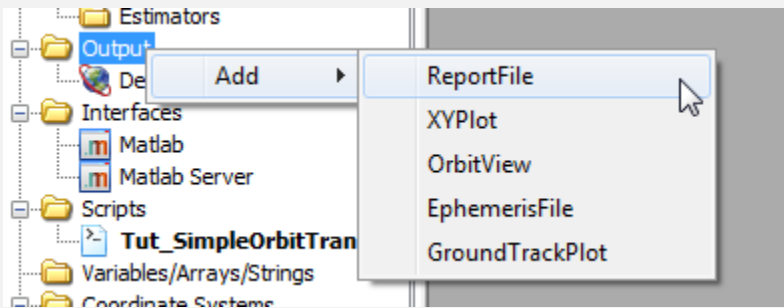


3. Create Propagation Report

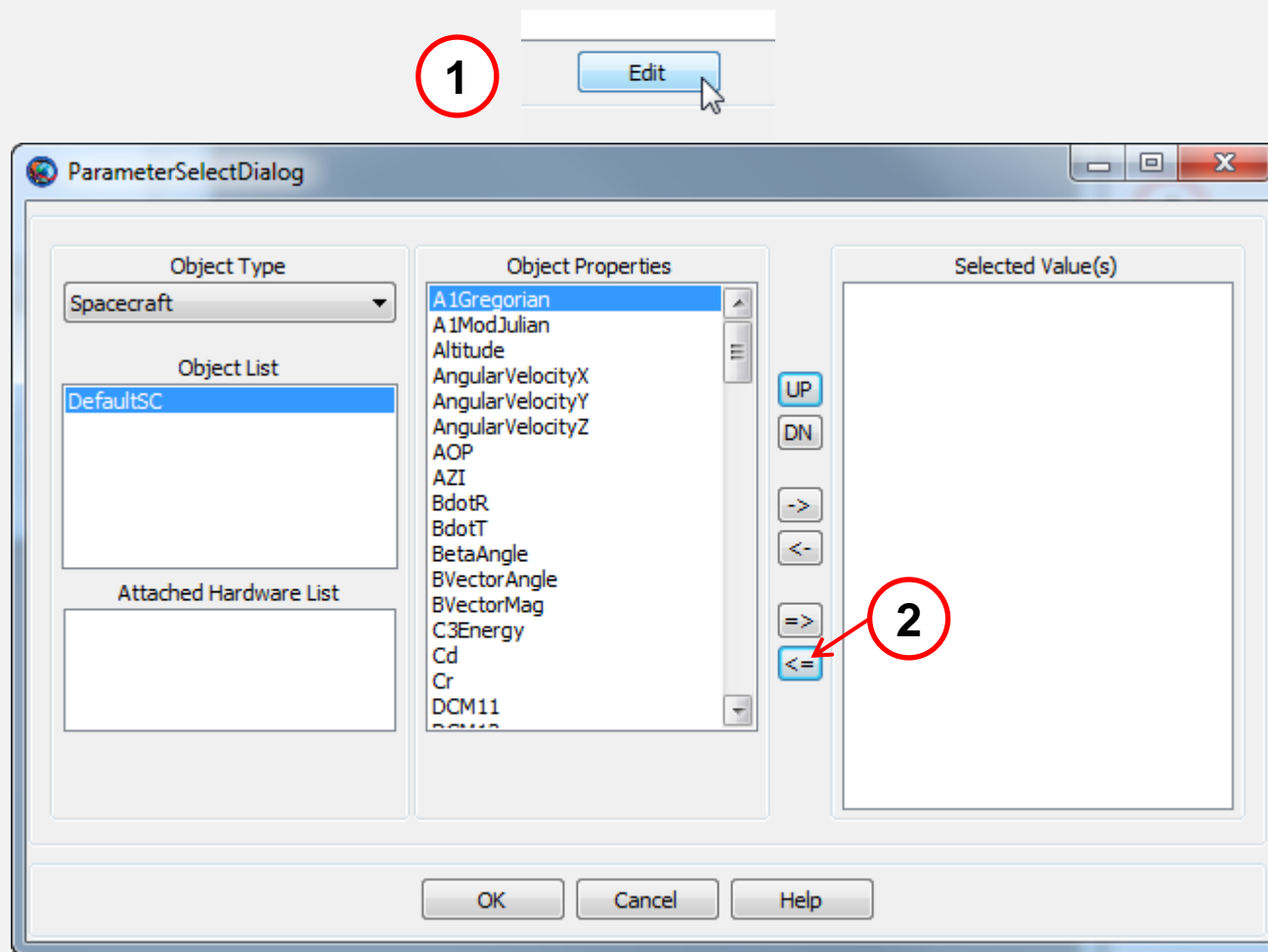


```
Create ReportFile ReportFile1
ReportFile1.Add = {DefaultSC.A1ModJulian, DefaultSC.Earth.SMA}
```

