



**CONSULTATIVE COMMITTEE FOR  
SPACE DATA SYSTEMS**

# **CCSDS ENGINEERING STEERING GROUP:**

**MID-TERM AREA REPORTS –**

**MOIMS**

**CSS**

**SOIS**

**SIS**

**SLS**

*(no report from SES)*

**March 2004**



***CONSULTATIVE COMMITTEE FOR  
SPACE DATA SYSTEMS***

# **MOIMS**

## **AREA MID-TERM REPORT**

**February 2004**



### CONTENTS

- **LIST OF CURRENTLY ACTIVE WGs AND BOFs**
- **SUMMARY TECHNICAL STATUS OF EACH WG & BOF**
- **CROSS-AREA TECHNICAL ISSUES**
- **OTHER ISSUE AND CONCERNS**



## **MOIMS AREA MID-TERM REPORT**

### **LIST OF CURRENT WGs AND BOFs**

- 1. Data Archive Ingest WG**
- 2. Information Packaging and Registries WG**
- 3. Navigation WG**
- 4. Spacecraft Control WG**



## MOIMS AREA MID-TERM REPORT

### SUMMARY TECHNICAL STATUS

#### Data Archive Ingest WG

**Goal:**

- CMS Approval of Producer Archive Interface Methodology Abstract Standard (PAIMAS) as CCSDS (and then ISO) Standard,
- Develop Submission Information Package (SIP) as ISO/CCSDS Standard with two Implementations

**Status:** Active X Idle \_\_ (But see issues)

**Progress since last meeting:** Very Minimal - no SIP Progress

- PAIMAS submitted as Blue Book
- Progressing on PAIMAS paper for SpaceOps2004
- Minimal work on prototype of PAIMAS tool by NASA

**Problems and Issues:** CCSDS Administrative Roadblock has resulted in virtually no progress for 3 months

1. CESC has tried to change the color of the PAIMAS book, at the final approval step, in apparent violation of CCSDS procedures. The WG has objected strongly to this outrageous situation!
2. CCSDS has been unable to resolve this issue, to date, nor has there been a fair hearing, to CMC, on both sides of the issue
  - \* CNES, editor of both documents, has stopped all work as a consequence
  - \* ESA has delayed starting contractor support as a result
  - \* WG members are distressed with apparent arbitrariness in execution of CCSDS procedures



## MOIMS AREA MID-TERM REPORT

### SUMMARY TECHNICAL STATUS

#### Information Packaging and Registries WG

**Goal:**

- IP CCSDS/ISO Standard, Use Tests, Version 2 Standard, Registry/Repository CCSDS/ISO Standard

**Status:** Active \_X\_ Idle \_X\_ (see issues)

**Progress since last meeting:**

- very limited work on WB and XFDU toolkit (just restarted)

**Problems and Issues:**

- Very broad agency interest in activities, but the inability of the CMC and the CESG to influence seemingly arbitrary funding decisions by member agencies has crippled this Working Group at the most critical point in time by removing the resources of the editor and toolkit designer as international consensus on a proposed recommendation and inter-agency testbed effort was being reached
- CNES, ESA and BNSC sent formal requests to the CMC and the agency in question and the CMC passed an action item for the reinstatement of the funding to no effect.
  - CNES has activities on hold
  - NASA funding problems (partial funding located)
  - ESA delayed starting activities (now active)



## MOIMS AREA MID-TERM REPORT

### SUMMARY TECHNICAL STATUS

#### Navigation WG

##### Goals:

- To promote orbit data messages RB to BB status. To generate draft RB's for attitude and tracking data messages.

**Status:** Active \_\_X\_\_ Idle \_\_\_\_

##### Progress since last meeting:

- Continued discussions, via email, with WG members to determine strategy to implement XML format for navigation standards.
- Provided responses to the CESG chair and MOIMS AD detailing implementation activities for the orbit data messages Recommendation.
- Received information from JPL CSS member, Mike Stoloff, that they are investigating use of streaming media for tracking data transmission. Need to investigate whether this concept will have an effect in defining a tracking data standard.
- Working on a technical paper for presentation at SpaceOps 2004.
- The draft CCSDS Recommendation CCSDS 502.0-R-3, Orbit Data Messages, Red Book, November 2003, was placed on line for final CCSDS Agency review.

##### Problems and Issues:

- How to define XML format for navigation Recommendations.



