CCSDS Standards

CCSDS overview

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CCSDS Overview

- Organization,
- Standardizations Topics,
- Book coloring
The goal: For Space Data Systems, enhance interoperability and cross-support, while also reducing risk, development time, government, industry, agencies, vendors and programs.

Interoperability between agencies & teams translates to operational flexibility, capability and access to additional resources.

CCSDS Started in 1982 developing at the lower layers of the protocol stack (Layers 1 to 3).

Scope has grown to cover standards throughout the ISO communications stack layers, plus other Data Systems areas (architecture, archive, security, XML exchange formats, etc.)
CCSDS Standards

CCSDS Overview

- Produces International Voluntary Consensus Standards
- Agency-led international committee
  - Currently 11 Member agencies
  - Currently 26 Observer Agencies
  - Currently 136 Commercial Associates
  - ~180 workers at the Spring 10 Technical meeting
- Also functions as an ISO Committee
  - TC20/SC13 - Space Data & Info Transfer Systems
  - Represents 20 nations (14 members, 6 observers)
CCSDS Standards

CCSDS Overview

- **Participation**
  - **Agencies**: become member or observer
    
    Member agencies fully participates in all CCSDS activities and provides a commensurate level of support. Only one agency per country (+ESA), voting rights in the CMC.
  
  - **Industry**: become a Commercial Associate
    
    participation in the working groups is organized under the umbrella of your national agency

CCSDS Associates are scientific and industrial entities desiring a formal tie with the CCSDS, which allows them to more closely monitor and possibly influence the technical document development process.
CCSDS Standards

CCSDS Overview

- Systems Architecture
- Security
- Information Architecture
- Space Addressing and Naming
- Delta-DOR
- Time Code Formats
- XML
- Registries/Repositories

- Onboard Subnet Services
- Onboard Application Services
- Wireless WG
- Onboard Plug-n-Play

- Space Link Services
  - RF & Modulation
  - Space Link Coding & Sync.
  - Multi/Hyper Data Compress.
  - Space Link Protocols
  - Ranging
  - High Rate Uplink
  - Space Link Security
  - Long Erasure Codes
  - Planetary Surface Comm.
  - Optical Modulation/Coding

- Cross Support Services
  - CS Service Management
  - CS Transfer Services
  - Cross Support Architecture

- Space Internetworking Services
  - Space Packet Protocol
  - Asynch Messaging
  - IP-over-CCSDS Links
  - Motion Imagery & Apps
  - Delay Tolerant Networking
  - Voice

- Mission Ops & Info. Mgt. Services
  - Data Archive Ingestion
  - Navigation
  - Info. Pack. & Registries
  - Spacecraft Monitor & Control
  - Digital Reository Audit

37 Working Groups some in formative stages
104 Projects
CCSDS Standards
CCSDS Overview

FLOW OF GUIDANCE / REQUIREMENTS
(Note: Agency makeup varies between these groups)

IOP: Interoperability Plenary – highest space agency agreements on interoperability

IOAG: Interagency Ops Advisory Group interoperable mission support infrastructure

CCSDS: open international standards for space mission interoperability

SFCG: space agency frequency management forum

PEER ORGANIZATIONAL RELATIONSHIPS

OMG: Object Management Group: industry standards for exchange of application information among vendor products

ECSS: European Consortium for Space Standards - European regional standards for space mission support

IETF/IRTF: open international standards for IP suite and Disruption Tolerant Networking (DTN)

AIAA: North American regional standards for space mission support
CCSDS Standards

CCSDS Overview

An important success factor of CCSDS is the role of formal Agency review. The vehicle for such review is the 'Review Item Disposition' or 'RID'. When a document requires formal review, the Secretariat announces the review opportunity to the CCSDS Agencies and provides instructions that define how, when, and to whom the Agency comments (in the form of completed RIDs) are to be submitted.

Anyone is welcomed to provide comments on the draft recommendations below.

For questions, please contact the CCSDS Secretariat secretariat@mailto:ccsd.org.

Currently in Review

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Welcome to the CCSDS Collaborative Work Environment (CWE)

The interactive graph to the right represents the CCSDS Technical Organization. The CCSDS Engineering Group (CESG) is composed of 8 areas. Within these areas there are Working Groups (WG), Birds of a Feather (BoF), and Special Interest Groups (SIG) that collaborate.

To access more information please click on the CMC, CESG, Area, WG, or BoF name.

To review the status of documents and projects being developed in these areas, Click here.

CCSDS Standards

CCSDS Overview

CCSDS Technical Organization

CCSDS Management Council (CMC)
General Secretary: Mike Kearney

CMC DOCUMENTS

CMC POLLS

CCSDS Engineering Steering Group (CESG)
Chair: Adrian Hocke

CESG DOCUMENTS

CESG POLLS

Systems Engineering Area (SEA)
Chair: Peter M. Shane

Mission Operations and Information Management Services Area (MOIMS)
Chair: Nestor Peces

Cross Support Services Area (CSS)
Chair: Eric Barkley

Spacecraft Interface Services Area (SIS)
Chair: Chris Taylor

Space Interworking Services Area (SIS)
Chair: Rob Delk

SOS DOCUMENTS

SIS DOCUMENTS

CCSDS Management Council (CMC)

General Secretary: Mike Kearney

CMC DOCUMENTS

CMC POLLS

CCSDS Engineering Steering Group (CESG)
Chair: Adrian Hocke

CESG DOCUMENTS

CESG POLLS

Systems Architecture Working Group (SEA-SA)
Chair: Tadashi Yamada

Mission Operations and Information Management Services Area (MOIMS-DAL)
Chair: John Garrett

Navigation Working Group (MOIMS-NAV)
Chair: Paul Barry

Information Architecture Working Group (SEA-IA)
Chair: Daneel J. Eshleman

Information Architecture Working Group (MOIMS-NAV)
Chair: David Barry

Security Working Group (SEA-SEC)
Chair: Howard Weiss

Security Working Group (MOIMS-TP)
Chair: Louis L. Rend

SEA SANA Working Group (SANA-SA)
Chair: Marc

Spacecraft Monitor and Control Working Group (MOIMS-SMCL)
Chair: Norio Hara
new work areas:

- Optical channel coding
  (in Space Link Services area)
- Super BOF (CCSDS architecture)
- Space Data Link Security
Latest Membership news
- China just accepted for full membership
- Turkey just applied for observer membership

Next meeting: London, end of October 2010.
CCSDS Publications

- Layout defined in the publications manual A20.0-Y-2
- Coloring and development process described in A02.1-Y-2.1
  - Blue  Recommended Standard
  - Magenta  Recommended Practice
  - Pink Sheets  Proposed Revised Recommendation
  - Green  International Reports
  - Yellow  Administrative Documents
  - Orange  Experimental
  - White  Working
  - Red  Draft Recommendation
  - Silver  Historical
CCSDS Standards
CCSDS Overview

Normative
- Proposed Draft Recommended Practice
- Proposed Draft Recommended Standard
- Draft International Report
- Draft Experimental Specification

Non-Normative
- Draft Recommended Practice
- Draft Recommended Standard
- CCSDS Experimental Specification

Administrative
- Draft CCSDS Record
- CCSDS Report

Working Group Internal Development

Mission Deployment
- CCSDS Recommended Practice
- CCSDS Recommended Standard
- CCSDS International Report

Experimental Deployment
- CCSDS Historical Document

Decommitted Deployment

Hard Requirement
Prospective Requirement
Creation Date of CCSDS Standards
CCSDS Standards

CCSDS Overview

Document development within CCSDS
DANKE für ihrer Aufmerksamkeit!