

# ConfigureFrames 4.4

De Wiki

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

[ConfigureFrames 4.4](#)

```
public class ConfigureFrames {

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

        // 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);

        // Storing by default configuration
        FramesConfiguration configDefault = FramesFactory.getConfiguration();

        // 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);

        //Setting by default configuration
        FramesFactory.setConfiguration(configDefault);
    }
}
```

```

    // GCRF frame
    final Frame gcrfDef = FramesFactory.getGCRF();
    // GCRF frame
    final Frame icrfDef = FramesFactory.getCIRF();

    // Printing frame information
    print (gcrfDef, icrfDef, 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();
    }
}

```

Récupérée de « [http://patrius.cnes.fr/index.php?title=ConfigureFrames\\_4.4&oldid=2478](http://patrius.cnes.fr/index.php?title=ConfigureFrames_4.4&oldid=2478) »

## Menu de navigation

### Outils personnels

- [18.226.248.88](#)
- [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](#)