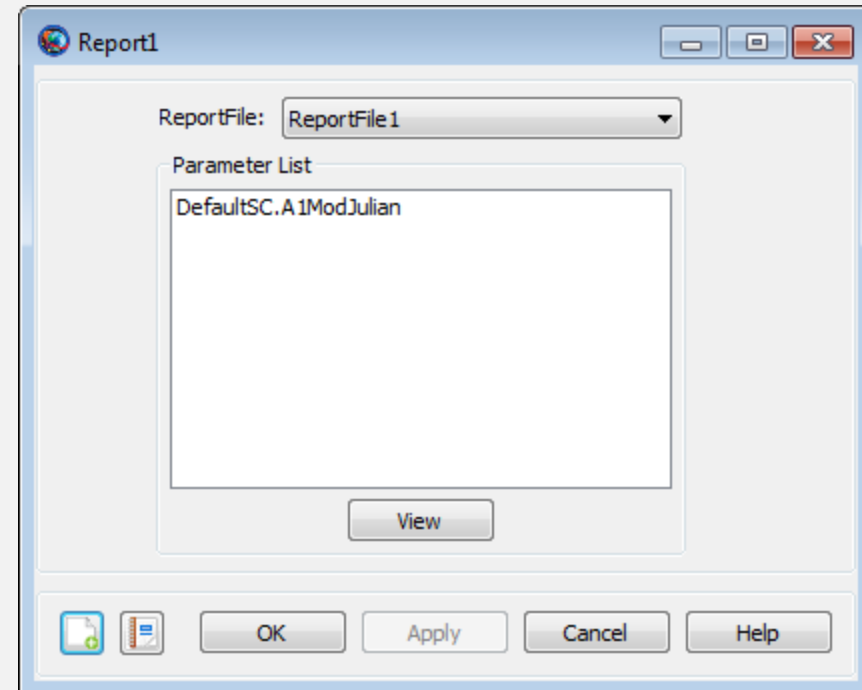
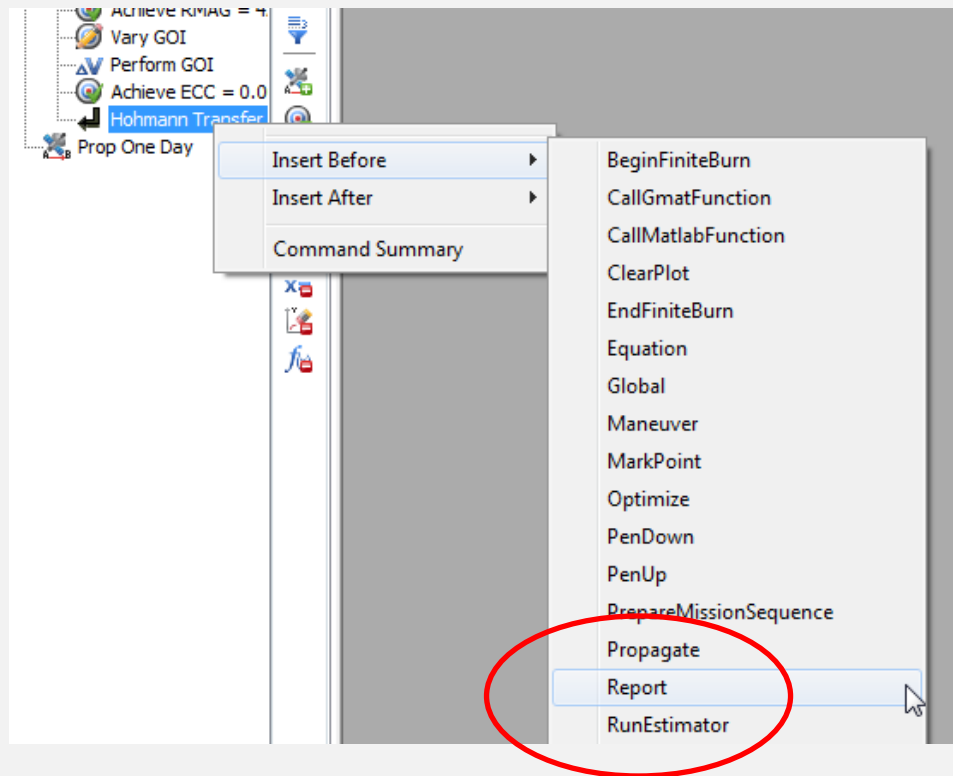
4. Report Values



