



## Technical Report

HCSS 0.3 Acceptance Test Report

**Ref:** SPIRE-RAL-REP-002488

**Issue:** 1.0

**Date:** 9<sup>th</sup> August 2005

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# HCSS 0.3 Acceptance Test Report for SPIRE

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**9<sup>th</sup> August 2005**



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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 0.3 build #664 on 25<sup>th</sup>-28<sup>th</sup> July 2005. This acceptance test was part of a wider testing of the SPIRE EGSE in preparation for the second-phase testing of the proto-flight model of the instrument (PFM). 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 font:

```
dbuser -add -P sg55@truro
```

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	SPIRE HCSS Acceptance Test Plan, issue 1.0 14 <sup>th</sup> June 2005, SPIRE-RAL-PRC-002456.
------	--

### 2.2 Reference Documents

RD01	MIB User Guide, HERSCHEL-HSC-DOC-0437 1.0, 17 <sup>th</sup> December 2004.
RD02	HCSS telemetry ingestion software user manual, Issue 2.2, 7 <sup>th</sup> July 2004, HERSCHEL-HSC-DOC-0231
RD03	Common Uplink System User's Guide, Issue 1.10, 11 <sup>th</sup> May 2005, HERSCHEL-HSC-DOC-0424.
RD04	Database MIB Import ICD, Version 5.2, 2 <sup>nd</sup> July 2003, S2K-MCS-ICD-0001-TOS-GCI
RD05	MIB Tailoring and Clarification Note. <i>The link to this document on the HSCDT web site is broken.</i>
RD06	HCSS Acceptance Test Plan, issue 1.1, 5 <sup>th</sup> November 2002

## 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 v2.3eP5 + TOPE and HCSS Build 664, Java 1.4.1-01, Versant 6.0.5.3.

**Truro:** Data Server running SuSE Linux 7.3, HCSS Build 664, Java 1.4.1-01, Versant 6.0.5.3.

**Salisbury:** QLA w/s running SuSE Linux 9.0, Java 1.4.2-b28, Versant 6.0.5.3, QLA 2.3 beta version (SPIRE build #183, HCSS build #691).

**Chichester:** Main ICC database machine (outside the test lab) running SuSE Linux 9.0, Java 1.4.2\_08-b03, Versant 6.0.5.3, HCSS build #664.



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The tests were run in user account sg55 with setting as "tester".

### 3.2 Preliminary Steps

Initially we attempted to set up the configuration in order to replicate from truro from chichester. This was abandoned at a later stage of the acceptance test (see Test Case TC-ICC-03). Following the Database Replication Admin manual (p.33), we ran this database initialisation command:

```
truro/home/sg55> db_admin -i hcsvg0.3_AT@truro
```

This command failed with this output:

```
25-Jul-05 09:54:55.826 Configuration: Build number is 664
Exception in thread "main" java.lang.IllegalArgumentException:
Database name must be in lower case: hcsvg0.3_AT@truro
    at
herschel.versant.ccm.replication.DatabaseDetails.checkDatabaseName(DatabaseDetails.java:156)
    at
herschel.versant.tools.replication.admin.Administrator.runAdminMode(Administrator.java:141)
    at
herschel.versant.tools.replication.admin.Administrator.run(Administrator.java:68)
    at
herschel.versant.tools.replication.admin.Administrator.main(Administrator.java:45)
```

Note the typo in the message (SPR?). We are puzzled as to the reason for this apparently arbitrary restriction. We then changed the value of the database property and reran the command, this time successfully:

```
25-Jul-05 09:58:31.558 Configuration: Build number is 664
Initializing new database system...
[makedb] New database directory created: hcsvg0.3@truro
[createdb] New database created: hcsvg0.3@truro
[SchemaTool]
[DBI]
Checking whether 'initv' has been used:
[initv]
Initializing database "hcsvg0.3@truro"
Initializing database using
herschel.ccm.tools.BasicMissionInitializer
BasicMissionInitializer
Create new model registry for instrument HIFI
Create new model registry for instrument PACS
Create new model registry for instrument SPIRE
Database system initialization finished.
Finished.
```

We then created the same database on chichester, specifying it as a replication target:

```
truro/home/sg55> db_admin -a hcsvg0.3@chichester.bnsc.rl.ac.uk
hcsvg0.3@truro
```



