general mission analysis tool

Simple Orbit Transfer (using script language)

GMAT Fundamentals
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June 30, 2014

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Resources

```
Create Spacecraft DefaultSC
Create Propagator DefaultProp
```

Resources

```
Create Spacecraft DefaultSC
Create Propagator DefaultProp
Create DifferentialCorrector DC1
```

Resources

```
Create Spacecraft DefaultSC
Create Propagator DefaultProp
Create DifferentialCorrector DC1

Create OrbitView DefaultOrbitView
DefaultOrbitView.SolverIterations = Current
DefaultOrbitView.Add = {DefaultSC, Earth}
DefaultOrbitView.ViewPointReference = Earth
DefaultOrbitView.ViewPointVector = [ 0 0 120000 ]
DefaultOrbitView.ViewUpAxis = X
```

Resources

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Create Spacecraft DefaultSC
Create Propagator DefaultProp
Create DifferentialCorrector DC1

Create OrbitView DefaultOrbitView
DefaultOrbitView.SolverIterations = Current
DefaultOrbitView.Add = {DefaultSC, Earth}
DefaultOrbitView.ViewPointReference = Earth
DefaultOrbitView.ViewPointVector = [ 0 0 120000 ]
DefaultOrbitView.ViewUpAxis = X

Create ImpulsiveBurn TOI
Create ImpulsiveBurn GOI
```

Mission Sequence

```
BeginMissionSequence


Propagate 'Prop To Periapsis' ...
    DefaultProp(DefaultSC) {DefaultSC.Earth.Periapsis}
```

Mission Sequence

```
BeginMissionSequence


Propagate 'Prop To Periapsis' ...
    DefaultProp(DefaultSC) {DefaultSC.Earth.Periapsis}


Target 'Hohmann Transfer' DC1
    % targeter commands here
EndTarget
```

Mission Sequence

```
BeginMissionSequence


Propagate 'Prop To Periapsis' ...
    DefaultProp(DefaultSC) {DefaultSC.Earth.Periapsis}


Target 'Hohmann Transfer' DC1
    % targeter commands here
EndTarget


Propagate 'Prop One Day' ...
    DefaultProp(DefaultSC) {DefaultSC.ElapsedSecs = 86400}
```

Targeter

```
Target 'Hohmann Transfer' DC1




















EndTarget
```

Targeter

```
Target 'Hohmann Transfer' DC1
   Vary 'Vary TOI' DC1(TOI.Element1 = 1, {MaxStep = 0.5})


   Achieve 'Achieve RMAG = 42165' ...
       DC1(DefaultSC.Earth.RMAG = 42164.169)




EndTarget
```

Targeter

```
Target 'Hohmann Transfer' DC1
    Vary 'Vary TOI' DC1(TOI.Element1 = 1, {MaxStep = 0.5})
    Maneuver 'Perform TOI' TOI(DefaultSC)
    Propagate 'Prop To Apoapsis' DefaultProp(DefaultSC) ...
        {DefaultSC.Earth.Apoapsis}
    Achieve 'Achieve RMAG = 42165' ...
        DC1(DefaultSC.Earth.RMAG = 42164.169)



EndTarget
```

Targeter

```
Target 'Hohmann Transfer' DC1
   Vary 'Vary TOI' DC1(TOI.Element1 = 1, {MaxStep = 0.5})
   Maneuver 'Perform TOI' TOI(DefaultSC)
   Propagate 'Prop To Apoapsis' DefaultProp(DefaultSC) ...
       {DefaultSC.Earth.Apoapsis}
   Achieve 'Achieve RMAG = 42165' ...
       DC1(DefaultSC.Earth.RMAG = 42164.169)


   Vary 'Vary GOI' DC1(GOI.Element1 = 1, {MaxStep = 0.2})


   Achieve 'Achieve ECC = 0.005' ...
       DC1(DefaultSC.Earth.ECC = 0.005, {Tolerance = 0.0001})
EndTarget
```

Targeter

```
Target 'Hohmann Transfer' DC1
   Vary 'Vary TOI' DC1(TOI.Element1 = 1, {MaxStep = 0.5})
   Maneuver 'Perform TOI' TOI(DefaultSC)
   Propagate 'Prop To Apoapsis' DefaultProp(DefaultSC) ...
       {DefaultSC.Earth.Apoapsis}
   Achieve 'Achieve RMAG = 42165' ...
       DC1(DefaultSC.Earth.RMAG = 42164.169)

   Vary 'Vary GOI' DC1(GOI.Element1 = 1, {MaxStep = 0.2})
   Maneuver 'Perform GOI' GOI(DefaultSC)
   Achieve 'Achieve ECC = 0.005' ...
       DC1(DefaultSC.Earth.ECC = 0.005, {Tolerance = 0.0001})
EndTarget
```