International Earth Science Constellation
Mission Operations Working Group
June 02-04, 2015
Constellation Coordination System (CCS) Status
Daniel Skeberdis & David A. Tracewell
CCS_Support@ai-solutions.com, +1.301.416.5050

Agenda

- ## CCS 7.0
  - Operational Status
  - System Anomalies
  - BEOC Failover Test Lessons Learned

- ## CCS 7.1
  - Development Status
  - High-Level Overview

- ## Discussion Topics

CCS 7.0

CCS 7.0 Operational Status

- Operational status is nominal

- Routine CCS Patch Updates
  - BEOC: Second week of each month
  - EOC: Third week of each month

- Special Activities
  - Supported delivery of new ephemerides from CALIPSO to CARA
  - Performed a test failover to the BEOC from February 9th to February 12th

CCS System Anomalies

- Operational Issues Overview
(from October 2014 to June 2015)
    - CCS FTP Server 'Blue Screen' on November 16, 2014
    - CCS Content Server 'Blue Screen' on March 14, 2015
    - Network Attacks on March 28, 2015
    - File re-acquisition on March 29, 2015

CCS FTP Server Blue Screen on 11/16/14

- Issue:
  - The CCS FTP Server encountered a fatal error in the evening due to a battery failure on the Redundant Array of Independent Disks (RAID) controller.

- Ops Impact:
  - Missions were unable to deliver files to the CCS FTP server from 9:00pm ET to 9:30am ET.
  - Missions were required to use workarounds to deliver ephemerides to CARA.
  - Missions given the greenlight to resume deliveries to the CCS FTP server at 11:15am ET.

- Lessons Learned:
  - Increased awareness of RAID controller batteries.
  - Have replaced several RAID controller batteries on other servers since the event.

CCS Content Server Blue Screen on 03/14/15

- Issue:
  - The CCS Content Server encountered a memory access violation due to Backup Exec Engine not being able to access a file locked by the OS, causing blue screen.

- Ops Impact:
  - Server was not part of CCS Operations string at the time, and there were no direct impacts to operations.
  - CCS Website was not affected.

- Lessons Learned:
  - Server should have automatically rebooted after blue screen.
  - Settings were modified to ensure a self-reboot back to the log-in screen.

Network Attacks on 03/28/15

- Issue:
  - The CCS Proxy Server went down after four Network attacks over a 9 second time period.

- Ops Impact:
  - The CCS Proxy Server and CCS Website were down between 04:27 and 08:35 UTC
  - The CCS FTP Server was unaffected

- Lessons Learned:
  - Pending

File Re-Acquisition on 03/29/15

- Issue:
  - CCS EOC regenerated 1056 files, 422 of which were then delivered via FTP Product Subscription. This was a combination of Acquisition, Conversion, Merge and Trend Products.

- Ops Impact:
  - CCS users with Product Subscriptions received old Products
  - CARA's forwarding of some CCS ephemerides to end-users was temporarily disabled

- Lessons Learned:
  - Archive additional directories on the CCS FTP to which missions deliver products
  - Migrate the CCS FTP server away from using Daylight Savings Time

CCS BEOC Failover Test Lessons Learned

- Host Key Acceptance
  - **Issues:**
    - GCOM-W1 ephemerides were not delivered to the BEOC FTP server and were therefore not being acquired by the CCS.
    - CALIPSO's automation failed after the URL change from EOC to BEOC.
  - **Resolution:**
    - The host key needed to be accepted by GCOM-W1 and CALIPSO.
    - Future CCS failover notifications will include explicit call-outs to check for host key acceptance.
  - **Lessons Learned:**
    - All missions should ensure the host key has been accepted when delivering to the CCS, especially when delivering to the FTP IP address instead of the FTP URL.

CCS 7.1

CCS 7.1 Development Status

- Completed Functional Acceptance Testing (FAT) on May 1, 2015.

- 2-week User Acceptance Testing (UAT) from June 8 to June 19, 2015.
  - CCS Support will notify mission operators before the process begins
  - Your feedback will help identify concerns
  - Notify the team of any critical mission operations during this timeframe

- Operational Readiness Review (ORR) tentatively on June 29, 2015.

- Promotion to Operations (PTO) in early July 2015 timeframe.

