SPIRE HCSS v0.6.0 Acceptance Test Report

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1. INTRODUCTION

This acceptance test report is based on the tests carried out by SPIRE at RAL on the Herschel Common Science System (HCSS) version 0.6.0 build #1430 between 19th and 21st December 2007. This test was performed to test the functionality required for the start of IST and for FS tests. The documentation listed in section 2 was used for the execution of the tests. Section 3 describes the RAL system setup and configuration for these tests. In section 4 the results from the execution of each test are described.

1.1 Conventions

Commands entered are in indented courier new font:
```
dbuser -add -P egse@lichfield
```

Output from the system is in the same font but starting without indentation:
```
Exception in thread "main" java.lang.NullPointerException
        at herschel.cus.gui.CusEditor.<init>(CusEditor.java:98)
        at herschel.cus.gui.CusEditor.main(CusEditor.java:1332)
```

2. DOCUMENTATION

2.1 Applicable Documents

AD01	Database MIB Import ICD, Version 5.2, 2nd July 2003, S2K-MCS-ICD-0001-TOS-GIC
AD02	CUS Functionality to Support Command Lists for SPIRE, HCSS SCR-0110 (see http://www.rssd.esa.int/herschel_webapps/servletsuite/ProblemReportServlet?area=hcss&mode=displaypr&id=110), Ken King and Sunil Sidher, 13th Aug 2002.
AD03	Contents of SPIRE VM Table File, Issue 1.0 Draft 2, 5th Feb 2004, SPIRE-RAL-NOT-001907
AD04	SPIRE EGSE-ILT Startup Procedures, Issue 0.7, 24th June 2003, SPIRE-RAL-DOC-001630

2.2 Reference Documents

RD01	HCSS Acceptance Test Plan, Issue 1.1, 6th Jan 2006
RD02	MIB User Guide
RD03	HCSS telemetry ingestion software user manual
RD04	Common Uplink System User's Guide
RD05	HCSS Installation Instructions
RD06	EGSE TestControl User Guide, Issue 1, 12th July 2004, PICC-ME-MN-002
RD07	Database Administration Manual

3. TEST SETUP

3.1 System Setup

The SPIRE setup for the acceptance test was as follows.

Lincoln: SCOS 2000 w/s running Linux SuSE 7.3, SCOS2000 v2.3e P5 + TOPE, EGSE part of the TestControl. The sops23e account was used.

Lichfield: Data Server running Linux openSuSE 10.2, plus test control support (tcl/tk 4.4.12, tcl thread 2.6.2, tclBlend 1.3.2). The sg55 account was used. SPIRE build #727 was installed.

Lichfield was installed with:
- Java 1.5.0_14
- HCSS build #1430 (HCSS 0.6.0 release, database schema version 33)
- Versant 7.0.1.3.7 (used command vinfo –l from unix shell)

3.1.1 Instrument Setup

The SPIRE AVM was used for these tests. This consists of the CDMS Simulator, AVM-1 DPU and the DRCU Simulator.

3.2 Preliminary Steps

These steps were performed in order to carry out the acceptance test. They were carried out as required, i.e. they were not all performed before the acceptance test steps were started.

3.2.1 Properties

- Set the instrument model and database in ~/.hcss/user.props:

```
var.model = FS1
var.database.devel = hcssv0.6.0_at@${var.database.server}
hcss.ccm.mission.config =  config_hcssv0_6_0_at
```

3.2.2 Router and Gateway

We started the Router and EGSEGateway from sg55 on Lichfield:

➢ router R
➢ router S --scosapids 1280-1283,2036-2038

3.2.3 Database setup

Refer to RD07 for setup instructions.

Created database for HCSS 0.6.0 AT:

```
    /home/sg55> db_admin -i hcssv0.6.0_at@lichfield
19-Dec-07 15:29:40.366 LogInitialiser: Initialising using local log
configuation                                              file
/home/sg55/.hcss/userlogging.properties
19-Dec-07 15:29:40.411 Configuration: Build number is 1430
Initializing new database system...
[makedb] New database directory created: hcssv0.6.0_at@lichfield
[profile.be] Updated profile.be for database: hcssv0.6.0_at@lichfield
[createdb] New database created: hcssv0.6.0_at@lichfield
[SchemaTool] Creating schema information.
[indexing] Creating default indices.
```

```
[DBI]
[initv]
Initializing database "hcssv0.6.0_at@lichfield"
19-Dec-07 15:29:50.012 ReplStoreFactoryImpl: Creating ObjectStore:
hcssv0.6.0_at@lichfield
Initializing database using
herschel.ccm.tools.BasicMissionInitializer
19-Dec-07 15:29:50.137 InstrumentModelRegistryImpl: Create new model
registry for instrument HIFI
19-Dec-07 15:29:50.137 InstrumentModelRegistryImpl: Create new model
registry for instrument PACS
19-Dec-07 15:29:50.138 InstrumentModelRegistryImpl: Create new model
registry for instrument SPIRE
19-Dec-07 15:29:50.301 ReplStoreFactoryImpl: Creating ObjectStore:
hcssv0.6.0_at@lichfield
Database system initialization finished, system id = 14139.
Finished successfully.
```

