CSSM Darmstadt/Fall Meeting 2019 Summary

1. Agenda

	Monday, Oct 21	Tuesday, Oct 22	Wednesday, Oct 23	Thursday, Oct 24
TIME	**CSSM**	**CSSM**	**CSSM**	**CSSM**
8:45-9:45	CCSDS Opening Plenary	Event Sequence Concept Outline	Joint Session: Control Architecture; SC-CSTS Project Initiation/Concept Paper Discussion; WG for FRM MB + others ?; Re-confirmation/modification book list	Agency Implementations - Plans and Issues
9:45-10:30	Introduction, recap of Mountainview meeting; interim progress; Agenda Approval	Capturing Behavorial assumptions for the time being		Action Items Review
10:30-10:45	*Break*	*Break*	*Break*	*Break*
10:45-11:15	Action Items check	Management Service Discussion	Joint Session (Cont'd)	Work Plan Next 6 Monts
11:15-12:30	RID Dispositions - Abstract Event Definiition	TBA		<reserved>
12:30-13:30	*Lunch*	*Lunch*	*Lunch*	*Lunch*
13:30-:14:30	RID Dispositions Common Data Entities	Config Profile/Service Agreement Concept (14:00)	Joint Session: DDOR WG	CSS Area Plenary
14:30-15:30	Agency Review Status, TGFT, PIF	Config Profile/Service Agreement Concept	SMURF Prototyping	
15:30-1545	*Break*	*Break*	*Break*	*Break*
15:45-16:30	PIF Prototype Updates and Closeout	Concept Book Survey	Concept Revision Project Initiation	<reserved -- WG Chairs>
16:30-17:30	WebServices: URL styles and implications	<reserved: CSS Chairs>	RID Tooling	
17:30	*Adjourn*	*Adjourn*	*Adjourn*	*Adjourn*

2. Action Items Check

1) Re 2019-1008-01 (forward offline service)
    a. general agreement that off-line forward service is difficult in a practical sense and likely to be superseded by DTN

b. all agencies represented indicated that the either do not currently support this or that they are currently looking to retire this capability

3. RID Dispositions – Abstract Event

1) Agreed to add a free string description field for the event (at the top of the UML diagram)
2) Agreed to add the schema to the registry
3) Agreed to create the registry for the epoch
4) Looked at P. Shames' conditions for Agency review
    a. Rejected request for agency representative role as this is already stated
    b. Agreed to an overall approval for new epoch time systems
        i. Should be SE Area
    c. Agreed to change schemas to blue book naming scheme
5) Agreed that after fix-up, book can proceed to publication polling (ie., no need for subsequent agency review)

4. RID Dispositions – Common Data Entities

1) Accepted misplacement of inheritance of time parameter (self raised RID from C. Haddow)
2) Agreed to create SANA registry
3) Discussion re using >-360 to 0 deg longitude for bodies that have retrograde rotation and 0 to <360 for bodies that have prograde rotation
    a. Currently phrased as a shall; question is should this be a should?
        i. Answer is yes -- should be a should and we also will add a note that if the convention is not followed it needs be part on ICD.
4) Book name has been changed to be "Cross Support Service Management - Common Data Entities"
5) Agreed that after fix-up, book can proceed to publication polling (ie., no need for subsequent agency review)

5. TGFT PIDs

1) Re those from SLS AD:
    a. WG conclusions recorded on PID PDF forms
        i. Uploaded to CWE, under meetings materials
2) Re those from SE AD, re TGFT registry
    a. Consensus is that WG thinks there are in fact procedural (specification) issues in the RMP (Registry Management Policy) YB and that the WG followed the current guidelines as best as possible

b. Re suggested approach, it appears to be database engineering in the write-up sent to us, but this actually does not seem to be appropriate for an "outward" facing CCSDS standard -- rather seems like some sort of procedure for internal working and should be documented somewhere else.
    i. *See Annex below for suggested approach*

6. PIF PID

1) Agreed to change the name of the book to Communications Planning Information Formats (CPIF)

