

CCSDS LINK

A QUARTERLY NEWSLETTER

VOLUME 2 ISSUE 1 — JANUARY 2007

CCSDS Secretariat staff

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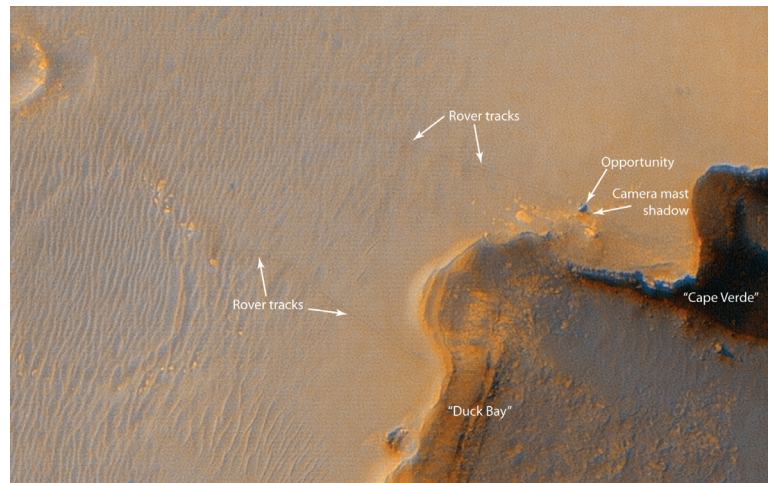
Welcome to the CCSDS Link

The Link is intended to serve as a communication forum for the CCSDS community. Through content developed by CCSDS technical experts, members of the CMC and CESG, and by secretariat staff we hope to provide readers with a wealth of information about the organization and its work. Information in the Link is aimed at CCSDS participants as well as users of CCSDS specifications and technical information.

We need your help to make this publication a success and a useful communication tool. Your input and content submissions will be critical. The intent is to issue the Link approximately once per quarter. We will solicit your content ideas with formal "Calls For Content", but are also very open to suggestions and topics of interest at any time. At times when we are approaching a CCSDS meeting we will shift the publication schedule to ensure you have all of the critical information you need for a meeting cycle in one place.

All that being said, please do not hesitate to submit any feedback on this publication to secretariat@mailman.ccsds.org at any time.

Best wishes for the New Year!



(MER Opportunity at Victoria Crater as seen from MRO – Credit: NASA/JPL/UA)

Introducing... The CCSDS Secretariat Staff

A new secretariat support contract was awarded by NASA in June 2006, here is what's going on back at "Headquarters"

Since June 2006 the American Institute of Aeronautics and Astronautics (AIAA) has provided secretariat support services to CCSDS through a contract with NASA. As such AIAA is responsible for the day-to-day operations of the CCSDS organization, from maintaining the website and CWE to editing and formatting draft standards, AIAA and its subcontractors keep the organization functioning with guidance and support from the CESC and CMC members.



Headquartered in suburban Washington, DC, USA, AIAA serves over 35,000 members in 65 regional sections and 79 countries. AIAA membership is

drawn from all levels of industry, academia, private research organizations, and government and focuses on emerging technologies in aviation, space and defense. For more information about AIAA and the products and services it offers to the aerospace community visit <http://www.aiaa.org>.

Our hope is that the transition of this duty to AIAA was seamless to you as a CCSDS user community. There was no downtime of the website associated with the move and no documents were lost or stranded in the system. We accomplished this by retaining the highly capable support staff and infrastructure that has made the CCSDS a highly functioning organization. Tom Gannett is still the chief CCSDS technical editor and responsible for interfacing with the working groups to ensure that all of our documents are released with the highest quality of technical content in a standardized format. You will continue to see Neil Dissinger at CESC and CMC meetings taking minutes and ensuring that we are adhering to our procedures and policies as we progress work items through the process flow. On the IT side, Brian Oliver continues to work diligently as our webmaster and CWE guru but we have gotten him some help. Laura Stafford joins Brian in keeping our online infrastructure up and running and continuously making improvements to our electronic tools. Craig Day is a new addition to the Secretariat staff and brings with him a solid background in aerospace standardization and committee process management from his experience as the AIAA standards program manager and Secretariat of ISO TC20/SC14 for the past 5 years.