We then checked the schema of the DB:

```
/home/sg55> schema_tool -v hcssv0.6.0_at@lichfield
Database schema version = 33
Class schema version = 33
Number of serialized Jobs (PropJob): 0
```

Checked the size and amount of free space in DB:

```
/home/sg55> dbtool -space -volume -all -verbose hcssv0.6.0_at
VERSANT Utility DBTOOL Version 7.0.1.3
Copyright (c) 1989-2006 VERSANT Corporation


Volume 0:
    Sysname "sysvol"    Size: 8387584K
    Pathname "/spired/versant/db/hcssv0.6.0_at/system"
        Percentage of volume space free in sysvol : 99%
        Free space in vol sysvol : 8367488KB

    Percentage of free space in DB : 99%
    Total available free space in DB : 8367488KB
```

Note: The dbtool command does not accept the DB machine name after the DB name.

sg55/.hcss> missetup -listmodels
19-Dec-07 15:53:52.245 LogInitialiser: Initialising using local log configuation file
/home/sg55/.hcss/userlogging.properties
19-Dec-07 15:53:52.295 Configuration: Build number is 1430
19-Dec-07 15:53:52.866 ReplStoreFactoryImpl: Creating ObjectStore: hcssv0.6.0_at@lichfield
19-Dec-07 15:53:53.185 MissionSetup:
Using database "hcssv0.6.0_at@lichfield"
19-Dec-07 15:53:53.197 MissionSetup:
Instrument models :-
SPIRE FS1
PACS WHOCARES
HIFI WHOCARES

Also checked that the mission configuration was setup correctly by DB creation command (viz. dbinfo –i):

```
sg55/.hcss> missetup -listconfig
19-Dec-07 15:54:23.175 LogInitialiser: Initialising using local log
configuation file /home/sg55/.hcss/userlogging.properties
19-Dec-07 15:54:23.225 Configuration: Build number is 1430
19-Dec-07 15:54:23.806 ReplStoreFactoryImpl: Creating ObjectStore:
hcssv0.6.0_at@lichfield
19-Dec-07 15:54:24.127 MissionSetup:
Using database "hcssv0.6.0_at@lichfield"
19-Dec-07 15:54:24.130 MissionSetup:
Configurations:-
config_hcssv0_6_0_at
```

Figure 1: Configuration for the HCSS Acceptance Test

4. HCSS TEST CASES

4.1 TC-ICC-01: MIB Ingestion

The following steps were performed on lichfield:

- Checked that the siteid is set to 3 (ILT) in the .hcss/user.props file
- Used MIB in directory tree `/home/sg55/FS1/MIB` - property `var.mib.datadir` was already set to FS1

  The MIB for these tests was copied to directory `/home/sg55/FS1/MIB/ascii-tables` from `/home/sops23e/SPIRE/MIBs/MIBforHCSS_FM_2.2.G7_PRwithCDMSSim11TFCS15TFTS13` on sops23e@lincoln.

- Ran gencmddurns
  - ➢ `cd /home/sg55/FS1/MIB`
  - ➢ `gencmddurns ascii-tables auxil/tc-durns`

```
Using ascii-tables/ccf.dat to create a TEMPLATE command duration
file auxil/tc-durns ..
Done.
FS1/MIB> ls auxil/
tc-durns
```

- Ran the program to check the MIB – success!

```
FS1/MIB> mibchecker -properties hcss.mib.datadir=$PWD
19-Dec-07 16:09:48.258 LogInitialiser: Initialising using local
log configuation file /home/sg55/.hcss/userlogging.properties
19-Dec-07 16:09:48.302 Configuration: Build number is 1430
19-Dec-07 16:09:55.588 MibProcessor: There was one or more
problems in the imported MIB files. These are not judged to be
serious. Check the file mibchecker.log for details.
19-Dec-07 16:09:55.589 MibChecker: MIB checks were successful.
```

- Now we attempted to ingest the MIB into the DB:

```
IST-FM/MIB> ingestmib FS_2.2.G7 -properties
hcss.mib.datadir=$PWD
```

