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M E E T I N G

meeting date *date de la réunion*	28/02/02	ref./*réf.*	HERSCHEL-HSC-MOM-0234	page/*page*	1 / 11
meeting place *lieu de la réunion*	SRON	chairman *président*	SV		
minute's date *dates de minute*	08/03/02	participants *participants*	See appendix		
subject/objet	**HGSSE #17 MoM**	copy/*copie*			

description/description	ction/action	lue date/date limite

O b j e c t i v e & A g e n d a

See SV's VG#1

R e v i e w o f A c t i o n s

See SV's VG#2

AI#171001/8: 3 ICCs to clarify their plan for having High Fidelity HW and EGSE-ILT like set-up after the delivery of the flight model to be used for SPG/QCP & IA test purpose and Ops support purpose . Due date: 07/11.
Open. Is expected to remain open for some time for PACS & HIFI. The main issue is not the EGSE-ILT set-up but the High fidelity HW and related cryostat issue. This is subject to discussion in HIFI consortium, see PR's VG#4 . SPIRE has plans to have the Flight Spare available for above purpose. However it was confirmed by all ICCs that the HSC is not expected to make any provision in terms of mini-MOC and instrument simulator.

AI#171001/9: JD to clarify with FD the added value of validating the PV HSC schedules up to MP2 (i.e. what MP2 will check that is not checked by MP1). Due date: 29/11.
Still Open. No news from JD (NP).

AI#29110/1: SF to update the ESOC comms network figure in particular to include ICC@MOC and the HMCS. Due date 04/12.
Closed: email with attached figure from SF dated 04/12

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AI# 291101/2 : ESOC, ICCs and HSC to comment on the OOL data ICD draft 0.1. Due date 17/12.
Closed. ICD updated from comments to draft 0.2 on 25/01/02.

AI# 291101/3 : ICCs to describe their proposed ILT set-up and HCSS ODBMS replication requirements. Due date 17/12. Closed for HIFI, see PR's VG in appendix 2.
Open for PACS and SPIRE, new due date 06/03. (SPIRE VGs have been presented at CDST#12 but not been made available).
See also discussion below.

AI# 291101/4 : ESOC(JD&SF) to pass over documentation describing typical MOC simulation campaign of a scientific satellite and scoping related requirements on instrument simulators. Due date 15/01.
Closed. See TN "Herschel & Planck Instrument simulator Statement of minimal functionality" from SF dated 08/02/02.
See also discussion below.

Instrument Simulator discussion

ICCs commented on the TN " Herschel & Planck Instrument simulator Statement of minimal functionality "from ESOC dated 08/02.

The following points have been raised:

Overall

1) it is not clear to the ICCs what are the rationale for the detailed requirements in section 4. ICCs would welcome that for each requirement in section 4, there is a reference to the specific simulator support as identified in section 3 of the note (see 3 bullet points).
In particular the rationale for the simulation of the instrument memory patching (MO-10) is not understood.

⇨ **AI#280202/1: SF to clarify the rationale of instrument simulator requirements and other ICCs question marks as minuted below . Due date: 29/03/02.**

2) a general problem arise as to whether the instrument simulator should be realistic and RT only vis-à-vis the TC handling and TM generation or if some instrument internals needed to be realistically simulated as well, e.g. power consumption, mode transition

3) some requirements only make sense wrt to a particular simulator architecture, e.g. memory patching and realistic instrument mode switching simulation can only be implemented if the simulator is based on HW emulator. Therefore requirements discussion was also felt to be driven by architecture. In this respect, NP reported that the feasibility/cost study to develop a DSP emulator is on-going.

[NP clarified post-meeting that David Verrier is now in charge of this study and that the study should be completed in time for the next HGGSE meeting].

RT issue (PE-02)
NP clarified that instrument simulator (which is integrated in SIMSAT) should run twice faster than RT to allow overall simulation system SIMSAT to be RT. NP also clarified RT aspect is needed by ESOC to properly simulate TC verification window. According to NP, RT aspect of instrument simulator is to be understood vis-à-vis TC handling and TM generation only, the internal of the instrument simulator does not need to be RT (TBC).

