Overview of Lesson

• Introduction

• Configuration Management Topics
  – EMD Configuration Management (CM) Activities
  – Configuration Control Boards (CCBs)
  – Configuration Change Requests (CCRs)
  – Software Baselines and Changes
  – Changes to Hardware Baselines
  – Changes to the Baseline

• Practical Exercise
Objectives

- Overall: Proficiency in Configuration Management
  - Describe the EMD CM activities
  - List Configuration Control Boards (CCBs), roles, and responsibilities
  - Process a Configuration Change Request (CCR)
  - Review Configuration Parameters in Configuration Registry
  - Access baseline information
  - Process a change to the inventory
Importance

Lesson provides preparation for several roles to ensure effective CM for implementation of system changes

- CM Administrators
- System Engineers, System Test Engineers, Maintenance Engineers
EMD CM Activities

• Configuration Management team’s primary responsibility is to provide and protect the integrity of the EMD baseline
  – Also must ensure that baseline changes are made using formal processes

• Objectives of EMD configuration control are to ensure:
  – Changes are adequately defined, assessed for technical, cost, and schedule impacts by the EMD office(s), and formally considered by the appropriate CCB
  – Only approved changes are incorporated in the appropriate baseline in an orderly and systematic manner
  – Actions assigned by each CCB are monitored and brought to closure
EMD CM Activities (Cont.)

• DAAC Unique Extensions (DUEs)
  – SCDV CCB reviews the DUEs for potential impact to the EMD Configuration Baseline System and for potential inclusion in the EMD Baseline System
  – If warranted, the SCDV CCB authorizes inclusion in the EMD Configuration Baseline System
• **Software Configuration Management (SCM)**
  
  – Uses the CCR process to release COTS and custom software to the sites
  
  – A custom software component can only change with the issuance of an NCR using the Distributed Defect Tracking System (DDTS™) tool
  
  – The base upon which the change is made is the custom code design baseline, which is maintained by the ClearCase™ software configuration management tool
EMD CM Activities (Cont.)

- Software Configuration Management Tools
  - Remedy™ Trouble Ticketing
  - Distributed Defect Tracking System (DDTS™)
  - Software Turnover Tracking System (STTS)
  - ClearCase™ Software Configuration Management System (ClearCase™)
  - ClearCase™ Baseline Manager (BLM)
  - EMD Change Manager (ECM)
  - Proposal Assessment Board (PAB) Database
  - Data Management Tool
  - ClearCase™ Delivery Tool
  - Engineering Software Delivery Daemon
  - Source Code Delivery Tool
  - Custom Code Installation Emulator
EMD CM Activities (Cont.)

- EMD Baseline Information System (EBIS)
  - Implemented with a physical web server internal at Landover and locally at the DAACS
  - EBIS URLs are:
    - http://pete.hitc.com/baseline/ (Internal EBIS web server)
    - (External EBIS web servers)
      - LPDAAC http://e0ins01.edcb.ecs.nasa.gov:10160/baseline/
      - GES http://g0ins01.gsfcb.ecs.nasa.gov:10160/baseline/
      - LaRC http://l0ins01.larcb.ecs.nasa.gov:10160/baseline/
      - NSIDC http://n0ins02u.ecs.nasa.gov:10160/baseline/
      - SMC http://m0mss04.ecs.nasa.gov:10160/baseline/
EMD CM Activities (Cont.)

• Library Maintenance
  – EMD program uses two distinct libraries
    - Document Center (maintained by the Data Management group)
    - COTS Software Library (managed by the ClearCase™ Support Group)
EMD CM Activities (Cont.)

- Configuration identification
  - Maintenance and control of technical documentation
- Configuration status accounting
  - Recording and reporting information about the configuration status of system documentation, hardware, and software
  - BLM reports
EMD CM Activities (Cont.)

- Configuration audits
  - Physical Configuration Audits (PCAs) are formal assessments of the actual configurations of all baselined EMD hosts
    - Software PCAs compare the COTS software, custom software, O/S patches, and UNIX® kernel parameters of the actual hosts to the EBIS design baseline
    - Hardware PCAs compare the physical hardware to the EBIS design baseline, and covers items such as memory, disks, and host configuration
  - Functional Configuration Audits (FCAs) are conducted to assure that each EMD product meets its specified performance requirements to the extent that can be determined by testing
Configuration Control Boards

ESDIS

EMD CCB

EDF CCB

SCDV CCB

DAAC CCBs

Per ESDIS CM Plan

Maintenance Changes
Configuration Control Boards (Cont.)

