



CORE FLIGHT SOFTWARE SYSTEM (CFS)

STORED COMMAND (SC) APPLICATION

BUILD: 2.5.0.0

FSW VERSION DESCRIPTION DOCUMENT

RELEASE DATE: 10/31/2016



1.0 FSW VERSION DESCRIPTION

1.1 PURPOSE AND SUMMARY

The purpose of this build is to continue to refine the CFS Stored Command (SC) application product. This build provides minor bug fixes, enhancements to the unit tests, and resolves the compatibility issues with cFE build 6.5.0. This document serves as the notification of the Build 2.5.0.0 release of the CFS SC application.

SC version 2.5.0.0 is compatible with cFE builds 6.5.0.0 and above and OSAL 4.2.0.0 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

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	Functionality or Change Description
1	#23/4246	SC4001.3.1	Fixed incorrect send event call for the SC_RTS_DIST_ERR_EID. Call was being made with an insufficient number of parameters.
2	4243	N/A	SC increments ground command error counter when internal command to report housekeeping has an invalid packet length. SC was updated to increment AppData.CmdErrCtr only for ground commands (SC_CMD_MID).
3	4245	N/A	In sc_cmds.c, in the function SC_ProcessAtpCmd, AbortATS is set to TRUE without setting TempAtsChar to anything, which causes it to use its initialized value of ' ', causing a meaningless message to be printed: "ATS Aborted". Corrected code to prevent meaningless event message.

1.3 MISSING PLANNED FEATURES AND KNOWN PROBLEMS

Table 1.3-1 identifies the functions and known discrepancies that are absent from SC Build 2.5.0.0. 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 SC 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 #	Description	Reason for Absence	Affected Requirement or Component	Workaround	Planned Delivery
1	3854	ATS and RTS status information is not saved across a reset.	Lower priority than other 2.5 issues	SC9002	None	Not Determined
2	4092	Startup time with a large number of RTS tables can be extensive. The startup time on MMS with 320 RTS tables is nearly 2 minutes.	Lower priority than other 2.5 issues	N/A	None	Not Determined
3	4120	SC - Add Trick Simulation Support (JSC Request)	Implementation is dependent on customer needs. Community input is needed.	N/A	Add required ifdef statements to header files	Not Determined
4	4139	SC does not allow duplicate command numbers in an ATS.	Implementation is dependent on customer needs.	SC2001	None	Not Determined
5	4161	Add ATS filename to housekeeping telemetry	Lower priority than other 2.5 issues	SC8000	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
cFE-PSP	cFE Platform Support Package	1.3.0.0
OSAL	Operating System Abstraction Layer	4.2.0

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	2.5.0.0	Not applicable. Executables must be created for the specific mission/platform
Installation Procedures & Special Instructions (See Section 3.0)	No	3.1	See Deployment Guide babelfish.arc.nasa.gov (in git system TOOLS master branches) and http://sourceforge.net/projects/coreflightexec
Source Code of this FSW Build	Yes	2.5.0.0	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
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.gsfc.nasa.gov babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
Ground System Scripts developed by FSB	No	N/A	Tlserver3.gsfc.nasa.gov babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc



Software Element	Changed with this Version?	New Version or Date	Location
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	N/A	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
Unit Test Data	Yes	N/A	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
Unit Test Results	Yes	N/A	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
FSW Make Files	No	N/A	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc



Software Element	Changed with this Version?	New Version or Date	Location
Linker & Compiler Configuration Files	No	N/A	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc
Requirements version (from MKS)	No	1.5	Tlserver3.gsfc.nasa.gov. MKS label SC-ALL-Build2.5.0.0-OCT31-2016 babelfish.arc.nasa.gov (in git system sc_app_master branch) and http://sourceforge.net/projects/cfs_sc

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

SC Build 2.5.0.0 can be found on tlserver3.gsfc.nasa.gov, sourceforge, and babelfish.arc.nasa.gov (in git system sc_app_master branch). Verification of the version can be done by sending a SC Noop command which produces an event message containing the version. In addition, the initialization event message generated during the application startup provides the version.

5.0 SOFTWARE COPYRIGHT NOTICE

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ACRONYMS

ACS	Attitude Control System
C&DH.....	Command and Data Handling
CDS.....	Critical Data Store
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
I&T	Integration & Test
OSAL.....	Operating System Abstraction Layer
RTOS	Real-Time Operating System
SC.....	Stored Command
T&C.....	Telemetry and Command
URL.....	Universal Resource Locator
VDD	Version Description Document

ATTACHMENT 1 – CFS STORED COMMAND BUILD 2.5.0.0 DCRS/TRAC TICKETS

Trac ticket references are proceeded with a '#' character.

No.	DCR/Trac Ticket #	Description	Type	Priority	State	Date Reported	Build Target
1	#16	Update SC app for recent CFE update	defect	major	Test Complete	5/18/2015	2.5.0.0
2	#23/4246	SC - Fix incorrect CFE_SendEvent call. The SC app makes a CFE_SendEvent call with an insufficient number of parameters.	defect	minor	Test Complete	6/29/2015	2.5.0.0
3	#31	SC: Fix compiler errors/warnings when using strict settings. When using strict compiler settings the SC application fails to build due to mismatches between the format string and parameters of printf-like functions.	defect	minor	Test Complete	6/29/2015	2.5.0.0
4	5079	Replace old unit tests with new UT-Assert tests	enhancement	major	Test Complete	8/10/2015	2.5.0.0
5	145681	Function Prototype Needs to be Moved to .h File With All Other Prototypes. In a much earlier DCR, all function prototypes were supposed to be moved from the .c file to the .h file. One of them was apparently missed: SC_ProcessCommand. This should be moved to where all the others are.	enhancement	minor	Test Complete	6/22/2016	2.5.0.0
6	145833	UT-Assert unit test code walkthrough updates	enhancement	minor	Test Complete	9/9/2016	2.5.0.0
7	145832	Fix format warnings from calls to CFE_EVS_SendEvent	defect	minor	Test Complete	9/9/2016	2.5.0.0
8	4245	Incorrect message on ATS abort. In sc_cmds.c, in the function SC_ProcessAtpCmd, AbortATS is set to TRUE without setting TempAtsChar to anything, which causes it to use its initialized value of ' ', causing a meaningless message to be printed: "ATS Aborted". Corrected code to prevent meaningless event message.	defect	moderate	Test Complete	6/9/2015	2.5.0.0
9	4243	SC increments ground command error counter when internal command to report housekeeping has an invalid packet length. SC was updated to increment AppData.CmdErrCtr only for ground commands (SC_CMD_MID).	defect	moderate	Test Complete	5/8/2015	2.5.0.0
10	145914	sc_loads.c : SC_Insert has index out of bound conditions possible	defect	minor	Test Complete	10/19/16	2.5.0.0
11	6323	Move function prototypes to header files	enhancement	minor	Test Complete	8/18/2015	2.5.0.0