SY-01
ICCs would welcome documentation on the SIMSAT infrastructure, especially on the already included models.

Break point (BR-01):
Wrt Break point, SS clarified that it will not be possible to set break point anywhere, e.g. break point will be easier to implement outside observation. NP clarified that break points would be set on periods of hours rather than seconds

MO-02:
Does the fault detection system refers to the CDMS?

MO-12-MO-13:
It is not clear what MO-13 brings in addition to MO-12

MO-17 – MO-18:
The terms "bi-level" and "serial digital" should be clarified

Failure modes simulation (MO-20 – MO-25):
NP clarified that instrument mode failures are injected through the SIMSAT GUI. It was not clear to ICCs to which level instrument mode failures needs to be simulated, is that only wrt to instrument HK TM data? To progress in this area, it was felt useful that ESOC (SF and DV) get the list and description of identified instrument mode failures. This information is, according to ICCs, available (part of their instrument IBDR data package).

⇨ **AI#280202/2: 3 ICCs to distribute to the group the list and description of their instrument mode failures. Due date: 08/03/02.**

MO-21:
This is not understood as a requirement on the instrument simulators rather on the rest of the satellite simulator

Missing requirements?
The TN does not mention any requirement wrt the amount of science TM to be simulated. Is that forgotten or not needed by ESOC?

Regarding the number of questions raised by ICCs, it was agreed that David Verrier who is the ESOC simulator technical officer for H/P will attend the next HGSSE meeting. ICCs outside the HGSSE group are welcome to attend the discussion.
[David Verrier attendance was confirmed post-meeting by NP]

Beyond the comments on the TN, the following was reported:

SS mentioned that the ESOC TN had been sent to the Stockholm observatory (SPIRE Co-I and responsible for the SPIRE DRCU simulator) for comments. Comments have not been received yet.

RH reported that PACS had set-up an instrument simulator based on a Virtuoso emulator running the actual on-board SW and windows NT and constituted of 3 PCs (one for each PACS processor) connected by TCP-IP emulating the 1335 spacewire protocol. This PACS simulator clearly does not meet the RT and S/C model interface requirements as set in the ESOC TN.

On the instrument simulator issue, see also PR's VG#2.

I S T :

NP reported on the result of the CCS ITT: The CCS will be developed by a consortium headed by TERMA(NL) as prime and will be based on S2K evolution and TOPE. NP stressed that for CCS purpose both TOPE and the S2K kernel will need to be modified. NP/ESOC will help H/P project managing the contract to make sure that the S2K kernel modifications are in line with and can be re-used as is for the MCS.

It was recognized that instrument EGSE should closely follow modification to S2K and obviously TOPE as this may impact at a certain stage their own EGSE set-up, especially considering that instruments want to keep up with new S2K releases.

NP/SV gave a summary of the modifications to be expected in the frame of the CCS development:

For S2K:
- modifications to cope with large amounts of warnings, recognition and handling of corrupt packets. As an MCS kernel S2K is "success oriented" and is less suitable as a "debugging" environment.
- implementation of test sessions including configuration control
- improvements in the run time control of TM parameters definitions
- modification to replay facilities to replay TM to instrument EGSEs (TBC)

For TOPE:

- support to low level ("bit") access to raw TC packet and TM parameters
- support for parallel execution of test procedures
- MMI and logging improvements
- S2K/TOPE TM parameters interface performance improvements
- extension of the usage of the CORBA I/F

PR expressed concerned that keeping up with S2K upgrades (driven by CCS development) could mean HW upgrades for instrument EGSE. In this respect, it is not clear whether TERMA will propose the CCS on Linux or on Solaris only. MOC shall also be involved in this decision as this will eventually decide on which OS will run the MCS.

