



Code: EOCFI-DMS-SRN-0002  
Date: 06/02/2012  
Issue: 4.3

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# Earth Observation Mission CFI Software C++ 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:

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## 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     |
|--------------|---------|----------|
| ECommon      | 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](http://eop-cfi.esa.int/eo_cfi_distribution/CURRENT/4.3)

More information can be found at: [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](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: g++ compiler version 4.2.x, 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: g++ compiler version 4.2.x, 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: g++ compiler version 4.5.x, glibc (C Library) version 2.12
- WINDOWS
  - Microsoft WINDOWS PC (32-bits)
  - Platform Requirements: x86 based PC, Microsoft Windows XP Operating Systems.
  - Software Requirements: Microsoft Visual Studio 2008 Compiler
- MACIN64
  - MACOSX on Intel (64-bits)
  - Platform Requirements: x86\_64 based Mac Computer, Mac OS X version 10.5.x
  - Software Requirements: g++ compiler version 4.2.x

## 2.3 Installation Packages

The CFI libraries are provided as zip packages:

- EOCFI-4.3-CPPLIB-LINUX32\_LEGACY.zip
- EOCFI-4.3-CPPLIB-LINUX64\_LEGACY.zip
- EOCFI-4.3-CPPLIB-LINUX64.zip
- EOCFI-4.3-CPPLIB-MACIN64.zip
- EOCFI-4.3-CPPLIB-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](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 constructors 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 constructors 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 validity 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: <i>Could not propagate the state vector</i>   |
| 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   |