# CMC Draft Minutes
# Spring 2017 Meetings
# St. Petersburg, Russia
# 13-16 June 2017

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

James Afarin, CCSDS Management Council (CMC) Chair, called the meeting to order at 0845h and welcomed everyone to the spring 2017 CMC meetings hosted by ROSCOSMOS in St. Petersburg, Russia.  J. Afarin initiated the roll call of delegates after the brief introduction and extended his thanks on behalf of all of CCSDS and the CMC to ROSCOSMOS for their excellent preparations and accommodations in hosting the spring 2017 CMC meetings.

### 2.      Roll Call of Delegates

Introductions followed. CMC Attendees were:

1.      ESA – Juan Miro, Nestor Peccia
2.      DLR – Osvaldo Peinado, Martin Pilgram
3.      JAXA – Tsutomu Shigeta
4.      NASA - Wallace Tai, Dr. James Afarin
5.      INPE - Eduardo Bergamini
6.      UKSA – Christopher Perry
7.      CNES - Jean-Marc Soula
8.      CSA – Siamak Tafazoli
9.      ASI – Not Present
10.     CNSA –Rusheng Zhang, Yonghui Huang
11.     ROSCOSMOS – Dmitry Barannikov, Vladimir Yanik, Anna Vasilenko
12.     Secretariat - David Ross

### 3.      Agenda Review and Approval (June 2017 CMC Agenda)

The CMC agenda was reviewed and approved with one addition to address the Mission Planning and Scheduling blue book.

### 4.      CESG Chair Report (CESG Report to CMC)

### 4.1      CESG Chair Introduction and Overview (CESG Report to CMC (slides 2-5))

N. Peccia provided an overview of the updated organizational charts and an overview of the number of publications produced during 2015 and 2016. N. Peccia briefly discussed the number of books being created in the near future including pink sheets, 5 year reviews and other CCSDS publication types. N. Peccia added that some working groups have not had any publications since 2015 and noted that the number of retired publications has increased thus decreasing the overall active publications counts.

### 4.2      Summary Meeting Statistics (CESG Report to CMC (slides 116-120))

Following the CESG chair introduction, N. Peccia provided a discussion of the CCSDS Technical Plenary meeting summary statistics. N. Peccia noted that the meeting statistics were nominal for a US held meeting, with approximately 25 fewer participants than the prior meeting. He added that this reduction in participation is driven by reduced meeting participants from CNSA, ROSCOSMOS and ESA due to the meeting location. N. Peccia pointed out that the participants per day remained nominal to prior meetings and that the Mission Operations and Information Management Services (MOIMS) and Space Link Services (SLS) areas remained the most popular areas in terms of attendance.

N. Peccia provided an overview of the number of rooms used and added that during the Fall meetings we will have 15 rooms over 4 days and that the WGs will need to work to accommodate this schedule when scheduling their meetings.

**4.3    CESG Fall 2017 Poll Statistics** ([CESG Report to CMC](#) (slides 111-115))

N. Peccia provided an overview of the CESG poll statistics since fall 2016. N. Peccia requested a bulk reconfirmation of the following publications:

- 301.0-B-4 Time Code Formats
- 644.0-B-3 The Data Description Language EAST Specification
- 645.0-G-1 EAST GB tutorial
- 646.0-G-1  EAST GB conventions
- 661.0-B-1 XFDU Structure and Construction Rules
- 651.0-M-1 Producer-Archive Interface  Methodology Abstract Standard
- 910.2-G-1 Standard Terminology, Conventions, and Methodology (TCM) for Defining Data Services
- 910.3-G-3 Cross Support Concept—Part 1: Space Link Extension Services
- 914.1-G-1 Space Link Extension—Application Program Interface for Transfer Services—Summary of Concept and Rationale
- 914.2-G-2 Space Link Extension—Application Program Interface for Transfer Services—Application Programmer's Guide
- 714.0-B-2 Space Communications Protocol Specification (SCPS)—Transport Protocol
- 121.0.B-2 Lossless Data Compression

N. Peccia further requested CMC resolution for the retirement of the following publications:

- 910.11-B-1 Space Communication Cross Support—Service Management—Service Specification
- 910.14-G-1 Space Communication Cross Support—Service Management—Operations Concept
- A31.0-G-1 Unique Identification of CCSDS Objects and Services

J. Afarin requested one day to review the list of requested publication reconfirmations and silverizations and the CMC agreed to return to the list the following day. Following the hiatus from the discussion, the CMC returned and agreed to approve all reconfirmations and silverizations requested.

*Resolution 2017-06-01:*
*The CMC resolves to approve the following 12 reconfirmations requested by the CESG:*
- *301.0-B-4 Time Code Formats*
- *644.0-B-3 The Data Description Language EAST Specification*
- *645.0-G-1 EAST GB tutorial*
- *646.0-G-1  EAST GB conventions*
- *661.0-B-1 XFDU Structure and Construction Rules*
- *651.0-M-1 Producer-Archive Interface  Methodology Abstract Standard*
- *910.2-G-1 Standard Terminology, Conventions, and Methodology (TCM) for Defining Data Services*
- *910.3-G-3 Cross Support Concept—Part 1: Space Link Extension Services*
- *914.1-G-1 Space Link Extension—Application Program Interface for Transfer Services—Summary of Concept and Rationale*
- *914.2-G-2 Space Link Extension—Application Program Interface for Transfer Services—Application Programmer's Guide*
- *714.0-B-2 Space Communications Protocol Specification (SCPS)—Transport Protocol*
- *121.0.B-2 Lossless Data Compression*

*Resolution 2017-06-02:*
*The CMC resolves to approve the request to make silver the following 3 publications requested by the CESG:*
- *910.11-B-1 Space Communication Cross Support—Service Management—Service Specification*
- *910.14-G-1 Space Communication Cross Support—Service Management—Operations Concept*
- *A31.0-G-1 Unique Identification of CCSDS Objects and Services*

**4.4     Systems Engineering Area Overview (SEA)** ([CESG Report to CMC](#) (slides 6-22))

P. Shames provided an overview of the SEA WG meeting statistics and reviewed the executive summary of the SEA working groups during the spring 2017 technical meetings. P. Shames noted that the Delta Differential One Way Ranging (D-DOR) publications were making progress, however, due to issues with the Registry Management Policy they were slightly delayed, adding that those issues have since been resolved. P. Shames noted that the area overall had a good meeting and that the Systems Architecture Working Group (SAWG) made good progress on the application and support architecture despite resource confliction during the spring meetings. P. Shames further added that the implementation of the revised SANA architecture has been completed at this time. P. Shames then provided a detailed overview of each of the working groups' work. P. Shames indicated the Security WG is working on key management and are revisiting the interconnection guide. The security WG is also working on a set of security credentials and network layer security. The group ran into issues with their last network layer security test due to firewall issues. J. Afarin added that this is now going to be worked by the Glenn Research Center (GRC) at NASA. P. Shames noted that the Security WG has concerns with the IOAG service catalogue and its lack of inclusion about security criteria in its current draft version. J. Afarin asked if there was anything that could be done to address this and N. Peccia noted that this would be discussed during the IOAG/ICPA discussion (see below). P. Shames continued with his overview of D-DOR, as previously mentioned, he reiterated there were some delays due to the Registry Management Policy. P. Shames continued with a review of the Systems Architecture WG (SAWG). He added that the group is making good progress and provided a review of the SOIS Electronic Data Sheets (EDS) against the MOIMS Message Abstraction Layer and noted that there were some overlaps but that those overlaps were not problematic. P. Shames added that the WG met with SOIS, MOIMS and the DAI WGs during the technical meetings. P. Shames added that the SEA SAWG is currently working to reconcile a challenge with the retirement of some key documents with their current application layer architecture publication.

