



AIRCRAFT AND SPACE VEHICLES / SPACE SYSTEMS AND OPERATIONS

Action Group 2 – Terminology Task Force

ISO TC20 / SC14 – AG2

# **AG2 #01 Kick-Off Presentations & Minutes** [v2]

**20 November 2020 (WebEx)**

**Contact: [andre.a.lacroix@ariane.group](mailto:andre.a.lacroix@ariane.group)**



## WebEx Meeting Rules

- Speak slowly
- Speak up if you do not understand
- Ensure MUTE is selected when not speaking, to avoid background noise
- Use the CHAT area to raise questions or comments during presentations
  - Questions and responses will be documented in the meeting minutes

Participants asked to confirm their  
attendance & contact data by email to:  
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Webex Meetings



## Agenda

- Attendance & Membership (all)
- Reminder of SC14 Resolution 460 (AL)
- Presentation of the collected comments (AL)
  - (1) Common Terminology Platform
  - (2) Authoring Rules and Oversight
  - (3) Harmonization & New Terms
  - Identified possible actions
- Introduction of SANA and SC14 harmonization (Dr. Peter SHAMES, CCSDS SEA AD)
- Discussion (all)
- Decisions and Planning of next steps (all)
- Wrap-up (AL)

### Attachments

- **Presentation from Dr. Peter SHAMES on SANA and SC14 harmonization**
- **SANA Registry Management Policy (CCSDS-313.1-Y-2)**
- **Procedures for SANA Registry Specification (CCSDS-313.2-Y-2)**
- **List of terms in SC14 standards (extract from the Ukrainian database)**
- **Repetition of terms in SC14 standards (extract from the Ukrainian database)**
- **List of WG3/WG7 multiple defined terms with correction proposals (WG3/WG7 Joint Session Spring 2020 meeting)**



## Attendance

- (Brazil) SAKAI, Paulo Roberto
- (France) DROGOUL, Severin – WG5
- (Germany) GROSSER, Jan
- (Germany) HEESE-GAERTLEIN, Justus - **HOST**
- (Germany) LACROIX, Andre – WG3, **AG2 Chair**
- (Japan) NAKO, Baba – WG6
- (Ukraine) MATUS, Galyna
- (UK) STOKES, Hedley – WG7
- (US) GILL, Paul – **SC14 Chair**
- (US) GREEN, Benjamin
- (US) OLTROGGE, Dan – Liaison CCSDS
- (US) ROVETTO, Robert
- (US) SHAMES, Peter – CCSDS SE Area Director
- (US) SLANE, Fred – WG2
- (US) TONGSON, Nick – **SC14 Manager**

### *Absent:*

- (Japan) KEIICHIRO, Eishima – WG1
- (Russia) **TBD** – WG4
- (UK) DAVEY, John, HoD
- (ISO) DRYDEN, Andrew
- **15 participants**
- **5 working groups represented (WG2, WG3, WG5, WG6, WG7)**
- **7 delegations represented (BR, FR, GE, JP, UKR, UK, US)**



## SC14 Resolution 460

(June 2019)

- SC14 resolves to form a terminology task force to:
    - [1] Establish and co-manage (with SC13) a common terminology platform on the SANA (Space Assigned Numbers Authority) registry;
    - [2] Provide SC14 working groups terminology authoring rules, guidance and oversight consistent with established ISO procedures and rules;
    - [3] Develop and operate a living process for harmonizing, reviewing and defining terms in SC14....
  - The task force will be composed of [SC14 Working Group conveners](#) (or their representative) and [any Heads of Delegation](#) who wish to participate on the task force.
- [\[Rescinds Resolutions 296 and 360\]](#)*



# [1] Common Terminology Platform

## Comments Before Kick-Off Meeting

Establish and co-manage (with SC13) a common terminology platform on the SANA (Space Assigned Numbers Authority) registry