CCS 7.1 High-level Feature Overview

1. Additional email types are generated, all email template formats are standardized, and emails are delivered to a greater number of relevant recipients.

2. CCSDS OEM ephemeris files can be used in analyses. (Angie Kelly)

3. The "Point of Contact" for a mission can no longer be removed and their account cannot be deactivated.

4. A user can no longer remove themselves from a mission.

5. The 'CC User' option when saving analyses now uses a multi-select dropdown of users.

CCS 7.1 High-level Feature Overview

6. After running a tool, there exists a button to return to the Input Parameters.

7. The CCS banner has been adjusted slightly.
(Warren Case)

8. The Product Subscription page now loads faster.

9. There is now a Logout button on the Navigation Menu.
(Lucy Lee)

10. Miscellaneous bug fixes and User Interface updates.

11. Updated Help documentation.

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CCS 7.2 Potential Features

- Overhaul all plots and visuals on the Home and Tools pages.

- Create a "Trending Tool" to supplement existing trending capability.

- Automated Control Box Violation emails:
  - Include definitive exit and turnaround dates.
  - Only send an email when the violating mission has updated information.

- Standardize analysis report filenames.

- Allow a CMA to see their users' profiles.

CCS 7.2 Potential Features

- Tools:
    - Merge Close Approach and Constellation Close Approach tools.
    - Improve Mean Local Time at the Nodes plotting.
    - Add an ephemeris table and output report table to all analyses.
    - Allow users to modify and share their Saved Analyses.
    - Add the ability to select "use latest ephemeris" for a Product Rule.
    - Update Argument of Latitude to only use a single input epoch.
    - Prevent Constellation Close Approach fail from selecting too many missions.
    - Allow tools to select multiple Product Rules from one mission (ex. Burn vs. No Burn).
    - Add the ability to save a Satellite Situational Awareness tool to the Saved Analyses.
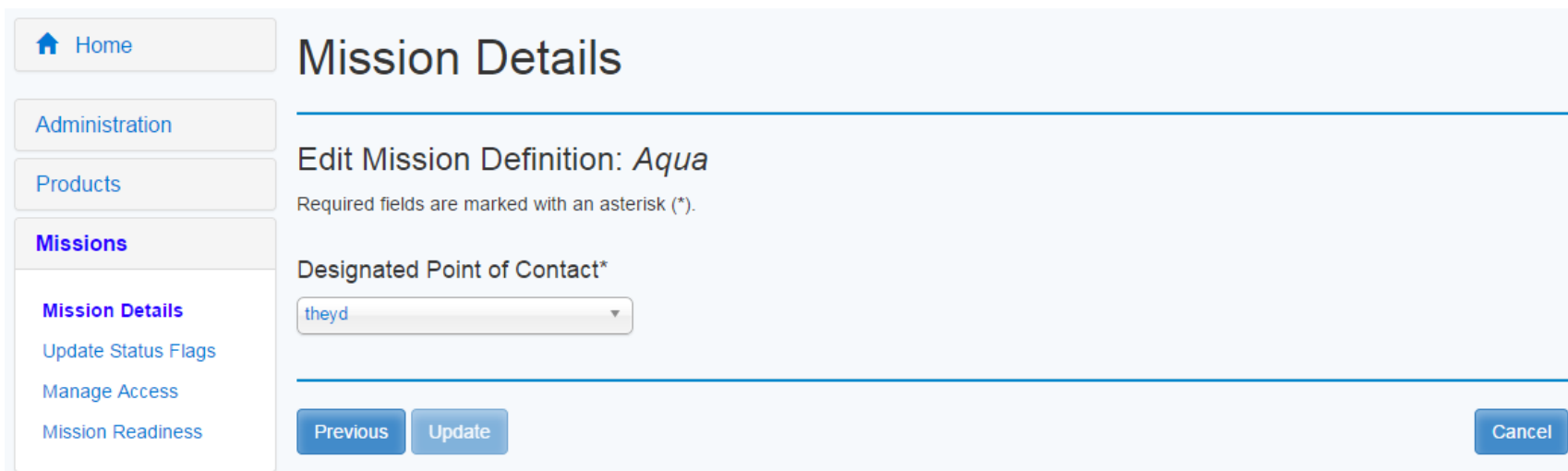
Future CCS Releases

- CCS Support always encourages users to submit enhancement ideas (tools, analyses, visuals).
  - Please send new requests by the end of June 2015 to be included in the next release.
  - Any ideas not included in the next release are retained and will be re-considered in the design and envisioning of subsequent CCS releases.

