
EARTH EXPLORER MISSION CFI SOFTWARE

Release Notes - Version 4.0

1 INTRODUCTION

This note describes the changes introduced in the new release of the Earth Explorer CFI software libraries.

2 NEW RELEASE DESCRIPTION

2.1 CFI Software and Documentation Delivery

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

- EXPLORER_FILE_HANDLING -- Version 4.0- 19/01/09
- EXPLORER_DATA_HANDLING -- Version 4.0- 19/01/09
- EXPLORER_LIB -- Version 4.0- 19/01/09
- EXPLORER_ORBIT -- Version 4.0- 19/01/09
- EXPLORER_POINTING -- Version 4.0- 19/01/09
- EXPLORER_VISIBILITY -- Version 4.0- 19/01/09

The following Software User Manuals have been updated accordingly:

- EXPLORER_FILE_HANDLING issue 4.0
- EXPLORER_DATA_HANDLING issue 4.0
- EXPLORER_LIB issue 4.0
- EXPLORER_ORBIT issue 4.0
- EXPLORER_POINTING issue 4.0
- EXPLORER_VISIBILITY issue 4.0
- GENERAL issue 4.0

The following documents have been also updated accordingly:

- Earth Explorer CFI Software Conventions Document, issue 1.5
- Earth Explorer Mission CFI Software Quick Start Guide, issue 2.0

The following note has been prepared to support the transition from previous CFI versions:

- Explorer CFI: mapping of V3.7.2 functions to V4.0 functions in user applications, issue 1.0

2.2 Compilation software and platform

This release of the CFI libraries are provided for SOLARIS, LINUX, MACOS and WINDOWS platforms.

- SOLARIS (32-bits):
 - Solaris 5.7 (or later) Operating System
 - gcc compiler version 4.2.2 (for linking the software to a C application)
 - libxml2 version 2.6.22 or later
- SOLARIS (64-bits):
 - Solaris 5.9 (or later) Operating System

- gcc compiler version 4.2.2 (for linking the software to a C application)
- libxml2 version 2.6.22 or later
- LINUX (32-bits):
 - Linux 2.6.16 Operating System
 - gcc compiler version 4.2.2(for linking the software to a C application)
 - libxml2 version 2.6.22 or later
 - glibc 2.4
- LINUX (64-bits):
 - Linux 2.6.16 Operating System
 - gcc compiler version 4.2.2 (for linking the software to a C application)
 - libxml2 version 2.6.22 or later
 - glibc 2.4
- PC WINDOWS:
 - Microsoft Windows 2000 or XP Operating Systems.
 - Microsoft Visual C++ 6.0 Compiler (for linking the software to a C application)
 - libxml2 version 2.6.20 or later (including iconv-1.9.1 and zlib-1.2.3)
- MACOSX (32-bits):
 - Mac OS X version 10.4.6
 - gcc compiler version 4.2.1(for linking the software to a C application)
 - libxml2 version 2.6.22 or later
- MACOSX (64-bits):
 - Mac OS X version 10.4.6
 - gcc compiler version 4.2.1 (for linking the software to a C application)
 - libxml2 version 2.6.22 or later
- MACOSX on Intel (32-bits):
 - Mac OS X version 10.4.9
 - gcc compiler version 4.2.1 (for linking the software to a C application)
 - libxml2 version 2.6.22 or later
- MACOSX on Intel (64-bits):
 - Mac OS X version 10.4.9
 - gcc compiler version 4.2.1 (for linking the software to a C application)
 - libxml2 version 2.6.22 or later

Note that the distributed binaries have been generated with no debug.

2.3 Installation packages

The CFI libraries are provided in different packaging formats depending on the platform:

- Compressed (gzip) tar files are provided for SOLARIS, SOLARIS 64-bit, LINUX and LINUX 64-bit:
 - EXPLORERCFI_4_0_SOLARIS.tar.gz
 - EXPLORERCFI_4_0_SOLARIS64.tar.gz
 - EXPLORERCFI_4_0_LINUX.tar.gz
 - EXPLORERCFI_4_0_LINUX64.tar.gz
- WINDOWS installation program: EXPLORERCFI_4_0_WINDOWS.exe

- MAC OS X PPC installation program: EXPLORERCFI_4_0_MACOS.dmg
- MAC OS X PPC 64-bit installation program: EXPLORERCFI_4_0_MACOS64.dmg
- MAC OS X Intel installation program: EXPLORERCFI_4_0_MACIN.dmg
- MAC OS X Intel 64-bit installation program: EXPLORERCFI_4_0_MACIN64.dmg

3 CLOSED SPRS / ANRS

The following SPRs / ANRs have been solved:

- EXPCFI-AN-359: (withdrawn) Visibility computations are not supported if the Orbit Id is initialized using TLE files;
- EXPCFI-SPR-130 (AN-360, AN-361): Propagator ID validity in TLE mode is shorter than expected if the TLE file is composed of more than one entry (AN-360); initialisation of Propagator ID in TLE mode + AUTO mode fails if the TLE file is composed of more than one entry (AN-361);
- EXPCFI-SPR-131 (AN-362): Using the `xo_gen_tle` when the orbit file contains more than one OSV per orbit, the output is a TLE file including wrongly formatted entries;
- EXPCFI-AN-363: Schema validation of Predicted and Restituted Orbit files generated with `xo_gen_XXX` functions fail due to incorrect schema version in the file header; Swath Definition File format as described in the User Manual is not correct for the ASAR geometry.

4 NEW REQUIREMENTS

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

- GENERAL:
 - Libraries compiled with new compilers for UNIX based OS (gcc 4.2. or higher)
- EXPLORER_LIB:
 - Functions to customize the astronomical and geodetic models that are used by the EXPCFI functions.
- EXPLORER_ORBIT:
 - Propagation/Interpolation is transparent for the user. There is no need of initialising the propagator/interpolator.
 - Numerical propagator.

Please note the following:

- As a consequence of the above new features, many Software Interfaces have been re-defined or modified with respect to previous CFI versions. Those changes are described in the Note “Explorer CFI: mapping of V3.7.2 functions to V4.0 functions in user applications“ (see also section 2.1).

5 KNOWN PROBLEMS

The current version of the CFI has the following limitations:

- The validity interval returned by the function `xo_orbit_get_osv_compute_validity` (EXPLORER_ORBIT library) is not correct (EXPCFI-AN-370).

See also section “Known Problems“ at the end of each of the SUMs to check additional limitations of the current release.