- ISO Online Browsing Platform (<https://www.iso.org/obp/ui>)
  - *NO effort to harmonize terms. ISO will not support cleaning up or harmonizing terms*
- SANA Registry (<https://sanaregistry.org/r/terms>) provides on-line access to all of the formal terms from normative CCSDS (ISO/TC20/SC13) standards
  - *CCSDS longstanding goal to harmonize terms and definitions in CCSDS Glossary.*
  - *Extension of SANA to incorporate SC14 own terms: Agreement on the specific details of how to do this is TBD. it will be agreed between the two organizations after suitable discussion [CCSDS CMC approved Apr-20]*
- Comment from SC14:
  - *I clicked on the SANA Registry link <https://sanaregistry.org/r/terms>. I suppose the mechanics of the registry could be elaborated on, at least for the purposes of people seeing at a very high level what the platform is all about. The terms did not appear to be in alphabetical order; there might be a reason for that but just looking at it did not make particular sense to me. In the future this might benefit from a little excursion to the registry and a 2 minute tour of how it works, and if you need to be registered to use it, etc.*
- Comments from UKR:
  - *SC14 terms, it is necessary to define the unified approach to the representation of terms on the SANA Registry.*
- Comments WG3/WG7 (Spring 2019)
  - *SC14 terminology should be harmonized first within SC14, before alignment with CCSDS/SC13*



## [2] Authoring Rules and Oversight

### Comments Before Kick-Off Meeting

*Provide SC14 WG terminology authoring rules, guidance and oversight consistent with established ISO procedures and rules*

- Comments from UKR:
  - *It is correct to use the requirements of ISO 10241-1 of the representation of terminological entries.*
  - *See also UKR presentations of the past SC14 Plenary meetings*
  - *See also UKR presentation TC20/N3925 from Sep-20*
- Comments from GER (Plenary 2013 and Plenary 2015)
  - *Multiple defined terms within SC14 published documents should be resolved (WG convenors to push the harmonization of terms, HoDs to support the necessary correction work)*
  - *Terms proposed in SC14 draft documents should be systematically verified (with existing definitions) before initiating any formal ballot (accountabilities of project leader, WG convenor, SC14 manager)*
  - *Terms sufficiently defined in dictionary (e.g. Oxford OED) or ISO OBP should not be redefined within SC14.*
- Comments from ECSS Glossary Task Force (Plenary 2019):
  - *The document ECSS-D-00-01 “Drafting rules and template for ECSS standards” includes requirements for terms, definitions and abbreviations. The “ECSS eGlossary” application and related drafting rules could be a good practice to be considered for improving the SC14 terms and definitions.*



## [3] Harmonization & New Terms

### Comments Before Kick-Off Meeting

Develop and operate a living process for harmonizing, reviewing and defining terms in SC14

- ISO 10795 “Space systems – Programme management and quality — Vocabulary”
  - *does not sufficiently include all relevant SC14 terms and definitions*
  - *5-years review cycle is too slow for SC14 terminology harmonization needs*
- Comments from UKR:
  - *ISO 10795: a great work was done in which many ISO/TC20/SC14 members participated. We are currently working on the development of a national standard identical to ISO 10795. The great work was done within ISO/TC20/SC14 deserves that this standard to be adopted at the national levels. In the process of this work, we have analyzed the concepts definitions and drew attention to minor inaccuracies that can be corrected by developing a corrigendum to ISO 10795. Currently, this work is not completed yet, as soon as it is done, I will present my proposals for the development of this corrigendum.*
  - *Please, find the updated lists of terms in ISO/TC20/SC14 standards (329 pages, 1899 terms, 2440 definitions)*
  - *and the **duplicated terms** in standards of ISO/TC20/SC14 (95 pages, **303 terms, 844 definitions**)*
- Comments from WG3/WG7
  - *Harmonisation of identified WG3/WG7 multiple defined terms shall be performed by SC14-AG2*