## MOIMS AREA MID-TERM REPORT

### SUMMARY TECHNICAL STATUS

#### SM&C WG

##### Goal:

- To produce White Book giving the framework of the work to be done

**Status:** Active X Idle \_\_\_\_\_

##### Progress since last meeting:

- “Upgraded” from BOF to WG
- Large attendance: ESA, CNES, NASA/JPL, NASA/GSFC, DLR, JAXA, BNSC
- 3 telecons
- Draft White Book available and under review

##### Problems and Issues (from last reporting period):

- OLD: No attendance of NASA/GSFC: Closed (see above)
- OLD: Unclear relationship with OMG: Open
- NEW: Need coordination with SOIS and SEA



## **MOIMS AREA MID-TERM REPORT**

### **CROSS-AREA TECHNICAL ISSUES**

- A. The view exhibited by portions of CESG in regard to “what constitutes a standard” needs to be discussed at length**
- B. MOIMS Area has not been given opportunity to make its case on PAIMAS BB to CMC**
- C. Inability to come to closure (or make any progress) on PAIMAS issues for over 3 months indicates glaring administrative deficiencies**



### OTHER ISSUES AND CONCERNS

- A. MAJOR:** Agency resources committed to MOIMS different WGs have not been communicated from CMC to CESC
- B.** PAIMAS approval as Blue Book, by CMC, needed immediately as it has passed all reasonable requirements
- C.** CNES has withdrawn support from Archive Ingest WG until PAIMAS issue is resolved, and this is a good indication of how the Archive Ingest WG as a whole feels about how this issue has been handled
- D.** Archive Ingest WG members are distressed with apparent arbitrariness in execution of CCSDS procedures
- E.** What will be the process to start a new work item when another WG makes a request?



***CONSULTATIVE COMMITTEE FOR  
SPACE DATA SYSTEMS***

**CSS**

**AREA MID-TERM REPORT**

**Fred Brosi, Area Director**

**March 2004**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **CONTENTS**

- **LIST OF CURRENTLY ACTIVE WGs AND BOFs**
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## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **LIST OF CURRENT WGs AND BOFs**

**SLE-Data Transfer Service (DTS) WG**  
**SLE-Service Management (SM) WG**  
**SLE-Reference Model & Concept (RM&C) WG**  
**SLE Navigation Services (NAV) BOF**  
**SLE Return All Data (RAD) BOF**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **SUMMARY TECHNICAL STATUS**

#### **1. SLE-DTS WG**

##### **Develop Specifications for SLE Data Transfer Services**

**Products:** Service Specifications: RAF, CLTU Pink Sheets; ROCF R-1, FSP R-1, RCF R-2

**Progress:** Blue Books for these expected Spring 2004, subject to publication and Agency review

**Work on APIs and Green Book delayed 6 months.**

**WG meeting at DLR March 2004.**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **SUMMARY TECHNICAL STATUS**

#### **2. SLE-SM WG**

**Develop Specifications for management of SLE Services  
Define interfaces for access to standard SLE and TT&C  
operational services for cross support**

**Products: SLE SM/SR Operations Concept, SLE SM/SR  
Service Specification, SLE SM/SR XML Schema Specification,  
SLE SM Authentication Specification**

**Progress: Delayed by resource shortfall (NASA, ESA).  
WG meeting at VEGA UK February 2004.  
Prototype implementations are being developed by  
VEGA/UK, NASA/JPL, NASA/Lockheed/CSOC,  
USAF/AFSCN/GST, and CNES.**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **SUMMARY TECHNICAL STATUS**

#### **3. SLE-RM & Concept WG**

**Update Cross Support Reference Model Blue Book and Cross Support Concept Green Book to reflect technical accuracy**

**Products: Cross Support Reference Model Pink Sheets-Spring 2004;  
Red-1.1 Fall 2004  
Cross Support Concept Green Book G-3 Fall 2004**

**Progress: On schedule**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **SUMMARY TECHNICAL STATUS**

#### **4. SLE-RM SLE Navigation Services BOF**

**Collect Requirements for SLE Navigation Services; produce WG charter**

**Status: Active. Agency input needed.**

#### **5. SLE RAD BOF**

**Collect Requirements for SLE Return All Data transfer service; produce WG charter**

**Status: Active. Draft Charter circulated March 2004.  
Agency input needed.**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **CROSS-AREA TECHNICAL ISSUES**

- A. Need to work with SIS to develop a transport service for flow-controlled (reliable) message stream (as to opposed to byte-stream) delivery. This is needed to provide the “timely delivery” mode of SLE return data transfer services.**