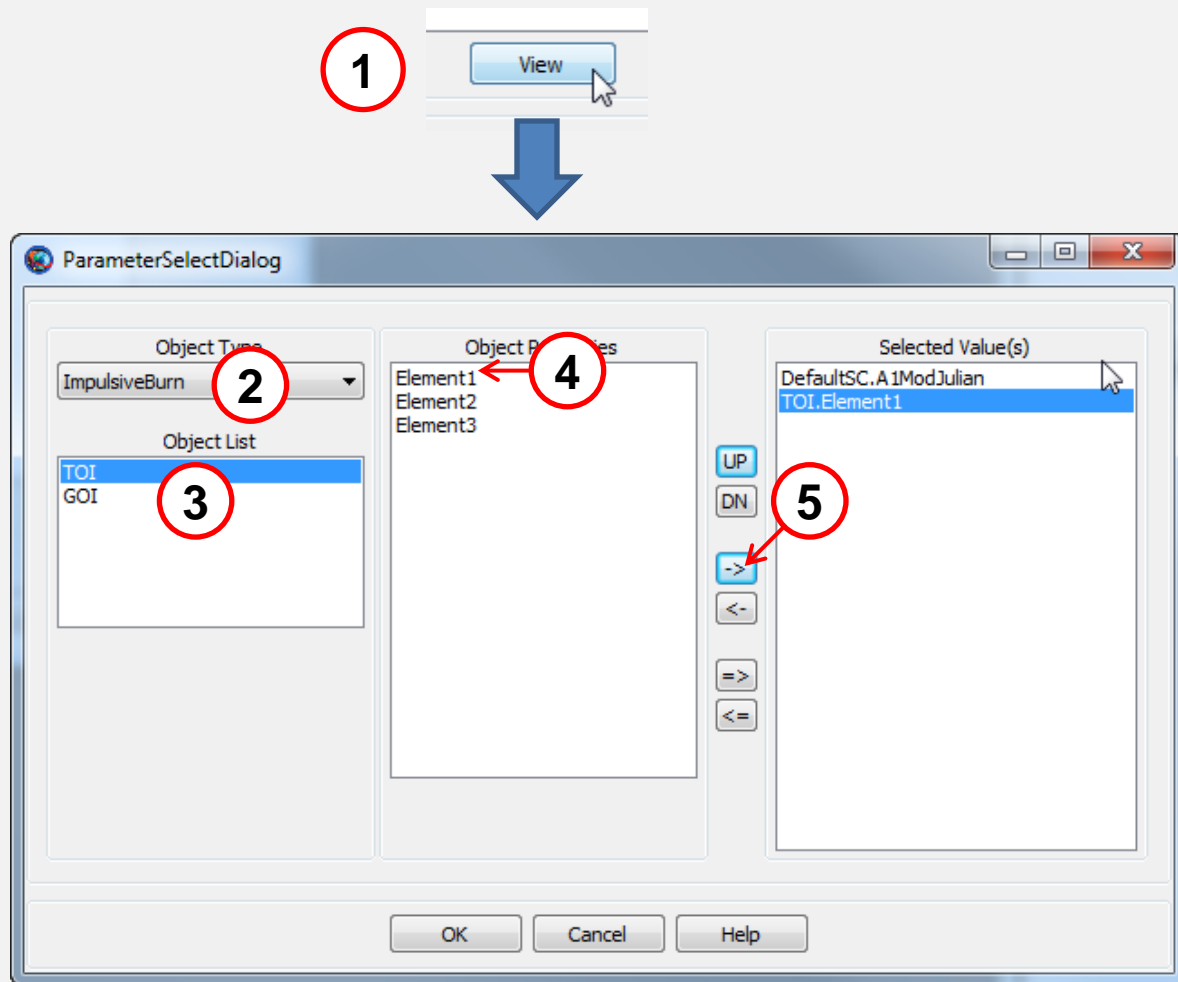
4. Report Values



4. Report Values

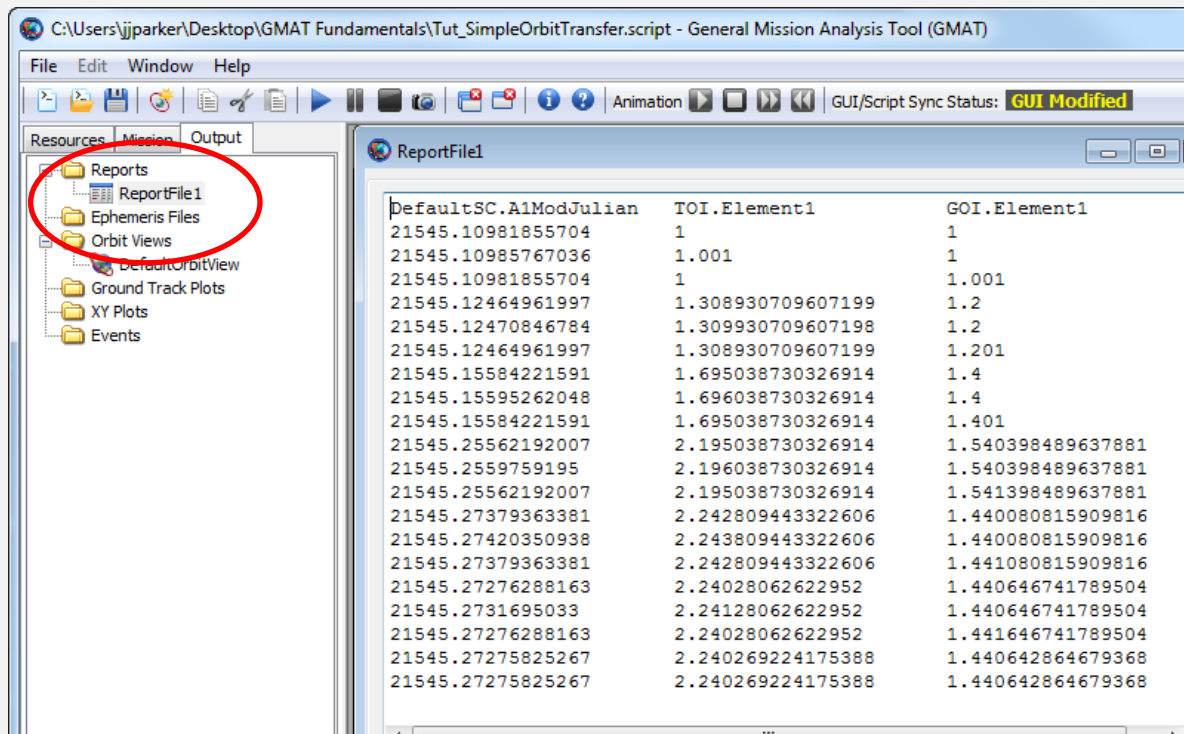


