CCSDS Spacecraft Monitoring & Control (SM&C) Working Group Agenda

**Spring 2017 Workshop, San Antonio, Texas, USA** (agenda version: 7 May 2017)

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|  | **Mon 8 May 2017** | **Tus 9 May 2017** | **Wed 10 May 2017** | **Thu 11 May 2017** | **Fri 12 May 2017** |
| AM | **GETTING STARTED**  08:15 CCSDS Plenary  09:15 MOIMS Plenary  **10:15 Break**  10:30 SM&C WG Start   * Introductions * Finalize Agenda * Doc Set Status, update CWE * Review mailing list | **8:15** Complete RID review and Green Book discussions  Summary of Full SM&C Set of Available Standards  **WORKING ON SCENARIOS**  **Rest of Morning**   * Subgroups develop scenarios and show benefit of using SM&C Standards | **SM&C FY17 WORK PLAN AND ROADMAP**  9:00 Review charter and list of draft projects  9:30 Brainstorm Agency needs for additional mission operations standards  10:00 Format-based standards   * General discussion * Event/Log message formats * Viewing telemetry parameter services as format exchange messages * Long-term plan   **10:30 Break**  10:45 Format-based standards (continued) | **JOINT MEETING, WRAP UP**  9:00 System Architecture update; how SM&C fits in to overall CCSDS view  **10:30 Break**  10:45 SM&C wrap-up   * Review Minutes * Summarize Results * Review Actions   Late morning – Side meeting on HTTPS transport  **END OF SM&C WG!** | **No SM&C meetings. Leads will prepare charts for afternoon MOIMS plenary.**  **SM&C room reserved for any follow-up meetings we may want.**  **Free to attend Mission Planning WG.**  **We have the option to have a full SM&C meeting Friday morning.** |
| Lunch | **12:00** | **12:00** | **12:00** | **12:00** | **12:00** |
| PM | **CHECKING STATUS**  1:30 OMG, XTCE Status  1:45 Prototypes Status, Plans  Future needs/commitments  Demo 1 – Stefan 45 minutes  Demo 2 –Mehran 30 minutes – EUD4MO  Ian’s Project – 45 minutes  **3:15 Break**  3:30 Action Item review (Dan)  Open source agreements  4:00 Green Book Refresh  4:45 Adjourn | 1:30 Continue Scenarios  3:00 Subteams report out on scenario results  4:45 Adjourn | 1:30 FY17 planning and roadmap  **3:30 Break**  3:45 Joint meeting w/ DAI  **4:45 Adjourn**  **8:00 MOIMS DINNER**  **(location is TBD)** | **SM&C IS OVER**  **No SM&C meetings. Leads will prepare charts for Friday afternoon MOIMS plenary.** | 1::00 MOIMS Plenary   * SM&C at 1:15 pm   **2:30 Adjourn** |

**MOIMS Area Agenda**

**Spring 2017 CCSDS Workshop**

**San Antonio 08-15 May 17**

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| **CCSDS Opening Plenary** | **Room: Bldg 263 Main** | **Date: 08May17** |
| **Time** | **Topic** | **Presenter** |
| 08:15-09:15 | CCSDS Plenary | Many |

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| **MOIMS Opening Plenary** | **Room: Bldg 160-**  **Auditorium** | **Date: 08May17** |
| **Time** | **Topic** | **Presenter** |
| 09:15-10:15 | MOIMS Opening Plenary | MOIMS members |

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| **MOIMS Dinner** |  | **Date: 10May17** |
| 20:00- | Location TBD | MOIMS members |

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| **MOIMS Closing Plenary** | **Room: Bldg 160-**  **Auditorium** | **Date: 12May17** |
| Time | Topic | Presenter |
| 13:00-13:15 | NAV WG Report | David Berry |
| 13:15-13:30 | SM&C WG Report | Dan Smith |
| 13:30-13:45 | DAI Report | David Giaretta |
| 13:45-14:00 | MP&S WG Report | Mehran Sarkarati |
| 14:00-14:30 | Discussion, conclusions and AOB | All |

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| **CESG Meeting** | **Room:** | **Date: 15May17** |
| 08:45-16:45 | CESG Meeting | Many |

•**GB: MO Concept: 5y revision             Discussion**   
•**BB: Monitor & Control Services (ESA, DLR)          4th AR**   
•**BB: Common Services (ESA, CNES)          Submitted for AR**   
•**BB: Mission Product Data Distribution Services (ESA, CNES)            Submitted for AR**   
•**BB: TCP/IP Transport Binding and Split Binary Encoding (ESA, CNES)          Submitted for publication**   
•**BB: HTTP Transport Binding and XML Encoding (ESA, NASA/JPL)          Submitted for AR**   
•**BB: ZeroMQ Transport Binding (CNES, ESA)          Submitted for AR**   
•**MB: C++ MAL API (NASA)            RIDs Received**   
•**BB: XML Telemetric & Command Exchange (XTCE) (NASA, no prototype assumed)          Awaiting OMG Approval**

**6 April  2017 SM&C Document Status**

**TCP-IP/Binary encoding**:

* MM submitted resolution for publication poll on 09Jan17
* Awaiting CESG/CMC polls for publication

**C++ API**:   Released for Agency Review.

* Under Agency Review
  + DLR – 4 COMMENTS; ESA – 14 COMMENTS; NASA – 23 COMMENTS
  + INPE, CNES, JAXA – RESPONDED, INDICATED THEY HAD NO COMMENTS

**ZeroMQ**:   Mission Operations - Message Abstraction Layer (MAL) Binding to ZeroMQ Message Transport Protocol

* MM submitted resolution for AR polls on 06Apr17.