This new relationship with AIAA affords CCSDS a stronger tie with ISO TC20/SC14 (space systems and operations standardization) as AIAA also provides the Secretariat to that committee. The Navigation WG is currently working with SC14/WG3 (ground support and operations) in the area of orbit data messages; further collaboration between the two groups could occur in the future. The AIAA link should increase the communication between these two groups. As you may know AIAA also provides a suite of technical products and programs, from conferences and workshops, to technical journals and books, that could serve as an avenue to more widely communicate the work done within CCSDS. In the end we think this new relationship will be a fruitful one. If you have any questions at all, don't hesitate to contact Craig Day (craigd@aiaa.org)

For Your Information

SpaceOps 2006 Papers Coming to CCSDS.org

Through an agreement with the SpaceOps organization and AIAA we will be posting the standards-related papers that were presented in Rome on the CCSDS website. Keep an eye on the "[Conference Papers](#)" section of the site for further updates.

Save the Date for Darmstadt Meetings

For purposes of your advanced planning, it is currently proposed to hold the Fall 2007 CCSDS meeting series at ESOC in Darmstadt, Germany as follows:

CCSDS area meetings	01-05 October 2007
CESC meeting	08 October 2007
CESC/CMC meeting	09 October 2007
CMC meeting	10-11 (AM) October 2007
ISO TC20 / SC13	11 (PM) October 2007
Reserve day	12 October 2007

Many thanks to ESA/ESOC for offering to host the meeting and for securing the room reservations. These dates are preliminary at this point and are subject to change pending finalization during the CMC meeting in Colorado Springs.

Help Spread the Word About CCSDS

In an effort to keep the widespread and continued use of CCSDS work in front of the greater space community, we have developed an organization communication plan. Part of this plan calls for issuing periodic press releases coinciding with significant missions, mission milestones, successes, demonstrations in which CCSDS specifications have played a role.

While we on the Secretariat staff can monitor the U.S.-based missions fairly well, we would very much appreciate your help in keeping us apprised of events worthy of further publicity occurring within your local space programs.

Of course an opportunity for publicity does not necessarily have to be directly mission-related. If you feel that ongoing standard development work may be of interest to a broader audience, let us know and we will help you to get the word out.

Please send any and all suggestions you may have at any time to secretariat@mailman.ccsds.org.

To view previous press releases and related stories, please visit the CCSDS "[Press Room](#)".



CCSDS Is Going To Colorado Springs

The next meeting cycle will take place in the heart of the Rocky Mountains

Hosted by NASA, the CCSDS January 2007 meeting series will be held in the beautiful Rocky mountain community of Colorado Springs, Colorado, USA. The main technical meetings will be held from 15-20 January followed by the management meetings which will be held from 23-26 January 2007.

A number of ancillary events and meetings will take place over the two weeks in Colorado and we will use this space to present an up-to-date listing of everything going on in conjunction with the meetings.

About The Venue

The main venue for the meetings will be the [Penrose House](#) in Colorado Springs. Built in 1910, the Mediterranean style home was placed on the United States National Register of Historic Places in 1994. While still embracing the history, charm, and craftsmanship of its era, Penrose House today also includes all the amenities of a modern conference facility.

Our event will be occupying the entire conference facility during the first week of technical meetings. In fact, in order to accommodate all of the many WG meetings it was necessary to secure additional space at an off-site hotel. We will be holding three meeting rooms at the nearby DoubleTree Hotel to ensure sufficient space for all of the groups to be productive. The schedule below represents the most up-to-date meeting listing as of 8 January. Any last minute changes to this schedule will be announced during the opening plenary session. Additionally, the SLE Service Management WG will be meeting on 15 January at the facilities of [RTLogic](#) in Colorado Springs (a map and directions to the facility can be found [here](#)).

Each of the WG meeting rooms will be equipped with one computer LCD projector and a screen. Laptops will **not** be provided

in each meeting room. We plan to establish a wireless network around the conference facility so that each meeting room will have internet access. So as to maximize our bandwidth we will ask that participants be courteous to other users and log-off the network when connectivity is not needed.