4. Report Values



6 Perform same steps to add GOI.Element1.

4. Report Values



Create ReportFile ReportFile1

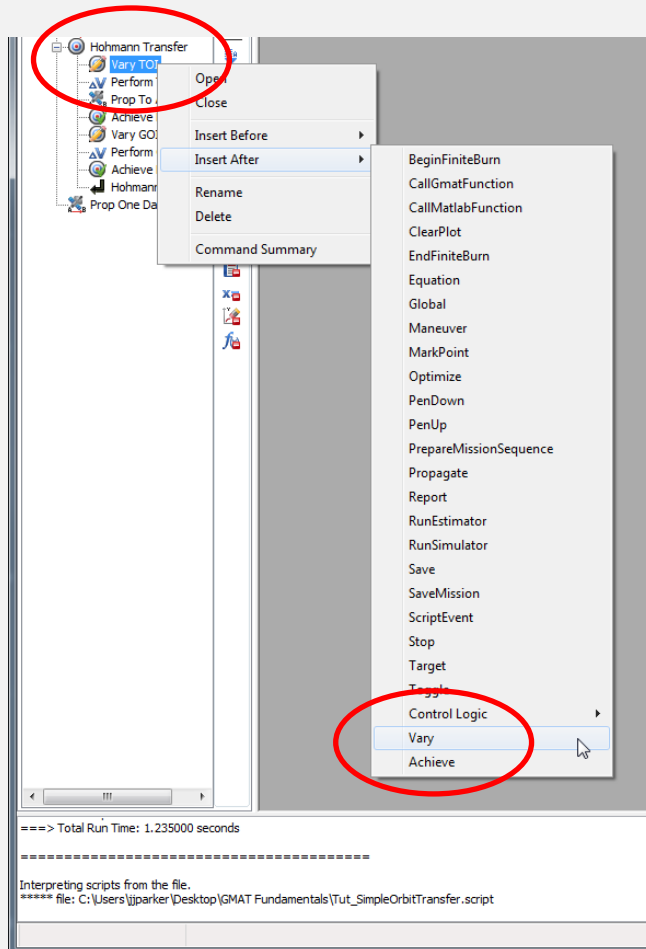
% ...

BeginMissionSequence

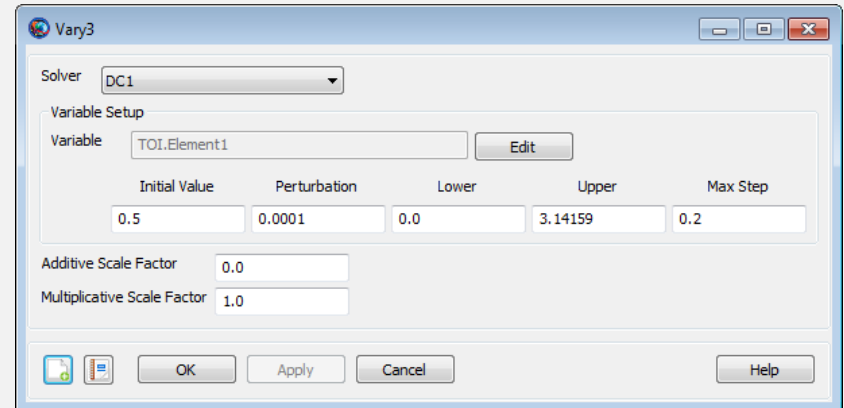
% ...