7. CPIF Prototyping update

1) ESA analysis of NASA/JPL CPIF output so far is available but not yet sent to NASA representative
2) Switching from STA to BEPI (using Bepi Colombo rather than Stereo A) for test case 2, item 9, 11 agreed
3) Item 11 "ownership" changed from NASA to ESA
4) Planning:
    a. ESA to send file with analysis on NASA inputs
    b. ESA to generate TC2, items 9 and 11; NASA to comment
    c. NASA to generate TC3; ESA comment
5) Goal by 12/10/2019
6) Agreed for E.B. to put in a RID(s)
    a. Eliminate cable wrap events
    b. Add generic provider internal limitation start/stop events
        i. This could include the Keyhole event

8. WebServices – URL Styles and Implications

1) Walked through presentation supplied by JPL Engineer D. Kang
2) Seems like we might RMM (Richardson Maturity Model) level 1 or level 2 for Restful services
3) Action Item for M. Gnat and H. Haddow to produce some sort of write-up/presentation on implication from considerations re CSSM management services -- especially as relates to SMURF prototyping

9. Event Sequence Concept Outline

1) Walked thru presentation from E. Barkley (see presentation in CWE, meeting materials)
2) Action Item to E. Barkley to have a draft of the book by the time of the spring meetings
    a. Emphasis on having the (logical) rules listed
3) A. Crowson raised consideration that we may have to leave flexible some of the change event considerations for optical vs RF
    a. Also, probably need to ensure that we are using terminology for things like bit rate change consistently with the FRM.

10. Capturing Behavioral Assumptions/Requirements

1) Agreed that practices books is the place for capturing this kind of stuff
2) Agreed to begin preliminary drafting of the magenta/best practices book
3) Action Item to C. Haddow to begin drafting this for the spring 2020 meetings
4) Agreed to introduce usage notes for the parameter descriptions as required
    a. Also, noted that the deletePending flag is not quite to the point, so example looks like:
    "Usage Note:
    If flag is set true it indicates a request for deletion of all pending service packages.
    If is set false it indicates a request that no pending services are to be deleted."
    b. To be done for all other recommendations.

11. Management Service

1) Looked at update of management service draft requirements (update technote from MountainView meetings)
2) Updated document looks good -- no objection to updates requirements list
    a. Probably do not need formal messaging pattern definitions
3) State machines need to be added
4) Agreed to put in an information management section -- not really management service per se, but needed to specify management service

12. Service Agreement/Concept Profile Concept

1) Walked through the latest concept document from M. Gnat
2) Agreed to remove the term "persistent information" and just recognize that information so categorized as just being a part of the service agreement
3) Agreed to keep the question of service profiles in current config profile tech note "open" in the sense that we are not creating any new kind of book to capture this
4) M. Gnat to update the concept paper and send to E. Barkley
5) E. Barkley to revise if needed for presentation to CMC
6) E. Barkley to work project dates and -- looks like official start in January 2021
7) Assumption is that M. Gnat will start working on the book prior to official start

13. Joint Meeting w CSTS WG/Interim Plenary

1) DTN vs FF-CSTS (in response to question raised by SE AD as to how/if FF-CSTS is accommodating DTN transition)
    a. An annex is to be added to FF-CSTS (action to J. Pietras)
    b. Essentially the multiplexing function is serving multiple instance of FF-CSTS
    c. FRM is deemed to be correct
    d. ARD/ADD needs to be updated to get rid of misleading diagram/information

2) SC-CSTS Concept Discussion and Project Planning
    a. Walked through concept draft outline
    b. General conclusion is that SC-CSTS is fairly simple -- just issue request, get response
    c. But the "domain" for the directives is really defined by the functional resource model
        i. Agreed that the FRM will include a "Station controller"
    d. What is allowed/disallowed is stated via the service agreement which is a filtering/down selection on the functional resource model
    e. Throw-events
        i. The events "throw-able" are stated in the service agreement
            1. If events are not in the SA, they can still be issued by the F-CLTU/CC-CSTS client, have no affect
            2. Presumably if SC-CSTS present, then things are configured to allow only it's throw-events
    f. Agreed that station controller resource should have a storage area for logging functions
    g. Next steps:
        i. As appears that we have two different aspects here, E. Barkley to provide a couple of relatively crisp scoping statements and iterate with H. Dreihahn
            1. SC-CSTS itself
            2. Ancillary work to support conceptual functionality that can be achieved by SC-CSTS via proper FRM definitions
                a. Also note that the scope of what can and cannot be controlled can be set by implementations
            3. Due date Jan 31, 2020
3) GitHub/CM Control for stuff other than books in the CSS Area
    a. Presentation from H. Dreihahn re preliminary use of GitHub
        i. Showed integration of Git repository with Eclipse
        ii. In general, experience was positive
    b. Use cases for CSS Area noted:
        i. FRM delivery to SANA
        ii. FRM Tooling
        iii. CSSM XML Schema development
4) FRM as a magenta book
    a. Walked through presentations from J. Pietras (on sustainable FRM and on FRM M. B. outline)
    b. Creating sustainable FR Ref Model
        i. Question of how to manage this if scope grows to include on-board (ie., spacecraft) resources
        ii. Need to have a review process for functional resources noted