SV then presented the impact of the CCS ITT result on the HCSS – CSS I/F

Test Control I/F: the ILT implementation could be re-used as is (as CCS also feature TOPE) with the advantage that instrument procedures developed for ILT could be re-used as is in IST. H/P project will however certainly resist it as this makes the CCS dependent on the HCSS for commanding (retrieval of instrument command sequences). As a result the Test procedures and/or TOPE would need to be modified to support the retrieval of instrument command sequences.

TC History and OOL I/F: the interface developed for ILT can be re-used as is. For OOL it had been so far envisaged to generate OOL data by replaying HK TM data from the HCSS to RTA. If the ILT I/F is re-used this would not be needed anymore as the OOL data would be directly delivered by the CCS.

TM I/F: The TERMA proposal, in line with the Alenia CCS spec, proposed to deliver the TM to the instrument EGSE in the so-called "Pipe" protocol (TVCP-IP based). The EGSE router protocol should be implemented instead.

OBSM I/F: S2K OBSM customization done in the frame of ILT for instrument processors could be re-used by TERMA in the CCS. However the usage and customization of the S2K OBSM in ILT was not clear to ICCs.

⇨ **AI#280202/3 RH to clarify usage of the S2K OBSM by PACS in ILT and consequent customization of the OBSM. Due date 08/03.**

In relation with this discussion, PR presented a diagram from an Astrium document ("instrument testing on PLM EQM level" draft 1 dated 15/12/01) regarding CQM test set-up. This diagram does not reflect any of the expected CCS – instrument EGSE interfaces. HIFI AIV Manager (Willem Luinge) has sent back comments on this document to project mentioning in particular this point. SV will enquiry on the state of this document to project.

System design

TC history & OOL data

NP reported on the LOGICA WP "TC history and OOL data extractor": the development is completed, documentation will be delivered by LOGICA in week 10 (first week of March).
The Logica development will allow SPIRE to fulfil ICD#3(OOL) and ICD#5(TC history) with minor modification already agreed by SPIRE (MG) and with the already known exception of the TC Id (see below).

The major remaining issue wrt the WP is the installation by LOGICA of the extractor SW. The SW shall be installed on S2K v2.1.1.e. NP insisted that LOGICA install the SW asap, preferably in week 11. It was not clear at the meeting that RAL had v2.1.1.e installed and running. The alternative to install the LOGICA SW at MPE was discussed. RH will check this possibility with EW asap.

SV raised the issue of the compatibility of the LOGICA SW with future S2K upgrades starting with V2.3.e. MG said that in principle v2.3e would allow to replace the LOGICA SW by the CORBA I/F (at least for the TC history) however one should confirm or otherwise this compatibility.

⇨ **AI#280202/4: NP to clarify compatibility of the LOGICA SW with future S2K versions starting with v2.3e. Due date 28/03.**

Wrt to the TC ID issue, NP was not sure anymore that it would be implemented with V2.3e in June. SV insisted that in any case a solution be rapidly found which guarantee the TC ID implementation in April 02 so that it can be part of the HCSS v0.1 delivered to instrument early May. NP stressed that this implementation is more delicate than the TC history and OOL SW extractor as it requires patching to the S2K kernel and that he needed to check with JD to get necessary funding.

⇨ **AI#280202/5: NP to investigate solutions to get the TC ID implemented by April 02 and clarify TC Id implementation in V2.3.e. Due date 08/03**

ICD#8 (RTA-HCSS I/F)

Comments on ICD#8 were addressed on line to MG during the meeting and will be incorporated in next ICD issue.

Other ILT ICDs

Wrt ICD#2 (Science TM data definition) , RH reported that he had requested PACS SPU people to provide the science TM definition before 08/03. When available, RH will provide ICD reference to SV for inclusion in the ICD list document. SS reported that the ICD now exists for SPIRE , SS will provide reference to SV for inclusion in the ICD list document.
[SS's post meeting input: ICD#2 for SPIRE is "the SPIRE Data ICD" SPIRE-RAL-PRJ-0011078, issue 1.0 (draft1) date 15/01/02]

Other System activities reporting / monitoring / co-ordination

CSDT: ILT HCSS replication requirements/issues

PR presented the HIFI ILT set-up, see PR's VG#3. RH commented that PACS will have a similar set-up, but want to have the possibility to extend the Devt LAN installation with laptops, see also point 6) below.