Report ReportFile1 DefaultSC.A1ModJulian TOI.Element1 GOI.Element1

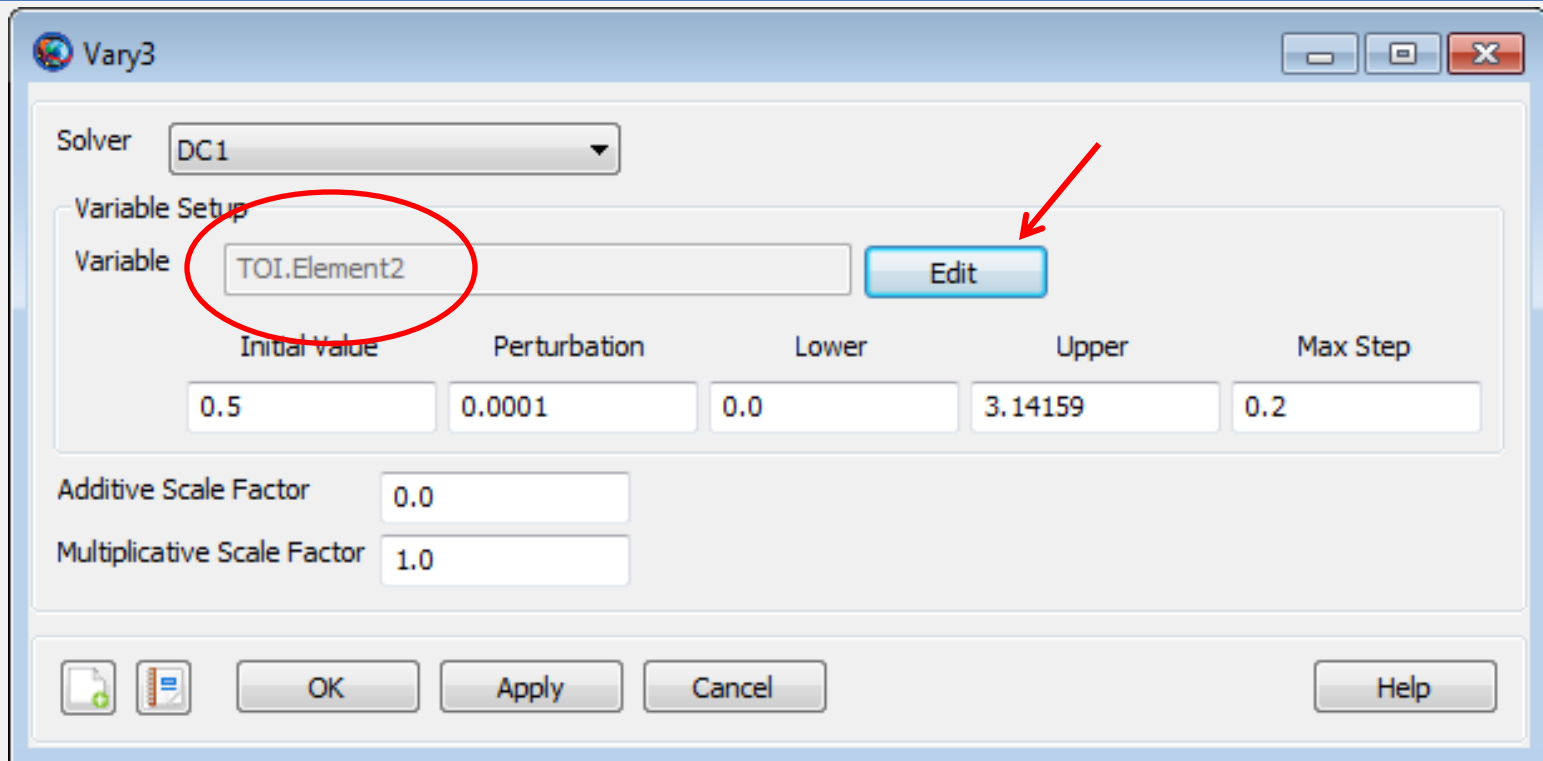
5. Target Inclination



Open new **Vary3**:



5. Target Inclination

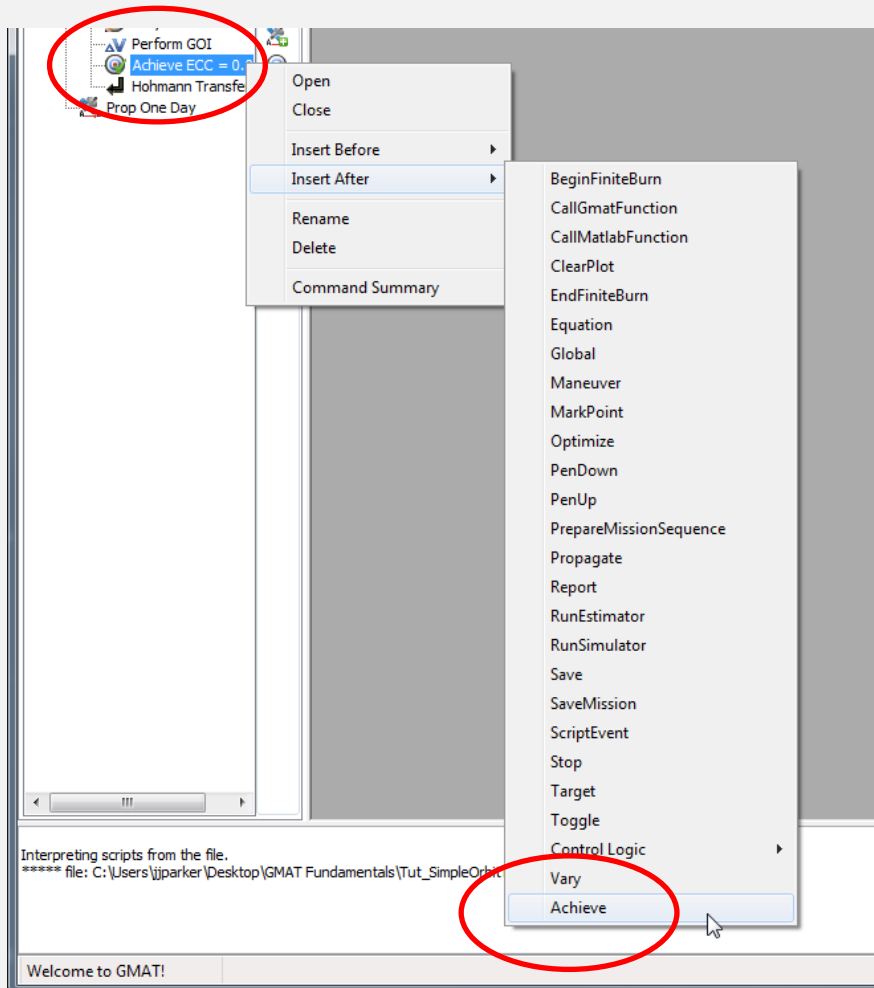


The screenshot shows the Vary3 dialog box with the following configuration:

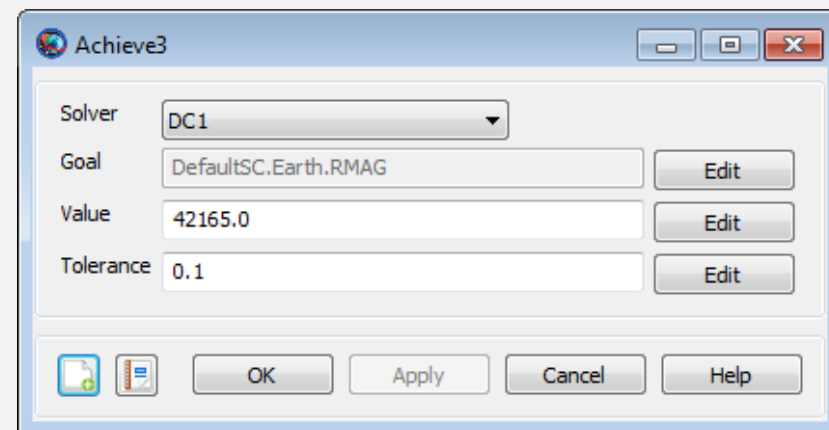
- Solver:** DC1
- Variable Setup:**
 - Variable:** TOI.Element2 (highlighted with a red circle)
 - Edit:** (button highlighted with a red arrow)
- Initial Value:** 0.5
- Perturbation:** 0.0001
- Lower:** 0.0
- Upper:** 3.14159
- Max Step:** 0.2
- Additive Scale Factor:** 0.0
- Multiplicative Scale Factor:** 1.0

Buttons at the bottom: OK, Apply, Cancel, Help.