Ingestion completed successfully. Lots and lots of log messages reported (Next time remember to pipe the log messages to a file).

```
.
.
.
19-Dec-07 16:13:53.208 MibObjectStoreConsumer: adding packet to
list Spire_R_MONPAR_WARN_NOM
19-Dec-07 16:13:53.208 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.224 MibObjectStoreConsumer: adding packet to
list Spire_R_DPU_Anomaly
19-Dec-07 16:13:53.227 MibObjectStoreConsumer: adding packet to
list Spire_R_Science_Pool_Full
19-Dec-07 16:13:53.227 MibObjectStoreConsumer: adding packet to
list Spire_Test_Service_Report
19-Dec-07 16:13:53.227 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.249 MibObjectStoreConsumer: adding packet to
list Spire_R_DUMP_ABORTED_ID
19-Dec-07 16:13:53.252 MibObjectStoreConsumer: adding packet to
list Spire_P_Incomplete_Packet
19-Dec-07 16:13:53.252 MibObjectStoreConsumer: adding packet to
list Spire_RP_Pool_Full
19-Dec-07 16:13:53.253 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.267 MibObjectStoreConsumer: adding packet to
list Spire_R_Event_Pool_Clear
19-Dec-07 16:13:53.271 MibObjectStoreConsumer: adding packet to
list Spire_R_BSM_Frame_Check_Error
19-Dec-07 16:13:53.271 MibObjectStoreConsumer: adding packet to
list Spire_SCU_TRANSPARENT
```

```
19-Dec-07 16:13:53.271 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.286 MibObjectStoreConsumer: adding packet to
list Spire_RP_TM_FIFO_Full
19-Dec-07 16:13:53.289 MibObjectStoreConsumer: adding packet to
list Spire_ALARM_LSDCU_DEAD
19-Dec-07 16:13:53.290 MibObjectStoreConsumer: adding packet to
list Unknown_5_2_2037_4_772
19-Dec-07 16:13:53.290 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.311 MibObjectStoreConsumer: adding packet to
list Spire_R_ERROR_LS_CID_UNKNOWN
19-Dec-07 16:13:53.315 MibObjectStoreConsumer: adding packet to
list Spire_Event_Pool_Full
19-Dec-07 16:13:53.315 MibObjectStoreConsumer: adding packet to
list Spire_P_Err_HK_Sampling_Running
19-Dec-07 16:13:53.315 MibObjectStoreConsumer: Limit of 2
reached. Commiting data to database.
19-Dec-07 16:13:53.330 MibObjectStoreConsumer: adding packet to
list Spire_R_Subsystem_Timeout_Error
19-Dec-07 16:13:53.333 MibObjectStoreConsumer: adding packet to
list Spire_R_PHOTLW
.
.
.
```

Note – is the logging output at the right level? Our logging configuration is set to "INFO" but the hundreds of log messages appear to be of no interest to the typical user.

- We started the CUS GUI.

```
> cusgui&
```

From the MIB tab selected the "Load a new MIB" option. At this point a window popped up asking for a MIB to be selected. The only MIB available was called FS_2.2.G7.

Selected this MIB and the definitions appeared in the "MIB Command Definitions" bottom-right panel. Committed the changes to the registry.

4.2 TC-ICC-02: CUS: TC Definition File Import

This test is obsolete as its purpose it now covered by TC-ICC-01.

4.3 TC-ICC-03: CUS: Observing Mode Import

For the start of this test, CUS observing mode, building block and procedure definitions were successfully ingested into the DB from file hcssv0.5.2_Defs.txt in directory /home/sg55/FS1/CUS. See Appendix 1 for contents of this file.

Now assign an instrument model for this configuration in the CUS (will be needed for Test Control and CCS Handler):

FS1/CUS> cus -createinsmodel config_hcssv0_6_0_at
19-Dec-07 16:43:29.224 LogInitialiser: Initialising using local log configuation file
/home/sg55/.hcss/userlogging.properties
19-Dec-07 16:43:29.268 Configuration: Build number is 1430
19-Dec-07 16:43:29.850 ReplStoreFactoryImpl: Creating ObjectStore: hcssv0.6.0_at@lichfield
19-Dec-07 16:43:30.246 MissionImpl: Using configuration "config_hcssv0_6_0_at"
19-Dec-07 16:43:30.253 Cus: An instrument model for SPIRE exists in this mission configuration.
Use -f option to force replacement

It seems that this step is only necessary if the instrument model for this configuration was not set up at
DB creation stage (e.g. properties in user.props file)

4.3.1 Importing all CUS definitions

It was decided to conduct the remainder of the test by using the latest CUS definitions in use for IST
FM. Copied file CUSDefs_RAL_Latest_09Dec2007_AfterFNCopy.lis from directory /home/sg55/IST-
FM/CFTs on chichester into directory /home/sg55/FS1/CUS on lichfield.

Imported all the CUS definitions from the CUSGUI – had a minor problem with the CREC BB
definition, which was already loaded:

```
20-Dec-07 13:38:32.584 CusEditor: Error :
Global registry: Id "2568" is already used for this instrument.
20-Dec-07 13:38:46.171 CusEditor: Quitting.
```

Deleted this definition from registry and committed the changes. After this change the CUS definitions
from file CUSDefs_RAL_Latest_09Dec2007_AfterFNCopy.lis were successfully loaded and
committed.

Downloaded the calibration tables from spire_fm_ist_db1@chichester into directory /home/sg55/IST-
FM/CFTs/CalTables:

```
IST-FM/CFTs> cus -downloadindcal CalTables -properties
var.database.devel=spire_fm_ist_db1@chichester:hcss.cus.model=FM
20-Dec-07 14:03:46.283 LogInitialiser: Initialising using local log
configuation file /home/sg55/.hcss/userlogging.properties
20-Dec-07 14:03:46.316 Configuration: Build number is 1353
20-Dec-07 14:03:47.270 ReplStoreFactoryImpl: Creating ObjectStore:
spire_fm_ist_db1@chichester
20-Dec-07 14:03:48.731 Cus: Calibration tables successfully
downloaded to /home/sg55/IST-FM/CFTs/CalTables
```