There will be a secretariat's office at the Penrose House with access to a printer and copy services. We will announce the exact location of this area during the Plenary session.

CCSDS "Wireless for Space" Workshop

On Monday, 22 January, we will sponsor a special 1-day international workshop to explore the potential application of commercially-derived (and especially the IEEE 802 family) wireless link and networking standards to four space mission data communications environments:

- Intra-vehicle (extremely short range)
- Inter-spacecraft (short and medium range)
- Planetary surface-to-surface (short and medium range)

Attendees will represent the various space mission communities, interested space companies and CCSDS technical standardization working groups. Key questions to be addressed are:

- What are the mission requirements?
- To what extent can they be satisfied by adopting or adapting commercially-derived wireless protocols?
- What are the problems of space use and flight qualification?

This workshop will be hosted at the University of Colorado in Colorado Springs, on the Monday immediately following the end of the CCSDS technical working meetings (22 January). Partici-

pation will be limited to 50-60 technical experts, with significant attendance expected by national space agency personnel.

The workshop will begin promptly at 08:30 on the 22nd. A continental breakfast will be provided for workshop attendees. Attendees will be on their own for lunch at one of the many area eating establishments around the meeting venue. Afternoon refreshments will be served. For the current workshop agenda, please click [here](#). For a map to the workshop venue, please click [here](#).

Off-Site Reception and Product Demonstration

The folks at RTLogic have offered to host a reception for the CCSDS meeting attendees on 18 January 2007 beginning at 17:30. They would also like to show you their Blue Book 2 implementation of the SLE protocol, the first of its kind in the U.S. using COTS systems.

The reception will start promptly at 17:30 with the first demo and run until approximately 19:30. As many demonstrations as necessary to accommodate the attendees will be conducted. Refreshments will be served, courtesy of RTLogic.

The reception site is approximately 30 minutes by car from the meeting venue. Please keep this in mind when ending your working group sessions on Thursday the 22nd. All visitors to the site will be asked to complete a short security form upon entrance to the facility. For a map to the reception venue, please click [here](#).

Meeting Flow and Schedule

As you can see from the daily schedule, we have a very tightly packed agenda for the first week of meetings. Please keep that in mind as you conduct your meetings to ensure that all working groups are as productive as possible.

Meeting registration will begin promptly at 07:30 on Tuesday 16 January in the Garden Pavilion at the Penrose House. Please plan to arrive no earlier than 07:30 as the venue may be closed. The plenary session will begin promptly at 08:30 on the 16th

Some meeting rooms change from day-to-day, be sure to check your room assignment daily to find the correct meeting. A floor plan of the Penrose House will be provided to each attendee with their registration materials.

Due to size constraints at the Penrose House it was necessary to secure meeting space at the Double Tree Hotel. This venue is very near to the Penrose House. A map to this facility will be provided with your registration materials. We apologize for any inconvenience this may cause.

You will also notice that there is only one BoF meeting scheduled. We will have a large open room available throughout the week that can be used for BoF meetings on an as needed basis.

CWE Updates

In the coming months the Secretariat will be deploying a new version of the CCSDS Collaborative Work Environment (CWE). The new version will be built upon the latest implementation of the Microsoft Sharepoint® software. We expect the new CWE to perform much better and provide a much improved and

cleaner presentation. While the basic functionality of the toolset will remain, its organization and interface will change. As such we are requesting that each Area Director, Deputy Director, and Working Group chair take twenty minutes out of their schedule during the technical meeting week to meet with Brian Oliver for an overview of the new system. A "sign-up sheet" has been posted [here](#), meeting slots are allocated on a first-come, first-serve basis.