## **CROSS SUPPORT SERVICES AREA MID-TERM REPORT**

### **OTHER ISSUES AND CONCERNS**

**A. Continuity of staff continues to hamper progress.**



***CONSULTATIVE COMMITTEE FOR  
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**SOIS**

**AREA MID-TERM REPORT**

**Patrick Plancke/Chris Plummer**

**February 2004**



## SOIS AREA MID-TERM REPORT

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## **SOIS AREA MID-TERM REPORT**

### **LIST OF CURRENT WGs AND BOFs**

- 1. Onboard bus and LAN WG**
- 2. Time critical network services WG**
- 3. Time critical onboard applications WG**
- 4. Onboard plug-and-play BoF**
- 5. Spacecraft transducer systems Bof**



### **SUMMARY TECHNICAL STATUS**

#### **1. Onboard bus and LAN WG**

**Goal: Define services provided by onboard buses and LANs**

**Status: Active**

**Progress since last meeting:**

**NASA GSFC have been looking at SpaceWire issues**

**ESA-ESTEC development of prototypes for 1553 and CAN, and definition of test bed to support further development**

**Problems and Issues:**

**Main problem is that this is poorly understood by anyone without a good understanding of onboard buses. This is being addressed by the preparation of tech. notes and presentations**



### **SUMMARY TECHNICAL STATUS**

#### **2. Time critical onboard network services WG**

**Goal: Define onboard network and transport layer services**

**Status: Active**

**Progress since last meeting:**

**Updated documents circulated for review**

**Problems and Issues:**

**None at present – Internal review with support of external area experts foreseen prior next Spring Meeting on European side**

**Definition of solid system use case to support the evaluation of proposed solutions**



### SUMMARY TECHNICAL STATUS

#### 3. Time critical onboard application services WG

**Goal: Define onboard application layer services**

**Status: idle**

**Progress since last meeting:**

**Slow convergence on messaging service (A Vaught and S Fowell)**

**Problems and Issues:**

**This WG was without a chair for some time although one person of JPL has been announced by Peter Shames (Mr Abhijit Sengupta) in January and Stuart Fowell, the co-chair, was running out of BNSC funding.**



### SUMMARY TECHNICAL STATUS

#### 4. Onboard plug-and-play BoF

**Goal: Identify plug-and-play concepts of interest for onboard application**

**Status: Active**

**Progress since last meeting:**

**Further research carried out and consolidation of hypothesis using solid system 'use cases'**

**Problems and Issues:**

**None**



### SUMMARY TECHNICAL STATUS

#### 5. Spacecraft transducer systems BoF

**Goal: Define concepts for a rational approach to spacecraft transducer systems**

**Status: Active**

**Progress since last meeting:**

**Further research carried and candidate concepts identified**

**ESA-ESTEC developed prototypes to demonstrate and explore concepts**

**Problems and Issues:**

**None**



## SOIS AREA MID-TERM REPORT

### CROSS-AREA TECHNICAL ISSUES

**None**



## SOIS AREA MID-TERM REPORT

### OTHER ISSUES AND CONCERNS

**NASA proposed working group chair for TCOA WG needs to be ratified so that WG can be re-activated**

**This is doubly critical since BNSC co-chair of the WG is no longer funded and may not be able to support the activity in the future**

**Interface with SEA/System Architecture working group on S/C Monitoring & Control service – Cross area meeting to be foreseen during next Spring meeting**

**Interface with SIS about internet working: cross area meeting to be foreseen during next Spring Meeting**



***CONSULTATIVE COMMITTEE FOR  
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**SIS**

**AREA MID-TERM REPORT**

**Robert C. Durst/Dai Stanton**

**February 2004**



## SIS AREA MID-TERM REPORT

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## **SIS AREA MID-TERM REPORT**

### **LIST OF CURRENT WGs AND BOFs**

- 1. Unacknowledged CFDP Extensions WG**
- 2. CFDP Interoperability Testing WG**
- 3. Delay Tolerant Networking BOF**
- 4. Cislunar Space Internetworking Services BOF**



### SUMMARY TECHNICAL STATUS

#### 1. Unacknowledged CFDP Extensions WG

**Goal:** revise the CFDP Recommendation to enable CFDP in unacknowledged mode to better tolerate the routine arrival of metadata and file data after the arrival of the EOF PDU for the same transaction.