Copied these tables from chichester into directory /home/sg55/FS1/CUS/CalTables and then uploaded
them into hcssv0.6.0_at@lichfield DB:

```
CUS/CalTables> cus -multical .
20-Dec-07 14:08:50.315 LogInitialiser: Initialising using local log
configuation file /home/sg55/.hcss/userlogging.properties
20-Dec-07 14:08:50.370 Configuration: Build number is 1430
20-Dec-07 14:08:51.059 ReplStoreFactoryImpl: Creating ObjectStore:
hcssv0.6.0_at@lichfield
Enter the comment for this version: Calibration tables for IST FM
```

```
20-Dec-07 14:09:11.832 Cus: Calibration table "Flash.txt"
successfully uploaded from "/home/sg55/FS1/CUS/CalTables/./Flash.txt"
20-Dec-07 14:09:13.396 Cus: Calibration table "ObservationSetup.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./ObservationSetup.txt"
20-Dec-07 14:09:14.619 Cus: Calibration table
"SLWNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SLWNominalSettings.txt"
20-Dec-07 14:09:15.789 Cus: Calibration table
"SMEC_prime_settings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SMEC_prime_settings.txt"
20-Dec-07 14:09:16.905 Cus: Calibration table "CommandLists.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./CommandLists.txt"
20-Dec-07 14:09:18.003 Cus: Calibration table
"SMEC_redundant_settings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SMEC_redundant_settings.txt"
20-Dec-07 14:09:19.101 Cus: Calibration table "TransitionModes.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./TransitionModes.txt"
20-Dec-07 14:09:20.163 Cus: Calibration table
"CoolerHeaterSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./CoolerHeaterSettings.txt"
20-Dec-07 14:09:21.189 Cus: Calibration table "BiasConvertPLW.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertPLW.txt"
20-Dec-07 14:09:22.239 Cus: Calibration table "BiasConvertPMW.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertPMW.txt"
20-Dec-07 14:09:23.270 Cus: Calibration table
"InstrumentConfigurations.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./InstrumentConfigurations.txt"
20-Dec-07 14:09:24.356 Cus: Calibration table
"SMEC_frames_contents.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SMEC_frames_contents.txt"
20-Dec-07 14:09:25.358 Cus: Calibration table "BiasConvertTC.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertTC.txt"
20-Dec-07 14:09:26.366 Cus: Calibration table "BiasConvertPSW.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertPSW.txt"
20-Dec-07 14:09:27.374 Cus: Calibration table "BiasConvertP.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertP.txt"
20-Dec-07 14:09:28.364 Cus: Calibration table "BiasConvertS.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertS.txt"
20-Dec-07 14:09:29.335 Cus: Calibration table "FTS.txt" successfully
uploaded from "/home/sg55/FS1/CUS/CalTables/./FTS.txt"
20-Dec-07 14:09:30.315 Cus: Calibration table "SCAL2SetCurrent.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SCAL2SetCurrent.txt"
20-Dec-07 14:09:31.267 Cus: Calibration table
"PMWNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PMWNominalSettings.txt"
20-Dec-07 14:09:32.227 Cus: Calibration table
"BSMNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BSMNominalSettings.txt"
```

```
20-Dec-07 14:09:33.187 Cus: Calibration table
"JiggScans_ChopPosns1.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./JiggScans_ChopPosns1.txt"
20-Dec-07 14:09:34.135 Cus: Calibration table
"SMEC_Caltable_Selection.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SMEC_Caltable_Selection.txt"
20-Dec-07 14:09:35.089 Cus: Calibration table
"ENG_frames_contents.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./ENG_frames_contents.txt"
20-Dec-07 14:09:36.025 Cus: Calibration table "BiasConvertSLW.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertSLW.txt"
20-Dec-07 14:09:36.991 Cus: Calibration table
"ChopScans_JiggPosns1.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./ChopScans_JiggPosns1.txt"
20-Dec-07 14:09:37.945 Cus: Calibration table
"ChopScans_JiggPosns2.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./ChopScans_JiggPosns2.txt"
20-Dec-07 14:09:38.881 Cus: Calibration table
"PSWNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PSWNominalSettings.txt"
20-Dec-07 14:09:39.823 Cus: Calibration table "BiasConvertSSW.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BiasConvertSSW.txt"
20-Dec-07 14:09:40.783 Cus: Calibration table "Spectrometer.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./Spectrometer.txt"
20-Dec-07 14:09:41.719 Cus: Calibration table "PhaseConvert.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PhaseConvert.txt"
20-Dec-07 14:09:42.667 Cus: Calibration table "SMEC_orientation.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SMEC_orientation.txt"
20-Dec-07 14:09:43.597 Cus: Calibration table "SCAL4SetCurrent.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SCAL4SetCurrent.txt"
20-Dec-07 14:09:44.562 Cus: Calibration table
"SSWNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./SSWNominalSettings.txt"
20-Dec-07 14:09:45.510 Cus: Calibration table "PCALSetCurrent.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PCALSetCurrent.txt"
20-Dec-07 14:09:46.446 Cus: Calibration table
"PTCNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PTCNominalSettings.txt"
20-Dec-07 14:09:47.401 Cus: Calibration table "TestSetup.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./TestSetup.txt"
20-Dec-07 14:09:48.331 Cus: Calibration table "BBlock_Ids.txt"
successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./BBlock_Ids.txt"
20-Dec-07 14:09:49.291 Cus: Calibration table
"PLWNominalSettings.txt" successfully uploaded from
"/home/sg55/FS1/CUS/CalTables/./PLWNominalSettings.txt"
20-Dec-07 14:09:49.294 Cus: A calibration table with the name
"CoolerRecycling.txt" exists in the database.
To upload this calibration table as the new version use the -f
argument with this option.
```