Luncheon Speakers

We have invited a number of colleagues to speak during the lunch session each day (during the technical meeting week) to present some of the highlights of their work of interest to the CCSDS community. The schedule for these sessions will be as follows:

- 16 Jan Mario Merri/ESA S/C Monitor and Control
- 17 Jan Erik Barkley/NASA Cross Support Service Management
- 18 Jan Keith Scott/NASA Cislunar Internetworking
- 19 Jan Jim Lyke/AFRL US Air Force S/C Plug-n-Play
- 20 Jan John Rush/NASA NASA Space Communications and Navigation Architecture

Please remember that the complimentary lunch will be served at a fixed time, promptly at 12:30, each day. Working groups should therefore plan on adjourning their morning meetings by approximately 12:15 to allow people to migrate across to the Garden Pavilion in time to move through the buffet lines. We expect that the technical seminars will start about 12:55PM, once people have settled down to eat. Those groups meeting off-site will need to return to the Penrose House to partake in the provided lunch each day.

Getting Around in Colorado Springs

Transportation in and around Colorado Springs, including to and from the meeting venue each day, will be each attendee's responsibility. Be prepared to drive between your hotel and the different meeting venues. It may be beneficial to make carpool arrangements with your colleagues prior to your arrival in Colorado Springs if you are not planning to rent a vehicle.

Other Information

While you may have heard stories of the state of Colorado being buried under mountains of snow lately, we assure you that it is still there! Adrian Hooke recently reported that he was in Colorado Springs at the tail end of one of the recent blizzards and was able to travel across the state with minimum disruptions. That being said, snow could be a factor in January as well as temperature. Please take a moment to review the [current forecast](#) for the time you will be in Colorado Springs prior to your departure and plan accordingly.

In the event of inclement weather in Colorado Springs during our meetings please call 800-275-7501 x849 (Craig Day's voicemail). We will post any delay or cancellation information there.

As always, please remember any necessary power socket adapters and/or voltage converters you may need while in the United States.

CCSDS WG Meeting Schedule Last Updated 10 January 2007

Code	Room	Capacity
Car	Carriage House	30
Pro	Proby	24
Pen	Penrose	24
Cri	Cripple Creek	21
Tow	Tower	18
Bro	Broadmoor	15
Tru	Trustees	12
2BR	2nd Floor BR	24
2Of	2nd Floor Office	8
SDR	Small dining room	15
PAV	Garden Pavilion	100+
RTL	RTLogic	N/A
DT1	Double Tree Hotel 1	20
DT2	Double Tree Hotel 2	20
DT3	Double Tree Hotel 3	20

