



RTA CWG#3 Final Report

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1. Introduction

This report is produced in response to AI 4-2 from the CWG Steering committee meeting #4. Its purpose is to formally finalize the RTA CWG#3 mandate by providing an overview of the activities of the group, the main conclusions reached, current status and next planned steps.

The issues addressed by the RTA CWG#3 will from now on be addressed in the CWG for SCOS-2000 related activities.

2. RTA CWG#3 Activities

2.1 Group members

The composition of the group was as follows:

- A. M. Heras (ESA/FSC) Chairperson
- P. Estaria (ESA/FIRST-Planck Project)
- R. Gispert (Planck/HFI)
- F. Couchot (Planck/HFI)
- C. Butler (Planck/LFI)
- P. Roelfsema (FIRST/HIFI)
- O. Bauer (FIRST/PACS)
- E. Wiezorrek (FIRST/PACS)
- T. Dimbylow (FIRST/SPIRE)
- R. Gastaud (FIRST/SPIRE)
- A. di Giorgio (Cross-instrument support)

In addition F. Pasian (Planck/LFI), R. Walter (Planck/HFI/LFI) and J. Dodsworth (ESA/ESOC) participated frequently in meetings and SCOS-2000 activities.



2.2 List of activities and results

The list of activities is given in chronological order:

1. Kick-off meeting (3 February 1999) with the following result:

- The objectives and task list of the CWG#3 are agreed. In particular, the main goal of the group is to find a common RTA concept and a common approach for its development.
- After a presentation from each PI team, it is concluded that RTA requirements are very similar for all five instruments, but for Command Verification, which is of high relevance only for the FIRST instruments.
- RTA and QLA will be decoupled. No common interface between them is needed (as was done in ISO). QLA is not considered a common system and therefore it is outside the scope of the group.
- It is agreed that the H/W configuration for RTA (Instrument Station) should be common, although it is not clear if the commonality should already be achieved for ILTs.
- The interaction between FINDAS and RTA is discussed. As a result it is recommended to CWG#6 to establish priorities in the FINDAS implementation plan, and it is required that the real time telemetry provision and local storage part of FINDAS be given the highest priority.
- Several existing S/W packages are considered to be possibly used by the PI teams as RTA framework. It is agreed that the SCOS-2000 package developed at ESOC for spacecraft control and monitoring is the first option to be studied. Other options are: (i) the RTA system developed at MPE (based on ISO package); (ii) the system developed for Integral; and (iii) a C++ package available at SRON Groningen.
- The PACS RTA URD will be the starting point for the RTA URD, common for all instruments.

2. Meeting #2 (19 May 1999), with the following result:

- The dates when RTA is required for instrument tests and operations are provided by each PI team. The first RTA version should be available end of 2000 (PACS), first quarter of 2001 (HIFI) or end of 2001 (HFI, LFI, SPIRE). It is noted that an initial version of the spacecraft simulator should also be available on the same periods.
- The manpower available for RTA related activities is compiled in a table. All PI teams representatives emphasize that the adoption of SCOS-2000 would effectively reduce by half the manpower currently assigned to RTA development. Once SCOS-2000 is adapted to the PI teams environment and to the RTA requirements, only changes in the database contents are expected.
- The commonality of databases between SCOS-2000 and the check-out equipment should be ensured. It is agreed that the use of SCOS-2000 in the check-out environment would also be greatly beneficial.



