

SequenceOfManeuvers 4.1

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```
public class SequenceOfManeuvers {

    public static void main(String[] args) throws PatriusException {

        // Patrius Dataset initialization (needed for example to get the UTC
time)
        PatriusDataset.addResourcesFromPatriusDataset() ;

        // Recovery of the UTC time scale using a "factory" (not to duplicate
such unique object)
        final TimeScale TUC = TimeScalesFactory.getUTC();

        // Creating a mass model with a main part and with a tank
        final AssemblyBuilder builder = new AssemblyBuilder();

        // Main part (dry mass)
        final double dryMass = 1000.;
        builder.addMainPart("MAIN");
        builder.addProperty(new MassProperty(dryMass), "MAIN");

        // Tank part (ergols mass)
        final double ergolsMass = 100.;
        final TankProperty tank = new TankProperty(ergolsMass);
        builder.addPart("TANK", "MAIN", Transform.IDENTITY);
        builder.addProperty(tank, "TANK");

        // Engine part
        final double isp = 300.;
        final double thrust = 400.;
        final PropulsiveProperty prop = new PropulsiveProperty(thrust, isp);
        builder.addPart("PROP", "MAIN", Transform.IDENTITY);
        builder.addProperty(prop, "PROP");

        final Assembly assembly = builder.returnAssembly();
        final MassProvider mm = new MassModel(assembly);

// SPECIFIC IMPULSIVE MANEUVER
        // Event corresponding to the criteria to trigger the impulsive
maneuver
        // (when the S/C is at the apogee)
        final EventDetector event = new AnomalyDetector(PositionAngle.TRUE,
FastMath.PI);
        // Creation of the impulsive maneuver (20 m/s int the x vehicle
direction)
```

```

        final Vector3D deltaV = new Vector3D(20., 0., 0.);
        final ImpulseManeuver imp = new ImpulseManeuver(event, deltaV, prop,
mm, tank, LOFType.TNW);

// SPECIFIC CONTINUOUS MANEUVER
    // Duration of the continuous maneuver to get a 20 m/s boost
    final AbsoluteDate startDate = new AbsoluteDate("2010-01-
01T12:00:00.000", TUC);
    final double G0 = 9.80665;
    final double duration = G0*isp*mm.getTotalMass()*(1. -
FastMath.exp(-20/(G0*isp)))/thrust;
    // Direction of the thrust in the X vehicle axis
    final Vector3D direction = new Vector3D(1., 0., 0.);
    // Creation of the continuous thrust maneuver
    final ContinuousThrustManeuver man = new
ContinuousThrustManeuver(startDate, duration, prop, direction, mm, tank,
LOFType.TNW);

// SPECIFIC SEQUENCE OF MANEUVERS
    ManeuversSequence seq = new ManeuversSequence(10., 10.);
    seq.add(imp);
    seq.add(man);

    System.out.println("Amount of maneuvers: "+seq.getSize());

}

}

```

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