**CMC Draft Minutes**

**Spring 2018 Meetings**

**Beijing, China**

**14-17 May 2018**

1. **Call to Order – Welcome/Opening Remarks**

**4.3 Cross Support Services Area (CSS)** ([CESG Report to CMC](https://cwe.ccsds.org/cmc/Private/CMC%20Meeting%20Minutes%20and%20Presentations/2017%20Fall%20-%20Darmstadt/d03-CESG-Report-to-CMC%20Fall%202017.pptx) [slides 19-30)]

E. Barkley provided an overview of the CSS WG meeting statistics and reviewed the executive summary of the CSS working groups during the spring 2018 technical meetings. During a thorough overview of the executive summary, E. Barkley mentioned that the Cross Support Transfer Services (CSTS) WG made good progress on its Transfer Data CSTS publication, completing the dispositioning of comments and adding that prototyping for the specification is nearly completed as well. E. Barkley continued by adding that the Forward Frame blue book is moving rapidly, and will allow multiplexing of multiple sets of frames to a spacecraft, providing a stepping stone to DTN that will enable a set of DTN bundles to be uploaded to a spacecraft along with the Communications Link Transmission Unit (CLTUs). The white book of this specification is about 90% complete at this time. J. Afarin announced at this time that NASA is heavily invested in the infusion of DTN by 2021 per the direction of the United States’ National Space Council to the National Aeronautics and Space Administration (NASA). E. Barkley continued with his review, noting that the CSTS Concept book has been submitted to the area director of CSS for review, and once approved, will move forward to CESG poll.

**4.4 Systems Engineering Area (SEA)** [[CESG Report to CMC](https://cwe.ccsds.org/cmc/Private/CMC%20Meeting%20Minutes%20and%20Presentations/2017%20Fall%20-%20Darmstadt/d03-CESG-Report-to-CMC%20Fall%202017.pptx) (slides 31-48)]

P. Shames provided an overview of the SEA area demographics and reviewed the executive summary of the area’s accomplishments from the spring 2018 meetings. P. Shames noted that they’ve lost some key individuals from the United Kingdom Space Agency (UKSA) and NASA in its Security WG, but that the Systems Architecture WG (SAWG) has made good progress on its Application and Support Architecture green book despite the absence of two of their key members. One of the items the area identified as a problem/issue is the need for a new implementation view featuring MOIMS and SOIS, which will provide an understanding of the features of the work of these two groups and would also assist in developing flight/ground software. P. Shames continued by discussing the SANA Steering Groups (SSG) work, noting that the SSG identified some issues between the SANA website and the CCSDS website (discussed in more detail below). Peter also noted that the Delta Differential One-way Ranging (D-DOR) WG has lost its chairperson and is requesting assistance from the CMC on identifying a replacement.

For the Security WG, P. Shames noted that the WG has started a new credentials document and that all of its other publications are making good progress. The WG is cross cutting to CCSDS publications and played a key role in the Space Data Link Security WG’s meeting during the spring 2018 meetings. The Security WG also held valuable working sessions with the DTN WG. He added that it is a concern of the WG that there are very few references to security in the IOAG service catalogue. J. Afarin asked P. Shames what the approach is for addressing security in the service catalogue. N. Peccia added that this was already brought forward to the IOAG and that the IOAG did not agree that any changes to further address security were required. J.M. Soula added to this point that this was the opinion of the IOAG because security is already resident to the systems via the governing policies and regulations local to the participating agencies.

J. Afarin asked what the Architecture Support is architecting specifically that is not already covered by the Space Communications Cross Support document. P. Shames responded that the document attempts to describe the higher-level functions used in SOIS and MOIMs, which ride above the space link and cross support layers covering space link protocols, coding, etc…

P. Shames continued his presentation by discussing the SOIS Electronic Data Sheets (EDS) and MOIMS Message Abstraction Layer (MAL) specifications, noting that when combined, these two publications will allow you to translate various ideas into real world implementations, which is an interesting unintended feature of the two specifications. The SEA Area would like to create an implementation viewpoint publication that will provide an overview of these suites of software and how they can be used to translate various ideas into real world implementations.