SC 14 Duplicate  
Terms



AG3/WG7  
Multiple Terms





## Identified Possible Actions

### Comments Before Kick-Off Meeting

- SC14/CCSDS resolutions: to clarify the position and formal agreement of ISO/TC20/SC13?
- SANA: to clarify the possibilities and constraints for introducing terms remaining under SC14 oversight?
- SC14 terms database: to clarify how to collect the complete data set of SC14 defined terms
  - From ISO Secretariat? From UKR Delegation?
- Multiple defined terms: define the process to harmonize terminology for SC14 perimeter in short term?
  - Identification of SC14 term duplications (supported by UKR delegation – Galyna Matus)?
  - Harmonisation of terms: with the PL of the related documents, supported by WG Convenors and HoDs?
  - Publication of updated documents: all impacted documents at once? at systematic review steps?
- Definition of new SC14 terms: to define the rules (checklist?) to be applied for harmonization control?
  - Similar to ECSS approach?
- ISO 10795: to define SC14 specific maintenance rules to accelerate harmonization?
  - All WGs to review terms with different definitions? 10795 term preferred by default, else alignment necessary?
- (others?)



## **SANA Introduction**

- See presentation slides from Dr. Peter SHAMES, CCSDS SEA AD

CCSDS System Engineering

Area (SEA): Space Assigned Numbers Authority (SANA)

CCSDS – SC14 Harmonization

# CCSDS System Engineering Area (SEA): Space Assigned Numbers Authority (SANA) CCSDS – SC14 Harmonization

Peter Shames, CCSDS SEA AD

20 Nov 2020



## CCSDS SANA / SC14 Harmonization Discussion



- **Opportunity**
  - CCSDS – TC20/SC13 and TC20/SC14 have a liaison agreement in place to extend the CCSDS Glossary / Terminology set by including SC14 terms
    - Benefit to SC14 in that there is an existing, on-line, well supported registry that can be used
    - Benefit to CCSDS in that the SC14 Ukrainian delegation has an excellent ability to identify and analyze terminology sets
  - CCSDS is ready to move forward on this project and has proposed a set of extensions to the SANA Terminology registry to accommodate this sort of joint effort
    - SANA registry is at: <https://sanaregistry.org/r/terms>
    - It is open for read access to the world
    - It is alphabetical, but any column can be used as the sort criteria
- **Documentation**
  - The SANA registry structure is documented in the CCSDS Registry Management Policy, CCSDS 313.1-Y-1
  - This also contains requirements on the registries and on the use of the registries

12 Nov 2020



SEA-2

## CCSDS SANA Steering Group Discussion



- CCSDS / SC14 Statements re Agreement and Roadmap
- CCSDS and SC14 now have bidirectional liaison agreement in place to extend the CCSDS Glossary / Terminology set.
  - Question: Do we still formally need SC13 decision ?
- We have not established an agreement on how this will procedurally work.
- SC14 AG2 will assemble a proposed approach and framework for how this might work from their point of view
- Would have to coordinate with CCSDS, SANA, SANA Steering group, and Terminology Expert Group (TEG)
  - CCSDS: It is proposed that the TEG have joint membership from CCSDS and SC14
- The proposed SC14 terminology harmonization process could be, e.g., :
  - Scan all published standards to identify terms whose definitions are inconsistent;
  - Also identify two or more terms that are defined in circular fashion;
  - Build consensus (at least within a discipline or use case) on proper definition;
  - Aggregate consensus definitions in centralized online repository;
  - (Gradually) transition published standards over to point to centralized repository.