- Send your enhancement requests to:
  CCS_Support@ai-solutions.com
  https://ccs.esmo.nasa.gov/#/AboutUs/ContactUs

Discussion Topics

Discussion Topics

1. Mission Point of Contact:
   - There is one Point of Contact per mission.
   - The role does not provide additional responsibility within CCS.
   - These are users who can answer CCS-related questions for their mission.
   - They must already be a Mission Administrator for the mission.

Discussion Topics

1. Mission Point of Contact (cont.):

   – Aqua   Tiffany Heyd
   – Aura   Tiffany Heyd
   – CALIPSO   Lucia Lee
   – CloudSat   Barbara Braun
   – CMOC   Paul Frakes
   – EO-1   Ben Holt
   – GCOM-W1   Kyohei Akiyama
   – Landsat-7   Timothy Wilcox
   – Landsat-8   Susan Good
   – OCO-2   Reese Wynn
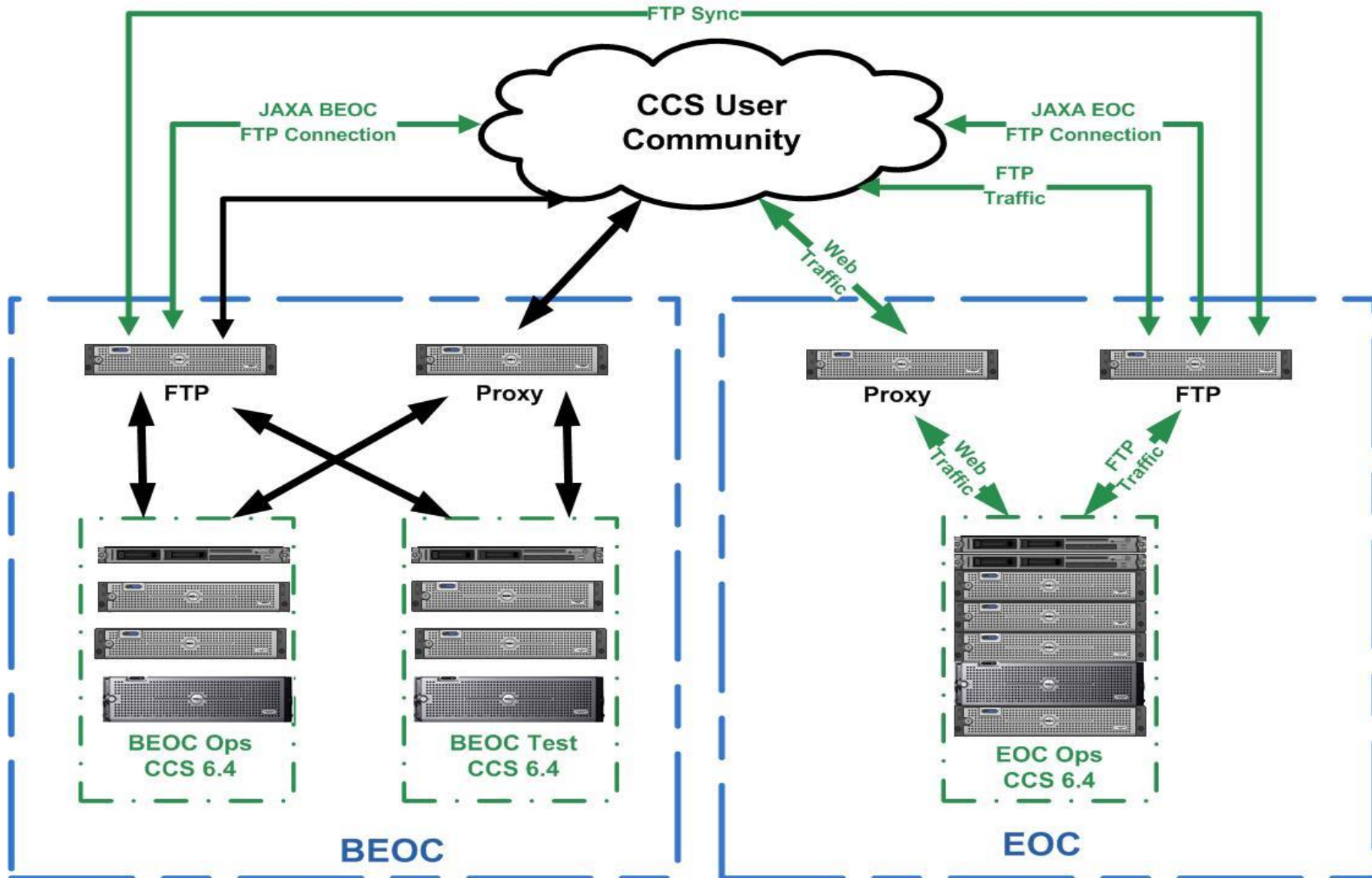   – Terra   Tiffany Heyd