**Status:** Active   x   Idle       

**Progress since last meeting:** publication of proposed revisions to the Recommendation is in progress; initial implementation has been completed and tested but not yet demonstrated; GSFC is considering commencing second implementation.  
No meeting in Montreal.

**Problems and Issues:** all milestones have slipped due to other schedule pressures, notably ongoing support for the Deep Impact mission. However, March 2004 interoperability testing milestone still looks achievable.



### SUMMARY TECHNICAL STATUS

#### 2. CFDP Interoperability Testing WG

**Goal:** design, document, review, correct, and execute interoperability tests for the CFDP Extended Procedures and the CFDP Store and Forward Overlay Procedures.

**Status:** Active   x   Idle       

**Progress since last meeting:** Low level activity on preparing to begin testing in March 2004. Installed JPL CFDP entity on Linux host in WG Chair's facility.  
No meeting planned in Montreal.

**Problems and Issues:** all milestones have slipped due to other schedule pressures, notably ongoing support for the Deep Impact mission. However, April 2004 interoperability testing milestone still looks achievable.



### SUMMARY TECHNICAL STATUS

#### 3. Delay Tolerant Networking BOF

**Goal:** Make the broader CCSDS community aware of the current state of DTN research and development, and determine whether there is sufficient interest to pursue a CCSDS Working Group to develop DTN-related recommendations.

**Status:** Active ☐ Idle ☒

**Progress since last meeting:** None.

**BOF will meet at CCSDS Spring Meeting in Montreal.**

**Problems and Issues:** This activity is currently unsupported by any agency. Contributions are on an individual basis.



### SUMMARY TECHNICAL STATUS

#### 4. Cislunar Space Internetworking Services BOF

**Goal:** Identify Internet state of the art that is applicable for communication during upcoming Earth-Moon missions and remote in-situ interplanetary communications.

**Status:** Active   x   Idle       

**Progress since last meeting:** NASA funding in place. Call for participation published, (unfunded) expressions of interest from NASA/JSC, NASA/Dryden, NASA/JPL, JHU/APL, and CNES.

**BOF will meet at the Spring CCSDS meeting in Montreal.**

**Problems and Issues:** None.



## **SIS AREA MID-TERM REPORT**

### **CROSS-AREA TECHNICAL ISSUES**

**None**



## SIS AREA MID-TERM REPORT

### OTHER ISSUES AND CONCERNS

**Interface with SOIS about their activities regarding network and transport protocols. Provide expertise as necessary in reviewing and revision of those documents.**



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**SLS**

**AREA MID-TERM REPORT**

**February 2004**



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### **LIST OF CURRENT WGs AND BOFs**

- 1. Telecommand Channel Coding WG**
- 2. RF & Modulation WG**
- 3. Ranging WG**
- 4. Space Link Protocols WG**
- 5. Data Compression WG**
- 6. Space Link Coding & Synchronisation WG**
- 7. Long Erasure Codes BOF**



### SUMMARY TECHNICAL STATUS

1. **Telecommand Channel Coding WG**  
Goal: as per charter  
Status: Idle (as reported in Oct.03 SLS report)  
Progress since last meeting: -  
Problems and issues: -
2. **RF & Modulation WG**  
Goal: as per charter  
Status: ongoing  
Progress since last meeting: milestone in May  
Problems and issues: -
3. **Ranging WG**  
Goal: as per charter  
Status: delayed (as per Oct.03 report)  
Progress since last meeting: -  
Problems and issues: -
4. **Space Link Protocols WG**  
Goal: as per charter  
Status: ongoing  
Progress since last meeting: *no recent data available*  
Problems and issues: -



### **SUMMARY TECHNICAL STATUS**

- 5. Data Compression WG**  
Goal: as per charter  
Status: ongoing- slight delay (a few weeks)  
Progress since last meeting: white book close to completion  
Problems and issues: -
- 6. Space Link Coding & Synchronisation WG**  
Goal: as per charter  
Status: ongoing  
Progress since last meeting: Contract with Unibo kicked-off  
Problems and issues: Consensus between members still to be found.  
Decision May 2004.
- 7. Long Erasure Codes BOF**  
Goal: as per charter  
Status: delayed  
Progress since last meeting: -  
Problems and issues: Concept paper to be produced. Target start of BOF work to be reassessed. Workload issue.



## **SLS AREA MID-TERM REPORT**

### **CROSS-AREA TECHNICAL ISSUES**

**Nothing to report**



## **SLS AREA MID-TERM REPORT**

### **OTHER ISSUES AND CONCERNS**

**Nothing to report**