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```
25-Jul-05 10:00:57.636 Configuration: Build number is 664
Adding new database to the system: hcsvg0.3@chichester.bnsc.rl.ac.uk
[makedb] New database directory created:
hcsvg0.3@chichester.bnsc.rl.ac.uk
[createdb] New database created: hcsvg0.3@chichester.bnsc.rl.ac.uk
[SchemaTool]
[DBI]
Deamon command issued:
Id: Type -> Status [Submitted] / [Started] / [Finished]
0: FULL_COPY_WITH_JOBS -> ISSUED [25.07.05 10:01:04] / [-] / [-]
Adding new database to the system finished for
hcsvg0.3@chichester.bnsc.rl.ac.uk
*****
*** Before using the new DB, please wait for the daemon
*** to copy necessary data to the new database.
*** If not already running, please login to the server of
hcsvg0.3@truro
*** and start the daemon with 'repld hcsvg0.3@truro &'.
*****
Finished.
```

We then started the daemon as instructed by the above message, with this output:

```
25-Jul-05 10:02:41.534 Configuration: Build number is 664
25-Jul-05 10:02:42.162 Daemon: Ignoring property 'hcsvg.store.factory
= herschel.versant.store.StoreFactoryImpl' and using
ReplStoreFactoryImpl instead
25-Jul-05 10:02:42.163 Daemon: Starting
25-Jul-05 10:02:42.781 CheckedThread: [Channel(1): hcsvg0.3@truro ->
hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread activated.
25-Jul-05 10:02:42.798 CheckedThread: [Command Watchdog
hcsvg0.3@truro]: Thread activated.
25-Jul-05 10:02:42.805 CheckedThread: [Beta Watchdog hcsvg0.3@truro]:
Thread activated.
25-Jul-05 10:02:42.810 CheckedThread: [Alpha Watchdog
hcsvg0.3@truro]: Thread activated.
25-Jul-05 10:02:42.971 CheckedThread: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread
activated.
25-Jul-05 10:02:42.972 FullCopyOperation: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Starting full
copy from hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk
25-Jul-05 10:02:48.473 FullCopyOperation: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Full copy
succeeded from hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk
25-Jul-05 10:02:48.474 FullCopyOperation: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Exiting full
copy from hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk
25-Jul-05 10:02:48.475 FullCopyOperation: Closing database:
[FULL_COPY_WITH_JOBS from hcsvg0.3@truro to
hcsvg0.3@chichester.bnsc.rl.ac.uk]
25-Jul-05 10:02:48.479 CheckedThread: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread
finished.
```

Next we ran a “job monitoring” command to check that object copying had finished:



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```
truro/home/sg55> db_admin -diag hcsvg0.3@truro -j
25-Jul-05 10:12:06.444 Configuration: Build number is 664
Initializing store...
25-Jul-05 10:12:07.731 ReplicatingTransaction: Connection established
to hcsvg0.3@chichester.bnsc.rl.ac.uk
Jobs:
-----
Q: hcsvg0.3@chichester.bnsc.rl.ac.uk (0 jobs)
```

Finally we simulated a loss of connection to the chichester database by setting it to unstartable mode. The replication daemon detected the loss of connection, and printed messages to that effect until the database was restarted, at which point the daemon reconnected gracefully.

So far, so good. As a remark, we noted that the `db_admin` tool uses the default `Versant profile.be` file. We consider these settings to be generally suboptimal for Herschel databases. This was confirmed later in the acceptance test (see Test Case TC-ICC-13).

## 4. HCSS TEST CASES

### 4.1 TC-ICC-01: MIB Ingestion

We used MIB files from `MIB_PFM1_Issue2.0.1` directory on `/home/sg55` (lincoln) by typing:

```
preparemib MIB_PFM1_Issue2.0.1/ascii-tables MIB_HCSSv0.3_AT
```

This command was successful: `ascii-tables` and `auxil` subdirectories were created under `MIB_HCSSv0.3_AT`. We then used `ascii-tables` from `MIB_HCSSv0.3_AT` to ingest the MIB into the database:

```
lincoln/home/sg55/MIB_HCSSv0.3_AT> ingestmib
```