As of: 3/23/15

Questions?

- Thank you for your continued support!

- For all CCS communications please contact:
  CCS_Support@ai-solutions.com

- CCS Operations Task Lead:
  Lucy X. Hoang
  Lucy.X.Hoang@nasa.gov

- CCS Development Task Lead:
  Joshua Levi
  Joshua.Levi@ai-solutions.com

Back-up Slides

Current System Architecture

CCS 7.1 Ticket Items

Type	Summary
Enhancement	Remove Period from Password Reset E-mail
Bug	Remove Code500 from the selection for Trended Ephems
Bug	Prevent Ephems from being created with illegal characters (\ / : ? * " < > |)
Enhancement	Enhancements to Manage Mission Access functionality
Enhancement	Send a Locked User an Email when attempting to log in
Enhancement	Prevent 'Mission Point of Contact' from being changed until they are removed from Mission Owner
Enhancement	Add custom sorting to Manage Product Rules and Mission Details pages
Enhancement	Add an indicator of the number of Mission Access Requests on the Manage Access page
Bug	FTP Details should ignore trailing "/" or "\" in the FTP Server Path
Bug	Edit Profile can fail if two users are attempting to use the same email address at the same time
Enhancement	Standardize email templating and delivery mechanism
Bug	Home page displays "Log In" page briefly
Bug	Enhanced Charts' zoom buttons are not centered below the charts

CCS 7.1 Ticket Items

Type	Summary
Enhancement	Standardize appearance of table filter input boxes
Enhancement	Profile/Registration form - move "NASA Affiliation" section to the right of the company information section
Enhancement	Improve user experience on Product Subscription
Enhancement	Simplify and shrink top bar
Enhancement	Add "Done Loading" logic to all pages
Bug	Control Box Emails should use a negative sign for lower bounds
Enhancement	Allow user to repeat a tool run with altered parameters
Bug	In Register / Edit Profile, assigned mission should be a required field
Enhancement	Add the applicant's email address to the Applicant Approvals page
Enhancement	Make the logout button always appear on the page
Enhancement	Add capability to CCS to include covariance data in OEM
Bug	"Click here to request access" links on tools pages do not direct to Mission Details page
Bug	Tool dropdowns do not list missions alphabetically

CCS 7.1 Ticket Items

Type	Summary
Enhancement	Restructure CCS email body formats
Enhancement	Text Change on Registration and My Profile pages
Bug	Fix deeplinking for PhaP video and Saved Analyses
Enhancement	Make CC field in Save Analysis section of tools a drop down of CCS Users
Bug	Enforce the size limitation on the "Note" fields for Status Flags.
Enhancement	Change "ESMO Management" to "ESMO Constellation Management"
Enhancement	Discuss with Nancy / Angie regarding Email Delivery Recipients
	General Improvements and bug fixes
Enhancement	Make all dropdowns that list a user use First Name Last Name
Enhancement	Add the business hours for CCS Support on the Contact CCS page.

