

## Minutes of HCSSMG Telecon #69 Herschel/HSC/MOM/0456

HCSSMG telecon #69 was held on 7-Oct-04. Text in *blue italics* is taken over from the draft agenda (JRR e-mail dd. 6-Oct-04).

### Participants:

O.H. Bauer (OHB)  
K. Galloway (KG)  
K. Ganga (KMG)  
S. Guest (SG)  
K.J. King (KJK)  
S. Ott (SO)  
J.R. Riedinger (JRR)  
P.R. Roelfsema (PRR)  
R. Shipman (RS)  
E. Sturm (ES)

### ***1. Agreement on agenda, Approval of Minutes of HCSSMG meeting #68, Action Item status***

- PRR suggested to expand the AOB item on the “HIFI incident” (which really was a “schema evolution” incident) to cover schema evolution in general.
- There were no comments on the MoM of HCSSMG telecon #68 (Herschel/HSC/MOM/0446).
- *Actions for this forum which I would like to discuss:*

*Although AI 080904/3, “HIFI, PACS and SPIRE to provide their wish list for HCSS v0.2.3 functionality” is now closed, SPIRE and PACS only closed it with a delay of 2 weeks which is > 25% of the time available for v0.2.3 implementation. Also, the SPIRE and the PACS input was in no way prioritised. With only slightly more than one month remaining until the code freeze for v0.2.3 testing I have distributed to the HSCDT the consolidated wish list from all 3 instruments but we make no commitment on exactly which elements get included in HCSS v0.2.3, we only regularly monitor and distribute the status. The status assessment as of 5-Oct-04 is attached to this agenda and will be attached to the MoM.*

With only 3 weeks remaining to the code freeze for HCSS v0.2.3 in wk 44, there is not much point in making schedules. JRR will distribute the spreadsheet showing implementation status as this status evolves.

### ***2. MIB/Bridge Files From Industry and I-EGSE Acceptance Tests in Industry***

*In the context of the most recent delay in the I-EGSE Acceptance Tests in industry from end September to end October we have the following problems that we need to discuss and resolve:*

- *According to RZ, ErW still wanted to make a change to Test Control during the week when HCSS was integrated into the I-EGSE, without which the I-EGSE would not pass Acceptance Tests. We are not aware that these changes have been made.*

According to OHB, TestControl code needs to be updated and a mini-MIB needs to be added.

- *Since the delays the “bridge file” issue has become ominously quiet again. Some issues are still unresolved. What do we need to do to get this rolling again ? Wait for the EGSE-WG telecon ?*

OHB had talked to Felix, according to whom processing of the HIFI MIB into the CCS still has major problems (PRR will check with Luc). The problem of truncation of a particular kind of entry from 16 to 15 characters (which causes entries to lose their uniqueness) will be fixed. Sonja is back from holidays and “bridge file activities” should pick up again. Alongside the next Data Management WG meeting (20-Oct-04 in Cannes) OHB will try to ensure that valid bridge files become available in time for the I-EGSE/CCS integration and acceptance testing.

OHB also reported that Flemming Pedersen from the H/P Project is now coordinating the resolution of detailed issues; such as sorting out implementation of the 1553 protocol (where both sides accuse each other of incorrect implementation).

- *End October is asynchronous to the release of HCSS. Since HCSS v0.2.2 apparently cannot be used (cf. first bullet) we either have to use a patched HCSS v0.2.2, or wait for HCSS v0.2.3 (planned for mid-November), or use a developer release. I prefer we plan to wait for HCSS v0.2.3 (with ErW's patch integrated) for the simple reason that this will ensure that we have at least performed system tests on what is delivered to industry. If this is not possible I propose ErW patches HCSS v0.2.2 to include the necessary modification to Test Control. This would result in delivery of a system to industry which has been properly system tested, following which a reasonably well-defined modification has been applied to an isolated part of the system. The third option of using a developer build I propose we definitely rule out.*

It was agreed that code freeze for HCSS v0.2.3 will take place in wk 44, system testing in wk 45, and integration of the I-EGSE with CCS & I-EGSE acceptance testing will take place in wk 46. SO will correspondingly adjust what functionality goes into IA #6/1.