14. DDOR/CSSM WGs Joint Session

1) Appears we may have a 3rd flavor of event sequence, which is to allow for the scan pattern (from DDOR coordination team(s) to provider networks – this is distinct from mission and provider sequences identified in Event Sequence concept discussion)
    a. Do we need to include this in the sequence of events?
        i. Action to E. Barkley to look at CCSDS 506.0-M-2 to see if this scan pattern can be the basis this 3rd flavor or used as is
2) Use of TGFT -- packaging of DDOR raw files might be a deal-breaker for use of TGFT as TGFT would package the file(s) and that might be a substantial performance hit as we are dealing with files that can be on the order of 20 GB+
3) Plan
    a. Follow-up from action in 1 a above
    b. Generate sample request(s) for DDOR service expressed as SMURFs
    c. When available produce configuration profile examples that include DDOR configuration items
    d. Re-convene @ Spring 2020 mtgs

15. SMURF Prototyping (not addressed)

16. Concept Book Refresh Survey

1) Walked through current green book
2) Agreed that the concept book really only needs to address
    a. Lifecycle
    b. Data entities and mapping into lifecycle
    c. That there is extensibility
    d. That there will be a management service (eventually)
3) Plan
    a. E. Barkley to edit and produce draft by spring meetings
    b. If draft OK, initiate project as result of spring meetings

17. RID Tooling

1) Walked through the history post Spring 2019 mtgs
2) RID inputs available via PDF with automation, PDF without automation, excel spreadsheet (in NASA form)
3) Access DB used to collect and subsequently track RID dispostions
4) Word report output for “final” RID report available

21. Agency Implementation Plans

1) Appears we may have a 3rd flavor of event sequence, which is to allow for the scan pattern (from DDOR

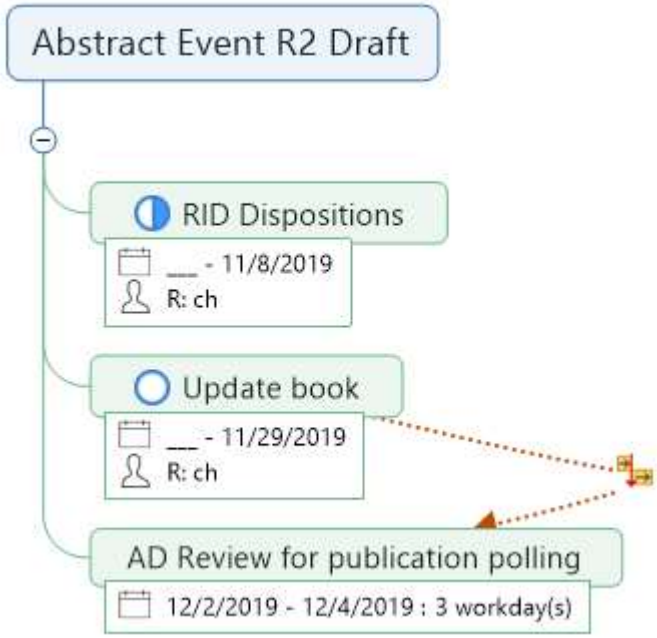
1. DSN
    a. SSF – Implemented
    b. PIF – next standard likely to be implemented
    c. Planning needs to be done for SMURF and SPDF
2. ESA
    a. Local translation emphasized re spacecraft names and ground station identifiers
    b. SSF - implementation
    c. SMURF -- very simple request will work 95% of tracking requests
        i. e.g., We just want a track for mission x from t1 to t2
        ii. Some very simple request are in fact already operational -- for interaction with Roscosmos (two sations) and the spanish network
    d. SPDF -- some analog, but work required to get to this; identified as something that could be useful
    e. PIF -- translation of ouptuts can be done -- does not seem to be very high priority right now
    f. Also a report that they think EUMETSAT is using the SSF
3. JAXA
    a. Drafting a basic plan for routine cross support
    b. Also working with user
    c. SSF + SMURF are the first
    d. Expect an update of status @Spring 2020 mtgs
    e. JAXA is having to translate from DSN SSF to local understanding
        i. Some preliminary retrieval of DSN SSF has been done
4. CNES
    a. CNES will start an implementation study next year
5. DLR
    a. Input/processing of SSF is implemented
    b. Working toward automated sequencing of tracking passes, based on SSF input