9 Nov 2020



SEA-3

## CCSDS SANA Steering Group CCSDS Proposal



- **SANA Terms and Abbreviations registries are to be extended by ISO TC20/SC14 as part of liaison agreement.**
  - Methods for handling recommended definitions in different domains were discussed and agreed in principle.
- A proposal to initiate the Terminology Expert Group (TEG), defined in the RMP, Sec 3.4.4, is being proposed. Members are sought from relevant CCSDS & SC14 WGs.
- **SANA Terminology Registry Changes**
  - Extensions to the Terms registry to accommodate ISO TC20/SC14 terms and provide a “harmonized” view
  - Allow SC14 documents to be registered in the document set along with CCSDS / SC13 documents, entered in References column
    - From discussion it appears that other sources, such as ISO documents, may also be required
  - Add new explicit Domain column, derived from the reference doc set
  - Add a new status that is “Preferred” (within the Domain) to the terms status
  - See attached sketch of revised SANA registry columns

9 Nov 2020



SEA-4

## CCSDS SANA Steering Group Proposed Terminology Registry Changes



**sana** [About](#) [How To](#) [Register](#)   [Login](#)

**CCSDS Terms** Creation date: 2017-05-30 13:54:35  
Update date: 2020-04-19 10:37:45

Policy: CCSDS Blue Book  
Authority: CCSDS SEA  
OID: 1.3.112.4.30

**Contents**  
1489 records in registry

OID Tree

Show/Hide Filter(s)

7 Actions

Items per page: 5

Details	Status	Term	Definition	References	OID
<a href="#">Details</a>	Assigned	[N]-association	A cooperative relationship among [N]-entity-instances.	[ccsds-910.2-G-1]	1.3.112.4.30.1
<a href="#">Details</a>	Assigned	[N]-entity	An active element within an [N]-subsystem embodying a set of capabilities defined for the [N]-layer that corresponds to a specific [N]-entity-type (without any extra capabilities being used).	[ccsds-910.2-G-1]	1.3.112.4.30.2
<a href="#">Details</a>	Assigned	[N]-entity-instantiation	A specific utilization of part or all of the capabilities of a given [N]-entity (without any extra capabilities being used).	[ccsds-910.2-G-1]	1.3.112.4.30.3
<a href="#">Details</a>	Assigned	[N]-entity-type	A description of a class of [N]-entities in terms of a set of capabilities defined for the [N]-layer.	[ccsds-910.2-G-1]	1.3.112.4.30.4
<a href="#">Details</a>	Assigned	[N]-function	A part of the activity of [N]-entities.	[ccsds-910.2-G-1]	1.3.112.4.30.5

Page 1 of 60

9 Nov 2020



SEA-5

## Terminology, Ontology, Reference Architecture Definitions



- **Terminology:** a set of terms and their descriptions, most often rendered in some “narrative” form.
  - From Wikipedia: “a general word for the group of specialized words or meanings relating to a particular field”.
- **Ontology:** a formalized naming and definition of terms, categories, properties, and their relationship to other terms.
  - From Wikipedia: “a representation, formal naming and *definition* of the categories, properties and relations between the concepts, data and entities that substantiate one, many or all domains of discourse”.
- **Reference Architecture:** a formalized definition of viewpoints, views, the objects they describe, and their relationships suitable for use in creating and describing specific systems architectures.
  - From Wikipedia: “A software **reference architecture** is a software **architecture** where the structures and respective elements and relations provide templates for concrete **architectures** in a particular domain or in a family of software systems. “System” can, obviously, be substituted for “software”.
- The “elements and relations” required for a reference architecture are best formalized in an ontology, but a set (or sets) of terminology may have to suffice.

12 Nov 2020



SEA-6

# BACKUP



## Earlier SAWG Observations on Terminology



- Some of the terms used in CCSDS documents are not even in the CCSDS Glossary
- We only have accurate information models and schema for a small sub-set of the terms in use
- Some terminology is defined in multiple different standards, and this is where issues arise
- Lack of consistent terminology makes automation and cross use of terms much more difficult
- Some terminology is in isolated domains and not an issue
- Multiple inconsistencies in use of terminology
  - Collisions of usage (same word, two different meanings)
  - Specializations (same word, on analysis one derived from another)
  - Multiple terms used for the same things
  - Internal inconsistencies in usage or definitions
  - Inconsistent use of representations (lack of class diagrams)
  - Inconsistent references to external standards (ISO BRM and other)
- Some differences appear to be easy to resolve (reference the document/namespace), others will require more work