This failed with the error:

```
Error : database not setup for replication.
```

We found that the property `hcsvg.store.factory` was set to `herschel.versant.store.StoreFactoryImpl` in an `HCSSTEST.props` file instead of `herschel.versant.store.ReplStoreFactoryImpl`. This – probably obsolete – file was renamed to `HCSSTEST.props.outdated`. However, this did not solve the problem. We then discovered (using the command `ingestmib -settings`) that this property was also defined as a user preference in the `~sg55/.hcsvg/user.props` file. Removing this and trying again resulted in:

```
25-Jul-2005 10:47:27 herschel.share.log.util.LogInitialiser init
INFO: Using default HCSS log settings
25-Jul-05 10:47:27.937 Configuration: Build number is 664
[HS]: miblocation=/home/sg55/MIB_HCSSv0.3_AT
Exception in thread "main" java.lang.IllegalArgumentException:
Database not registered: hcsvg0.3@truro.bnsc.rl.ac.uk
    at
herschel.versant.ccm.replication.DatabaseRegistry.getDetails(Database
Registry.java:72)
```



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```
at
herschel.versant.store.replication.DatabaseTools.checkOptions(DatabaseTools.java:160)
at
herschel.versant.store.ReplObjectStoreVers.init(ReplObjectStoreVers.java:126)
at
herschel.versant.store.ReplObjectStoreVers.<init>(ReplObjectStoreVers.java:70)
at
herschel.versant.store.ReplStoreFactoryImpl.createStore(ReplStoreFactoryImpl.java:51)
    at herschel.mib.tools.IngestMib.exec(IngestMib.java:66)
    at herschel.mib.tools.IngestMib.main(IngestMib.java:110)
```

We changed the `var.server` variable in `hcss.props` (on `lincoln:/home/hcssbld`) to `@truro` instead of `@truro.bnsc.rl.ac.uk`, as we had created the replicating database using *only* `hcssv0.3@truro`. This was a short cut: it would seem better to define the database in the `db_admin` commands as `hcssv0.3@truro.bnsc.rl.ac.uk` (i.e using the *full* name).

The `ingestmib` command was then successful. The `cus.script` and `mibchecker.log` files were created under the directory `lincoln:/home/sg55/MIB_HCSSv0.3`. No serious problems were found during the ingestion of the MIB.

**Test Result: *Success***

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

Having ingested successfully the MIB to be used for the acceptance test into the db, the process of loading this new MIB was attempted from the CUS GUI. Here we attempted to verify at the same time that the data had been correctly replicated.

We opened the CUS GUI to use the replicated database on `chichester`, rather than the master one on `truro`. This worked OK. We then stopped the replication daemon to see if it induced any problems:

```
truro/home/sg55> db_admin -daemon hcssv0.3@truro SHUTDOWN
```

```
25-Jul-05 13:54:13.249 Configuration: Build number is 664
Daemon command issued:
Id: Type -> Status [Submitted] / [Started] / [Finished]
1: SHUTDOWN -> ISSUED [25.07.05 13:54:14] / [-] / [-]
Finished.
```

This did not make any difference so we started the daemon once again:

```
repld hcssv0.3@truro
```

and then restarted the CUS GUI, pressed `Mib --> Load New Mib` and saw the ingested MIB commands "version 1" file. Pressed `select` and the commands were successfully ingested.

**Test Result: *Success***



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### 4.3 Test Case TC-ICC-03: CUS: Observing Mode Import

We succeeded in ingesting and committing the building block CUS definitions, but after having ingested the ObsMode definitions the commit of the transaction failed with no particular error from the CUS GUI and the GUI hung completely. It is not clear why it failed for the ObsMode definitions and not the building block ones since there is no particular difference as far as syntax is concerned. The same definitions were ingested after the switch to a non replication db with no problems.

We checked if there were any replication jobs active:

```
truro/home/sg55> db_admin -daemon hcsvg0.3@truro  
COMMAND_QUEUE_PRINT
```

This was the output:

```
26-Jul-05 12:52:25.166 Configuration: Build number is 664  
Id: Type -> Status [Submitted] / [Started] / [Finished]  
0: FULL_COPY_WITH_JOBS -> SUCCEEDED [25.07.05 10:01:04] / [25.07.05  
10:02:42] / [25.07.05 10:02:49]  
1: SHUTDOWN -> SUCCEEDED [25.07.05 13:54:14] / [25.07.05 13:54:15] /  
[25.07.05 13:54:15]  
2: COMMAND_QUEUE_PRINT -> STARTED [26.07.05 12:52:26] / [26.07.05  
12:52:26] / [-]
```

Finished.

Then the replication daemon was stopped:

```
truro/home/sg55> db_admin -daemon hcsvg0.3@truro SHUTDOWN  
26-Jul-05 12:54:35.109 Configuration: Build number is 664  
Deamon command issued:  
Id: Type -> Status [Submitted] / [Started] / [Finished]  
3: SHUTDOWN -> ISSUED [26.07.05 12:54:36] / [-] / [-]  
Finished.  
truro/home/sg55> 26-Jul-05 12:54:37.081 DaemonActionWatchdog: Daemon  
shutdown request received.  
26-Jul-05 12:54:37.129 CheckedThread: [Alpha Watchdog  
hcsvg0.3@truro]: Thread has been interrupted.  
26-Jul-05 12:54:37.130 CheckedThread: [Alpha Watchdog  
hcsvg0.3@truro]: Thread finished.  
26-Jul-05 12:54:37.132 CheckedThread: [Channel(1): hcsvg0.3@truro ->  
hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread has been interrupted.  
26-Jul-05 12:54:37.132 CheckedThread: [Channel(1): hcsvg0.3@truro ->  
hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread finished.  
26-Jul-05 12:54:37.134 CheckedThread: [Beta Watchdog hcsvg0.3@truro]:  
Thread has been interrupted.  
26-Jul-05 12:54:37.135 CheckedThread: [Beta Watchdog hcsvg0.3@truro]:  
Thread finished.  
26-Jul-05 12:54:37.146 DaemonActionWatchdog: Closing database:  
[Command Watchdog hcsvg0.3@truro]  
26-Jul-05 12:54:37.147 CheckedThread: [Command Watchdog  
hcsvg0.3@truro]: Thread has been interrupted.  
26-Jul-05 12:54:37.147 CheckedThread: [Command Watchdog  
hcsvg0.3@truro]: Thread finished.
```





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This made no difference, so we changed the replication property under `lincoln:/home/sg55/.hcss/user.props` file to use a non-replicating database, and then stopped the replication:

```
truro/home/sg55> db_admin -u hcsvg0.3@truro
```

```
26-Jul-05 13:05:42.202 Configuration: Build number is 664
Removing replication mechanism from database.
WARNING:
This command will completely remove the Replication related data from
the database. The database will become a not replication aware
database. Normal data in the database is not affected.
If the database is part of a database system with more than
one database, this action will BREAK the database system! Proceed
anyway? (yes/no) yes
26-Jul-05 13:05:58.301 DBDismounter: Root was not in DBRootRegistry:
DBTransactionCounter-Singleton
Deleted root: DBTransactionCounter-Singleton
26-Jul-05 13:05:58.327 DBDismounter: Root was not in DBRootRegistry:
DB_SINGLETON_herschel.versant.ccm.replication.DBTransactionLog
Deleted root:
DB_SINGLETON_herschel.versant.ccm.replication.DBTransactionLog
26-Jul-05 13:05:59.642 DBDismounter: Replication Infrastructure (DBI)
removed from hcsvg0.3@truro
Finished.
```

We decided at this point that we needed to make a clean start of the replication process so we deleted the database on chichester and started again. Prior to this we included the names of chichester and lincoln in the `/etc/hosts` file on truro and made the corresponding change on lincoln. Then we turned the database back into a replicating one:

```
truro/home/sg55> db_admin -i hcsvg0.3@truro.bnsc.rl.ac.uk
```

```
26-Jul-05 13:22:31.852 Configuration: Build number is 664
Initializing new database system...
[makedb] Using existing database directory:
hcsvg0.3@truro.bnsc.rl.ac.uk
[createdb] Using existing database: hcsvg0.3@truro.bnsc.rl.ac.uk
[DBI]
Checking whether 'initv' has been used:
[initv]
Initializing database "hcsvg0.3@truro.bnsc.rl.ac.uk"
** WARNING: Database is already initialized
Database system initialization finished.
Finished.
```

```
truro/home/sg55> db_admin -a hcsvg0.3@chichester.bnsc.rl.ac.uk
hcsvg0.3@truro.bnsc.rl.ac.uk
```