In the SAWG WG, P. Shames noted that the WG had some resource issues due to extended absences of key NASA and ESA personnel, but that otherwise good progress has been made. The WG will publish a draft of its Architecture Review Document by November 2018.

P. Shames quickly noted that the D-DOR WG did not meet but reminded the CMC that the WG needs a chair, and reiterated the need for assistance in identifying that chairperson due to the small size of the WG (only three individuals).

Regarding the SSG, P. Shames noted that there are a number of resolutions in CMC poll that require CMC attention. He added that the SANA operator needs all of its Head of Delegation information, observer agency, liaisons, associates, etc., updated for importing into SANA. After the import is complete, he requests that the CMC review all of the information to ensure that it is accurate and up to date. P. Shames also discussed the need for the agency representatives to review approximately 107 Spacecraft IDs that were brought into SANA from the CCSDS Public Website, but which were not resident in the SANA prior to the linking of information between the CCSDS public website and the SANA website.

After reviewing a summary of all of the individual working groups information, P. Shames yielded the floor to questions.

*Questions for SEA*

J.M. Soula commented that, in regards to a request from the SEA AD for a chairman for the Time Transfer Birds of a Feather (BoF), this is not a requirement for starting a BoF. He notes that it is the responsibility of the CESG for a BoF, and if there is no chair/no progress from the CESG then there can be no issue.

M. di Giulio noted that the Timing Standards[TT, TS] in service catalogue 2 is identified as a priority but does not have agency participation in CCSDS. J.M. Soula responded that these should be removed from the service catalogue in IOAG if there is no interest. The CMC then continued to discuss whether or not these projects should remain in the ICPA, and M. di Giuio noted that this would come up again during the ICPA presentation (see below).

Y. Huang asked why everything in the SANA glossary is currently provisional, and if it would be updated. P. Shames responded that this is one of the actions currently making its way through polling to confirm everything in the glossary.

Regarding the D-DOR WG Chair position, T. Shigeta noted that the current JAXA participant of the D-DOR WG is unable to act as the WG chair due to other priorities in support of the Hyabusa-2 mission.

The CMC also held a long discussion on the increasing size/use case scenarios of the SANA registries. J. Afarin noted that the registries are continually growing, and that all of what is being requested to go into the registries does not make it clear that the information is required to be in the SANA as a necessity. As such, J. Afarin noted that the CMC should look deeper into understanding whether or not CCSDS requires the SANA registries for everything that is being requested. After further discussion, the CMC agreed to return to the topic during a special session during the CESG Extra Items presentation.

* 1. **Space Internetworking Services Area (SIS)** [[CESG Report to CMC](https://cwe.ccsds.org/cmc/Private/CMC%20Meeting%20Minutes%20and%20Presentations/2017%20Fall%20-%20Darmstadt/d03-CESG-Report-to-CMC%20Fall%202017.pptx) (slides 49-66)]

M. di Giulio provided an overview of the SIS area demographics and reviewed the executive summary of the individual WG accomplishments from the spring 2018 meetings.

M. di Giulio started by noting that only two working groups met during the spring 2018 meetings in SIS, those WGs were the DTN WG and the CFDP WG.

M. di Giulio started with the CFDP working group, noting that the WG is currently completing the drafting of its CFDP revised specification, but that there is still no clear commitment from any other agencies to complete the second prototype. M. di Giulio noted however that there is the possibility that the prototype may be completed by the Korean space agency (KARI), or possibly by CNSA whom is implementing the revised version of CFDP and may be able to complete interoperability testing as a part of its implementation. M. di Giulio added also that ESA would like to contribute to the testing, and that the Agency does not see any major impediments in doing so within the next year or so.

In the SIS DTN WG, M. di Giulio noted that the first draft of the new Real-Time Protocol over DTN for Video Applications was distributed within the WG in February, and that the WG hopes to conduct its first prototype testing by the fall of 2018. The WG will be meeting in Houston at the end of May to discuss its green book comments and added that the green book will be distributed to the WG in the fall. M. di Giulio also noted that the WG is discussing whether or not they should develop a best practices specification for using DTN. She continued by adding that the group is also discussing the First Hop/Last Hop services, known as the CCSDS Delivery Agent within the ICPA. CMC members then discussed the need for first hop/last hop services, and J.M. Soula added that this specification is likely to be reduced to a priority 3 project by the IOAG for 2022.