*Questions for SEA*

O. Peinado asked about the login on the SANA website and if using a login you would be able to change a registry. P. Shames responded that to make changes to the SANA registries one must still send an email to the SANA operator.

J. Afarin asked if SEA has received any industry input on the Systems Architecture being developed, or any input from ISO TC 20 SC 14. P. Shames noted that right now the only participants have been government sponsored. Regarding participation with ISO TC 20 SC 14, P. Shames added that as a part of the WG charter there is a collaborative effort to expand the RASDS document to space data systems and using the RASDS from SC 14 as the methodology for describing the architecture. No work has been completed yet to extend RASDS though.

J. Afarin asked if the retirement of certain publications affecting SEA work was a timing situation or a lack of content. P. Shames responded that it's not just timing, but also related to how the WG defines how the pieces that were retired fit together with the architecture being developed. As such, the WG has had discussions with the SOIS WG about what should be done to address gaps in the future.

J. Miro asked what the restructuring of the SOIS was about. P. Shames added that he brought up (during his presentation) the restructuring of SOIS to ensure everyone is aware of what is happening. From the SEA point of view, it is a direct impact to progress made on the Systems Architecture document, because SOIS fundamentally had two sets of standards, some application layer support services and some subnetwork services, which are the lower level services. They retained the subnet services, but basically retired the application layer services, which were things like device discovery, data pooling, etc… These were described in a very abstract and abbreviated form in the retired documents, so they did not want to carry these as abstract services. The new things that SOIS is working on, which is the EDS and the Definition of Terms is a very powerful new feature but the Area is still in the process of fully defining how they want to use these and to determine how it can be used to do the things that these other services were intended to provide. The gap for the SEA is due to what can be done in describing existing application layer services.

J. Miro asked P. Shames what he thought should be done, from the SEA standpoint for SOIS. P. Shames responded that the Agencies should continue to provide resources. J. Miro added that his second question was in regards to resources and that they could be discussed during day 2 of the meetings.

M. Pilgram asked what the action on data quality is regarding the SANA work. P. Shames responded that this is to update stale data that currently resides in the old registries. For example, retired points of contact/points of contact that are no longer applicable.

## 4.3    Cross Support Services Area (CSS) ([CESG Report to CMC](#) (slides 23-32))

E. Barkley provided an overview of the CSS WG meeting statistics and reviewed the executive summary of the CSS working groups during the spring 2017 technical meetings. He noted that the goals of the meeting were to get the CSTS framework book published and to get the monitored data specification published, both of which were accomplished. E. Barkley added that the Tracking Data specification has gone to the Secretariat for red-1 agency review. E. Barkley added that there was an issue with a lack of a standard profile for forwarding AOS frames, so the CSSM WG is currently working through what to do regarding this issue. He continued by reviewing the achievements of the CSSM WG and added that the WG was able to reconcile the Service Management Utilization Request Format (SMURF) specification with the reconfiguration profile and event sequence revisions. E. Barkley noted that the area had multiple area level presentations to the WG chairs to discuss the functional resources model. He then reviewed the executive summary for the CSTS WG and noted that the CSTS WG chair will be stepping down at the beginning of 2018. E. Barkley added that he will send a request to the CMC for nominees so that anyone whom wants to nominate a candidate has the opportunity to do so. E. Barkley noted that there is no standards specification regarding proper coding/sync/modulation options for forwarding AOS frames for FF-CSTS. Something to consider is that AOS is really not reliant on CSTS which merges frames to sync an uplink. So the question is, does the CMC wish to charter a project on AOS uplink in the future/will AOS be truly cross supported? The CMC discusses this later in detail and agrees to take an action item regarding the need for cross support for AOS uplink in the future. E. Barkely continued with his review of the area and added that a technical note will be coming regarding the CSTS control architecture discussion. He added that there was one problem/issue regarding the PIF structuring not working well between agencies, so the area has identified an approach to resolve the issue but that it is hampering progress. E. Barkley also noted slower progress on the simple schedule format specification due to a second agency review.

*Questions for CSS*

J. Afarin asked about the AOS resources and N. Peccia responded that he had some charts regarding the issue and that it is an inter-area issue. N. Peccia added that he was not aware of two different agencies that would use the AOS uplink.

P. Shames pointed out that Forward Frame CSTS service should be intended to support USLP as well, not just AOS.

J. Afarin added to this that Forward Frame is important for NASA. Gian Paolo Calzolari added that from the SLS area perspective, they don't have specifications for uplink of AOS or USLP frames from the CSS area.

**AI-CMC-A-2017-06-01 The CMC requests that all CMC Members identify what their agencies need for cross support for AOS uplink in the future.**

M. Pilgram asked if the identified 3 new books from the CSS presentation will be moved to the draft projects for tracking by the CMC. N. Peccia responded that these are already draft projects. O. Peinado added that the list of draft projects is not the full list of draft projects, as there are other draft projects being listed that are not on the CWE and that the current draft projects list also does not include 5 year reviews.

J. Miro noted that the CMC heard about Delta DOR service Management specification and was wondering if this is something inside of the Area of which is being worked with CSSM? E. Barkley responded that this is a project that is currently in progress. The CSS area has identified a good approach going forward and that approach has to do with a ground option sequence that the DDOR WG will supply to the CSS area. J. Miro followed up asking if there was a new draft project to manage the service for DDOR. E. Barkley responded No, not at this time. N. Peccia added that the DDOR service is a part of Service Catalogue 1 from the IOAG.

## 4.4    Space Internetworking Services Area (SIS) ([CESG Report to CMC](#) (slides 33-51))

Scott Burleigh provided an overview of the SIS area demographics and reviewed the executive summary of the WG accomplishments from the spring 2017 meetings. S. Burleigh noted that the CFDP WG finished their work and are awaiting a second implementation of the CFDP revisions, however, they are unable to proceed due to a lack of

resources. Internally to the WG, S. Burleigh added that there has been some discussion that GSFC may be able to take this on by modifying one of their implementations – but there is no firm commitment at this time.

S. Burleigh continued with a review of the Voice WG achievements; indicating a minor technical error occurred during the delivery of Review Item Discrepancies (RIDs) to the WG chair. S. Burleigh concluded that the RIDs were ultimately received and adjudicated by the WG during the spring meetings in San Antonio, TX. Regarding the MIA WG, S. Burleigh indicated the WG reviewed and approved updated text for their green book and identified a potential need for RTP Configuration Protocol blue book. S. Burleigh noted that the RTP blue book may be included as a proposal to expand the charter to include the new project. Further resolutions are anticipated within the area to initiate the blue book for the configuration profile. S. Burleigh continued by reviewing the work of the DTN WG, indicating there is a white book in progress for schedule aware bundled routing. S. Burleigh added that the WG has been very active for a couple of months with involvement from JAXA, DLR and a number of other space agencies. S. Burleigh also noted the potential need for an additional project to develop a bundle protocol binding for SM&C MAL. The additional binding would make it easier to deploy MAL over planetary distances.

*Questions for SIS*

J. Afarin, regarding interoperability testing for CFDP, does the WG has a first implementation? S. Burleigh, responded that yes, the ion implementation has the changes required incorporated and the WG is awaiting another implementation to test against. N. Peccia added that ESA is identified as the second resource. J. Miro that ESA was unable to commit resources for this year due to reduced funding for standards in the technical directorate.