4.4 TC-ICC-04: TOPE: Issuing Telecommands

We used to use test procedure TOPE_test.tcl from directory
/home/sops23e/SCOS2.3eP5/tcl/TC/HCSS_AT_Scripts/TestControlScripts
Now we simply ran this test procedure:

Tried to run clear_HK_report.tcl script from "Local Procedures" list on TOPE (i.e. without the Test Control server running).

Failure: the commands were not being transferred to SCOS and the script appeared to hang in TOPE. The only way to recover was to shutdown TOPE.

<mark>Test failed</mark> – but see TC-ICC-05 below, because subsequent executions of it, after installation of TestControl EGSE client release 0.10, were all successful. Note that SCOS had to be shutdown and restarted after the installation.

4.5 TC-ICC-05: TestControl: Running Test Observation using the HCSS

- Set up the MIT Magic Cookies on both Lincoln & Lichfield – in the same way as for the AVM setup.
- Started Test Control Server – it complained about not being able find TclX:

```
logs/testcontrol> tail TestControlServer_20Dec2007_14:37:25GMT.log
20-Dec-07 14:37:27.050 TchTclServer: Starting up the TCL server of
the TestControlHandler
20-Dec-07 14:37:27.203 ReplStoreFactoryImpl: Creating ObjectStore:
hcssv0.6.0_at@lichfield
20-Dec-07 14:37:27.513 MissionImpl: Using configuration
"config_hcssv0_6_0_at1"
20-Dec-07 14:37:27.542 NativeMethodAccessorImpl: Successful
startup, the TestControlHandler TCL server is running!
Asking for TclX support

        There is no TclX installed,
            process termination interrupts will not be caught
            and logging commit timers are not fired!
```

- Attempted to reinstall TclX. Running the "configure" command failed however:

```
        checking system version (for dynamic loading)...
        ./configure: line 13965: syntax error near unexpected
        token `ac_space=' ''
        ./configure: line 13965: `    case `(ac_space=' '; set |
        grep ac_space) 2>&1` in'
```
It was still possible to rebuild the library from the previously existing sources with "make install". It is not clear whether this actually had any bearing on the TclX error disappearing.
- Installed latest TestControl EGSE client release 0.10 on sops23e@lincoln in directory /home/sops23e/SCOS2.3eP5/tcl/TOPE.
- After restarting SCOS was able to execute local TCL scripts from TOPE.
- Shutdown SCOS and Test Control Server from Desktop PC and restarted on the Lincoln and Lichfield consoles directly.

Report

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Sunil Sidher & Steve Guest

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- Now TCL scripts work with Test Control Server running – Ran clear_HK_report, define_new_HK_report

Test successful.

4.6 TC-ICC-06: End to End: Run a Test Observation, Ingest TM packets, run QLA

Left 8 hour test running overnight.

(Had to create new mission configuration config_hcssv0_6_0_at2 as the Mode_ILT_PERF_DNS_P script could not find the PF bias tables. Imported them from ~/PFM4/CUS/Caltables/MAIN. Only later realised that Mode_ILT_PERF_DNS_P script was looking for calibration table names with the string "BIASConvert" instead of "BiasConvert".

We then left it running with nominal housekeeping collection overnight. The following day we checked:

- Telemetry ingestion log – no errors, warnings or exceptions spotted.
- Messages on the Router and EGSE gateway consoles - no errors or warnings.
- Test Control Server log: no errors, warnings or exceptions spotted.

Test successful.

4.7 TC-ICC-07: End to End: Run RTA/QLA on observation data stored in the HCSS database

Started QLA from sg55@lichfield

Property hcss.ccm.factory=herschel.spire.ccm.SimpleCoreFactory was set to herschel.versant.ccm.CoreFactoryImpl in QLA.props.

Playback both by time and by test observation was performed. The observation 0x30000001 spans 18:30:58 – 18:31:48 on 20th December

Test successful.

4.8 TC-ICC-08: SPIRE Command List functionality in the CUS

- Started the CUS GUI
- Selected the "Created command list definition" option from the Registry tab

The CREC BB in the CUS was version 2.6
 //CLName: CREC
//VMVersion: 2.6
//CLVersion: 1.6
//CLCVSId: ID
//TableId: 0x53
//TableLength: 0x182
//Date: 061117150154

To test the CUS functionality to load a CL tried to upload the previous version from ~/PFM4/CUS/VMTables/CREC_2.6_1.5_061115133418.tbl

Successfully imported this table for BB 3342 and committed it.

Next re-imported CREC_2.6_1.6_061117150154.tbl from ~/PFM4/CUS/VMTables/ for BB 3342 but this time specified 25 32-bit words for each Spire_UPDATE_TABLE command. – success.