WEEK ONE

WEEK TWO

	Jan 15th - Mon - 08:30 - 17:30	Jan 16th - Tue - 07:30 - 08:30	Jan 16th - Tue - 08:30 - 09:30	Jan 16th - Tue - 10:00 - 12:00	Jan 16th - Tue - 13:30 - 17:30	Jan 17th - Wed - 08:30 - 17:30	Jan 18th - Thu - 08:30 - 17:30	Jan 19th - Fri - 08:30 - 17:30	Jan 20th - Sat - 08:30 - 15:00	Jan 20th - Sat - 15:00 - 17:30	Jan 22nd - Mon - 08:30 - 17:30	Jan 23rd - Tue - 08:00 - 12:00	Jan 23rd - Tue - 13:30 - 17:30	Jan 24th - Wed - 08:30 - 17:30	Jan 25-26th - Thur&Fri - 08:30 - 17:30
CCSDS Management															
CESG meeting												Car			
CESG/CMC joint workshop													Car		
CESG/CMC joint meeting														Car	
CMC meetings															Car
CCSDS															
Wireless workshop											**				
Registration		PAV													
CCSDS Plenary			PAV												
Systems Engineering Area															
1.0 SEA Plenary				Car						Pro					
1.1 System Architecture WG						SDR									
1.2 Security WG							Tru	Bro							
1.3 Info Arch WG								Pro							
1.4 SANA WG								2Of							
SGIA BoF					DT3										
Mission Ops and Info Mgt Svcs Area															
2.0 MOIMS Plenary				Pen						Pen					
2.1 Data Archive Ingestion WG					Pen	Pen	Pen	Pen	Pen						
2.2 Navigation WG					2BR	2BR	2BR	2BR	2BR						
2.3 Info Packing and Registries WG						Tow	Tow								
2.4 Spacecraft Monitor & Ctrl WG					Car	Car	Car	Car	Car						
Cross Support Services Area															
3.0 CSS Plenary				DT1						DT2					
3.3 Service Management	RTL				DT1	DT1	DT1	DT1							
3.6 Cross Supt Transver Svcs WG					DT2	DT2	DT2	DT2	DT2						
Spacecraft Onboard I/F Svcs Area															
4.0 SOIS Plenary				Tru						Tru					
4.1 Subnetwork WG					Tru	Tru	Tru								
4.3 Application Support WG					Bro	Bro		DT3	Tru						
Space Link Services Area															
5.0 SLS Plenary				Pro						Tow					
5.1 RF & Modulation WG							Cri	SDR							
5.2 Space Link Code/Sync WG								Tow	Cri						
5.3 Data Compression WG					2Of	2Of	Bro	Bro							
5.4 Space Link Protocols WG								Cri	Tow						
5.6 Ranging WG					Cri	Cri									
5.8 High Rate Uplink WG					Pro										
Joint SLP/C&S						Pro									
Space Internetworking Services Area															
6.0 SIS Plenary										Pav					
6.1 CFDP Interop Testing WG				Bro											
6.4 Cislunar Space Internetworking WG					Tow		Pro	Pro							
6.5 Async Messaging Service WG					SDR		2Of	2Of							
6.6 IP over CCSDS links WG						SDR									
*Lunchtime Seminars															
Lunch will be served in the Garden Pavilion each day from 12:30 - 13:30 accompanied by the following presentations.															
Tuesday 16th: Mario Merri/ESA-ESOC: Spacecraft Monitor and Control															
Wednesday 17th: Erik Barkley/NASA-JPL: Cross Support Service Management															
Thursday 18th: Keith Scott/NASA-MITRE: Cislunar Internetworking															
Friday 19th: Jim Lyke/AFRL: US Air Force Spacecraft Plug-n-Play															
Saturday 20th: John Rush/NASA-HQ: NASA Space Communications and Navigation Architecture															
** The Wireless Workshop will be held at the Colorado Springs campus of the University of Colorado.															

New and Noteworthy

The following documents have recently been released for formal agency review or have been published.

Documents Under Review

CCSDS 503.0-R-2 (Red Book) Issue 2: *Tracking Data Message*

The Tracking Data Message (TDM) draft Recommended Standard specifies a standard message format for use in exchanging spacecraft tracking data between space Agencies. The current draft issue incorporates changes in response to RIDs received in the course of the initial review.

Comments due by 30 March 2007

CCSDS 311.0-R-1 (Red Book) Issue 1: *Reference Architecture for Space Data Systems*

Reference Architecture for Space Data Systems (RASDS) is intended to provide a standardized approach for description of data system architectures and high-level designs, which individual CCSDS working groups may use within CCSDS.

Comments due by 9 April 2007

Recently Published Documents (since Nov. 2006)

[CCSDS 121.0-B-1 Cor. 1: Technical Corrigendum 1 to CCSDS 121.0-B-1](#)

This Technical Corrigendum documents changes to CCSDS 121.0-B-1, Lossless Data Compression (Blue Book, Issue 1, May 1997)

[CCSDS 120.0-G-2: Lossless Data Compression](#)

This Report presents a summary of the key operational concepts and rationale underlying the requirements for the CCSDS Recommended Standard for Lossless Data Compression. Supporting performance information along with illustrations are also included. This Report also provides a broad tutorial overview of the CCSDS Lossless Data Compression algorithm and is aimed at helping first-time readers to understand the Recommended Standard. The current issue corrects minor errors in the original and updates obsolete information.



As you know one of the metrics we use to track the use of CCSDS standards is the number of missions flying implementing our standards and protocols. The current count stands at 338, a pretty impressive number. We very much want to ensure that our count remains accurate and current however. This is another area where the Secretariat could use your help. We currently use the Spacecraft ID list as our means of tracking missions using our protocols. This could be missing a significant number of vehicles though. Please help us to stay on top of this statistic by informing the Secretariat any time a new program, mission, or vehicle you are working on decides to implement one of our specifications.

CCSDS Leadership

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