• ESDIS CCB
  – Level 2 board responsible for interfacing with higher-level boards for changes that affect Level 1 requirements, controlling Level 2 requirements, approving specified documentation, and procurements

• EMD CCB
  – Responsible for establishing and managing the configured baselines at the project level

• EDF (Infrastructure) CCB
  – Responsible for establishing and managing development

• Science and Development (SCDV) CCB
  – Has the authority and responsibility for controlling system releases
Configuration Change Requests (CCRs)

• No undocumented changes
  – all requests for change documented using CCR form
  – CCR generated against the baseline affected by the proposed change
  – Form can be completed electronically
    - Word processing form
    - Change Request Manager tool (CM Administrator)

• CCB review
  – CCR submitted to appropriate CCB
Software Baselines and Changes

- CSG ships the physical media, or delivers the files using the ClearCase™ Delivery Tool to the designated sites
  - Electronic delivery is performed via secure copy (scp) to target DAACs
- DAAC CCB approves the installation of the delivered software into a DAAC Operational Baseline (e.g., a mode, “OPS”, “TS1”, etc.)
  - Software is installed in accordance with CCR installation instructions, and in accordance with local DAAC procedures/processes
Configuration Parameters

• Default settings may or may not be optimal for local operations

• Changing parameter settings
  – May require coordination among Configuration Management Administrator, Database Administrator, and Operations personnel
  – Some parameters accessible on GUls
  – Some parameters changed by editing configuration files
  – Some parameters stored in databases

• Configuration Registry
  – Script loads values from configuration files
  – GUI for display and modification of parameters
  – Move (re-name) configuration files so system servers obtain needed parameters from Registry Server when starting
Configuration Registry
Configuration Registry (Cont.)
Hardware Baselines and Changes

• **Change Scenarios**
  – COTS hardware problem repair that requires a CCR
  – System enhancement

• **Repair with part of same make, model, version does not require CCR**

• **Change in make, model, version of a part to be used for repair, e.g., in an emergency, necessitates CCR to document the change**
  – Review/approval by site CCB
  – EMD/ESDIS review for impacts/applicability to other sites
  – Provision of controlled document updates to Document Maintenance and entry into CM
  – CM system updates to reflect change
  – Audits (FCA/PCA)
Changes to the Baseline

- CM Tools for baseline changes
  - Baseline Manager (BLM): ClearCase
  - Inventory/Logistical Maintenance (ILM) Manager: Remedy

- Related tools
  - From Management Subfunction software
    - Trouble Ticket System (TTS)
    - Problem reporting and tracking
    - Used by users, operators, system administrators
Baseline Terms and Concepts

• **Baseline Management** is to identify and control baselined versions of hardware and software, and maintain a complete history of baseline changes

• **Control Item** is any EMD item under version control by CM

• **Configuration Item (CI)** is an aggregation of hardware, firmware, software, or any discrete component or portion, which satisfies an end user function and is designated for configuration control

• **Baseline** is a configuration identification document or set of such documents formally designated by the Government at a specific time in the life cycle of a CI

• **Configured Article** is a control item reportable as part of the Configured Articles List (CAL)
Baseline Terms and Concepts (Cont.)

- **EMD Structure and Baseline Terms**
  - *Assembly*: an item made up of other items
    - *Parent*: a higher-level item (e.g., an assembly)
    - *Child*: an item that is a component of a higher-level item
  - *Bill of Material*: list of items that comprise an assembly
  - *Product Structure*: the parent-child pairings that define the bill of material for an assembly; each product structure record specifies the effective dates and quantities for a single component of a parent for each engineering change
  - *Active Date*: the date a component becomes effective in an assembly’s bill of material
  - *Inactive Date*: the date a component is no longer effective in an assembly’s bill of material
Baseline Terms and Concepts (Cont.)

• EMD Structure and Baseline Terms (Cont.)
  – *Engineering Change*: a mechanism for grouping, reporting, and controlling product changes collectively
  – *Revision*: sequence number of a product structure change to an assembly; signifies a change to the configuration of an assembly that does not alter its form, fit, or function
  – *Implementation Status*: a record describing the deployment of a control item to a site and the current state and associated date of its implementation; each control item has one record for each site to which it is deployed
  – *Exporting Data*: creating a formatted file or records extracted from the BLM database; control item engineering change, product structure, and interdependency records may be extracted and sent to another BLM site via ftp
  – *Importing Data*: loading BLM data from a formatted file
Product Structure - Operational (Network) View

