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Earth Observation Mission CFI Software
JAVA Libraries. Release Notes - Version 4.3

1 INTRODUCTION

This note describes the changes introduced in the new release of the Earth Observation CFI software C++ libraries. This note consists of the following sections:

2 NEW RELEASE DESCRIPTION

2.1 CFI Software and Documentation Delivery

The new versions of the CFI software libraries are the following:

Library	Version	Date
EECommon	4.3	06/02/12
FileHandling	4.3	06/02/12
DataHandling	4.3	06/02/12
Lib	4.3	06/02/12
Orbit	4.3	06/02/12

Pointing	4.3	06/02/12
Visibility	4.3	06/02/12

The libraries are available for download at the following URL (registration required): http://eop-cfi.esa.int/eo_cfi_distribution/CURRENT/4.3
More information can be found at: <a href="http://eop-cfi.esa.int/eo_cfi_distribution>http://eop-cfi.esa.int/eo_cfi_distribution
The following Software User Manuals have been updated accordingly:

Title	Issue
General Software User Manual	4.3
EE Common Software User Manual	4.3
FileHandling Software User Manual	4.3
DataHandling Software User Manual	4.3
Lib Software User Manual	4.3
Orbit Software User Manual	4.3
Pointing Software User Manual	4.3
Visibility Software User Manual	4.3

The documentation is available for download at the following URL: http://eop-cfi.esa.int/CFI/EO_CFI_DOCS/4.3

2.2 Supported Platforms

The following platforms are supported by this release of the CFI:

- LINUX32_LEGACY
  - Linux 32-bits (Legacy)
  - Platform Requirements: x86 based PC, Linux Operating System (Kernel version 2.6.x)
  - Software Requirements: Java SE 6, glibc (C Library) version 2.7
- LINUX64_LEGACY
  - Linux 64-bits (Legacy)
  - Platform Requirements: x86 based PC, Linux Operating System (Kernel version 2.6.x)
  - Software Requirements: Java SE 6 , glibc (C Library) version 2.7
- LINUX64
  - Linux 64-Bits
  - Platform Requirements: x86 based PC, Linux Operating System (Kernel version 2.6.x)
  - Software Requirements: Java SE 6, glibc (C Library) version 2.12
- WINDOWS
  - Microsoft WINDOWS PC (32-bits)
  - Platform Requirements: x86 based PC, Microsoft Windows XP Operating Systems.
  - Software Requirements: Java SE 6
- MACIN64
  - MACOSX on Intel (64-bits)
  - Platform Requirements: x86_64 based Mac Computer, Mac OS X version 10.5.x
  - Software Requirements: Java SE 6

2.3 Installation Packages

The CFI libraries are provided as zip packages:

- EOCFI-4.3-JAVALIB-LINUX32_LEGACY.zip
- EOCFI-4.3-JAVALIB-LINUX64_LEGACY.zip
- EOCFI-4.3-JAVALIB-LINUX64.zip
- EOCFI-4.3-JAVALIB-MACIN64.zip
- EOCFI-4.3-JAVALIB-WINDOWS.zip

DEM datasets are distributed separately and are available for download at the following URL: http://eop-cfi.esa.int/eo_cfi_distribution/DEM

2.4 Installation Hints

The CFI libraries can be installed by expanding the installation package in any directory.
For specific hints related to the usage of the libraries, please consult the section 6 "INSTALLATION" of the General SUM and Section 6 "LIBRARY USAGE" of each Library User Manual.
As of version 4.3, dynamic linking to libxml2 external libraries is no longer required.

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3 NEW FEATURES

The following new features/requirements have been implemented (see section "Known Problems" at the end of this document or of each of the SUMs to check limitations of the current release):

- DataHandling:
    - Support for reading new IERS bulletins A and B.
    - New functions to decimate orbit and attitude data:
        - OrbitFile::decimate
        - AttFile::decimate
- Lib:
    - New Coordinate System added: Pseudo-EF
    - Polar motion included in EF CS.
    - New class construtors for TimeCorrelation to use data already read from Orbit and IERS files
    - Time initialization mode with:
        - IERS Bulletin A
        - Bulletins A+B
    - New time transport formats:
        - XLCFI_TRANS_GENERIC_GPS
        - XLCFI_TRANS_GENERIC_GPS_WEEK
- Orbit:
    - New class construtors for OrbitId to use data already read from Orbit files
- Pointing:

    - For target functions, the raytracing model now is determined by the AtmosId (in the Target constructor). The iray input variable becomes dummy.
    - New attitude model for SENTINEL2 (XPCFI_MODEL_SENTINEL2)

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4 CLOSED ANOMALIES (SOFTWARE PROBLEMS)

The following Software problems have been fixed:

ANR Nr.	Description
413	Target:targetRangeRate may fail in some specific contition
415	Definition of time_id validitiy interval to be clarified in SUMs
445	Time transformation functions introduce UTC-UT1 correlation different from zero if UTC=UT1 in all records of TimeCorrelation object
449	Swath::zoneVisTime returns an error if orbit range includes any of the last two orbits in Predicted Orbit File.
450	Wrong result from Swath::zoneVisTime when using a multi-point swath.
452	Swath generation (Swath::genSwath) fails: *Could not propagate the state vector*
453	OrbitId::osvCompute: when init mode = AUTO, it is not clear if interpolation or propagation is done. Doc update
454	OrbitId (Constructor with input files). Interpolator mode: when two files are given as inputs and they partially overlap, "fresh" (most recently generated shall be used)
461	Increase number of decimal digits from 6 to 9 when writing quaternions in attitude file
462	Segmentation fault when computing OSV for the stop time of restituted orbit file
463	If the source frame in the attitude_id is set to Earth-Fixed, Target::targetInter returns an error (target not found)
467	Segmentation fault / wrong result when num_harmonics < 2 in OSF
479	target::extraMain does not compute the "satellite to target topocentric" parameters
483	Segmentation fault when erasing TimeCorrelation object