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Future CCS Ticket Items

Type	Summary
Enhancement	Control Box Violation Emails
Bug	Milliseconds not being transferred from ephem inspection to tool analysis
Enhancement	Allow Mission Administrators to view the profiles for a mission's set of Mission Users
Bug	Improve Product Rule Consistency on Re-Acquisition
Enhancement	Add list of Products to Subscription Notification Email
Enhancement	Hiding Product Rules
Enhancement	Home Page MLT Visualization
Enhancement	Constellation Close Approach Tool Should Only Check Range
Enhancement	Cannot save OVT or SSA to My Saved Analysis
Bug	Control Box CBEmailNotificationData Report is broken
Bug	Enhanced Charts 'Zoom In' Functionality doesn't work as expected
Bug	Ad-Hoc Plot - Y-Axis Labels
Enhancement	Place the ephem names used in the analysis on the genterated plot for each tool

Future CCS Ticket Items

Type	Summary
Bug	MLTN tool can show empty plot
Enhancement	Need additional information for Duration Selection
Bug	Ad-Hoc Tool Graph
Bug	Getting analysis failed when selecting certain missions while using Constellation Close Approach
Bug	Create Acquired Product -- no option for "leave compressed"
Bug	Failed analyses output should not contain any references to non-existent plots or data files
Bug	Absolute Lower/Upper Limit in Enhanced Chart Can be Zoomed off plotting area
Enhancement	Control Box Violations may not include exit/turnarounds
Bug	Control Box Analysis errors when using same mission as reference and analysis
Enhancement	Phase Margin Analysis Tool - Remove Reference Mission Subtext
Bug	SSA tool color changing bug
Enhancement	Close Approach Analysis Range Color
Enhancement	Argument of Latitude Tool - Analyze Specific Epoch

Future CCS Ticket Items

Type	Summary
Bug	Ad Hoc (Basic) Plot Issues
Enhancement	Ability to remove access to Missions' files
Enhancement	Ground Track Analysis Runtime is too long
Enhancement	'Cancel' button on Edit Product Rule pages should return to Product Rules and Files page with Mission already selected
Enhancement	Mission Readiness Summary
Enhancement	Mean Local Time at the Nodes - Ephemeris Selection
Enhancement	Clear Pop-ups on next interaction with DB
Enhancement	Fix the Calendar picker
Enhancement	Add a list of analysis files to each tool page
Enhancement	Make pages support mobile browsing better
Enhancement	User is not directed to the Home page when clicking 'Help' after they are deactivated
Enhancement	Saved analysis sharing options
Enhancement	Modify Saved Analyses list to include an "Edit" option

Future CCS Ticket Items

Type	Summary
Enhancement	Use latest ephem option in tools
Enhancement	Improve speed and usability of SSA
Enhancement	Improve behavior of Back button in all pages
Enhancement	Forms should give focus to first form element when loaded
Enhancement	Rewrite argument of latitude as a 3D tool
Enhancement	Create new plots for tools and home page
Enhancement	Convert paired date pickers to be explicit Date time range widget
Enhancement	Convert all "wizard" style forms to be single page forms
Enhancement	Overhaul Help tool
Enhancement	Create a CCS messaging system
Enhancement	Customizable Hompage
Enhancement	Remove 'sorted' arrow in a table when the column is no longer considered sorted
Bug	Modify the Associated Mission parameter on the Registration and My Profile pages

Future CCS Ticket Items

Type	Summary
Enhancement	Make "Select a different product rule" a button
Bug	SAC-C Link in About Us should point to an English language site or translation
Enhancement	Rename output files on Home page
Enhancement	Reassess the purpose and implementation for CCS Trending
Enhancement	Make Home page plots show a "slide show" of times
Enhancement	Make "Predicted Current" the default selection on the Home page plots
Bug	PhaP Tool Video Deeplinking Issue
Enhancement	fix ad-hoc apogee/perigee values
Enhancement	User should not be alerted when they request a password reset for a non-existent username
Enhancement	Allow Tools to run multiple ephemerides from the same mission
Enhancement	Incorporate periodic password changes
Enhancement	Add ability for automations to deliver an error to CCS Team
Enhancement	New Automated Analysis: MLT CB

Future CCS Ticket Items

Type	Summary
Enhancement	New Automated Analysis: Phasing and GTE CB
Enhancement	Status Flag Notification deliveries
Enhancement	Upgrade the (S)FTP Server Architecture
Enhancement	Save the results of "Saved Analyses"
Enhancement	Create a browser-based "drag and drop" ephem conversion tool
Enhancement	Option to merge the Phasing at the Poles plots
Enhancement	Split the Close Approach plots
Enhancement	Orbit Intersection Phasing on Home Page

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