**MPDP**:

* MM submitted resolution for AR polls on 15Nov16.
* TG reported need for extensive editing to put it in proper CCSDS format

**HTTP/XML**:

* MM submitted resolution for AR poll on 09Jan17
* Poll completed on 3 March 2017; conditions from Peter Shames, Erik Barkley, and Scott Burleigh
* SC to update document, waiting for source document from TG, update due end of April 2017
* MM will submit updated document for Agency Review.

**GB** **Revision**:

* Peter Mendham to update it.
* Skeleton outline sent for WG comments COMPLETE 06 April 2017
* Comments from WG DUE 24 April 2017
* First draft for internal review DUE end of April 2017.

**M&C Services**: To go out for Agency Review #4

* CESG comments received, conditions identified from NASA.
* Received Peter Shames’ annotated document (with comments) on 4 January 2017.
* Responses to the comments provided to comment authors on 19 January 2017.
* 3 March 2017 – Mario and Peter agreed to have another Agency Review on this document
* SC to update inline with comments raised during CESG review, COMPLETE 06 April 2017
* MM submitted resolution for AR polls on 06Apr17.

**Common Services**:

* Sam to deliver updated version for 2nd internal review.  COMPLETE 09 February 2017.
* All to do final internal review.  COMPLETE 28 February 2017.
* SC to deliver final update for AR, COMPLETE 06 April, 2017
* MM submitted resolution for AR polls on 06Apr17.

**ACTION SUMMARY**

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|  | **Action** | **Assigned to** | **Due Date** | **Closed** | **Notes** |
| 20161020-1 | Review MO Concept Green Book and provide comments as inputs to the 5-year refresh. | ALL | 12/31/2016 |  | Planning on a significant update. |
| 20161020-2 | Review MO Reference Model and provide comments if there are critical issues to fix. | ALL | 12/31/2016 |  | It is hoped the determination can be made that a 5-year document update is not required. |
| 20161020-3 | TCP/IP book - provide all RIDs, and one additional set from ESA not reflected below, to Sam Cooper. | Dan Smith | 10/27/2016 |  | Provided to Sam Cooper on 10/31/2016 except for the missing ESA additional comments. |
| 20161020-4 | TCP/IP book - to coordinate update of the document per the comments received. | Sam Cooper | 11/15/2016 |  |  |
| 20161020-5 | HTTP Transport – Second Prototype. Determine whether your Agency can develop Prototype 2. | All, but especially Brian Giovannoni/NASA | 11/15/2016 |  |  |
| 20161020-6 | Identify second prototype source for Data Product Distribution | Dan Smith | 10/31/2016 | 10/31/2016 | CNES has agreed to do 2nd prototype. Resolution provided to the Area Director. |
| 20161020-7 | Pursue the formats extraction and documentation effort | Dan Smith, Sam Cooper | 1/31/2017 |  |  |
| 20161020-8 | Consider trying an effort for SOIS and MO to each show how they could use their approaches for camera control. | Dan Smith to discuss with SOIS WG Chair | 12/31/2016 |  |  |
| 20161020-9 | Get back to a schedule of regular WG telecons. | Dan Smith | 11/15/2016 |  |  |
| 20161020-10 | Prioritize books in the Secretariat queue | Dan Smith, Sam Cooper | 12/31/2016 |  |  |
| 20161020-11 | Review and Prioritize 2017 Work Plan | All | At next telecons |  |  |
| 20161020-12 | Followup with SOIS regarding information and links to MO software and XML. | Sam Cooper | 10/30/2016 |  |  |
| 20161020-13 | Review the restrictions of the current ESA public license agreement. Section 3.2 | Mario Merri/AD | 12/25/2016 |  | Note that this issue impacts the ability of NASA and others to use the ESA software in the development of prototypes. |
| 20161020-14 | Contact the Systems Engineering Area to see if there is an established list of reference missions or types of missions against which our ideas should be vetted. | Dan Smith | 1/31/2017 |  |  |

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**FOR ROADMAP DISCUSSION:**

**Ideas for New Standards for Mission Operations. In San Antonio we should discuss potential standard areas to work on that fit within our charter. First we need to brainstorm possible areas of work. Here are some that I have been asked about (does not mean they are all good ideas):**

1. **Anything listed as a DRAFT SM&C Project [also, see Green Book]**
   * + 1. **Time service**
       2. **Software management service (load, dump, verify image)**
       3. **Automation service (ground or on-board procedures)**
       4. **Remote buffer management**
       5. **Nav, scheduling, planning request - covered by other WGs**
2. **Parameter/mnemonic naming conventions**
3. **Display pages – alphanumeric and/or graphical**
4. **Formats/templates for documents and technical memos**
5. **Spacecraft characteristics (protocol, data rates, etc.)**
6. **Mission OPS glossary of terms (using current SANA registry)**
7. **Cloud-based tools for interoperability and cross-Agency mission ops work and data sharing**
8. **Time Services**