

ConfigureFrames 4.1

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```
public class ConfigureFrames {

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

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

        // Date of the orbit (given in UTC time scale)
        final TimeScale TUC = TimeScalesFactory.getUTC();
        final AbsoluteDate date = new AbsoluteDate("2010-01-01T12:00:00.000",
TUC);

        // First configuration as simple as possible ...
        FramesConfiguration config = getSimplifiedConfiguration(false);
        FramesFactory.setConfiguration(config);

        // Corresponding GCRF frame
        final Frame gcrfNoPN = FramesFactory.getGCRF();
        // Corresponding GCRF frame
        final Frame icrfNoPN = FramesFactory.getCIRF();

        // Printing transform frame information
        print (gcrfNoPN, icrfNoPN, date);

        // Second configuration with precession and nutation ...
        config = getSimplifiedConfiguration(true);
        FramesFactory.setConfiguration(config);

        // GCRF frame
        final Frame gcrfPN = FramesFactory.getGCRF();
        // GCRF frame
        final Frame icrfPN = FramesFactory.getCIRF();

        // Printing frame information
        print (gcrfPN, icrfPN, date);

    }

    /**
    * Method to print results (transformation from frame1 to frame2).
    * @param frame1      First frame
    * @param frame2      Second frame
    * @param date        Date when we want to compare
```

```

    * @throws OrekitException
    */
    private static void print ( Frame frame1, final Frame frame2, final
AbsoluteDate date ) throws PatriusException {
        final Transform transform = frame1.getTransformTo(frame2, date);
        System.out.println();
        System.out.println("Psi:
"+transform.getRotation().getAngles(RotationOrder.ZYX)[0]);
        System.out.println("Teta:
"+transform.getRotation().getAngles(RotationOrder.ZYX)[1]);
        System.out.println("Phi:
"+transform.getRotation().getAngles(RotationOrder.ZYX)[2]);
    }

/**
 * Method to configure frames configuration.
 * @param isPrecNut if true => precession & nutation
 * @return frame configuration object
 */
    private static FramesConfiguration getSimplifiedConfiguration( final
boolean isPrecNut ) {

        // Configurations builder
        final FramesConfigurationBuilder builder = new
FramesConfigurationBuilder();

        // Tides and libration
        final TidalCorrectionModel tides =
TidalCorrectionModelFactory.NO_TIDE;
        final LibrationCorrectionModel lib =
LibrationCorrectionModelFactory.NO_LIBRATION;

        // Polar Motion
        final PolarMotion defaultPolarMotion = new PolarMotion(false, tides,
lib, SPrimeModelFactory.NO_SP);

        // Diurnal rotation
        final DiurnalRotation defaultDiurnalRotation = new
DiurnalRotation(tides, lib);

        // Precession Nutation
        PrecessionNutation precNut = null;
        if ( isPrecNut ) {
            precNut = new PrecessionNutation(false,
PrecessionNutationModelFactory.PN_IERS2010_INTERPOLATED_NON_CONSTANT);
        } else {
            precNut = new PrecessionNutation(false,
                PrecessionNutationModelFactory.NO_PN);
        }
    }

```

```
        builder.setDiurnalRotation(defaultDiurnalRotation);
        builder.setPolarMotion(defaultPolarMotion);
        builder.setPrecessionNutation(precNut);
        builder.setEOPHistory(new NoEOP2000History());

        return builder.getConfiguration();

    }
}
```

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