The following requirements were put on the table by the ICCs:

1) the HCSS ILT set-up shall support an installation on two LANs, one Operational(Ops) LAN and one development(Devt) LAN. The Ops LAN is inside the ICC firewall, while the Devt LAN will be outside. The Ops LAN may be disconnected from the Devt LAN
2) TM and DF are first created on the Ops LAN and it shall be possible to transfer the TM and DF from the Ops LAN to the devt LAN upon request.
3) It shall be possible to create/modify observing modes, BB on both the Devt LAN and the Ops LAN and synchronize upon request the Ops LAN and Devt LAN HCSS database for these objects
4) Observations are first created on the Ops LAN and it shall be possible to transfer the observations from the Ops LAN to the devt LAN upon request
5) It shall be possible to run IA and generate new products and processes on both the Devt LAN and the Ops LAN and synchronize upon request the Ops LAN and Devt LAN HCSS database for these objects.
6) It shall be possible to do some partial synchronization between the Devt LAN and laptop HCSS installations, e.g. limited to observing modes and BB; or to TM and DF from the last 3 days; or to for TM and DF resulting from given TP executions.

SV will bring these requirement to the HSCDT(JB) for comments.

A O B

–Instrument time synchronization process:
SV recalled the question mark at the last meeting (HGSSE#16) arising from the IFSI document "Herschel DPU/ICU switch-on procedure" which seems to imply (see PROM-ON04.5) that the instrument time is not

synchronized as part of the switch-on procedure and does not specify when/how this time gets synchronized.

⇨ **AI#280202/6: SS to check (possibly with IFSI) when the instrument time gets synchronized with the S/C time. Due date 28/03.**

–130 Kbp/s science data rate vs. IRD 3.5.20

Instrument average output has been raised to 130kbps from 100kbps: at SV's request, ESOC (NP) clarified that the IRD performance requirement (IRD 3.5-20) on TM delivery from MOC to HSC remains valid, with the understanding that ESOC will increase communication line bandwidth as needed.

–Pointing data PACS requests

SV referred to an email dated 23/01/02 from PACS (OHB and HF) requiring clarification on the content of the pointing and orbit data as provided by the AOCS and MOC. It was recognized that the group should clarify the required content of the orbit and attitude pointing history as needed from MOC.

⇨ **AI#280202/7: ICCs to surface requirements on orbit data and pointing history vis-à-vis MOC . Due date 28/03**

Next Meeting

The HGSSE#18 meeting will be held on the 23rd of April in ESOC. The meeting will precede the S2K user group meeting also in ESOC.

Attendees:

M. Graham (Imperial College)
Rik Huygen (KUL)
Nestor Peccia (ESA-ESOC)
Peter Roelfsema (SRON)
Sunil Sidher (RAL)
Stephane Veillat (ESA – HSC)

Cc:

O. Bauer (MPE)
J. Brumfit (Aurora – HSC)
John Dodsworth (ESA – ESOC)
Pierre Estaria (ESA – H/P project)
K. Galloway (Aurora – HSC)
A. Heras (ESA-HSC)
S. Lord (IPAC)
J.J. Mathieu (ESA – TOS-EMS)
Brian Melton (ESA – TOS-EMG)
G. Pilbratt (ESA – HSC)
J. Rector (IPAC)
J. Riedinger (ESA - HSC)
Steven Foley (ESA-ESOC)
Serge Valera (ESA – TOS-EMG)
Frederick Wechlser (ESA – H/P project)
E. Wiezorrek (MPE)

Appendix 1: SV slides

HGSSE#17, Agenda (draft)

