

Core Flight Software System (cFS)

housekeeping (HK) Application

Build: 2.4.1.0

FSW Version Description Document

Release Date: 11/9/2016

Signatures

Approved by:



1.0 FSW Version Description

1.1 purpose and summary

The purpose of this build is to continue to refine the cFS Housekeeping (HK) application product. This build provides very minor bug fixes, cosmetic fixes to the requirements document, and new assert based unit tests. This document serves as the notification of the Build 2.4.1.0 release of the cFS HK application.

Housekeeping (HK) version 2.4.1.0 is compatible with cFE builds 6.5.0 and above and OSAL builds 4.2.0 and above.

1.2 new/Changed functionality in this VERSION

Table 1.2-1 identifies new FSW functionality that has been implemented and is integrated into this FSW version. Requirement references are included.

Table 1.2-1 – New Functionality in this Version

| No. | FSB DCR # (or N/A ) | Requirements | High Level Description of Functionality |
| --- | --- | --- | --- |
| N/A | None | N/A | None |

Table 1.2-2 identifies changes to FSW functionality from a previously delivered FSW version and the DCRs and Trac Ticket numbers associated with these changes. See attachment 1 for a full listing of the DCRs and Trac Tickets included in this release.

Table 1.2-2 – Changes to Previously Delivered Functionality

| No. | FSB DCR # (or N/A ) | Requirements | High Level Description of Functionality |
| --- | --- | --- | --- |
| N/A | None | N/A | None |

1.3 MISSING Planned FEATURES AND KNOWN PROBLEMS

Table 1.3-1 identifies the functions and known discrepancies that are absent from HK Build 2.4.1.0. Any workarounds that may apply are identified.

Information on currently open DCRs is available at <http://tlserver3.gsfc.nasa.gov:7001/index.html>. Information on currently open Trac tickets is available at <https://babelfish.arc.nasa.gov/trac/cfs_apps/report/1>. Note that these are restricted websites that requires a server account. Additional DCRs and/or Trac Tickets may have been submitted after preparation of this VDD. A cFS HK DCR report containing a listing of open DCRs and Trac tickets is available on request for customers who do not have access to the restricted servers. Please contact Susanne Strege, susie.strege@nasa.gov.

Table 1.3-1 – Functions absent from this Release

| No. | FSB DCR or Trac # | Description | Reason for Absence | Affected Requirement or Component | Workaround | Planned Delivery |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 4115 | HK - Add Trick Simulation Support (JSC Request) | Implementation is dependent on customer needs. Community input is needed. | N/A | None | Not Determined |

1.4 Development Tool Versions Associated with this FSW Version

Table 1.4-1 identifies the versions of development tools used to generate this FSW version:

Table 1.4-1 – Development Tool Versions Associated with this FSW Version

| Tool Type. | Tool Name | Version Used |
| --- | --- | --- |
| RTOS | BVTed with VxWorks 6.9, however, OSAL provides ability to use multiple OSes | 6.9 |
| Compiler | GNU | 3.3.2 |
| cFE | Core Flight Executive | 6.5.0.0 |
| OSAL | Operating System Abstraction Layer | 4.2.0.0 |

2.0 Delivered products

Table 2-1 identifies the locations of FSW products relevant to this FSW Build. The version or date of the Build and where the product can be located are provided. Changes from a previous VDD are identified.

Table 2-1 – Delivered Products and their Locations

| Software Element | Changed with this Version? | New Version or Date | Location |
| --- | --- | --- | --- |
| Executable for this build | Yes | 2.4.1.0 | Not application. Executables must be created for the specific mission/platform |
| Installation Procedures & Special Instructions **(See Section 3.0)** | No | 3.1 | See cFS Deployment Guide    babelfish.arc.nasa.gov (in git system TOOLS master branch)  and  <http://sourceforge.net/projects/coreflightexec> |
| Source Code of this FSW Build | Yes | 2.4.1.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  http://sourceforge.net/projects/cfs-hk |
| FSW Build Plan | N/A | N/A | None |
| Annotated S/W Detailed Design Docs | No | N/A | fsb.gsfc.nasa.gov/cFS |
| Ground System T&C Database | No | N/A | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Ground System Scripts developed by FSB | Yes | 2.4.0.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Simulator and Test Data Generator Software | No | N/A | None |
| Executable - Ground Tools associated with FSW (tools to build stored command loads, etc.) | No | N/A | None |
| Source Code - Ground Tools associated with FSW (tools to build stored command loads, etc.) | No | N/A | Perl scripts to generate ground database and build verification procedures from templates (see cFS Deployment Guide) |
| Unit Test Procedures | Yes | 2.4.1.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Unit Test Data | Yes | 2.4.1.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Unit Test Results | Yes | 2016/10/28 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| FSW Make Files | No | 2.4.1.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Linker & Compiler Configuration Files | No | 2.4.1.0 | Tlserver3.ndc.nasa.gov. MKS label HK-ALL-Build2.4.1.0-NOV9-2016  babelfish.arc.nasa.gov (in git system hk\_app\_master branch)  and  <http://sourceforge.net/projects/cfs-hk> |
| Requirements version (from MKS) | No | 1.1 | MKS label – version 1.1 |