**4.5 Space Link Services Area (SLS)** (CESG Report to CMC (slides 52-76))

Gian Paolo Calzolari provided an overview of the SLS area demographics and reviewed the executive summary of the WG accomplishments from the spring 2017 meetings. G. Calzolari noted that the optical working group has finalized two red books for the physical layer and coding and synchronization for the high photon efficiency scenarios (HPE). The WG also reviewed planned schedules for the atmospheric characterization and forecasting for optical link operations magenta book.

The Radio Frequency and Modulation WG completed an agency review of two recommendations and agreed to add an additional section on the Gaussian Minimum Shift Keying (GMSK) telemetry and Pseudo Noise Ranging book since its CESG poll. Further, it was noted that agency review will begin to address updates to the bandwidth efficient modulations green book in the near future. G. Calzolari added that the Area is reviewing a possible new recommendation on Multiple Spacecraft per Antenna (MSPA) and telemetry and ranging, and is also considering spread spectrum modulations for direct earth-space links as presented by the aerospace corporation. The Radio Frequency and Modulation (RF&Mod) WG also resolved to silverize publication 401.0-B (2.1.8A/B). G. Calzolari noted a new goal for the RF and Modulation WG charter will be added to develop higher order modulation recommendations for space research missions in the 8450 to 8500 MHz band based on current earth exploration satellites.

G. Calzolari reviewed the coding and synchronization (C&S) WG, adding that the WG completed two reviews for sliced Low Density Parity Check (LDPC) coding and short LDPC for Telemetry Command (TC). The WG also concluded an agency review for variable coding and modulation magenta book. The Space Link Protocols (SLP) WG, started reconfirmation of their IP over CCSDS publication and will finalize the reconfirmation or update the specification during the fall 2017 meetings. RIDs against the USLP red-2 specification were resolved during the working meetings, and due to changes to Unified Space Link Protocol (USLP) specification, a red-3 version is being generated; G. Calzolari expects that this will be the final agency review of the USLP specification.

G. Calzolari added that the Space Data Link Security (SDLS) WG finalized its green book on core procedures, and is investigating a physical layer security standard. The WG's extended procedures is also completed and prepared for agency review number 1 (red-1).

The Multispectral Hyperspectral Data Compression WG has two publications ready for publication polling (CCSDS-122.1-B-2 and CCSDS-122.0-B-2). The WG also agreed to reconfirm CCSDS-121.0-B-2. The WG will be discussing in the future possible standardization of ESA's POCKET+ compressor for spacecraft telemetry housekeeping data.

*Questions for SLS*

J. Miro asked G. Calzolari to elaborate on the time transfer standard issue that was briefly covered during the SLS presentation. G. Calzolari responded that idea is that the users should be coordinating with the engineering area and the SLS area will provide services as needed. This is related to the time services architecture in the engineering area. The point is to transfer timing not just from point to point but also in more complex systems. As such, the idea is that the engineering area should take the lead with this specification, but the project is only just beginning to be reviewed.

J. Afarin asked whom presented from Aerospace Corporation. G. Calzolari responded that Donald Olsen from Aerospace Corporation provided the input to the RF&Mod WG. He added that D. Olsen is a regular contributor to the RF&Mod WG.

J. Afarin requested information on 26 GHz modulations, asking if the WG has input to IOAG. G. Calzolari responded that yes they have input and the two groups are also working on VCM and will also be working on Adaptive Coding and Modulation (ACM) as needed.

J. Afarin asked about the RF&Modulation 401 blue book, noting that the book collects all the recommendations for both modulation support and ITU compliance for spectrum, but noticed that after fifteen years progress continues against this specification. He was wondering if there is a set end date for this specification. G. Calzolari responded that this publication is a special case, as it has not idled for ten years since its reconfirmation date, but the WG has been very active updating the book. The book is currently at issue 26 or issue 27 and whenever the WG adds one or two recommendations the publication is provided a new issue number with the updates.

**4.6 Mission Operations and Information Management Services Area (MOIMS)** (CESG Report to CMC (slides 77-99))

Mario Merri provided an overview of the MOIMS area demographics and reviewed the executive summary of the WG accomplishments from the spring 2017 meetings. M Merri added that the Telerobotics WG has not met due to its dormant state, but added that there is still some possible interest from DLR and Canada. M. Merri added that there are globally many forthcoming telerobotic missions, and that he believes this area deserves should not remain dormant.

M. Merri reviewed the Data Archive Ingestion (DAI) WG accomplishments, noting that the WG went through a period of low momentum but now is seeing increased activity in discussions of their future DAI archive architecture. The group has also been working on RIDs against its OAIS specification updates. The book is being reviewed by the ISO community and then RIDS will be addressed at the CCSDS level. The Data Entity Dictionary Specification Language (DEDSL) XML schema has also been agreed upon within the WG to go forward with an orange book for publication. M. Merri also added that the WG is very active in discussions with other WGs including the SEA and Spacecraft Monitor and Control (SM&C) WG. M. Merri added that in the next six months there will be a resolution to update the DAI WG charter regarding the future architecture and specifications to be developed by the WG.

M. Merri continued with his review of the Mission Planning and Scheduling (MP&S) WG. The WG has completed their green book and delivered the specification to the AD. The WG also reviewed the Table of Contents of the blue book and agreed to the contents of the blue book specification. Currently the WG is working on prototyping options and developing a draft outline of the mission planning informational model. M. Merri noted that the working group has very strong momentum and active international participation.

M. Merri then reviewed the Navigation, noting to start that this WG along with MP&S also has very strong momentum with active international participation. The WG completed the internal WG review of revisions to the Orbital Data Message, Attitude Data Message, Tracking Data Message and Navigation Data Definitions and Conventions specifications. The WG has also converged on the latest draft of the Re-entry Data Message specification. The group also discussed development of an orange book for the navigation hardware message specification. M. Merri noted that the WG previously experienced some delays as it migrated annexes of some its books to the SANA registries, but those items have been resolved.

The Area Director continued his review by providing an overview of the Spacecraft Monitor and Control WG. M. Merri noted that the WG is very active with 8 documents currently in the review cycle and one specification currently under development. M. Merri noted that the WG Chair broke the SM&C WG into four groups for one day to come up

with different mission operations scenarios and the exercise was well received by the WG. Part of what came out of the scenario building will be reflected in the green book update. NASA agreed to evaluate functional MO services and their associated data change formats and dependencies against simple interoperability scenarios. The WG also expressed interest in working with the Systems Engineering Area in their time services specification development.

*Questions for MOIMS*

J. Afarin asked what color the Information Preparation to Enable Long Term Use (IPELTU) specification is. M. Merri responded that it is a magenta book.

J. Miro noted that if you read the charter of the SM&C WG, one of the proposed services is called Time Services, so the idea was already there to produce a specification on how missions control from the ground the time onboard the spacecraft, or how does the mission cross correlate the time and/or synchronize that information. Is this type of time services related to the proposed Systems Engineering Area work? M. Merri responded that yes, they are related, but that it makes sense to have leadership of the whole project under the SEA so that they can coordinate (as the lead) with both SLS and MOIMS as well.

**4.7  Spacecraft Onboard Interface Services Area (SOIS)** (CESG Report to CMC (slides 100-110))

Jonathan Wilmot provided an overview of the SOIS area demographics and reviewed the executive summary of the WG accomplishments from the spring 2017 meetings. J. Wilmot noted that the SOIS subnetworking (SUBNET) and Application Support Services (APP) WGs met together for the duration of the week. J. Wilmot added that the APP WG has developed consensus on the layering diagram for the overall SOIS architecture and also achieved consensus from the SEA that the WG is on the right track with the architecture development. The area also completed their plan for SOIS Electronic Data Sheets (EDS) infusion at NASA and for prototyping activities at ESA. Problems within the area regarding prototyping for FY 17 the area believes will be relieved by expected fiscal year 18 funding. The SUBNET WG also achieved consensus to extend the EDS to include subnetwork topology and timing, particularly related to the Orion crew vehicle and habitat, with ESA collaborating.