### 3. *Versant*

*In the past we've behaved as if the fact that we are using Versant is just an (almost transparent) implementation decision and that we could replace Versant by some other DBMS rather easily. However, I believe we are quickly getting to the point where we are more dependant on Versant than we may like. The issues I currently see are:*

- **Data quantity:** *All instruments are collecting or will soon collect quite extensive datasets that would be costly to lose. Converting them from Versant objects into something under a different DBMS (e.g. files and metadata tables under Oracle) may become more and more difficult/ costly.*
- **Investment in tools:** *Parts of the schema evolution and DB replication tools built by HSCDT are specific to Versant. If there are people who believe that Versant is a poor choice (as some people on Planck did) then we need to reconsider alternatives before we pump considerably more work into these tools.*
- **Performance uncertainty:** *We have heard of Versant customers who are supposed to have DBs in the TB range but we are not certain how these DBs are used, what kind of heterogeneous objects they contain, what the access requirements are, etc. We have a currently still open recommendation from the HCSS PDR to extensively test/ characterise Versant with data volumes that are representative of Herschel operations. Even if adequate performance were no problem but could only be achieved if a DB specialist maintains the DBs at each site: Would the ICCs actually employ people with the necessary skills ?*
- **Experience:** *Especially PACS have as yet very little experience in using Versant. What do we do if all of a sudden PACS were to decide they don't like it ?*
- **Licenses:** *Versant did change their licensing policy once already and we had to specifically negotiate a deal under which every developer can interchangeably use Versant on his laptop and on his workstation with a single license. Apart from the fact that not all of us may have a sufficient number of licenses for the development (in my view there are uncertainties from which level of usage onward you need a developer license), we don't know what kind of licensing agreement we can/ are likely to get from Versant for Herschel operations and beyond. With lots of external customers (the number of which can never be precisely quantified) ESA and the ICCs will likely need a special arrangement. Without knowing what this arrangement will be: Can we make the commitment now/ soon ? Do we need to take our*

*lawyers with us and talk to Versant ? Individually or do we delegate this to one or two people?*

- KMG gave some background concerning the friction that has arisen in Planck between supporters and opponents of Versant. In hindsight, one mistake probably was that there had been no agreement on what are important and well-understood tests that could be used to decide whether Versant is well-suited to deal with the kind of data that is produced by Planck (which is quite different from the kind of data produced by Herschel).
- JRR reported that feedback from within the HSCDT indicated that a change in DB vendor, if it were done now (i.e. at a relatively early stage), would already cost many manmonths of extra work and several months of elapsed time before we would be at the same state with a different DBMS that we have reached now with Versant. SG agreed and thought this might actually be optimistic...
- PRR reported that since they had moved to RedHat Enterprise (with this move forced by RedHat going all-out "commercial"), they have occasionally had Versant installation problems.
- OHB stated that PACS also had some Versant problems with internet addresses.
- It was agreed that we should have a meeting with Versant before the end of the year to discuss the issues of customer support, possible licensing schemes for Herschel in-orbit operations and post-mission archiving, the dependence of licenses and costs on architecture (two vs. three-tier, number of replication sites), etc. Much of the next HCSSMG telecon will concentrate on establishing and agreeing the sequence of events/ preparatory steps we and Versant have to make to set the scene for a productive meeting in December.

#### **4. IA Development**

*Stephan to take us through this.*

Work done since previous HCSSMG telecon:

- Release of iteration #5/4 = 5, including release-note.
- Preparation of road-map and WPs for iteration#6 (to December 2004).
- Introduced new WP format/ reporting template to follow IA progress.
- Familiarisation IA helpers JP and LD.
- "How to deal with errors and exceptions for the end-user".
- First draft of "Efficient coding in IA".
- Draft of "HowTo Access the database".
- Updated the IA main page <http://www.rssd.esa.int/SD-general/Projects/Herschel/hscdt/docsIa.shtml>.
- Agreement on JAVADOClike tags for the online help system.
- First version of spectrum dataset delivered for integration.
- Work-around for Jython bug that interpreted Integers as Booleans.
- Distributed a JConsole prototype that permits execution of Jython statements in its own thread. This provides limited support for stopping/ suspending/ resuming the execution.
- Further enhancements were made to the plot, demo, Jconsole and display packages.
- The PST demonstrated IA applications for all three instruments to parts of the HST. This presentation was a big success, and the HST was quite impressed with what has been/ can be done within the Herschel IA framework.
- Version 4 of long term implementation plan (AMH).
- Creation of IA user's group (SL).

Work in progress

- Following the IA CCB#4 discussion, the updated IA#6 roadmap was outlined to HCSSMG.

- After learning that JK is only half-time working for SPIRE, planned tasks for on-line help and documentation work won't be completed in iteration #6. This was generally regretted. Following the advance of IA#6/1 by two weeks, SO will prepare a new version of the IA#6 roadmap to HCSSMGT by 11/10 so the roadmap can be approved by 15/10.