- R. Walter makes a presentation of the system used in ISDC for Integral real time and near-real time operations.
 - A presentation of SCOS-2000 will be organized by P. Estaria and J. Dodsworth. Prior to the demonstration the SCOS-2000 documentation should be distributed to the participants, who will provide their questions in advance.
 - A working schedule for the rest of the year is agreed.
3. The RTA URD draft 1 is distributed to the group members for comments (16 June 1999).
 4. SCOS-2000 presentation at ESOC (17-18 June 1999), which included:
 - Description of the SCOS-2000 system (architecture, monitoring, commanding and OBSM), and demonstration
 - WINFOPS/MOIS (Procedure development and authoring systems)
 - PROBA EGSE/SCOS-2 implementation presentation
 5. Installation and set-up of SCOS-2000 v0.2 by PACS at MPE supported by ESOC and Terma (October 1999).
 6. Demonstration/testing of the usage of SCOS-2000 as RTA framework at MPE (3-4 November 1999):
 - It is attended by representatives of all FIRST and Planck PI teams
 - The SCOS-2000 functionality is assessed by comparing to the requirements compiled in the RTA URD, which is updated to issue 1 in the process, and by compiling the list of requirements that have been implemented/not implemented or implemented in a different way by SCOS-2000.
 7. Meeting #3 (5 November 1999) to discuss the results from the SCOS-2000 test and how to proceed in the future (SCOS-2000 deliveries, maintenance, inclusion of new requirements). It is agreed that a RTA delta-URD for SCOS 2000 will be generated, and that a meeting with ESOC/Terma is required to discuss the implementation of the delta requirements.
 8. Final evaluation report on SCOS-2000 as RTA framework issued (22 December 1999) and sent to ESOC, with the following conclusions:
 - No MIB editors are supplied with SCOS-2000 delivery. It is proposed to use Integral MIB editors.
 - On board memory maintenance is not included in the SCOS-2000 version tested. It will be available in V 1.0 to be released on January 2000.
 - All parties agree that SCOS-2000 can be used as RTA system provided that:
 - those requirements in the RTA URD not met by SCOS-2000 are implemented (to be discussed by who and how: “public” interfaces for PI teams applications should be defined)



- an overall framework for Terma support and maintenance is negotiated via ESOC (bug fixes, new versions, new requirements)
 - the cost associated with SCOS-2000 usage is determined and a common approach is found for the purchasing of licences.
 - The evaluation should be extended to the usage of the SCOS-2000 commanding capabilities.
 - It is believed that the adoption of SCOS-2000 (from ILTs on) will reduce overall development and maintenance costs for the PI teams.
9. A proposal from ESOC for “SCOS-2000 Services and Support” (including hardware and licences) is sent to the PI teams (18 January 2000).
 10. The RTA Delta-URD issue 1 with requirements listed in the RTA URD, but not implemented in SCOS-2000 is prepared and distributed by HIFI for comments (27 January 2000).
 11. A proposal from ESOC for a SCOS-2000-to-SCOE standard interface is sent to the PI teams (28 February 2000).
 12. The RTA CWG#3 finishes its mandate (1 March 2000).

3. Conclusion

The RTA CWG#3 has reached its objective to support commonality for the Real Time Assessment system among the FIRST and Planck instruments. As a result of the group activities, the RTA user requirements have been agreed by the FIRST and Planck PI teams. Likewise a common approach has been followed to assess the usage of the SCOS-2000 system as RTA framework, which have led to the production of a joint evaluation report. The basis for future common interactions with ESOC/Terma for the implementation of the delta-requirements has been established.

4. Current status and next steps

The on-going SCOS-2000 related activities will be coordinated by P. Estaria and will be addressed in the next future by the SCOS-2000 CWG. At the moment of the finalization of the RTA CWG#3, the current status can be summarized as follows:

- The SCOS-2000 as RTA framework Evaluation Report with conclusions and recommendations from the PI teams has been produced and sent to ESOC.
- The RTA Delta-URD applicable to SCOS-2000 has been distributed to the PI teams for comments. The RTA delta requirements are in the process of being consolidated. The extension of the delta-URD to commanding and test control is being coordinated by O. Bauer.



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- A draft licence agreement, a proposal from ESOC/Terma on SCOS-2000 Services and Support, and a proposal on SCOS-2000-to-SCOE standard interface are available for the PI teams consideration and comments.
- A meeting between ESOC/Terma and the PI Teams has been organized by P. Estaria and J. Dodsworth (18-19 April) in order to discuss all SCOS-2000 related issues.
- The next major step is the final decision by the PI Teams on the adoption of SCOS-2000 for RTA, commanding and test control.