J. Wilmot noted that the wireless working group (WWG) completed the RFID tag encoding blue book and also identified an orange book for a NASA exploration wireless network for mission communications support. The WWG also met with the SIS Motion Imagery Applications WG to discuss video streaming over wireless networks. J. Wilmot added that the biggest issue with the WWG is to determine the path forward for the work of the WG.

Regarding the SUBNET working group, J. Wilmot noted that the working group would like the networking timing and topology in the SOIS EDS (SEDS). This is based on time triggered networks. J. Wilmot also noted that the WG reviewed the packet service recommendations for its five year review, adding that packet services will be used as an interface with SEDS. The WG is also currently developing a plan for four forthcoming five year revisions on: Subnetwork Memory Access Service, Subnetwork Synchronization Service, Subnetwork Device Discovery Service and Subnetwork Test Service. Following the completion of an analysis of possible overlap between the CCSDS MAL and SOIS EDS relationships, the WG plans to draft a yellow book report to discuss the findings of the analysis.

*Questions for SOIS*

None.

**5        Mission Planning and Scheduling Working Group Blue Book Issue** (CESG Report to CMC Extra Items (slides 3-6))

N. Peccia provided an overview of the requested resolution from the WG to have the CMC resolve to approve a single blue book be published by the MP&S WG. N. Peccia pointed out that the current WG charter calls for a single publication as it is currently drafted.

J. Afarin asked why the book was requested to be separated by the Systems Engineering Area Director. The CESG responded that the request is to separate the formats from the service definition. You can get implementation of the format without the service implementation. If you separate the two, then the implementation according to the format standard does not need to be dependent or wait for the service specification.

J. Miro asked why this is a matter for the CCSDS Management Council, as the WG has a project plan with an approved charter, why would a decision need to be made by the CMC to separate the book or to leave it as a single book. J. Miro noted that if books are broken into two separate books, then it will take additional resources to complete the specification and more time for polling, technical editing etc… N. Peccia added that if you do the format first, then you do not have to wait for the service specification. J. Miro responded, by asking why the group could not just do the format first then in issue 2 add the service specification then. J. Miro continued by noting that the document is currently approved and that it may be separated enough or formulated enough that you can use the data format without the service specifications. However, splitting the document into two books will introduce delay and double the resources.

O. Peinado agreed that the WG chair has been working to an approved project and it does not make sense to split this into two books.

J. Afarin asked if there was any mission requirements that required splitting the book so that the format would be available sooner than the service specification. W. Tai noted that he was not aware of any missions requiring the format as a standalone publication at this time.

*Resolution 2017-06-03:*
*The CMC resolves that, after having reviewed the MP&S proposal for developing one blue book that it agrees with the approach to develop one blue book as stated in the charter and the current blue book project instead of dividing the book into separate projects.*

**6      DAI WG White Paper** (CESG Report to CMC Extra Items (slides 7-9))

J. Miro initiated the discussion by noting that the CMC's objective should be to determine how they will address DAI's requests for recognition by the CCSDS Management Council. J. Afarin added that he does not believe that NASA can adopt this new project, because NASA has already invested in its own internal standards and the introduction of this standard will inevitably commit further resources for an alternative standard.

J. Miro noted that ESA has not been funding DAI itself, but realizes the importance of long term data preservation. He added that the work fits well with ESA's strategy for long term data preservation. J. Miro continued that the contemplation, from his perspective, is to determine the ability to fund or partly fund and to support the activities of the DAI WG. He noted that the WG still has work to be completed to present a project and plan for execution. However, the need for the CMC is to answer whether the CMC would like to support the resolution proposed by the WG. ESA, he added, is prepared to confirm the resolution to the CMC.

N. Peccia added that the project will require a parallel review, because the document is likely to receive many additional RIDS from the other communities involved in ISO data archiving initiatives. As such, it makes sense for this document to be reviewed by the larger community at the same time as it is reviewed by the CCSDS Community. J. Miro agreed and added that this work adds additional relevance to the CCSDS outside of the space community.

J. Afarin asked why the CMC should approve this and commit the resources of external organizations that are out of the control of the CCSDS community. He noted that the resources to review this standards are de facto committing resources within NASA and other standard bodies globally. As such, he felt that there should be changes to some of the wording of the resolution.

J.M. Soula noted that CNES has no problem to endorse the resolution and already has individuals active in the WG. He added that the WGs publications that are developed are already largely supported by CNES whom provided chairmanship and editorial resources in the past. J.M. Soula added that CNES cannot commit resources in the short-term, but given that the plan must still be consolidated, he believes the CMC should support the WG's initiative to move forward and produce a plan to work with ISO.

E. Bergamini added that INPE supports this initiative and expressed his confidence that the WG is highly capable of completing a project of this scope. He mentioned that, for instance, the WG related OAIS document, as far as he knows has been, by far, the most widely recognized publication of CCSDS, worldwide, in view of the importance of this subject for guaranteeing durable, convergent and portable archiving of information among a very wide and important variety of Archives, over the world. Therefore, the importance of the work being proposed by the DAI WG tend to have an increasing, positive impact for use in space data systems, to the extent cross-support among

information systems of different agencies and space mission stakeholders may concretely and effectively be under consideration among them.

T. Shigeta added that while JAXA is not currently active in this WG, there is no reason to object to the proposed resolution since the circumstance has not changed from the previous discussion and that this project has a potential to promote application of CCSDS standards by the ISO community.

S. Tafazoli added that CSA is supportive of the resolution but cannot commit resources. S. Tafazoli agreed with NASA that the wording could be addressed for changes.

D. Barannikov noted that ROSCOSMOS has only one expert monitoring the WGs activities, but cannot commit further resources. ROSCOSMOS added that they otherwise support the work proposed by the WG.

J. Miro stated that ESA supports the work and will plan to provide some resources, but cannot comment on the specific resources to be provided at this time.

The CMC then went on to discuss the text of the resolution as proposed. J. Miro agreed to provide revised text to the resolution for review by the CMC. The revised text was reviewed on the following day.

The CMC agreed to remove all requested actions from the DAI WG.

On the following day the CMC agreed to the following resolution:

***Resolution 2017-06-04***

> (1) **The CMC recognizes the notional architecture as proposed by the DAI WG as a good basis for planning DAI's future work in the digital archive arena.**
> (2) **The CMC recognizes that for the work of the Digital Archive Ingest Working Group, it is important to interact with a community larger than the nominal CCSDS space agencies and for the ISO participation to be encouraged during the CCSDS Agency Review phase, in order to avoid extensive delays and rework in later ISO review phases. The CMC therefore resolves to express support for the inclusion of the ISO community in such review.**

## 7.      Agency Reports on other activities

**7.1** ASI **–** Not Present

### 7.2      JAXA (**JAXA Agency Report**)
T. Shigeta provided the JAXA agency report to the CMC. T. Shigeta also provided an additional overview of the revised JAXA CCSDS website.

### 7.3      NASA (**NASA Agency Report**)
J. Afarin provided the NASA agency report to the CMC.

### 7.4      INPE (**INPE Agency Report**)
E. Bergamini provided the INPE agency report to the CMC.

### 7.5      ROSCOSMOS (**ROSCOSMOS Agency Report**)
D. Barannikov provided the ROSCOSMOS agency report to the CMC. D. Barannikov also provided to the CMC an overview of the standards approval process and added that it would be useful if all WG chairs produced draft documents that were available on the private portion of the CWE.