* 1. **Mission Operations and Information Management Services (MOIMS)** [[CESG Report to CMC](https://cwe.ccsds.org/cmc/Private/CMC%20Meeting%20Minutes%20and%20Presentations/2017%20Fall%20-%20Darmstadt/d03-CESG-Report-to-CMC%20Fall%202017.pptx) (slides 92-121)]

M. di Giulio provided an overview of the MOIMS area demographics and reviewed the executive summary of the WG accomplishments from the spring 2018 meetings. She noted that the Mission Planning and Scheduling (MP&S) WG was unable to meet on site at NIST and noted that this was an issue for the MP&S WG that should be rectified in planning future meetings. She stated that the WG is looking at proposing a set of standards for the Lunar Orbiting Platform – Gateway (the Gateway) and added that all the WGs in MOIMS feel that their work is relevant to the Gateway standards currently under development.

M. di Giulio then reviewed the detailed slides of the Data Archive Ingestion (DAI) WG, noting that the WG resolved 199 of 212 RIDS against its Open Archival Information System specification, and that the WG is making good progress in revising this specification.

On the MP&S WG, M. di Giulio added to her prior statements that the WG has focused their work on the development of their Mission Planning Information Model that is being developed using a UML syntax, while the group’s Mission Planning and Scheduling green book remains in the CTE queue for review at this time. S. Tafazoli asked why the book has taken so long to make it out of the CTE queue, and M. di Giulio responded that the book has actually since completed CTE review and was now with the CESG for polling. M. di Giulio continued reviewing the MP&S project, noting that there are no additional issues or forthcoming resolutions within the next six months.

M. di Giulio continued with a review of the Navigation (Nav) WG, noting that the WG does not assume that there is a need for unique standards just for the Gateway, but that they can use/adapt existing standards for use on the Gateway and the WG can fill any identified gaps on an as needed basis. M. di Giulio then reviewed the progress of the Nav WG.

In the SM&C WG, M. di Giulio discussed that the SM&C WG held a fruitful discussion with the NASA JSC Deputy PM for Avionics and Software for AES and the lead for AES architectures on how SM&C may be used to fill some of the gaps identified in the deep space interoperability standards. She noted that the WG will be submitting a white paper to the International Deep Space Standards group regarding the capabilities that can be provided, then provided a summary of the expected resolutions to be provided in the next six months, which includes the creation of 7 new projects and four regularly occurring 5-year revision projects.

Following the discussion of the overview of resolutions and issues for the MOIMS area overall, M. di Giulio briefly touched on the overlap between the Satellite Command and Control Message Specification (C2MS) and MO Services. The C2MS standard uses GMSEC as opposed to MO Services and the broader capabilities supplied by MO Services’ underlying framework. M. di Giulio noted that NASA representatives do not see an overlap between GMSEC and MO services, however, members from DLR, ESA, and CNES did see an overlap in a number of aspects of the services and have thus expressed their concern in the development of the OMG standard. As a result, they have tasked the MOIMS Area Director, as the OMG liaison, to identify the areas of overlap and to provide a technical note to the OMG on this overlap. M. di Giulio then reviewed the CCSDS-OMG liaison report, noting the current ongoing work of the OMG and the potential for collaboration between OMG and CCSDS.

*Questions for MOIMS*

No questions for M. di Giulio regarding the MOIMS presentation.

1. **Any Other Business**

T. Shigeta asked J. Afarin if he would be distributing his IOAG meeting presentation for the IOP prior to the discussion with the IOAG. J. Afarin responded that he would be provide it to everyone for their review prior to the meeting.

The CMC discussed the Agency reports and whether or not Agency reports would be provided at the next face to face CMC meeting in Berlin, Germany. It was agreed amongst the CMC members that they would not provide Agency reports, and that these reports would move with ISO reports during formal vs. informal meetings of the ISO. Thus, they will only be provided at the spring meetings of the CCSDS Management Council.

The CMC discussed holding the CMC meeting on the same day as the CESG meeting on Monday in Berlin. It was agreed it should be held after the CESG meeting and will begin on Tuesday after the Fall 2018 technical meetings.