



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:

X

Susanne Strege/582

cFS Flight Software Product Development Lead

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



Software Element	Changed with this Version?	New Version or Date	Location
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



Software Element	Changed with this Version?	New Version or Date	Location
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

Copyright © 2007-2014 United States Government as represented by the Administrator of the National Aeronautics and Space Administration. All Other Rights Reserved.

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