### 7.6      ESA (**ESA Agency Report**)
J. Miro provided the ESA agency report to the CMC.

### 7.7      DLR (**DLR Agency Report**)
O. Peinado provided the DLR agency report to the CMC.

**7.8     CSA ([CSA Agency Report](#))**
S. Tafazoli provided the CSA agency report to the CMC.

**7.9     CNSA ([CNSA Agency Report](#))**
R. Zhang provided the CNSA agency report to the CMC.

**7.10    CNES ([CNES Agency Report](#))**
J.M. Soula provided the CNES agency report to the CMC.

**7.11    UKSA ([UKSA Agency Report](#))**
C. Perry provided the UKSA agency report to the CMC.

**10.    SIS/SOIS Future** ([CESG Report to CMC Extra Items](#) (slides 17-18))

N. Peccia provided the CESG chair view that the SIS Voice WG, SIS MIA and SIS CFDP WG's have limited work remaining and that the SIS DTN WG is the only remaining SIS WG with significant projects remaining. N. Peccia added that the SOIS WGs have similarly limited work remaining in their WGs, particularly the WWG. As such, N. Peccia opened the discussion to the CMC that the CESG and CMC should discuss in the next four months, possibly during the fall 2017 meetings, what should be done to re-organize CCSDS to accommodate shrinking projects/workloads in the SOIS and SIS areas.

The CMC discussed and agreed that this topic should be further discussed at the fall 2017 CMC meetings in Darmstadt, Germany.

**AI-CMC-A-2017-06-01 The CMC instructs the Secretariat to add as an agenda topic for the Fall CMC Meeting the consolidation of the SOIS and SIS programs of work.**

**11.    Yellow Book Procedures Update** ([CESG Report to CMC Extra Items](#) (slides 10-17))

**11.1    CCSDS Liaisons** ([CESG Report to CMC Extra Items](#) (slides 13-15))

The CMC reviewed proposed changes to the CCSDS liaisons text. M. Pilgram asked if the liaison must always be a part of the CESG or if they could be a CMC member as well. J. Afarin responded that the pool of people is not limited to the CESG, so long as the CMC approves of the individual they may be a WG attendee, CESG member or CMC member.

The CMC also discussed reporting requirements to the CMC. J.M. Soula noted that reporting should be 'as required', meaning that only where there are noted areas of overlap that should be addressed. J. Miro agreed, but added that the report can be that there is 'nothing of note to report' if there is no overlap detected; otherwise the report itself will allow issues of importance to be brought forward to the CMC and can be filtered by the CESG.

The CMC discussed the proposed language and made changes to the proposed liaisons text.

*/\*The following CCSDS Action regarding liaison points of contact was produced during the morning ISO TC 20 SC 13 50th Plenary Meeting\*/*

**CMC-A-2017-06-06**
**The CMC instructs the Secretariat to remove the Liaison from the following Organizations that do not have a CCSDS point of contact:**
   **CEOS**
   **COSPAR**
   **ISPRS**
   **ISO/IEC JTC 1 SC 2**
   **NISO**
   **NTSI**
   **WMO**

**The CMC also instructs the Secretariat to add the following:**

**ISO/IEC JTC 1/ SC 29 Liaison with CCSDS POC Rodney Grubbs as the Liaison with ISO Liaison Shinji Watanabe**
**OMG Liaison Mario Merri with Steven MacLaird (OMG)**


**11.2    WG Member and WG Information Mailing Lists** (CESG Report to CMC Extra Items (slides 11-12))

The CMC discussed the proposed yellow book updates regarding working group membership and working informational mailing lists. N. Peccia noted that the WG chairs must clean their WG mailing lists and added that CCSDS should cross check its membership in working group mailing lists against CWE membership. N. Peccia added that there are reasonable situations where an individual may be a part of a WG mailing list and not in the CWE, but those accounts should be noted.

**CMC-A-2017-06-03 The CMC instructs the Secretariat to cross check all Working Group Mailing Lists members against the CWE user list and report result to the CMC.**

The CMC continued the discussion addressing access to the CWE.

**CMC-A-2017-06-04 The CMC instructs the Secretariat to check whether an individual with a CWE account can access the private areas of a Working Group.**

> *Response: CWE users are provided read only access to all private areas of the CWE. For the WGs that users are registered for within the CWE though, they are provided with read/write access.*

**CMC-A-2017-06-05 The CMC asks the CESG Chair, Nestor Peccia, to remind all Working Group Chairs to clean their Mailing Lists of extraneous members.**

**11.3    Chief Technical Editor (CTE) text changes** (CESG Report to CMC Extra Items (slide 16))

The CMC reviewed changes to the yellow book procedures regarding notice of the Chief Technical Editors priorities. D. Ross added that the priorities are managed by the CTE in a known manner and also in a manner such that the WGs are able to continue their work at the biennial technical meetings. D. Ross added that it did not seem appropriate to add to the procedures a methodology/prescription, as is the intent of the yellow book, for determining the work performed by the CCSDS Technical Editor.

J. Afarin suggested working with the CTE to provided added text for the process to be added to the procedures.

**CMC-A-2017-06-07 The CMC instructs the Secretariat to provide updated Yellow Book text to the CESG.**

**CMC-A-2017-06-11**
**The CMC instructs the Secretariat to provide Yellow Book text regarding a notation on the expected priorities of the CCSDS Technical Editor**

**12.    Agency Report on Priorities** (Draft Projects)

O. Peinado briefly provided an overview of the changes to the overall picture of the agency priorities, noting that there were no changes. O. Peinado also added that there are numerous projects that were discussed that were not in the draft projects list at the time of the meeting.

The CMC discussed the need to review the list and add projects/remove projects from the list as required and to also revise the priorities as needed.

J. Afarin asked if there was still value in updating this on a biennial basis. J.M. Soula asked if perhaps it should not be updated once every other year. J. Miro added that he believed it makes sense to keep updating the priorities on a biennial basis, as it provides a good method for keeping track of priorities and projects that come up for approval. The CMC then discussed further the value of the document and came to agreement that it is valuable for maintaining open lines of communications on agency priorities. The CMC discussed and agreed it should be updated once per annum.

N. Peccia added that some draft project priorities are only draft projects very briefly because the projects quickly obtain resources and become approved projects in the WGs.

**13.      Resource Topics** (CESG Report to CMC Extra Items (slides 19-23))

**13.1      CESG report on resources status (projects with issues)** (CESG Report to CMC Extra Items (slide 23))

N. Peccia presented the resource topics and noted that there are 22 WG chairs and 19 deputies along with 6 Area Directors and 6 Deputy Area Directors. N. Peccia noted the breakout of leadership by agencies and noted the high number of positions held by NASA and ESA particularly. N. Peccia continued to review the expected resources to be deployed for current projects and those for future years. Issues specifically addressed by N. Peccia included, CFDP prototyping resources could not be supplied by ESA, Navigation Hardware Message does not have prototype 2 resources, and XML specification for EDS does not have resources granted by ESA.

J. Afarin asked what measures ESA could take to prioritize some of the resource constraints. J. Miro responded that ESA can ask, however, the funding comes from the technical directorate and the budget is out of his control (in the Operations Directorate). So due to the budget reductions, the items addressed had to be reduced. J. Miro agreed to take the message to ESA.

J. Afarin asked how long should the CCSDS wait for resources to be applied for the CFDP project before the WG be disbanded. N. Peccia stated that ESA is currently working to recover the old version of the CFDP software and will then see if it is able to produce the changes required for the prototype 2. Regarding EDS, it was added that there is a technology study starting to review the specification, but nothing can be done for the next 6 to 7 months.