```
26-Jul-05 13:23:35.132 Configuration: Build number is 664
Adding new database to the system: hcsvg0.3@chichester.bnsc.rl.ac.uk
[makedb] New database directory created:
hcsvg0.3@chichester.bnsc.rl.ac.uk
[createdb] New database created: hcsvg0.3@chichester.bnsc.rl.ac.uk
[SchemaTool]
[DBI]
Daemon command issued:
```



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```
Id: Type -> Status [Submitted] / [Started] / [Finished]
0: FULL_COPY_WITH_JOBS -> ISSUED [26.07.05 13:23:42] / [-] / [-]
Adding new database to the system finished for
hcsvg0.3@chichester.bnsc.rl.ac.uk
*****
*** Before using the new DB, please wait for the daemon
*** to copy necessary data to the new database.
*** If not already running, please login to the server of
hcsvg0.3@truro.bnsc.rl.ac.uk
*** and start the daemon with 'repld hcsvg0.3@truro.bnsc.rl.ac.uk &'.
*****
Finished.
```

```
truro/home/sg55> repld hcsvg0.3@truro.bnsc.rl.ac.uk &
```

```
[1] 2939
truro/home/sg55> 26-Jul-05 13:44:38.865 Configuration: Build number
is 664 26-Jul-05 13:44:39.469 Daemon: Ignoring property
'hcss.store.factory = herschel.versant.store.StoreFactoryImpl' and
using ReplStoreFactoryImpl instead 26-Jul-05 13:44:39.470 Daemon:
Starting 26-Jul-05 13:44:40.079 CheckedThread: [Channel(1):
hcsvg0.3@truro.bnsc.rl.ac.uk -> hcsvg0.3@chichester.bnsc.rl.ac.uk]:
Thread activated. 26-Jul-05 13:44:40.096 CheckedThread: [Command
Watchdog hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread activated. 26-Jul-05
13:44:40.104 CheckedThread: [Beta Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread activated. 26-Jul-05
13:44:40.233 CheckedThread: [Alpha Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread activated. 26-Jul-05
13:44:40.354 CheckedThread: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro.bnsc.rl.ac.uk to hcsvg0.3@chichester.bnsc.rl.ac.uk]:
Thread activated. 26-Jul-05 13:44:40.355 FullCopyOperation:
[FULL_COPY_WITH_JOBS from hcsvg0.3@truro.bnsc.rl.ac.uk to
hcsvg0.3@chichester.bnsc.rl.ac.uk]: Starting full copy from
hcsvg0.3@truro.bnsc.rl.ac.uk to hcsvg0.3@chichester.bnsc.rl.ac.uk
```

The following error was then observed:

```
26-Jul-05 13:44:47.088 CheckedThread: [FULL_COPY_WITH_JOBS from
hcsvg0.3@truro.bnsc.rl.ac.uk to hcsvg0.3@chichester.bnsc.rl.ac.uk]: {
VException(5006:OB_NO_SUCH_OBJECT: Cannot find the object, loid =
363.0.9229 ("om/ob/obbuf.c", line 2213)) } 26-Jul-05 13:44:47.089
CheckedThread: [FULL_COPY_WITH_JOBS from hcsvg0.3@truro.bnsc.rl.ac.uk
to hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread finished. 26-Jul-05
13:44:48.268 ThreadWatchdog: [Beta Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Exception encountered in thread
"[FULL_COPY_WITH_JOBS from hcsvg0.3@truro.bnsc.rl.ac.uk to
hcsvg0.3@chichester.bnsc.rl.ac.uk]":
{ VException(5006:OB_NO_SUCH_OBJECT: Cannot find the object, loid =
363.0.9229 ("om/ob/obbuf.c", line 2213)) }
    at com.versant.fund.Capi.classobjof(Native Method)
    at
com.versant.fund.SynchronizedCapi.o_classobjof(SynchronizedCapi.java:
338)
    at
com.versant.fund.MSession._classObjectOf(MSession.java:494)
    at com.versant.fund.MHandle.classObjectOf(MHandle.java:118)
```



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```
at
com.versant.trans.TransSession.loidToJod(TransSession.java:3938)
  at com.versant.trans.Pickler.loidToJod(Pickler.java:1124)
  at
herschel.versant.ccm.util.DBHashtable._vj_getfield_herschel_versant_c
cm_util_DBHashtable__parent(DBHashtable.java)
  at
herschel.versant.ccm.util.DBHashtable.getPersistentCapableParent(DBHa
shtable.java:121)
  at
herschel.versant.ccm.replication.DestinationRegistry.getDestination(DestinationRegistry.java:203)
  at
herschel.versant.tools.replication.daemon.FullCopyWithJobsAlgorithm.execute(FullCopyOperation.jav
a:321)
  at herschel.versant.tools.replication.daemon.FullCopyOperation.act(FullCopyOperation.java:148)
  at herschel.versant.tools.replication.daemon.CheckedThread.run(CheckedThread.java:67)
```

We tried the CUS GUI, which now worked. But now the replication was not working so we decided to start all over again. First we stopped the replication daemon:

```
db_admin -daemon hcsvg0.3@truro SHUTDOWN
```

```
26-Jul-05 13:48:50.903 Configuration: Build number is 664 Daemon
command issued:
```

```
Id: Type -> Status [Submitted] / [Started] / [Finished]
```

```
1: SHUTDOWN -> ISSUED [26.07.05 13:48:51] / [-] / [-]
```

```
Finished.
```

```
truro/home/sg55> 26-Jul-05 13:48:53.790 DaemonActionWatchdog: Daemon
shutdown request received. 26-Jul-05 13:48:53.838 CheckedThread:
[Alpha Watchdog hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread has been
interrupted. 26-Jul-05 13:48:53.838 CheckedThread: [Alpha Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread finished. 26-Jul-05
13:48:53.841 CheckedThread: [Channel(1): hcsvg0.3@truro.bnsc.rl.ac.uk
-> hcsvg0.3@chichester.bnsc.rl.ac.uk]: Thread has been interrupted.
26-Jul-05 13:48:53.841 CheckedThread: [Channel(1):
hcsvg0.3@truro.bnsc.rl.ac.uk -> hcsvg0.3@chichester.bnsc.rl.ac.uk]:
Thread finished. 26-Jul-05 13:48:53.843 CheckedThread: [Beta Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread has been interrupted. 26-Jul-05
13:48:53.843 CheckedThread: [Beta Watchdog
hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread finished. 26-Jul-05
13:48:53.856 DaemonActionWatchdog: Closing database: [Command
Watchdog hcsvg0.3@truro.bnsc.rl.ac.uk] 26-Jul-05 13:48:53.857
CheckedThread: [Command Watchdog hcsvg0.3@truro.bnsc.rl.ac.uk]:
Thread has been interrupted. 26-Jul-05 13:48:53.858 CheckedThread:
[Command Watchdog hcsvg0.3@truro.bnsc.rl.ac.uk]: Thread finished.
```

```
Performing shutdown checks...
Shutdown checks finished.
```

```
[1] Done repld
hcsvg0.3@truro.bnsc.rl.ac.uk
```

Then we stopped the database and removed it:

```
stopdb hcsvg0.3@truro.bnsc.rl.ac.uk
```



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VERSANT Utility STOPDB Version 6.0.5.3  
Copyright (c) 1989-2002 VERSANT Corporation

```
truro/home/sg55> removedb -rmdir hcssv0.3@truro.bnsc.rl.ac.uk  
VERSANT Utility REMOVEDB
```

Version 6.0.5.3 Copyright (c) 1989-2002 VERSANT Corporation

We then repeated the following steps:

1. Created the database.
2. Created the replicated database on chichester
3. Started the replication daemon
4. Prepared the MIB with preparemib MIB\_PFM1\_Issue2.0.1/ascii-tables MIB\_HCSSv0.3\_AT.
5. Ingested the MIB into the database using the ingestmib command from lincoln:home/sg55/MIB\_HCSSv0.3\_AT/

All of these commands were successful. We again attempted to import building block definitions but the CUS GUI hung in the same way as previously. At this point we were forced to abandon the attempt to use a replicating database. We stopped the replication daemon and changed the database back to a non-replicating one:

```
truro/home/sg55> db_admin -u hcssv0.3@truro
```

```
26-Jul-05 14:35:06.198 Configuration: Build number is 664 Removing  
replication mechanism from database.
```

WARNING:

```
This command will completely remove the Replication related data from  
the database. The database will become a not replication aware  
database. Normal data in the database is not affected. If the  
database is part of a database system with more than one database,  
this action will BREAK the database system! Proceed anyway? (yes/no)  
yes 26-Jul-05 14:35:14.947 DBDismounter: Root was not in
```

```
DBRootRegistry: DBTransactionCounter-Singleton Deleted root:
```

```
DBTransactionCounter-Singleton 26-Jul-05 14:35:14.965 DBDismounter:  
Root was not in DBRootRegistry:
```