- Definition committed to the database.

Test successful.

4.9 TC-ICC-09: Ingest a Calibration Table and check size functionality in the CUS

From the CUS GUI we ran the short procedure CheckTableSize which would print the table size for CoolerRecycling.txt:

```
Procedure CheckTableSize {
}{
int t_size = table_size("CoolerRecycling.txt");
debug_print("Table size is " + t_size);
}
```

The size reported on the console was verified to be correct:

```
21-Dec-07 12:42:29.489 ASTDebugPrint: debug_print:Table size is 21
```

Test successful.

4.10 TC-ICC-10: Correct setting of the OBSID values according to Site Id in the CUS

This was verified using the "Commands" button of the CUS GUI.

Test successful.

4.11 TC-ICC-11: Correct setting of command parameter values in the CUS

This was verified using the "Commands" button of the CUS GUI.
Command parameters (hexadecimal values) are displayed correctly.

Test successful.

4.12 TC-ICC-12: TC History and OOL data retrieval and ingestion

- From sg55@lincoln:
  - Started tchoolretrieve GUI
  - Extracted the TCH and OOL data – success. Created file THF_071220_0000.DAT and ORF_071220_0000.DAT in /spired/HPR.
  - Exited from the tchoolretrieve GUI

- Copied the files from /spired/HPR on Lincoln to directories /home/sg55/THF_DAT and /home/sg55/ORF_DAT respectively.
- Ran tchingest:

```
> cd /home/sg55/THF_DAT
> tchingest THF_070131_0000.DAT|& tee tchingest_hcssv0.6.0_at.log
```

Process successful.

Checked to see how many TC records were ingested:

```
sg55/THF_DAT> db2tty -d hcssv0.6.0_at
herschel.versant.ccm.tchist.TcHistoryImpl

====== CLASS `herschel.versant.ccm.tchist.TcHistoryImpl' ======
superclasses:
     `com.versant.trans.CapableWithHash'
attributes:
  _vj_hashCode                    :  o_4b
  o_ts_timestamp                  :  o_4b
  _tcID                           :  o_8b
  _parameters                     -> (NULL_DOMAIN)[]
  _header                         -> (NULL_DOMAIN)
  _command                        -> (NULL_DOMAIN)
  _vj_serial__parameters          :  o_1b[]
  _bitPattern                     -> (NULL_DOMAIN)


****** Total 1262 instances of class
'herschel.versant.ccm.tchist.TcHistoryImpl' ******
```

1262 TC records were ingested.

- Ran oolingest:

```
o  cd /home/sg55/ORF_DAT
o  oolingest ORF_071220_0000.DAT | & tee
   oolingest_hcssv0.6.0_at.log
```
Success. 6 OOL records were ingested.

We did not go and test in ILT client-server mode because of TCH timing history error (SPR-3667)

Test successful

4.13 TC-ICC-13: Overnight test at nominal SPIRE data rate

See details of test in TC-ICC-06. This test was performed with the AVM (AVM-1 DPU and DRCU simulator). Because of the anomalous behaviour of the DRCU simulator science data at the nominal data rate were only generated for was available at the time.

4.14 TC-ICC-14: Database Replication Test

This test was not performed as it is not planned to use this functionality during the IST and FS ILT test campaigns, but note that this functionality was successfully tested between RAL and ESAC on 3rd October 2007.

4.15 TC-ICC-15: Playback data from database into the EGSE router

This test was not performed as it is:
1. Not needed for the test campaign.
2. Difficult to perform without corrupting the SCOS telemetry history.

5. CONCLUSIONS

The Acceptance Test of HCSS 0.6.0, build #1430 was successful, with only minor anomalies observed. No Non-Conformance Reports (NCRs) resulted from these tests.

Table 1 List of NCRs raised during the acceptance test

NCR Details	Action taken

Appendix 1 – Contents of CUS definitions file

- The initial set of CUS definitions for HCSSv0.6.0 test were exported from the DB used for HCSS v0.5.2 acceptance tests. The following CUS command was executed on sg55@chichester for the export:

```
cus -export hcssv0.5.2_Defs.txt -properties
var.database.devel=hcssv0.5.2_at@chichester
```

CUS definitions file:

```
//CLName: PeakupTest
//VMVersion: 2.8
//CLVersion: 1.1
//CLCVSId: $ID$
//TableId: 0x5c
//TableLength: 0xf
//Date: 071116140209
block PeakupTest SPIRE 100 {
}{
    int t_min = 1;
    delay(t_min);
    //execute command call for table index 0x0000

Spire_EXECUTE_COMMAND_LIST(15,[{0x12000000},{0x7d0},{0x9000000},{0x20
00000},{0x1200000a},{0x504},{0x1200000b},{0x2},{0x1200000c},{0x0},{0x
1200000d},{0x0},{0x5304000a},{0x2000000},{0x7f000000}]);
    delay(t_min);
}

block BBObs SPIRE 0 {
}{
    Spire_SET_OBSID($OBSID);
}

procedure Proc_PeakupTest {
}{
    PeakupTest();
}

//CLName: CREC
//VMVersion: 2.6
//CLVersion: 1.6
//CLCVSId: $ID$
//TableId: 0x53
//TableLength: 0x182
//Date: 061117150154
block CREC SPIRE 2568 {
}{
    int t_min = 1;
    //set table command call for table id 0x53
    Spire_SET_TABLE(0x53,0x182);
    delay(t_min);
    //update table command call for table index 0x0000

Spire_UPDATE_TABLE(0x53,0x0,24,[{0x4b00016d},{0x4b01016e},{0x4b02016f
```