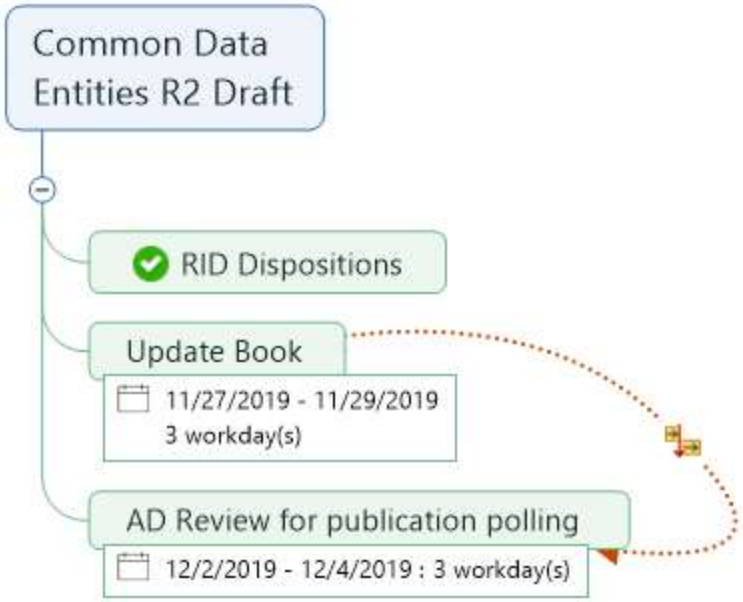
22. Work Plan, next 6 months

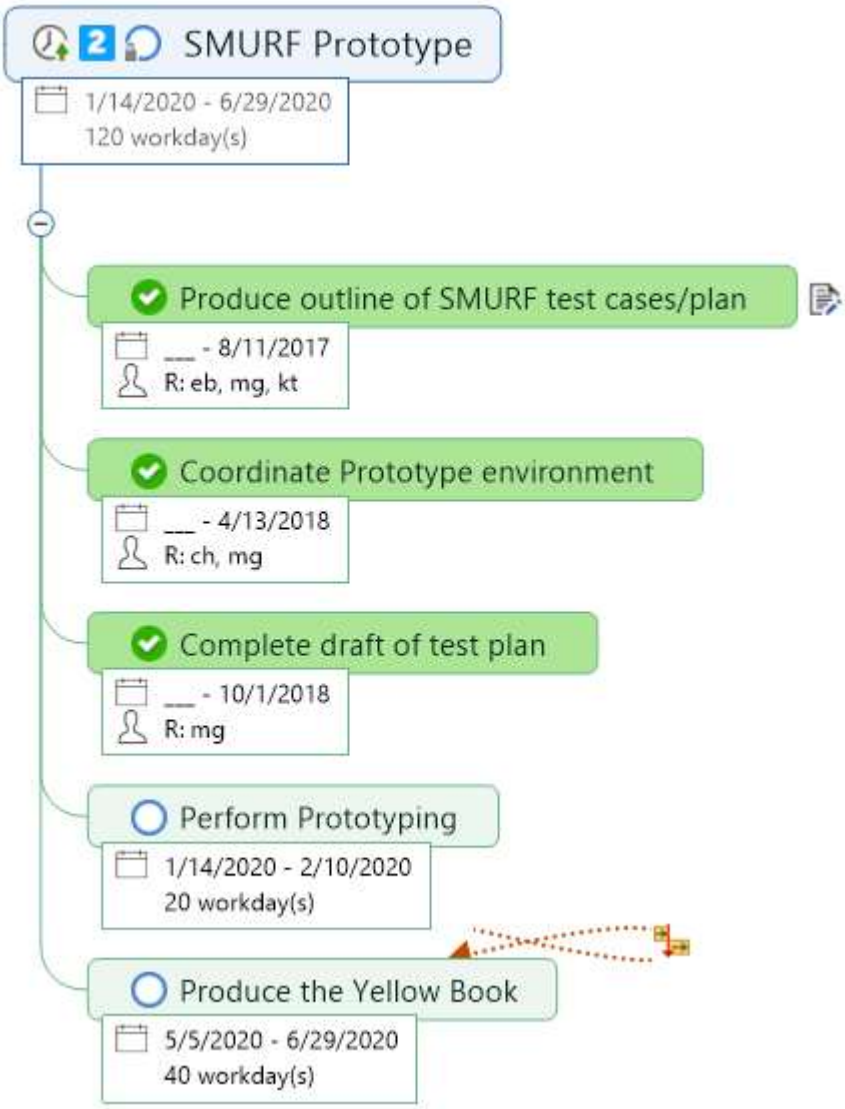
1. See diagrams below for work plan milestones/projected dates
2. Seven teleconferences have been scheduled -- see calendar invites