Finally, it was agreed to have

- the IA code-review 16/17-Nov-04 at Leuven. SO asks HCSSMGT to allocate sufficient time for this exercise.
- the IA documentation review will take place 7-Dec-04 in IC or SRON.

## 5. AOB

- *Next HCSSMG telecon: JRR has a problem with 3-Nov-04 as this is the second day of the Planck Science Ground Segment Review presentations in Bologna. Either we move this telecon or we appoint another chair for it (JRR could still prepare the agenda but, if he is not present in the telecon, not write up the MoM).*

HCSSMG telecon #70 shifted to Friday, 5-Nov-04 @ **15:00 (non-standard time!)**

- *Should we briefly discuss the SPIRE incident and make certain that we've learned from it all there is to learn? From the CSDT monthly progress report:*

*It was agreed that the following needs to be improved with high priority after this incident:*

- *Automatically record all log messages to a file on disk to prevent evidence of a problem being permanently lost when it scrolls off a console window.*
- *Test operators need to regularly check the log files for anomalies.*
- *Rather than continuing to pile TM into the queue which no longer gets emptied, telemetry ingestion should die with a clear message to the test operator when the store thread detects some problem with writing to the database; an SPR on this behavior had already been raised during HCSS v0.2.2 System Tests but it now becomes more urgent to solve this SPR.*

SPIRE agreed that these are the correct conclusions to draw from the incident. In reply to JRR's concern—that although the explanation of an unreleased DB lock having caused the problem sounded very plausible, the process/ event/ thread that had obtained but not subsequently released the lock had not been identified—SG stated that Asier believes he can reproduce the problem. This, however, would have to wait until after the end of the currently on-going SPIRE AVM/CQM tests.

Concerning recovery procedures from such an event (KJK), KG stated that SPIRE should write them down as part of their test procedures. However, if the cause of the problem was not known (and therefore could not be eliminated itself), stopping and restarting TM ingestion is probably the most adequate recovery measure one can. SG: In principle TM ingestion could be re-started using the same DB; the reason he had advocated using a clean, fresh DB was to preserve as much as possible of the status after the incident, because he had to initiate the recovery remotely from home.

- *Should we briefly discuss the HIFI incident (change in API for harmonisation of time across the system) or has this issue been resolved now?*

PRR made the point that during instrument test campaigns we need to be extra careful in changing anything which might upset on-going instrument campaigns. This is not limited to schema evolution, it also includes changes to APIs, changes to the reference platform (e.g. migration to JDK 1.5 and use of new features this offers), etc. In addition, validation that e.g. changes in environment do not upset the system must not be limited to building the HCSS but has to include building of all the derivatives (HIFI, PACS, and SPIRE systems).

It is absolutely essential that any such changes that might impact on on-going tests are communicated well in advance and agreed with the ICCs (e.g. informing ICCs when a developer embarks on a WP or starts to tackle an SPR/SCR that will require schema evolution). If a change needs to be made to the HCSS which an instrument does not want to become aware of until a certain test phase has completed, building a “derived” (HIFI, PACS, SPIRE) system has to be temporarily disabled.

- *We don't have a single report/ paper reflecting the outcome of the HCSS/ I-EGSE integration exercise. Was it 100% successful ? What still needs to be done to complete the exercise ?*

ErW has opened up the 5 PCs for remote testing by HIFI, SPIRE and HSCDT by providing their internet addresses (cf. ErW e-mail dd. 24-Sep-04). Also, OHB and ErW will summarise in an e-mail during week 42 a summary of what in their view still needs to be done to conclude that the HCSS/ I-EGSE integration has been 100% successful.

- *What can JRR do to get everyone optimally prepared for the meeting on 13-Oct-04, at which we have to agree a lot of detail concerning the upcoming Herschel Science Ground Segment review ?*

JRR has called for an internal meeting on 12-Oct-04 to square away all questions on review documentation which Project/ HSCDT can answer without ICC input. By EOB on 11-Oct-04 JRR will distribute an agenda for the meeting on 13-Oct-04 but the two major issues are:

- To agree the review documentation, in particular which ICC documentation is and is not provided to the review,
- To agree the set and approximate duration of the presentations to be made to the Review Board in January 05, in particular in view of the documents that we believe may be required but cannot be produced for various reasons (manpower, lack of time, documentation important from a Board perspective but adding little or nothing to development progress).

JRR, 08-Oct-04