Report

SPIRE HCSS v0.6.0 Acceptance Test Report
Sunil Sidher & Steve Guest

Ref: SPIRE-RAL-REP-003029
Issue: 1.0
Date: 21st December 2007
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```
},{0x4b030170},{0x4b040171},{0x4b050172},{0x4b060173},{0x4b070174},{0
x4b080175},{0x4b090176},{0x4b0a0177},{0x4b0b0178},{0x4b0c0179},{0x4b0
d017a},{0x4b0e017b},{0x1500000f},{0x3c},{0x4b0f017c},{0x15000010},{0x
3c},{0x4b10017d},{0x15000011},{0x3c},{0x4b11017e}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x18,24,[{0x15000012},{0x3c},{0x4b12017f},{0x
15000013},{0x3c},{0x4b130180},{0x15000014},{0x3c},{0x4b140181},{0x490
a017b},{0x1500000a},{0xf4240},{0x490b0181},{0x12000000},{0x501},{0x12
000001},{0x1},{0x53020000},{0x2000000},{0x4900016d},{0x40000127},{0x4
900016e},{0x4000011a},{0x490c017c}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x30,24,[{0x40000142},{0x32000004},{0x4900016
f},{0x35010000},{0x3000000d},{0x900000a},{0x2000000},{0x12000000},{0x
0},{0x4901017b},{0x220c0c01},{0x340c0000},{0x300000c6},{0x220b0b01},{
0x340b0000},{0x300000be},{0x30ffff0},{0x12000000},{0x501},{0x1200000
1},{0x2},{0x53020000},{0x2000000},{0x49000170}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x48,24,[{0x4000010d},{0x490c017d},{0x4000013
4},{0x32000004},{0x49000171},{0x34010000},{0x3000000d},{0x900000a},{0
x2000000},{0x12000000},{0x0},{0x4901017b},{0x220c0c01},{0x340c0000},{
0x300000ac},{0x220b0b01},{0x340b0000},{0x300000a4},{0x30ffff0},{0x12
000000},{0x501},{0x12000001},{0x3},{0x53020000}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x60,24,[{0x2000000},{0x49000172},{0x4000010d
},{0x490c017e},{0x40000134},{0x32000004},{0x49000173},{0x34010000},{0
x30000011},{0x900000a},{0x2000000},{0x12000000},{0x0},{0x4901017b},{0
x220c0c01},{0x340c0000},{0x30000005},{0x220b0b01},{0x340b0000},{0x300
0008a},{0x30ffff0},{0x12000000},{0xf025},{0x53010000}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x78,24,[{0x2000000},{0x12000000},{0x501},{0x
12000001},{0x4},{0x53020000},{0x2000000},{0x49000174},{0x4000010d},{0
x490c017f},{0x40000134},{0x32000004},{0x49000171},{0x35010000},{0x300
00017},{0x40000150},{0x32000004},{0x49000177},{0x34010000},{0x3000003
0},{0x900000a},{0x2000000},{0x12000000},{0x0}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x90,24,[{0x4901017b},{0x220c0c01},{0x340c000
0},{0x30000005},{0x220b0b01},{0x340b0000},{0x30000067},{0x30ffffeb},{
0x12000000},{0xf021},{0x53010000},{0x2000000},{0x3000001f},{0x4900017
5},{0x4000010d},{0x490c017f},{0x40000134},{0x32000004},{0x49000176},{
0x34010000},{0x30ffffdb},{0x40000150},{0x32000004},{0x49000177}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0xa8,24,[{0x34010000},{0x30000012},{0x900000a
},{0x2000000},{0x12000000},{0x0},{0x4901017b},{0x220c0c01},{0x340c000
0},{0x30000005},{0x220b0b01},{0x340b0000},{0x30000049},{0x30ffffeb},{
0x12000000},{0xf022},{0x53010000},{0x2000000},{0x30000001},{0x1200000
0},{0x501},{0x12000001},{0x5},{0x53020000}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0xc0,24,[{0x2000000},{0x4900016e},{0x4000010d
},{0x4900016e},{0x40000127},{0x490c017d},{0x4000015e},{0x32000004},{0
x49000178},{0x35010000},{0x3000000d},{0x900000a},{0x2000000},{0x12000
```