12 Nov 2020



SEA-7

12 Nov 2020



SEA-8



## Discussion (1)

- Mr. Drogoul reminded that there are previous SC14 resolutions that should also be considered by the task force.
  - **Action**: to collect all past SC14 resolutions related to the harmonization of term in SC14 standards
- Mr. Drogoul questioned the formulation of the resolution 460 an in particular if SC14 already decided or not to use the SANA database for SC14 terminology. Dr. Shames confirmed that at CCSDS Steering Group level (Technical Leader Body), the agreement is clear that there is an agreed liaison relationship.
  - **Action**: to clarify with SC14 Chair the SANA-related decision status.
- Mr. Drogoul noted that the standard ISO 10795, made by WG5, is already including over 90% of the terms used at space centres.
- Mr. Drogoul also noted that each ISO standard has its own definitions section and that there is no rule in ISO to harmonize terms across standards and that different definitions for specific usage are authorized by the ISO rules.
- Participants agreed that there are different use cases that justify specific definitions (e.g. using specific notes in a SC14 shared definition).



## Discussion (2)

- Participants noted that the Ukrainian delegation is providing since many years the lists with term repetitions in SC14 standards and that this already helped to avoid the creation of new duplicated terms.
- Participants agreed that the harmonisation effort is a long standing SC14 action which should start first at the level of each WG in order to minimize duplicate terms within their perimeter.
  - See e.g. the May-20 analysis of WG3/WG7 multiple defined terms with proposals
  - The SC14 key terms used by several WGs needing harmonization should be identified.
- Mr. Shames confirmed that at CCSDS level there are similar issues and that the solving is on-going within each domain. The gathering process is not entirely complete. A centralized approach is existing how to handle situations where there are terms nominally identical. E.g. the Navigation WG has a specific own set of domain terms. E.g. “preferred” mark can be added in “status entry”.
- Mr Shames also noted that the harmonization effort is a very slow and laborious process, also because subject matter experts are often not excited to work on terminology. The SANA platform tool is helpful for managing and coordinating harmonisation issues



## Discussion (3)

- Dr. Shames confirmed that CCSDS is willing to offer to SC14 access to SANA. It's up to SC14 to decide how to use SANA. There is no prerequisite for SC13/SC14 harmonisation.
- Participants noted that it's important to have a platform for the harmonisation work and that a funded and well maintained platform such as SANA would meet SC14 needs. However, before using the SANA platform, some requirements should be defined in order to ensure solid decisions for the use of the platform and to achieve SC14 harmonisation work.
  - E.g. would a specific column be needed for the reference of primary definitions from outside SC14 such as ISO 9000 used in ISO 10795?
- Dr. Shames confirmed that necessary changes in SANA for SC14 needs (e.g. additional columns) would be supported by CCSDS. However a clear decision from SC14 should



SANA



SANA Procedures

Management Policies



## Wrap-up session

### ■ Decisions and New Actions

Ref.	Action	Actionee	Due Date
AG2-001	to collect all past SC14 resolutions related to the harmonization of term in SC14 standards	André LACROIX	Before next AG2 meeting
AG2-002	to clarify with SC14 Chair the SANA-related decision status	Nick TONGSON	Before next AG2 meeting
AG2-003	to provide recommendations for the harmonization work and the use of the SANA platform for SC14	AG2 task force members	Before next AG2 meeting
AG2-004	To clarify the date and location of the next meeting	André LACROIX	Dec-2020
AG2-005	To identify the list of multiple defined terms in the WG-related standards and propose harmonization	WG Convenors	May-2021 (next Plenary)





## **Meeting Closure –THANK YOU!**

- Thanks to all for a very disciplined meeting.
- Many thanks to DIN-NL (Mr. Justus HEESE-GAERTLEIN) for setting up and hosting virtually WebEx meeting, allowing a fruitful and dense meeting session!
- Take care of you – Stay safe!