- **Comments on HGSSE#16 MoM and HGSSE#17 agenda**
- **HGSSE pending actions**
  - see slide #2
- **Instrument simulator requirements/issues**
- **ILT System design**
  - TC history I/F (SPIRE)
    - status by SPIRE
  - OOL I/F (SPIRE)
    - status by SPIRE
  - ICD#8
  - Monitoring of other ILT ICDs
- **ILT HCSS replication requirements/issues**
- **IST**
  - Status (NP+SV)
  - Discussion
- **Other System activities reporting/ monitoring/ co-ordination**
- **Next HGSSE meeting**
- **AOB**
  - Instrument time synchronization process
  - 130 Kbp/s science data rate vs. IRD 3.5.20
  - Pointing data PACS requests

List of actions

•AI#171001/8: 3 ICCs to clarify their plan for having High Fidelity HW and EGSE-ILT like set-up after the delivery of the flight model to be used for SPG/QCP & IA test purpose and Ops support purpose . Due date: 07/11.

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•AI#291101/3: ICCs to describe their proposed ILT set-up and HCSS ODMS replication requirements. Due date 17/12

•AI#291101/4:ESOC (JD&SF) to pass over documentation describing typical MOC simulation campaign and scoping related requirements on instruments simulators. Due date 15/01.

Appendix 2: PR slides

HGSSE 17 – HIFI inputs instrument simulator, ILT setup

Peter Roelfsema – ICC manager/system engineer

Instrument simulator

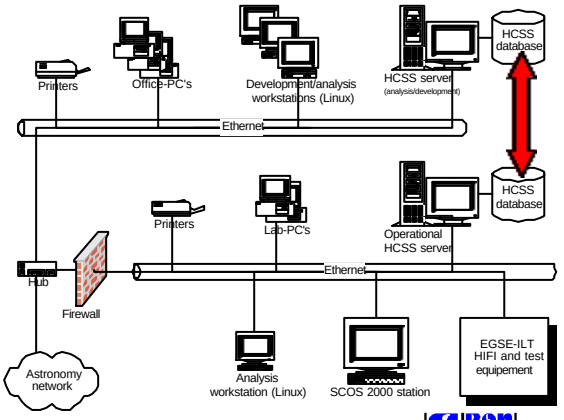
- ESOC requirements under discussion in HIFI system engineering team
  - are all requirements acceptable/doable in a reasonable manner
  - how and when can we implement it
  - is this 'instrument' or ICC activity
- Initial questions (to ESOC?)
  - seems like a mix of requirements for simulators in S/W *and* in H/W
  - dualistic approach; do we need to have the real OBSW (including RAM patching etc.) or a functional emulation of its behavior
  - for some requirements it is not clear why they are needed, I.e. what do you use the simulator for (e.g. simulating power consumption, real time accuracy, simulating memory upload?)
  - are there any priorities
  - what about DSP/Virtuoso emulators (PACS Virtuoso emulators)
- Instrument PM meeting suggested a dedicated meeting between instruments and ESOC (and project?) to clarify needs and possible development support for the simulators.

ILT setup – HCSS replication

- HIFI ILT setup will have two domains –development and test– separated by a firewall
- Synchronization/replication between these two domains is definitely required

- DEVELOPMENT area for CUS/IA/QLA development, data analysis, communication with outside world (e.g. HSC)

- TEST area is where the tests are actually carried out (test control, RTA, QLA etc.)
  Note: the firewall may in practice be manual connecting and disconnecting the test network from the rest



HIFI S/W tests in operations

AI#171001/8: 3 ICCs to clarify their plan for having High Fidelity HW and EGSE-ILT like set-up after the delivery of the flight model to be used for SPG/QCP & IA test purpose and Ops support purpose.

This item is still under discussion within the consortium. It appears now that there is more consensus towards a 'bread board' HIFI put together from AVM/DM/QM and FS parts coupled to the ILT EGSE systems.

Final decision definitely not before June consortium meeting