

TITLE OF GROUP: **Cross Support Service Architecture:
Birds-of-a-Feather (BoF) Group**

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A. RATIONALE FOR THE BOF:

The Inter-agency Operations Advisory Group (IOAG, <http://www.ioag.org>) has emerged as a primary stakeholder for the CCSDS overall program of work. The IOAG is an international forum that links space mission operators and their supporting service providers. A primary role of the IOAG is to facilitate increased cross support and interoperability among the elements of mission support infrastructure provided by multiple participating Agencies. Benefits of such interoperability include:

- 1 Overcoming the constraints of increasingly-congested space spectrum via coordinated efficient utilization of bandwidth and planned international migration toward higher frequencies.
- 2 Facilitating the confederation of heterogeneous communication assets provided by many organizations, including monolithic RF antennas, arrays of small RF antenna, relay satellites, and optical telescopes.
- 3 Facilitating seamless and secure end-to-end data flow through such a confederation of assets.
- 4 Consequentially, expanding the opportunities for conducting cooperative, international missions in Earth orbit, cislunar space and deep space.

The IOAG recognizes that, to achieve these benefits:

- Interoperable space mission support infrastructure needs to be built around standardized space data handling services.
- CCSDS is a primary international standards forum that develops standards which help groups such as the IOAG develop standardized infrastructure and services.
- An overarching "cross support service architecture" is needed for three purposes :
 1. To show how elements of mission support infrastructure provided by different organizations can draw upon standard services that exposed to each other.
 2. To determine how current standards contribute to development and sharing of such services, and if new standards are needed.
 3. To allow space mission organizations to quickly and easily discern how they may interface with such an international service infrastructure.

B. PURPOSE AND SCOPE OF THE BOF:

This BOF is formed to develop the charter for a joint CCSDS-IOAG Working Group that will create the top-level "Cross Support Service Architecture" that will be shared by both organizations to provide the framework for elaborating the standard services, interfaces, and their relationships. It will employ the conventional SLE "service-provider/service-user" model but will extend it to include both space and ground views. In this extended model, communications assets are divided into ground assets (e.g. ground tracking networks and control centers) and space assets (e.g. Earth relays, Lunar relays and Mars Relays) providing services to flight missions. The cross support architecture will focus clearly on the standard relationships between service users and service providers.

The BOF will define how to form and staff a Working Group (WG), with named support from both the CCSDS and the IOAG, to develop the Cross Support Service Architecture. It is envisioned that the WG will perform the development as (nominally) a 5-step process:

1. Gather the information that is needed from the IOAG members in order to supply the working group with necessary customer requirements.
2. Create a "Cross Support Services Catalog" that clearly identifies the provider/user service interfaces for current space communications assets (ground and space, including space relays and in-space networking) and also for future space communications assets that are planned by the participating Agencies, as they evolve on 5, 10 and 15 year centers. This catalog will identify where current CCSDS standards enable the provision of standard services, and where future CCSDS standards are needed.
3. Secure widespread review and approval of this service-catalog view of present and future cross support, by IOAG and CCSDS members.
4. Create an overall reference architecture for inter-Agency cross support that is based on this agreed service catalog.
5. Secure widespread review and approval of this reference "Cross Support Service Architecture" for inter-Agency cross support, by IOAG and CCSDS members.

It is proposed that the CSSA end product should be a CCSDS Recommended Practice ("Magenta Book").

C. PROPOSED SCHEDULE:

Date	Milestone
Jun 2005	CSSA-BOF formed. Membership named by both IOAG and CESG
Jul 2005	CSSA-BOF discussions via e-mail and teleconference to develop overall terms of reference for the CSSA
Jul 2005	CSSA-BOF face-to-face discussions by IOAG members during IOAG-8 in Rome
Aug 2005	CSSA-WG charter development: program of work, resource plan, membership CSSA-WG chartered by CCSDS with named membership from both organizations
Sep 2005	CSSA-WG meets during CCSDS Fall 2005 meeting, Atlanta
Oct 2005	Cross Support Services Catalog development. Progress review at joint CMC/IOAG meeting
Dec 2005	Draft "Cross Support Services Catalog" review by IOAG
Feb 2006	Draft Recommended Practice (Draft 1 White Book) "Cross Support Services Reference Architecture" review by IOAG
Mar 2006	Final "Cross Support Services Catalog" review by IOAG; catalog becomes Annex to White Book
Jun 2006	Draft Recommended Practice (Draft 2 White Book) "Cross Support Services Reference Architecture" issued for review by IOAG and CMC
Oct 2006	CCSDS Recommended Practice (Magenta Book) "Cross Support Services Reference Architecture" approved and published by IOAG & CCSDS