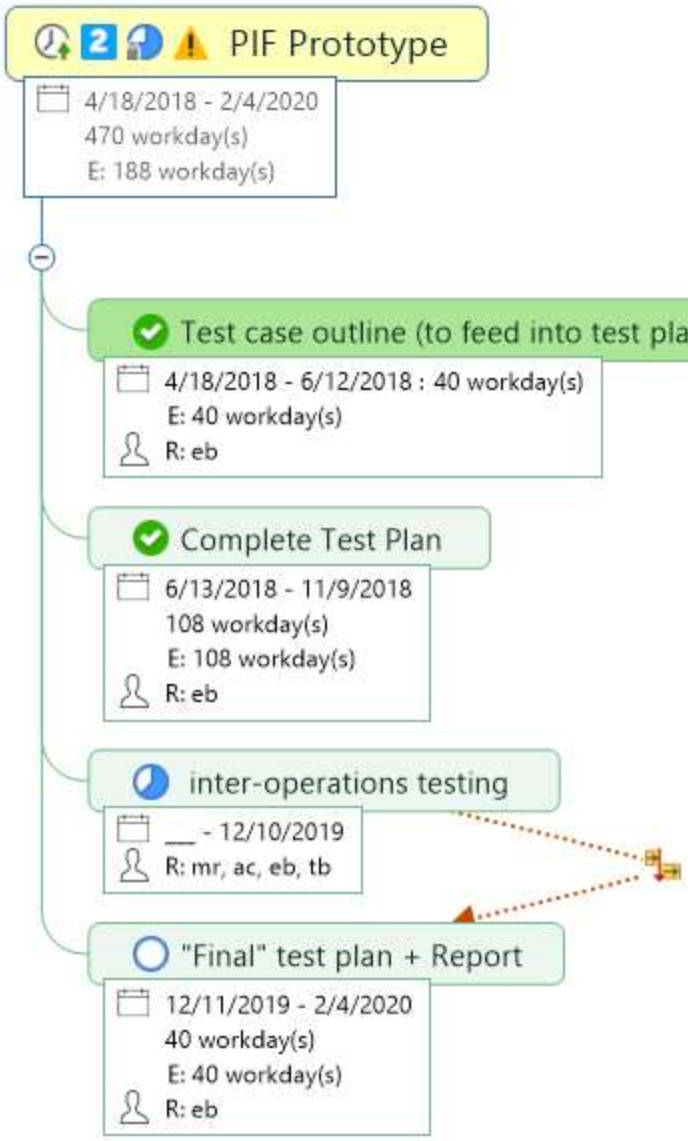

SMURF draft R1
___ - 11/29/2019
E: 43 workday(s)
Draft initial schema
___ - 3/20/2018
R: ch
Update based on conclusion from Den Hague mtgs
___ - 3/20/2018
R: ch
Complete 2nd internal draft for release to WG
___ - 9/14/2018
R: CH
Internal "2nd Draft" comments due from WG
___ - 2/26/2019
Submit to AD for R1 Consideration
___ - 8/16/2019
Update post AD Review
___ - 11/29/2019
R: ch