**13.2      New work items within 6 months** (CESG Report to CMC Extra Items (slides 24-26))

N. Peccia provided an overview of the new work items in the next six months as proposed by the CCSDS areas. N. Peccia noted that there are close to 30 documents whose reconfirmation or retirement is in the past, which is why the CESG has reconfirmed the previously resolved 12 reconfirmations and 3 transitions to silver status. He added that the remaining new work items, for projects that have not yet been approved, require significant resources, approximately 178 work months (WMs) of resources between 2017 and 2020.

J. Miro asked how does this fit in with the agency priorities previously presented by O. Peinado. N. Peccia added that this will be discussed with O. Peinado, but some of the identified projects are already draft projects, while others are not draft projects because they are ideas that arrived in the last meeting, for example the RTP configuration protocol specification.

The CMC then held a brief discussion on the possibilities of other agencies, besides the prime contributors, to possibly provide resources to commit to some of the listed projects. C. Perry asked if there are other external routes from the Agencies for funding. N. Peccia and J. Miro responded that this has already been pursued, for example through GSTP.

Following further discussion, the CMC discussed the overall value of the standards development process to include other agencies. The CMC agreed that the opinions and technical expertise provided by the international agencies through their participation in WG reviews and work is of high value during the development of a standard, even when that agencies' resources not being deployed for an editor or prototype.

The CMC then briefly held a discussion of prioritization within the agencies, with NASA and ESA in particular sharing how resource prioritization occurs within the working groups and back to the agencies.

**14.      CESG poll conditions & AD responsibilities/technical quality of documents** (CESG Report to CMC Extra Items (slides 27-29))

N. Peccia provided an overview of the technical documentation process. N. Peccia noted that during the CESG meetings they discussed how to improve poll conditions to avoid comments that are introducing substantial changes to CCSDS specifications that are under development. N. Peccia provided an overview of the timeline of activities for a typical book, and noted specific areas for improving technical documentation quality as well as the timing of changes to reduce the time to produce a CCSDS specification while also increasing technical quality. N. Peccia added that over

the next six months he will review all of the conditions of document polls and return to the CMC and CESG with an idea of the types of discrepancies/conditions that are being raised.

J. Afarin asked what the CMC should anticipate doing with the information to be provided on the poll conditions. N. Peccia responded that it is for awareness as the technical quality of documents is a CESG task. However, the time to produce a standard is too long and it is not the time in the Working Group that is the primary driver, but the whole process itself, the working group, the agency review, chief technical editor review etc…

J. Afarin added that the Secretariat has added a junior technical editor to assist the chief technical editor, but to understand current priorities the CESG should contact the CTE for more information.

**15.** **Discussion of projects with disproportionate delays** (CESG Report to CMC Extra Items (slides 30-31))

N. Peccia provided an overview of projects with disproportionate delays. N. Peccia indicated that mainly those projects with disproportionate delays are driven by resource constraints; especially by individual experts being moved away from CCSDS to other positions.

**16.** **Update of omnibus specifications** (CESG Report to CMC Extra Items (slide 47))

N. Peccia reviewed the update of omnibus specifications, as reviewed by the SE Area Director. The documents identified are all documents that should be brought up to date to ensure alignment with the current evolving set of standards. The SEA identified the documents that must be modified and the CESG agreed that blue book and magenta book updates will be carried out during their normal 5 year review phases. The areas have the remaining action to check their green book reconfirmations.

J. Afarin asked if USLP makes a blue book and it requires a coding and synchronization update, how will that occur? N. Peccia responded that this update will occur during the 5-year review unless there is a requirement to update that book sooner; adding that this determination will be made by the WG.

**17.** **Overlap with OMG Standards** (CESG Report to CMC Extra Items (slides 32-37))

N. Peccia reviewed the CCSDS report on potential overlapping activities between CCSDS and the Object Management Group (OMG). The report on potential overlap was provided by the CCSDS liaison, M. Merri. Per the report, it was recommended that an OMG-CCSDS Memorandum of Understanding be drafted to ensure that any overlapping work between the two organizations be provided by the other organization as a matter of course.

J. Afarin suggested that no MOU is required for working with OMG, adding that there is no MOU with ISO except with ECSS. O. Peinado added that he does not believe there will be a difference in the relationship between OMG and CCSDS with or without the MOU. J. Miro added that the MOU will make a more formal avenue to obtain information from OMG. M. Pilgram added that the ECSS MOU states that ECSS will check with CCSDS when developing a new standard to determine the organizations interest. After further discussion of the need for an MOU, the CMC agreed that an MOU was not necessary to carry out the work between the CCSDS and OMG.

N. Peccia concluded by noting that the next CCSDS liaison report will be provided in six months.

**18.** **IOAG ICPA update** (CESG Report to CMC Extra Items (slides 38-41))

N. Peccia reviewed the IOAG ICPA update presentations. N. Peccia noted that IOAG Service Catalogue 1 (SC#1) was approved, and CCSDS has analyzed SC#1 and identified the services requested that do not have any associated approved or draft projects correlated in CCSDS. Those projects were listed in the presentation. N. Peccia added that CCSDS has asked the IOAG their need dates and to identify the priorities for the services they have identified. Further, N. Peccia noted that in Service Catalogue 2 (SC#2), time services have been included in the service catalogue by the IOAG, and as such, the SEA Birds of a Feather group (BoF) timing group will be resurrected with all Areas participating to provide this service specification for SC#2. The first meeting of the BoF is expected in the fall of 2017.

J. Afarin asked how the CCSDS is supposed to prioritize the IOAG extended services vs. CCSDS internal priorities. J. Miro also added that it should be clear that from the CCSDS stand point, CCSDS is the engineering organization and also has a much larger and broader understanding of duties. It is not an appendage of the IOAG.

N. Peccia responded that every WG and every area has a program of work and when a Service Catalogue arrives the Areas and WG's review the SC's and note whether the services are a new project or are already active projects that are being worked on. N. Peccia continued by noting that the WG may request from the IOAG their priorities for extended services and if they do not receive those priorities from the IOAG, then the CCSDS WG priorities will retain precedence.

J. Miro noted that about 50% of what is accomplished by CCSDS is driven naturally by IOAG needs while the remaining 50% is driven by the technical expertise and understanding of the technical requirements of the missions as identified by CCSDS as an engineering organization.

CMC members briefly discussed the needs of Forward Frame as a SC#2 extended service. J.M. Soula added that SC#2 is still under approval in the IOAG. What is not completed is to discuss priorities in the new documents and to again populate the ICPA. So we may again discuss with the IOAG on the priorities. J.M. Soula continued by adding that the IOAG discusses what they may need in the longer term and this information is then covered by the CCSDS vision, which may cover additional services that may or may not be covered or used in the service catalogue.

N. Peccia concluded that for the next IOAG meeting he will be presenting the viewgraphs from the CCSDS Management Council and will again ask the IOAG for their priorities and to identify missions needing cross support.

### 19. Joint IOAG/CMC Meeting (CESG Report to CMC Extra Items (slides 42-43))

The CMC discussed and developed a potential agenda for the joint CMC/IOAG meeting. J. Afarin noted the importance of the IOAG joint meeting in order to inform the IOP4 meeting and for the two meetings to be cognizant of one another's programs of work prior to the IOP4. J.M. Soula added that it will be important to identify any particular joint interactions that must occur prior to IOP4. In order to accommodate the three day meeting period with one day for the joint IOAG meeting, the CMC discussed and agreed upon the removal of the agency reports for the fall meetings to save time. The CMC also agreed to limit the overview of the areas to 6 executable summaries of the CCSDS areas to be presented by the CESG Chair without the Area Directors present. A revised version of the proposed schedule is located online on the CWE at the following location: IOAG Joint Schedule.

