

SequenceOfManeuvers 4.4

De Wiki

Aller à : [navigation](#), [rechercher](#)

[SequenceOfManeuvers 4.4](#)

```
public class SequenceOfManeuvers {

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

        // 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);
// au lieu de new PropulsiveProperty("PROP", 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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Menu de navigation

Outils personnels

- [18.219.253.199](#)
- [Discussion avec cette adresse IP](#)
- [Créer un compte](#)
- [Se connecter](#)

Espaces de noms

- [Page](#)
- [Discussion](#)

Variantes

Affichages

- [Lire](#)
- [Voir le texte source](#)
- [Historique](#)
- [Exporter en PDF](#)

Plus

Rechercher

PATRIUS

- [Welcome](#)

Evolutions

- [Main differences between V4.15 and V4.14](#)
- [Main differences between V4.14 and V4.13](#)
- [Main differences between V4.13 and V4.12](#)
- [Main differences between V4.12 and V4.11](#)
- [Main differences between V4.11 and V4.10](#)
- [Main differences between V4.10 and V4.9](#)
- [Main differences between V4.9 and V4.8](#)
- [Main differences between V4.8 and V4.7](#)
- [Main differences between V4.7 and V4.6.1](#)
- [Main differences between V4.6.1 and V4.5.1](#)
- [Main differences between V4.5.1 and V4.4](#)
- [Main differences between V4.4 and V4.3](#)
- [Main differences between V4.3 and V4.2](#)
- [Main differences between V4.2 and V4.1.1](#)
- [Main differences between V4.1.1 and V4.1](#)
- [Main differences between V4.1 and V4.0](#)
- [Main differences between V4.0 and V3.4.1](#)

User Manual

- [User Manual 4.15](#)
- [User Manual 4.14](#)
- [User Manual 4.13](#)
- [User Manual 4.12](#)
- [User Manual 4.11](#)

- [User Manual 4.10](#)
- [User Manual 4.9](#)
- [User Manual 4.8](#)
- [User Manual 4.7](#)
- [User Manual 4.6.1](#)
- [User Manual 4.5.1](#)
- [User Manual 4.4](#)
- [User Manual 4.3](#)
- [User Manual 4.2](#)
- [User Manual 4.1](#)
- [User Manual 4.0](#)
- [User Manual 3.4.1](#)
- [User Manual 3.3](#)

Tutorials

- [Tutorials 4.15](#)
- [Tutorials 4.14](#)
- [Tutorials 4.13.5](#)
- [Tutorials 4.12.1](#)
- [Tutorials 4.8.1](#)
- [Tutorials 4.5.1](#)
- [Tutorials 4.4](#)
- [Tutorials 4.1](#)
- [Tutorials 4.0](#)

Links

- [CNES freeware server](#)

Navigation

- [Accueil](#)
- [Modifications récentes](#)
- [Page au hasard](#)
- [Aide](#)

Outils

- [Pages liées](#)
- [Suivi des pages liées](#)
- [Pages spéciales](#)
- [Adresse de cette version](#)
- [Information sur la page](#)
- [Citer cette page](#)

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- [Politique de confidentialité](#)
- [À propos de Wiki](#)
- [Avertissements](#)
- 