ECS Operational Network Baseline
  ver: 2.0
  Site - 1 Operational Network Baseline
  ver: 2.0
  Site - n Operational Network Baseline
  ver: 2.0
  Site - n Network
  ver: 2.0
  Site - n Documents
  ver: 2.0
  Site - n FDDI Network - 1
  ver: 2.0
  Site - n FDDI Network - n
  ver: 2.0
  Site - n HIPPI Network
  ver: 2.0
  Configuration Data
  ver: 2.0
  Site - n FDDI Ring - 1
  ver: 2.0
  Site - n FDDI Ring - n
  ver: 2.0
  FDDI Switch/Router
  model: xx
  Configuration Data
  ver: 2.0
  Hub
  model: xx
  FDDI Concentrator
  model: xx
  Printer
  model: xx
  Host - 1
  ver: 2.0
  Host - n
  ver: 2.0
  Configuration Data
  ver: 2.0
  Printer
  model: xx
  Installable Unit - 1
  ver: 2.0
  Installable Unit - n
  ver: 2.0
  Software Bundle
  ver: 2.0
  Disk Partition - 1
  ver: 2.0
  Disk Partition - 2
  ver: 2.0
  Configuration Data
  ver: 2.0
  Platform/Processor
  model: xx
  RAID
  model: xx
  Disk Drive - 1
  model: xx
  Disk Drive - n
  model: xx
  Monitor
  model: xx
  Mem Card
  model: xx
  Hardware Bundle
  ver: 2.0
  Package - 1 (custom)
  ver: 2.0
  Package - n (COTS)
  ver: 2.0
  Product - 1
  ver: nn
  Product - n
  ver: nn
  OS
  ver: nn
  OS Patches
  ver: 2.0
  OS Patch - 1
  ver: nn
  OS Patch - n
  ver: nn
  Program Patches
  ver: 2.0
  Program Patch - 1
  ver: nn
  Program Patch - n
  ver: nn
  Configured Articles
Baseline and Inventory Management: Tools

• Baseline Management (BLM): ClearCase
  – Manages Baseline Records on software, scripts, GUIs
  – Maintained at ECS Development Facility (EDF)
    - Including 910-series affecting all sites and 920-series site-specific documents

• Inventory/Logistical Management (ILM): Remedy
  – Used at EDF to maintain property, repair, and software license data
  – Used at sites to create Maintenance Work Orders (MWOs) and record equipment maintenance activity
EMD Baseline Information System (EBIS)

PLEASE NOTE:
1. All of the embedded links have been updated to reference the new name, esdm-ilr-raytheon.com, for the external site.
2. All of the scripts that generate these pages have been updated.
3. "pdf" formats of the approved CCRs can be found from the "2005 CCRs" button below.
4. "html" formats of the approved CCRs can be found from the "2005 eCRs (new)" button below.
5. There are no outstanding issues with email.
6. If there are any questions, please call me at (301) 925-1137.

EBIS Bulletin:
1. New electronic CCRs are now available from the new ECM tool (2005 eCRs button).
2. These pages are generated from a Microsoft Access application, and launch faster.
3. Over time, the Additional Sheet, Stakeholders page, and ECOs will be viewable.

Technical Documents
- EMD Baseline Technical Documentation
- Detail Information on Release 6A.08 Custom Code CCRs, Deliveries, and Installation Status
- Detail Information on Release 7.7.00, 7.01, 7.02, and 7.03 Custom Code CCRs, Deliveries, and
EBIS List of Technical Documents

Technical Documentation Notes:

1. Documents highlighted in PINK are restricted documents. Users will not be able to access restricted documents from the cmdm-ldo.raytheon.com baseline mirror site. Contact CM for access to the restricted documents.
2. If you wish to print this table listing all technical documents, you will need to set your web browser printer orientation to Landscape.
3. All Official documents have the new 9xx-812-xxx-Revxx document numbers.
   - 9xx: Document series number
   - TDX: TD = Technical Document, X = site identifier (A = Applicable to all sites, E = EDC, G = GSFC, L = LaRC, N = NSIDC, S = SMC, V = VATC, FaRVC)
   - Revxx: Revision number xx
   (example: 920-TDG-001-Rev01 is document 920 series for GSFC DAAC, document ID 001, revision 01)
4. Each document has a "Current" and "Previous" folder. Navigate up by clicking on "Parent directory".
5. Previous versions of documents reside in the "Previous" folder.

<table>
<thead>
<tr>
<th>905</th>
<th>ECS System</th>
<th>905-TDA-001-Rev02.doc</th>
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<td>General Baseline</td>
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<td>903</td>
<td>COTS/SW VERSION B/L REPORT (ClearCase BLM)</td>
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<td>Baseline Install Matrix</td>
<td>910-TDA-008-Rev08.pdf</td>
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Remedy OPEN Dialog for ILM Access

Open ILM-EIN.
New ILM-EIN Entry Form

![New ILM-EIN Entry Form](image)

### Part Information

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### Location & Purchasing Info

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ILM-EIN Process Component Form