### 20. Commercial industry participation

The CMC discussed the participation of commercial providers involved in the CCSDS. C. Perry asked if commercial industry is going to put in resources to produce CCSDS standards, is there any issue with them having a say in what is happening (i.e. a vote on standards or priorities of the CCSDS). O. Peinado added that the DLR experience is that the commercial industry would like to participate, but would like funding to participate. J. Miro added that if commercial industry is to participate, it must be on their own budget and resources.

C. Perry, noted it should be agreed beforehand that all standards developed in the CCSDS process are public standards and the prototypes are public etc… J. Miro noted that the CCSDS must be careful in this regard due to intellectual property regulations. J. Miro added that the investment and development of CCSDS standards may be problematic due to the development of a preferential position for a single commercial entity. He noted though that the commercial industry for space is not only a future matter, but is something that is present and growing every year and that will grow even more in the future.

J. Afarin added that the CCSDS should encourage industry to participate as associate members and they can request participation from the relevant working group chairs for specific areas of interest. This allows the participants to be cognizant of what standards are developing, to submit RIDs etc…while will being a part of the Working Group.

N. Peccia responded that this is fine, but to encourage commercial participation is difficult because industry does not want to send its resources on travel for the technical meetings once every six months, they cannot afford to do so. J. Miro and J. Afarin agreed that this is an issue but cannot be addressed by the CCSDS or CMC.

O. Peinado noted that there has been increased participation and use of CCSDS standards, and added that even SpaceX is utilizing voice and video standards set by CCSDS for their falcon 9 voice and video downloads. T. Shigeta responded that the important part is that the commercial industry is using the standards and that this is secondary to their participation. J. Miro added that industry adoption of CCSDS would be better if the industry participants felt they had a role in creating the specifications themselves.  T. Shigeta added that Japan recently created a new space related low under which JAXA's role is stated as to support and encourage commercial industries and private institutions for their active participations in space activities.

S. Tafazoli asked if prototyping can be done through industrial contracts. J. Miro responded that ESA contracts all of their prototypes and that the prototypes are developed in accordance with the standard based upon the request from ESA.

J. Afarin asked how should the CMC contact the industry and invite them to participate in CCSDS. N. Peccia responded that we should produce a letter and distribute it to the industry. J. Miro added that CCSDS could also organize a workshop to exchange information with industry. The CMC discussed briefly a workshop and agreed that where the workshop is held will have an adverse effect on the companies that come to the workshop (e.g. if it is the United States, only U.S.A companies will come to the workshop).

J. Miro asked about SpaceOps being used as a forum for collaboration with industry. J. Afarin followed up by asking if a poster or brochure could be provided to SpaceOps. J.M. Soula responded that yes this is a normal practice at the SpaceOps conference. He noted though that most of the participants are contractors but that from time to time new companies may join. J.M. Soula also added that the conference also regularly has an industry presentation on standardization.

W. Tai added that at NASA the Advanced Exploration Systems (AES) Program maintains a current list of industry partners and that it may be a good idea to contact them to ask them how they perform outreach activities.

The CMC members agreed that it would be best to contact both prime contractors as well as contractors whom build the systems.

**CMC-A-2017-06-08**
**The CMC requests that each CMC member contact their respective agency to determine the best opportunity for discussing commercial participation with industry to see how CCSDS can engage more with industry partners to develop space data system standards. CMC members will report results during the mid-term teleconference.**

**21.      Strategic Plan Updates** (CMC Spring 2017 Strategic Plan)

J. Miro provided an overview of the strategic plan, and requested to move the strategic plan to a public area of the website (to the Secretariat). J. Miro also noted that a number of links were no longer functioning relating to the strategic plan. J. Miro thanked the Secretariat IT Support team for their work on updating the website, noting that it looks very good. J. Miro continued by reviewing the goals for each area and noting that it will be good to mark some goals as completed to memorialize CCSDS' accomplishments. J. Miro also noted that the SOIS and SIS areas do not have a lot of work remaining in the strategic plan, but there is still some future development identified in SOIS SUBNET WG. He added that as discussed previously, the CMC will discuss the future of these areas at the next CMC face to face meeting in Darmstadt, Germany. O. Peinado noted that in the SIS area streaming support will be a green book and that the working group is in discussions on completing a blue book. O. Peinado added that the WG will adjust the dates of the projects for the strategic plan. J. Miro completed reviewing the remaining areas' strategic plans and objectives and asked that the strategic plan be posted online to its own web page.

**CMC-A-2017-06-09**
**The CMC requests that the Secretariat determine a method for adding the strategic plan developed by J. Miro to the CCSDS public website on the strategic plan webpage.**

**22.      Space Assigned Numbering Authority (SANA) overview** (SANA Overview)

M. Blanchet provided an overview of the SANA registries and the new website. No questions.

**23.** **Review Item Discrepancy (RID) system discussion**(CESG Report to CMC Extra Items (slides 51))

N. Peccia pointed opened the discussion about the modernization of the RID system noting that the current NASA online RID system must be updated in order for the other agencies to utilize the current implementation. The primary issue noted by N. Peccia is that the NASA online RID system does not allow for batch processing of RIDs. N. Peccia also noted that the polling system requires major updates and that tracking actions and poll conditions is currently very difficult because the process is manual and disparate between systems. J. Afarin added that it is cost prohibitive to produce the changes that are being requested and that items must be prioritized. J. Afarin requested that ESA supply their internal RID system to be implemented by the Secretariat. N. Peccia replied that they had previously inquired about the cost of implementation but noted that the cost could also not be tolerated. The CMC then discussed a pared down version of the NASA RID system that is currently online and agreed that the Secretariat will work with N. Peccia to finalize requirements and make updates to the system. Following this action the group agreed to begin looking at using workflows for updating the polling system.

**26.** **Meeting Planning**

**26.1**     Fall 2017 Tech Plenary & CMC (ESA/Noordwijk) (CESG Report to CMC Extra Items (slides 45))

N. Peccia provided an overview of the logistics for the fall 2017 technical meetings to be held at The Hague in the Netherlands, hosted by ESA. N. Peccia added that the CESG meeting will be held Friday at ESA's Noordwijk facilities and the CMC will be hosted at ESA's Darmstadt, Germany facilities. The CMC then discussed the logistics for inviting the IOAG and the CCSDS members to the meeting in Darmstadt and also for the IOP4.

**CMC-A-2017-06-16**
**The CMC requests that the CESG Chair, Nestor Peccia, to work with the IOAG liaison, Michael Schmidt, regarding the participation he wants from CCSDS regarding the IOP.**

**26.2**     Spring 2018 Tech Plenary & CMC (USA/CNSA)

J. Afarin discussed the FY 18 technical plenary, noting that it will be held at Gaithersburg, Maryland, USA and will have 12 rooms for 5 days. N. Peccia noted that the WGs must be modulated to fit into 12 meeting rooms over 5 days, especially since they will be working to 15 rooms on 4 days during the fall meetings. The CESG meeting will also be held Monday at the same facility in Gaithersburg, MD, USA.

R. Zhang provided a presentation of the CMC meeting to be held in Beijing, China at the Beijing Friendship Hotel – No 1 ZhongGuanCun South Street, Haidian District, Beijing, China. R. Zhang indicated that the preferences are to host the meeting either 14-17 May 2018 or 21 – 24 May 2018. The CMC discussed and agreed to host the meetings from 14-17 May 2018. A technical tour of CNSA's facilities will occur on the last day of the meeting, 17 May 2018. Y. Huang will be looking into completing letters of invitation.