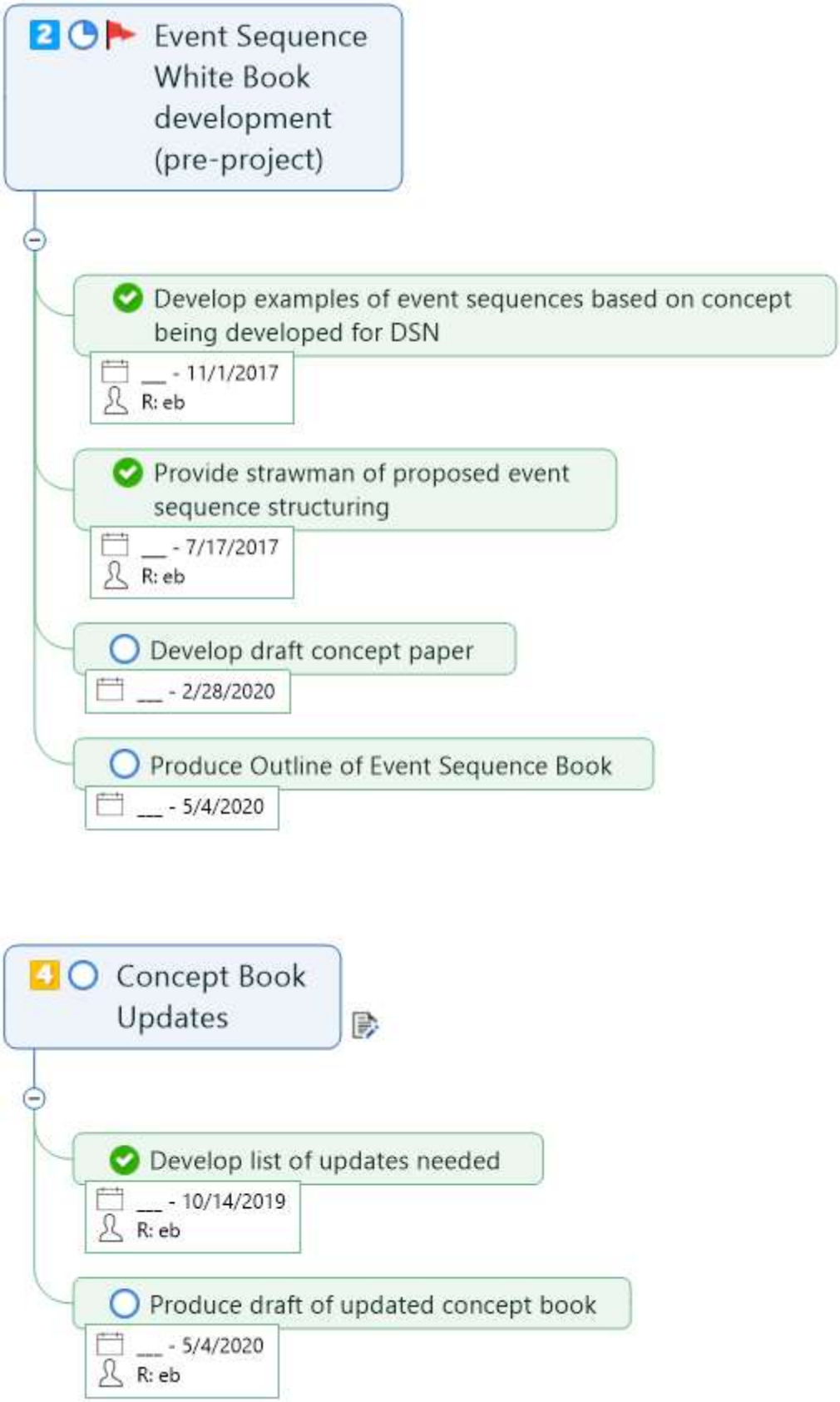

Service Package Data Format R1 draft
___ - 11/12/2019
E: 17 workday(s)
Formal project initiation
___ - 1/29/2018
1st Draft Circulated to WG
___ - 3/26/2018
1st Draft Comments from WG
___ - 5/29/2018
2nd Draft Circulated to WG
___ - 11/16/2018
2nd Draft Comments from WG
___ - 12/14/2018
Clean up based on comments
___ - 5/10/2019
R: we
Submit to AD for R1 Consideration
___ - 5/17/2019
Post AD Review Clean-up
___ - 10/23/2019
R: w
Round 2 AD review
___ - 11/12/2019
R: eb