```
000},{0x0},{0x4901017b},{0x220c0c01},{0x340c0000},{0x30000030},{0x220
b0b01},{0x340b0000},{0x30000028},{0x30fffff0},{0x12000000}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0xd8,24,[{0x501},{0x12000001},{0x6},{0x530200
00},{0x2000000},{0x4900016d},{0x4000011a},{0x490c0180},{0x40000134},{
0x32000004},{0x49000179},{0x35010000},{0x30000011},{0x900000a},{0x200
0000},{0x12000000},{0x0},{0x4901017b},{0x220c0c01},{0x340c0000},{0x30
000005},{0x220b0b01},{0x340b0000},{0x3000000e}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0xf0,24,[{0x30fffff0},{0x12000000},{0xf023},{
0x53010000},{0x30000003},{0x4900017a},{0x4000011a},{0x12000000},{0x50
1},{0x12000001},{0x7},{0x53020000},{0x7f000000},{0x12000000},{0xf024}
,{0x53010000},{0x2000000},{0x30000005},{0x12000000},{0xf020},{0x53010
000},{0x2000000},{0x4900016e},{0x4000010d}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x108,24,[{0x4900016e},{0x4000011a},{0x490001
6e},{0x40000127},{0x7f000000},{0x80007d0},{0x1000001},{0x12000003},{0
x7d0},{0x20020000},{0x12000001},{0xc7},{0x12000000},{0x2},{0x60640001
},{0x80007d0},{0x1000000},{0x41000000},{0x80007d0},{0x1000001},{0x120
00003},{0x7d0},{0x20020000},{0x12000001}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x120,24,[{0xc4},{0x12000000},{0x2},{0x606400
01},{0x80007d0},{0x1000000},{0x41000000},{0x80007d0},{0x1000001},{0x1
2000003},{0x7d0},{0x20020000},{0x12000001},{0xc5},{0x12000000},{0x2},
{0x60640001},{0x80007d0},{0x1000000},{0x41000000},{0x80007d0},{0x1000
001},{0x12000000},{0x2}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x138,24,[{0x12000001},{0x8e0},{0x12000002},{
0x0},{0x12000003},{0x7d0},{0x60640001},{0x80007d0},{0x1000000},{0x410
00000},{0x80007d0},{0x1000001},{0x12000000},{0x2},{0x12000001},{0x8e1
},{0x12000002},{0x0},{0x12000003},{0x7d0},{0x60640001},{0x80007d0},{0
x1000000},{0x41000000}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x150,24,[{0x80007d0},{0x1000001},{0x12000000
},{0x2},{0x12000001},{0x8f0},{0x12000002},{0x0},{0x12000003},{0x7d0},
{0x60640001},{0x80007d0},{0x1000000},{0x41000000},{0x80007d0},{0x1000
001},{0x12000000},{0x2},{0x12000001},{0x8e2},{0x12000002},{0x0},{0x12
000003},{0x7d0}]);
    delay(t_min);

Spire_UPDATE_TABLE(0x53,0x168,24,[{0x60640001},{0x80007d0},{0x1000000
},{0x41000000},{0x7f000000},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0}
,{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0x0},{0
x0}]);
    delay(t_min);
    Spire_UPDATE_TABLE(0x53,0x180,2,[{0x0},{0x0}]);
    delay(t_min);
}

mode ObsTest {
}{
    BBObs();
```
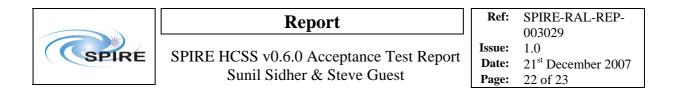
```
}

procedure CheckTableSize {
}{
    int t_size = table_size("CoolerRecycling.txt");
    debug_print("Table size is " + t_size);
}
```

Appendix 2 – Contents of a Calibration Table

This calibration table was initially uploaded from the CUS GUI. It was used for checking some of the CUS functionality during the tests:

```
# Table Name     : CoolerRecycling.txt
# Version        : $Revision$
# Update Date    : $Date$
# Purpose        : Specifies the input parameters for the
prime/redudant
#                  cooler recycling performed using a hardware VM
# Applicability : Applicable for all test environments
# Comments       : [SDS 12/03/2007] - The VM uses the following input
parameters
#                  (as specified in NOT002771, Issue 4.11)
#
#    a = Heat Switch ON current (during Recycling)
#    b = Heat Switch OFF current
#    c = Pump Heat Switch Actuation Temperature
#    d = Pump Heater Dissipation 1
#    e = Pump Condensation Temperature 1
#    f = Pump Heater Dissipation 2
#    g = Pump Condensation Temperature 2
#    h = Pump Heater Dissipation 3
#    i = Pump Heater Dissipation 4
#    j = Pump Condensation Temperature Threshold
#    k = Evaporator Condensation Temperature
#    l = Evaporator Heat Switch Actuation Temperature
#    m = Pump Threshold Temperature
#    n = Heat Switch ON current
#    o = Sampling Interval (sec)
#    p = Heatswitch Timeout (min)
#    q = Pump Heating Timeout 1 (min)
#    r = Pump Heating Timeout 2 (min)
#    s = Evaporator Timeout (min)
#    t = Pump Cooling Timeout (min)
#    u = Global Timeout (min)
#
string    int    int
param    prime    redundant
a    3563    3563
b    0    0
c    49086    48808
d    2597    2597
e    36006    34621
f    1481    1481
g    35966    34583
h    712    712
i    1125    1125
j    35966    34583
k    32459    32493
l    46504    46961
m    61388    60959
n    2602    2602
o    10    10
p    30    30
```

```
q   60    60
r   30    30
s   60    60
t   60    60
u   150   150
```