



# Simulating an Orbit (using script language)

GMAT Fundamentals  
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# Spacecraft

**Create Spacecraft Sat**

# Spacecraft

Create Spacecraft Sat

**Sat.DateFormat = UTCGregorian**

**Sat.Epoch = '22 Jul 2014 11:29:10.811'**

# Spacecraft

```
Create Spacecraft Sat
Sat.DateFormat = UTCGregorian
Sat.Epoch = '22 Jul 2014 11:29:10.811'
Sat.DisplayStateType = Keplerian
Sat.SMA = 83474.318
Sat.ECC = 0.89652
Sat.INC = 12.4606
Sat.RAAN = 292.8362
Sat.AOP = 218.9805
Sat.TA = 180
```

# Propagator

```
Create ForceModel LowEarthProp_ForceModel
```

```
Create Propagator LowEarthProp  
LowEarthProp.FM = LowEarthProp_ForceModel
```

# Propagator

```
Create ForceModel LowEarthProp_ForceModel
LowEarthProp_ForceModel.CentralBody = Earth
LowEarthProp_ForceModel.PrimaryBodies = {Earth}
LowEarthProp_ForceModel.PointMasses = {Luna, Sun}
LowEarthProp_ForceModel.SRP = On
LowEarthProp_ForceModel.GravityField.Earth.Degree = 10
LowEarthProp_ForceModel.GravityField.Earth.Order = 10
LowEarthProp_ForceModel.Drag.AtmosphereModel =
    JacchiaRoberts
```

```
Create Propagator LowEarthProp
LowEarthProp.FM = LowEarthProp_ForceModel
```

# OrbitView

```
Create OrbitView DefaultOrbitView  
DefaultOrbitView.Add = {Sat, Earth}
```

# OrbitView

```
Create OrbitView DefaultOrbitView
DefaultOrbitView.Add = {Sat, Earth}
DefaultOrbitView.ViewPointVector = [ -60000 30000 20000 ]
DefaultOrbitView.XYPlane = Off
```



# Mission Sequence

**BeginMissionSequence**

# Mission Sequence

BeginMissionSequence

Propagate LowEarthProp(Sat) {Sat.Earth.Periapsis}