**26.3**     Fall 2018 Tech Plenary & CMC (DLR)

O. Peinado discussed the technical meetings logistics to be hosted by DLR in Berlin, Germany from 15-19 October 2018. The CESG meetings will be hosted in the same location on 22 October 2018 and the CMC to follow on 23-25 October 2018.

**26.4**     Spring 2019 Tech Plenary & CMC (USA/CSA)

J. Afarin noted that the spring 2019 technical meetings location is currently being discussed within NASA and that more information will be provided at a future CMC meeting.

S. Tafazoli discussed hosting the CMC at the CSA headquarters in Montreal. S. Tafazoli noted that there are numerous opportunities to stay nearby CSA headquarters or in downtown Montreal which is about 25-40 minutes north of CSA Headquarters depending upon traffic. S. Tafazoli recommends the meeting be held in June when the weather is warmer. The CMC discussed and agreed to hold the CMC in spring 2019 from Tuesday 11 June 2019 through Thursday 13 June 2019.

**26.5**     Fall 2019 Tech Plenary & CMC (USA/CSA)

N. Peccia noted that the fall 2019 technical meetings information will be discussed in the future.

**26.6**     CMC mid-term teleconference

The CMC discussed and agreed to hold a CMC mid-term teleconference on 8 September 2017 at 8 a.m. Eastern Time.

**27.**     **Secretariat Report**

**27.1**     Action Item Status

D. Ross reviewed the currently open action items and provided status updates of currently open action items. The following action items were revised:

[Red = Action Overdue]
[Orange = Action Due Date Within 6 Months]
[Blue = Action Due Date Greater than 6 Months]
[Green = Action Closed by the CMC]

- **CMC-A-2013-04-03**: Requesting the Secretariat to add a capability to the CCSDS Management Framework for tracking provisions related to polls and an online input capability for resolutions. D. Ross noted that this is a part of the developers queue and was discussed during the IT Projects review below.
- **CMC-A-2014-11-01**: Requesting P. Shames to draft a formal memorandum from CCSDS to ISO/TC 20/SC 14 to describe the needed coordination on RASDS, the due date was revised to 8 May 2017. Awaiting completion.
- **CMC-A-2016-04-01**: A recurring action requesting the return of SCIDs from each agency. No change – ESA and NASA whom had previously not responded to SCID return requests have now responded.
- **CMC-A-2016-05-07**: Requesting ESA and NASA to respond to the recovery request from SANA for spacecraft ID. This action was completed by both agencies. *Action closed by the CMC.*
- **CMC-A-2015-11-05**: Requesting the Secretariat to explain "on schedule/behind schedule" of Project Statuses in the Management Framework, B. Oliver stated that existing logic errors had been resolved, but the Action Item should remain open for an observation period, the due date was revised to 12 May 2017. *Action closed by the CMC.*
- **CMC-A-2016-10-03**: Requesting ESA to confirm the resources to complete the CFDP v1 review, the due date was revised to 28 February 2017. ESA responded they are unable to confirm resources for this project. *Action closed by the CMC*
- **CMC-A-2016-10-04**: Requesting DLR confirm with the ISS the possibility for providing resources for the SOIS/WIR high data rate book (HDR) by the spring 2017 CCSDS Plenary Meetings. If resources cannot be provided, the SOIS/WIR HDR project may be deleted. Revised due date – fall 2017 Meetings.
- **CMC-A-2016-10-07**: Requesting the Secretariat to allow more than one prototype in the resource column was *closed by the CMC*.
- **CMC-A-2016-10-12**: Requesting N. Peccia find ways within the CESG to improve the technical quality of documents. N. Peccia provided a presentation to the CMC in St. Petersburg on areas for improving the speed and technical quality of documentation. N. Peccia will further investigate the types of conditions arising in polls on publications and determine what further action must be taken. Revised due date to Fall 2017.
- **CMC-A-2016-10-11**: Requesting the Secretariat to add a WebEx only registration button and the possibility for de-registration, the due date was revised to 6 September 2017.

**27.2**     Document Status Report (CESG Report to CMC Extra Items (slide 49))

D. Ross reviewed the current CTE editor's queue and asked if there were any questions that needed to be asked of the current CTE. O. Peinado asked a question about the Voice WG and when it was due to be completed. O. Peinado agreed to email the CTE and to carbon copy (CC) D. Ross.

The CESG chair asked D. Ross to ask the CTE his plan to review the large influx of incoming blue books.

**CMC-A-2017-06-15**

**The CMC instructs the Secretariat to provide a response to the CMC on the plan to complete the current 10 Blue Book publications in the document editors' queue.**

> *Response from the Secretariat: The plan to meet the influx of documentation*
> *from the Secretariat is to treat the publications as business as usual and they*
> *will be handled by the CTE per his identified priorities.*

N. Peccia asked what the process is for prioritizing books. J. Afarin responded by asking if we should have a meeting with the CTE directly. N. Peccia, responded that the CTE's priorities should be addressed because they are a part of the life-cycle in book production and represent a significant chunk of the time associated with producing a CCSDS specification. N. Peccia added that other significant amounts of time associated with CCSDS publication production includes Poll Item Discrepancies (PIDs) and technical issues with the documents. N. Peccia expounded this fact by noting that there is no electronic method for handling poll item conditions and sometimes the WG chair takes a significant amount of time to respond to the conditions thus adding to the time to publish the specification. J. Afarin noted that there is a definite resource constraint and that NASA is currently working to address this resource constraint and has added a junior technical editor whom is training and assisting the CTE.

**27.3**     Resolution Report

D. Ross reviewed the resolutions from the current CMC meeting.

**27.4**     IT Project Status

D. Ross reviewed the current IT projects status providing an overview of the developers queue and the help desk tickets received by the Secretariat IT support team. N. Peccia recommended a WebEx meeting between Agency Representatives and the Secretariat IT team to reduce the number of requirements placed upon the IT Support team for the RID system development project.

O. Peinado added that there must be a method for responding to RIDs in the new system that is to be developed and deployed.

**CMC-AI-2017-06-14**

**The CMC requests that the CESG Chair, Nestor Peccia, organize a meeting between the IT Support Team and the Agency Review Teams to discuss what modifications should be made to the RIDs system to make it a valuable resource for users.**

> *Response – N. Peccia has provided revised requirements from the Agency*
> *Review Teams for the RID system to the IT System via email.*

E. Bergamini took the opportunity to thank Mr. Michael Blackwood for his work on the re-organization of the CCSDS public website and the corresponding changes to the ISO website to ensure that the contents and structure of the website matched each other.

**CMC-A-2017-06-12**

**The CMC requests that the Secretariat to provide the list of IT Development Projects and their expected complexity to complete (Hard, Medium, Easy).**

**CMC-A-2017-06-13**

**The CMC requests that the CESG review the list of IT Development Projects provided by the Secretariat and to provide feedback to the Secretariat and the CMC General Secretary regarding prioritization of requests.**

**28.     Overflow Topics**

None discussed.

**29.** **CMC Review of Resolutions and Action Items** (Action Items and Resolutions)

The CMC reviewed all action items and resolutions and approved them for publication/distribution to the CESG and the CWE for tracking.

**30.** **Adjournment**

The General Secretary and the CMC reiterated their thanks to ROSCOSMOS for hosting the 2017 Spring CCSDS Management Council in St. Petersburg, Russia. J. Afarin added that he looks forward to seeing everyone at the CMC in Darmstadt, Germany this fall. The meeting was adjourned.

**CMC-A-2017-06-10**
**The CMC instructs the Secretariat to draft letters of thanks to both ROSCOSMOS and Southwest Research Institute (SWRI) in San Antonio for their hosting of the latest CCSDs meetings.**