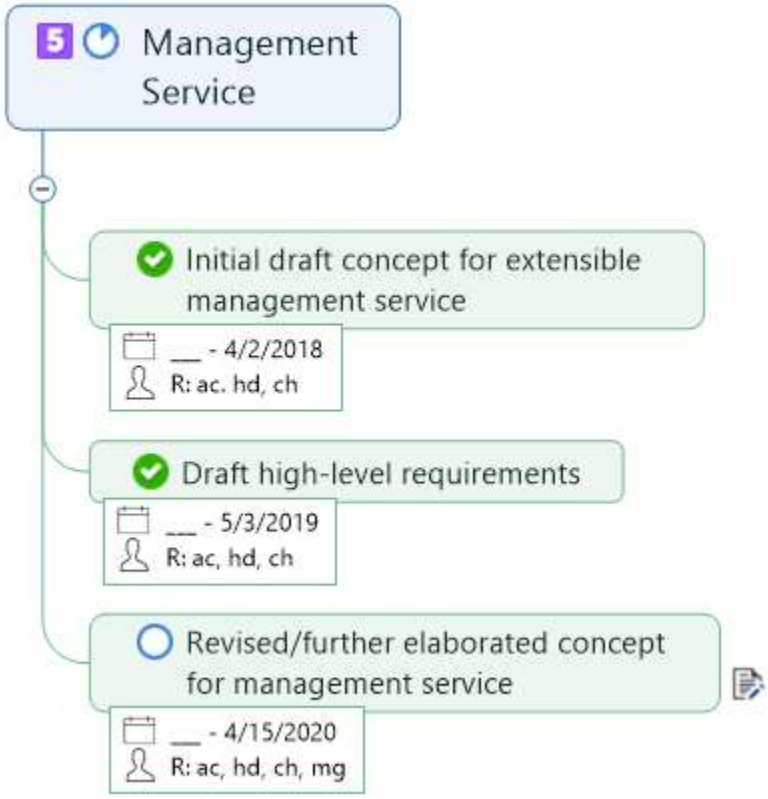

Abstract Event R2 Draft
RID Dispositions
___ - 11/8/2019
R: ch
Update book
___ - 11/29/2019
R: ch
AD Review for publication polling
12/2/2019 - 12/4/2019 : 3 workday(s)


Common Data Entities R2 Draft
RID Dispositions
Update Book
11/27/2019 - 11/29/2019
3 workday(s)
AD Review for publication polling
12/2/2019 - 12/4/2019 : 3 workday(s)


SMURF Prototype
1/14/2020 - 6/29/2020
120 workday(s)
Produce outline of SMURF test cases/plan
___ - 8/11/2017
R: eb, mg, kt
Coordinate Prototype environment
___ - 4/13/2018
R: ch, mg
Complete draft of test plan
___ - 10/1/2018
R: mg
Perform Prototyping
1/14/2020 - 2/10/2020
20 workday(s)
Produce the Yellow Book
5/5/2020 - 6/29/2020
40 workday(s)


PIF Prototype
4/18/2018 - 2/4/2020
470 workday(s)
E: 188 workday(s)
Test case outline (to feed into test plan)
4/18/2018 - 6/12/2018 : 40 workday(s)
E: 40 workday(s)
R: eb
Complete Test Plan
6/13/2018 - 11/9/2018
108 workday(s)
E: 108 workday(s)
R: eb
inter-operations testing
__ - 12/10/2019
R: mr, ac, eb, tb
"Final" test plan + Report
12/11/2019 - 2/4/2020
40 workday(s)
E: 40 workday(s)
R: eb


2
Event Sequence White Book development (pre-project)
Develop examples of event sequences based on concept being developed for DSN
__ - 11/1/2017
R: eb
Provide strawman of proposed event sequence structuring
__ - 7/17/2017
R: eb
Develop draft concept paper
__ - 2/28/2020
Produce Outline of Event Sequence Book
__ - 5/4/2020
4
Concept Book Updates
Develop list of updates needed
__ - 10/14/2019
R: eb
Produce draft of updated concept book
__ - 5/4/2020
R: eb