3.0 INSTALLATION PROCEDURES

Table 3-1 identifies the nominal FSW Installation Procedure(s) for this FSW Build onto the intended target system (including the commercial applications used and the configuration settings). The procedure version identifier, the date of the procedure and where it can be located are also provided.

Table 3-1 FSW Installation Procedure(s)

| Destination  (Target System) | Filename | Version and Date | Location |
| --- | --- | --- | --- |
| N/A | See cFS Deployment Guide | Version 3.1 | Available with cFE open source release:  <http://sourceforge.net/projects/coreflightexec/>  babelfish.arc.nasa.gov (in git system TOOLS master branch)  and on Tlserver3.ndc.nasa.gov |

4.0 Configuration summary and version identification

HK Build 2.4.1.0 can be found on tlserver3.ndc.nasa.gov, sourceforge: <http://sourceforge.net/projects/cfs-hk>, and babelfish.arc.nasa.gov (in git system hk\_app\_master branch). Verification of the version can be done by sending a HK Noop command which produces an event message containing the version information. In addition, the initialization event message generated during the application startup provides the version information.

5.0 Software CopyRight Notice

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Acronyms

ACS Attitude Control System

C&DH Command and Data Handling

cFE…………………………………………………………………………………………..……core Flight Executive

cFS………………………………………………………………………………………core Flight Software System

CM Configuration Management

COTS Commercial Off-The-Shelf

DCR Discrepancy/Change Request

ETU Engineering Test Unit

FSB Flight Software Branch

FSW Flight Software

HK…………………………………………………………………………………………………….Housekeeping

I&T Integration & Test

OSAL……………………………………………………………………………Operating System Abstraction Layer

RTOS Real-Time Operating System

T&C Telemetry and Command

URL Universal Resource Locator

VDD Version Description Document

ATTACHMENT 1 – CFS housekeeping build 2.4.1.0 DCRs/Trac Tickets

Trac ticket references are proceeded with a ‘#’ character.

|  | | | |
| --- | --- | --- | --- |
| **No.** | **DCR/Trac Ticket #** | **Description** | **Type** | | **Priority** | **State** | **Date Reported** | **Build Target** |
| 1 | #27 | HK: Fix compiler errors/warnings with strict build settings | defect | | minor | Test Complete | 06/29/2015 | 2.4.1.0 |
| 2 | #39 | Allow C99 code in APPS | defect | | minor | Test Complete | 01/28/2016 | 2.4.1.0 |
| 3 | 4070 | Uninitialized Variable Causes Compiler Warning | defect | | minor | Test Complete | 09/11/2012 | 2.4.1.0 |
| 4 | 4098 | HK Event ID 13 Is Defined and Not Used | defect | | minor | Test Complete | 12/17/2012 | 2.4.1.0 |
| 5 | 145475 | Implement assert based HK unit tests | enhancement | | major | Test Complete | 03/28/2016 | 2.4.1.0 |
| 6 | 145678 | HK Unit Tests: Add C Macro Definition to Makefile for New cFE. With the new version of cFE (6.5.0), changes were made that caused the HK application unit tests to generate warning messages when calling CFE\_EVS\_SendEvent and CFE\_ES\_WriteSysLog. It was determined these messages were being generated because the constant OSAPI\_NO\_SPECIAL\_ATTRIBS was not being defined. This definition was placed in the unit test suite's makefile. | enhancement | | minor | Test Complete |  | 2.4.1.0 |
| 7 | 145728 | HK Unit Test Makefile: Replace hard-coded paths with environment variables set in setvars.sh | enhancement | | minor | Test Complete |  | 2.4.1.0 |
| 8 | 145878 | HK - UT-Assert Unit Tests - Code Walkthrough Updates | enhancement | | moderate | Test Complete |  | 2.4.1.0 |
| 9 | 145911 | HK - CFE\_EVS\_SendEvent Format Warnings | defect | | minor | Test Complete |  | 2.4.1.0 |
| 10 | 145932 | HK Requirement Document Format Issues | enhancement | | major | Test Complete |  | 2.4.1.0 |