```
DB_SINGLETON_herschel.versant.ccm.replication.DBTransactionLog
```

```
Deleted root:
```

```
DB_SINGLETON_herschel.versant.ccm.replication.DBTransactionLog
```

```
26-Jul-05 14:35:16.284 DBDismounter: Replication Infrastructure (DBI)  
removed from hcssv0.3@truro Finished.
```

### **Test Result: Success**

**Caveat:** We had to stop replication to successfully complete the test.

## **4.4 TC-ICC-04: TOPE: Issuing Telecommands**

The following steps were performed:

- Started OBS.
- Started testcontrol-server application
- From TOPE window executed TOPE\_Test.tcl script, this script set the STEP from 0 to 9

All commands were executed successfully and appeared in the TC history display.



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**Test Result:** *Success*

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

The following steps were performed. The test control server was already running.

- The script TOPE\_HCSSTest.tcl script was imported into the HCSS
- Changed the observing mode called in the script to Mode\_DcuFunc01

All commands were executed successfully and appeared in the TC history display.

**Test Result:** *Success*

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

As preparation for this test:

- `tmingestion` was started on `truro` with log `TMIngestion_HCSSv0.3_AT_26052005.log`.
- QLA was started on `chichester` and the script `FUNC-DCU-02` executed.

When the test was run, the QLA made the expected plots but it had an error related to "layername", SPR-0401 raised on SPIRE QLA. When the QLA browse tool (test execution browser) was used it failed because the database did not have public access, as the default user is the database administrator only. We then added public access:

```
truro/home/sg55> dbuser -add -P  
hcssv0.3@truro.bnsc.rl.ac.uk
```

The QLA then complained because the database was not a replication database. We had to include the property for a non-replication database in `QLA.props` file on `/home/qla/QLA.props`. It does not seem to pick it up from `hcss.props` in `/home/hcssbld/` on `salisbury`.

**Test Result:** *Success*

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

Playing back data by time from previous test worked when data playback was started at maximum speed from the beginning of the data. However, when `OBSID` was used to select the data, this error occurred:

```
"UnsupportedOperationException:call to unimplemented method"
```

We had to add the following property in `QLA.props` (`salisbury:home/qla/`):  
`hcss.ccm.factory = herschel.versant.ccm.CoreFactoryImpl`  
This property was set as default to something else by QLA.

We were then able to successfully replay the data by selecting `OBSID`. It was noticed that the scrollers were no longer auto-locked, SPR-0398 raised on SPIRE QLA.



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The QLA DCU02 script did not trigger because the current triggering combination (BBFULLTYPE,STEP) =(0x8001,0x0001) happens before (within the ClearObs BB) the OBSID is set. The script needs to be changed, SPR-0403 raised on SPIRE QLA.

**Test Result: Success**

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

We followed the instructions from the HCSS AT plan to create a command list definition but got the following error when the actual command list was selected from

```
/home/sops23e/SCOS2.3eP5/tcl/TC/VMTables/Table-71-Chop/tc
```

```
"Invalid header string. Expected: CLname Actual: CLName
```

This typo was corrected in the table Chop\_2.1.3\_1.1\_050128150013.tbl itself, and the process was repeated. However, we had to choose another table as this one was already defined:

```
Will use Jiggle Map table : JiggleMap_2.1.3_1.1_050127115523 located  
in /home/sops23e/SCOS2.3eP5/tcl/TC/VMTables/Table072-Jiggle-Map/TC
```

```
BBID used 1034
```

This time it was successful, with a message that the CUS definition had been successfully created from the table. A new building block named JiggleMap (name extracted from the table) had been created in the CUS This new definition was committed.

**Test Result: Success**

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

We ingested definitions in file CUS\_ObsModes\_FOR\_HCSS\_AT.txt which includes definitions to be used in this test case. These were successfully imported. We uploaded calibration table PFM2\_SLW\_BeamScan\_type1 successfully. The calibration table size was retrieved correctly – it has 32 rows – this is the output message from the script:

```
27-Jul-05 08:00:42.161 ASTDebugPrint: debug_print: -----  
-----  
27-Jul-05 08:00:42.163 ASTDebugPrint: debug_print:  
27-Jul-05 08:00:42.164 ASTDebugPrint: debug_print: CUS  
Calibration Table functionality check  
27-Jul-05 08:00:42.165 ASTDebugPrint: debug_print:  
27-Jul-05 08:00:42.176 ASTDebugPrint: debug_print: The number  
of rows in calibration table PFM2_SLW_BeamScan_type1 is : 39  
27-Jul-05 08:00:42.177 ASTDebugPrint: debug_print:  
27-Jul-05 08:00:42.179 ASTDebugPrint: debug_print: -----  
-----
```

**Test Result: Success**



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

The `hcss.ccm.siteid` property in `hcss.props` in `lincoln:home/hcssbld` was changed from 3 to 11 (ILT to IST) and the CUS GUI was started.

The change is *not* effective, the reason being: when the CUS GUI is initialized for the first time with a newly created db, the OBSID registry is created taking into account the `siteid` property value at that time. Any further change to this variable will *not* be effective. The site ID was changed back to 3.

**Test Result:** *N/A*

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

With the CUS GUI, opened `Mode_DcuFunc01` definitions and retrieved the commands. All the command parameters matched the default inputs.

**Test Result:** *Success*

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

We ran `tchoolretrieve`, which did not work because the `DISPLAY` environment variable was not set. After setting `DISPLAY` we retrieved the TC history from 26/07/05 13:00 UT to 26/07/05 16:14 UT and got the file `THF_050726_0000.DAT`. We then did the same thing with OOL and got file `ORF_050726_0000.DAT`.

**Test Result:** *Success*

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

We executed `OverNightTest` HCSS Test procedure for generating full photometer data @ 25Hz which gives roughly 120KBits/s. The procedure started normally and was left running over night. The following morning at 5:37:27 a.m. telemetry ingestion died with the following error:

```
28-Jul-05 05:37:27.460 TmIngestionStore: Store exception
thrown: herschel.store.api.StoreException: Database commit
failed while accessing database: "hcssv0.3@truro.bnsc.rl.ac.uk"
{ VException(3005:NET_EWRITE: Network layer write error
("vsl/vslsock.c", line 416) [ oserr=`104 (Connection reset by
peer)' ] ) } 28-Jul-05 05:37:27.748 TmIngestion: Store thread
has died: Check error log for store/ versant exception 28-Jul-
05 05:37:27.749 TmIngestion: Telemetry ingestion is now
terminating because of store/ database error 28-Jul-05
05:37:29.768 TmIngestion: Telemetry ingestion termination:
Waiting for timer process to die 28-Jul-05 05:37:30.778
TmIngestion: Telemetry ingestion termination: Waiting for
ingestor process to die 28-Jul-05 05:37:31.788 TmIngestion:
Telemetry ingestion termination: Waiting for HIFI processor to
```



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die 28-Jul-05 05:37:32.798 TmIngestion: Telemetry ingestion  
termination: Waiting for PACS processor to die 28-Jul-05  
05:37:33.808 TmIngestion: Telemetry ingestion termination:  
Waiting for SPIRE processor to die

In addition, the OverNightTest procedure which was due to finish ~@7:45 did not finish properly and a Versant Exception appears in TOPE :

```
Error: {VException(3003:NET_ENOPN: Connection is not opened  
( "om/ob/obbuf.c", line 2210 ) ) }
```

As a result, the command to stop data generation when the test is finished did not get sent to the DPU and data was still being generated the following morning.

After some investigation it was realised that the cause of the problem was the fact that the `profile.be` file had not been updated at database creation time and it was actually the Versant default one (see the earlier remark under preliminary steps). The next step was to overwrite this `profile.be` with an upgraded version into the local database directory. The database should be stopped and restarted afterwards for this change of `profile.be` to take place but this was not known at the time, so the following over night test failed once again until the database was stopped and restarted again.

#### Test Result: *Success*

**Caveat:** The test failed until the `profile.be` file was modified.

### 4.14 TC-ICC-14: Database Replication Test

This test was not performed as database replication had been turned off.

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

This test was not performed as its main purpose – this time – was to verify performance under load at the same time as replicating the database.

## 5. CONCLUSIONS

The Acceptance Test of HCSS 0.3 (build #664) was successful, with some qualifications. In particular, we were not able to complete it using a replicating database.

Table 1 below lists all the Non Conformance Reports (NCRs) resulting from these tests and our response in each case

**Table 1 List of NCRs raised during the acceptance test**

NCR Details	Action taken
NCR-01: Database name with mixed case fails.	SCR-1650 raised on the HCSS.
NCR-02: Databases are created with a suboptimal profile.	SCR-1651 raised on the HCSS.
NCR-03: CUS hangs with a replicating database.	SPR-1652 raised on the HCSS.





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<b>NCR-04:</b> FUNC-DCU-02 script fails with a "layername" error.	SPR-0401 raised on SPIRE QLA.
<b>NCR-05:</b> QLA scrollers not auto-locked.	SPR-0398 raised on SPIRE QLA.
<b>NCR-06:</b> FUNC-DCU-02 script does not trigger.	SPR-0403 raised on SPIRE QLA.
<b>NCR-07:</b> Test Case TC-ICC-10 cannot be executed.	None because this functionality was successfully used during the EQM SPIRE Warm Functional Tests at Astrium using HCSS Build #664.