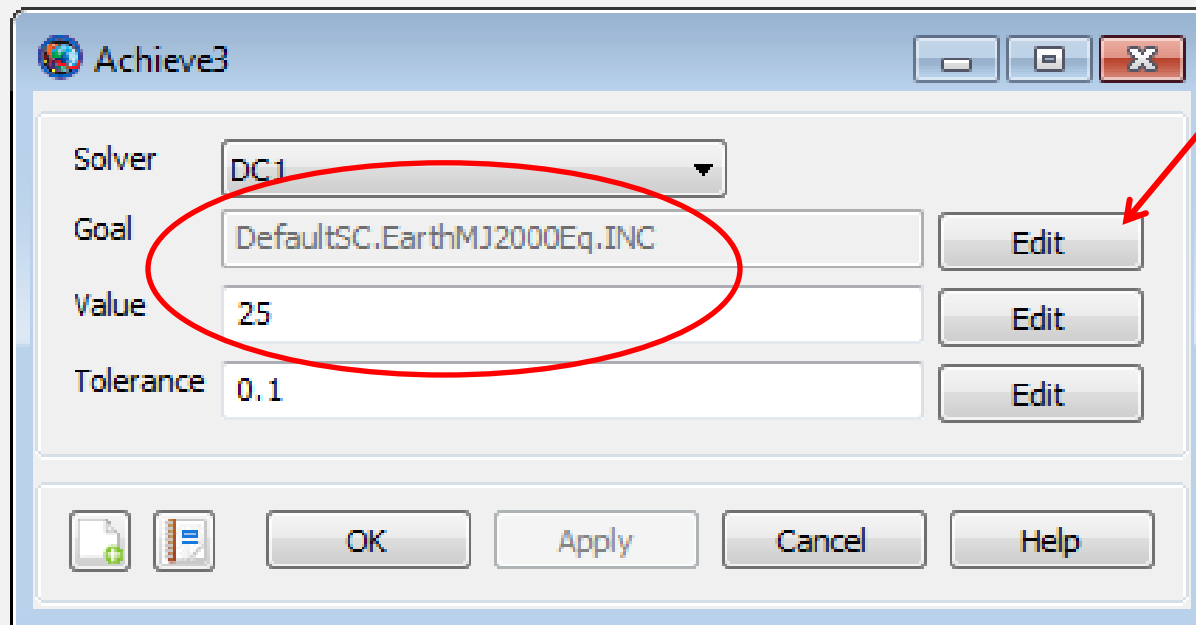
5. Target Inclination



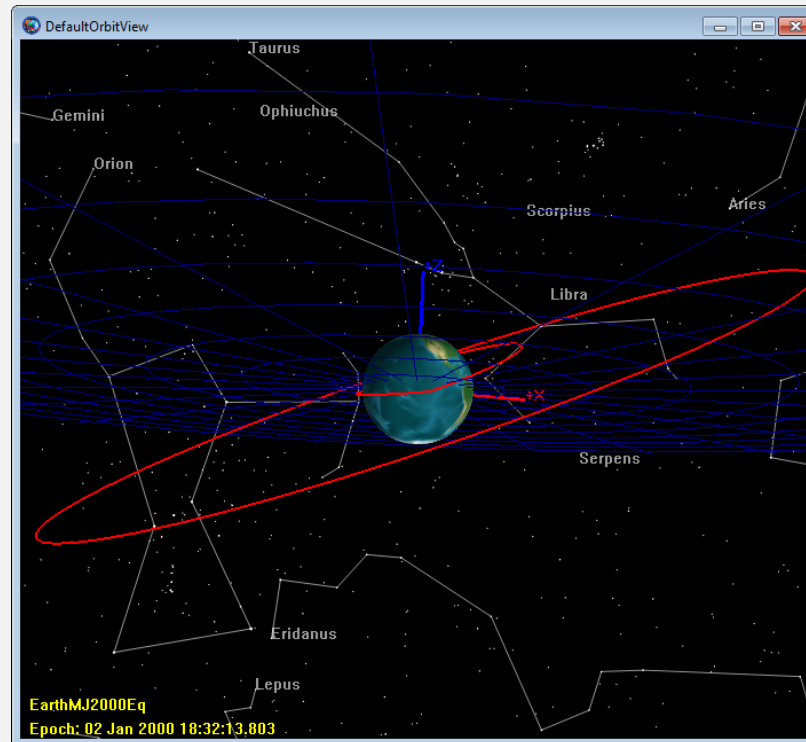
Open new **Achieve3**:



5. Target Inclination



5. Target Inclination



```
Vary DC1(TOI.Element2 = 0.5)
```

```
% ...
```

```
Achieve DC1(DefaultSC.EarthMJ2000Eq.INC = 25)
```