Management Service
Initial draft concept for extensible management service
__ - 4/2/2018
R: ac. hd, ch
Draft high-level requirements
__ - 5/3/2019
R: ac, hd, ch
Revised/further elaborated concept for management service
__ - 4/15/2020
R: ac, hd, ch, mg

ANNEX – Additional Material

1) Input from SE AD re suggested registry write-up example for TGFT Registry:

B2 SANA CONSIDERATIONS

B2.1 General

The recommendations of this document request SANA to create the following registry to permit organizations to register the formats that they are using for Packet Secondary Headers. The only indicator that a Packet Secondary Header is in use remains the Secondary Header Indicator specified in Sec 3.4.2.3. The association between the actual secondary header format that is in use, and any entry in this registry, is a managed parameter. See Sec 4.1.3.2.1.4. As stated in Sec 4.1.2.3.1.5, the Secondary Header field may contain an optional Time Code, or not.

B2.2 Registry Specification

The SANA Operator is requested to create a new Secondary Header Format Registry, as follows. Identified fields utilize elements that are specified in the Registry Management Policy, RMP, CCSDS 313.1-Y-1:

- Registry Name = Space Packet Protocol Secondary Header Format Registry
- Registry Description = This registry allows single projects, a single space agency, or multi-agency enterprises to register SPP secondary header formats. It contains information to allow end user applications to identify the data content and format within the Space Packet. User organizations may use this registry to guide processing of secondary header contents. The transmission of the Secondary Header Format ID is done "by management" and it is outside the bounds of this specification.

B2.2.1 Conceptual Registry Structure

The Secondary Header Format Registry shall consist of the following fields:

Field	Type	Size	Comments
Secondary Header Format Name	Character (64)	64	Max size string
Secondary Header Format ID	ISO OID		Assigned by the SANA Operator
Submitting Organization Name	Character (64)	64	Max size string, referenced from Organization OID
Submitting Organization OID	ISO OID		OID from the Organization registry, must be registered
Format Point of Contact Name	Character (64)	64	Max size string, referenced from Contact OID
Format Point of Contact OID	ISO OID		OID from the Contact registry for the Point of Contact for the secondary header
Format source document name	Character (64)	64	Max size string, referenced from References OID
Format source document	ISO OID		OID from the References registry
Reference URN	URN		Optional URN for additional information on the registered format

The Submitting Organization is the one supplying the format, it identifies the organization that created this Space Packet Secondary Header format. If the Organization is not yet registered it must register in the SANA Organizations registry following the RMP rules.

The Format Point of Contact identifies the contact person in the organization who is identified as the point of contact. If the person is not yet registered they must register in the SANA Contact registry following the RMP rules.

The Source document is the identifier of the document where the header format is formally specified. If it is not yet registered it must be entered into the References registry. The Submitting Organization may provide a URN which has additional information, descriptions, or even code fragments that can interpret the Secondary Header Format.

NOTE: the registry description should clearly document the Data Structure (description needed to interpret the data: fields, types, sizes), Endian-ness (big or little endian of the encapsulated data), and any other details needed to interpret this Secondary Header Format. There is no requirement to use a specific approach for these format descriptions, but one of the existing CCSDS approaches, such as Spacecraft Onboard Interface Services--XML Specification for Electronic Data Sheets (EDS/DoT) (CCSDS 876.0-B-1) or XML Telemetric and Command Exchange (XTCE) (CCSDS 660.0-B-1) should preferentially be adopted.

B2.2.2 Registry rules

This registry is defined within the SLS Area, but it may find use in other areas such as MOIMS or SOIS.

Registration Rule for SANA Operator: Registry change (add/delete/edit) shall be submitted by any valid CCSDS Agency Representative (Member, Observer, or Affiliate). No special Role is required. The Organization, PoC, and Source document shall all be verified to be valid and correctly registered and referenced. The SANA Operator shall assign a unique OID that may be used to reference this registry entry. New versions of existing specifications shall be assigned a unique OID.

Registration category = SLS Area Registry.

Review authority = SLP WG (or SLS Area if the WG is no longer in existence). Provide the designated expert to review the registry, the proposed format, and the source document.

<End Mtg Summary>