

The background image shows a construction site where a large, dark-colored pipe is being lowered into a trench. Several workers in safety gear are visible around the pipe. The scene is brightly lit, possibly by sunlight or strong work lights. The image is faded to serve as a background for the text.

CED Status Update

Theo Larrieu

Outline

- Software
 - Status
 - Recent Developments
 - Future Developments
- Contents
 - Status
 - Adding, Updating, Removing data
- CED / Songsheets relationship

Configure Expert 30Hz control FOPT Data FOPT compare

Status

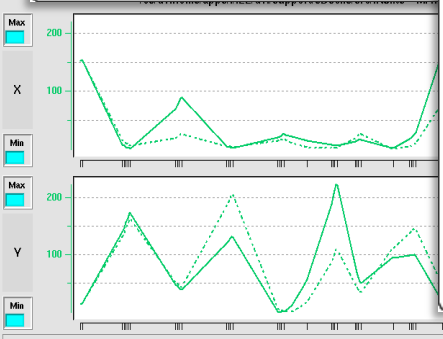
Retrieving lattice with ced2elegant (This could take up to ~30 seconds)

/cs/jtbs/edm/xSystem/off/theo_ops100_26434.edl

Beam Energy Monitor 08Oct14 17:06:39

	dp/p bpm	dp/p corr	dp/p total	MeV	Target	Valid
INJ	off	on	0.00e+00	0.00e+00	102.01	102.27
ARC1	off	on	0.00e+00	0.00e+00	1011.74	1011.36
ARC2	off	on	0.00e+00	0.00e+00	1020.72	1020.35
ARC3	off	on	0.00e+00	0.00e+00	1029.70	1029.33
ARC4	off	on	0.00e+00	0.00e+00	1038.68	1038.31
ARC5	off	on	0.00e+00	0.00e+00	1047.66	1047.29
ARC6	off	on	0.00e+00	0.00e+00	1056.64	1056.27
ARC7	off	on	0.00e+00	0.00e+00	1065.62	1065.25
ARC8	off	on	0.00e+00	0.00e+00	1074.60	1074.23
ARC9	off	on	0.00e+00	0.00e+00	1083.58	1083.21
ARCA	off	on	0.00e+00	0.00e+00	1092.56	1092.19
HALLA	off	on	0.00e+00	0.00e+00	1101.54	1101.17
HALLD	off	on	0.00e+00	0.00e+00	1110.52	1110.15

Master switch off on



Help Close

Step 1: Select an endpoint:

BSY2 BSY4 BSY6 BSY8 BSYA HALLA

HALLC HALLD BSY_DUMP

Step 2: Set up the MMS entries (or use the defaults from EPICS)

3.130	MMSINJGAIN	122.825	MMSLINJGAIN	1090.000	MMSLINJGAIN	1090.000
5	Hall B Pass	0	Hall C Pass	0	Hall D Pass	5.5

FILTERS

Zone Filters (Double click to select/deselect)

ALL

INJ-L

INJ-R

LINAC1

LINAC2

REINJ

ARC1

ARC2

ARC3

ARC4

ARC5

ARC6

ARC7

ARC8

ARC9

BSY/HALLA.5

Usage Filters

Baseline ☒ ALL

Dipole ☒ OrbitAdjust

H.Beta ☒ Prohibited

H.Dispersion ☒ Skew

M5.6 ☒ V.Beta

☒ V.Dispersion

Apply Filters

Other Filters

Regular Expression

Absolute Diff! >=

Percent Diff! >=

Clear All Filters

MISC

Other Actions (Be careful!)

Help (READ THIS!!!)

Quit

Status - HLAPPS

All new and many (most?) updated High Level Applications now rely on CED for configuration

Energy (McV) 909.091

Current (uA) 500

Fudge Factor 0.99

Locks (McV) 4

Trips / Shift

Cryo (Watts)

Sniff Calculate Apply

Info

Quit Help

BEM status not active

BEM status not active

BEM status not active

2A

BEM status not active

Status - API

- API stability/compatibility is a high priority
 - Version 3.1.2 from June 2013 still in use
 - Current version is 3.5
- Improvements 3.1.2 => 3.5
 - Faster Zone Retrieval
 - Ability to block live edits during admin operations
 - Native 64-bit cedlib
 - Support for newer versions of PHP, SWIG, etc.

Status - Web

- Public interface stable
- Work has begun on Admin interface to streamline tasks such as auditing, merging, etc.

The screenshot displays the Jefferson Lab CED web interface. The top navigation bar includes links for Inventory, Zones, Catalog, Workspaces, Tools, and Help. The left sidebar shows the 'Current Session' section with links for 'Workspace: OPS', 'Logout...', and 'Element Search'. The main content area is titled 'Workspace Merge' and contains a checklist of tasks. A red banner at the top of the checklist indicates an 'Admin Lock' was acquired on 2014-10-03 09:52:00 by user 'theo - SRCCPS Updates'. The checklist items include 'Check for newer LIVE EDITS...', 'Get Live Edits...', 'Refresh _dev Inventory...', 'Audit _dev Workspace...', 'Merge (or Selective Merge) _dev Workspace', 'Audit DEV LIVE Workspace...', 'Save OPS to History Snapshot...', and 'Copy DEV LIVE to OPS...'. Each item has a corresponding button (Check, Get, Refresh, Perform, Merge, Save, Copy) and a status indicator (OK, skipped, or a loading spinner). A footer note reminds users to remove the Admin Lock when finished.

Jefferson Lab
CED

Inventory | Zones | Catalog | Workspaces | Tools | Help

Current Session

[Workspace: OPS](#)
You are logged in as theo.
[Logout...](#)

Element Search

[Advanced search...](#)

Workspace Merge

The worksheet on this page walks administrators through the multi-step process merging a workspace and if applicable installing it for OPS.

Checklist to copy DEV LIVE contents to OPS:

The Admin Lock was acquired on 2014-10-03 09:52:00 by user theo - SRCCPS Updates. If you know the lock is no longer needed, you may remove it. [Remove Admin Lock...](#)

Check for newer LIVE EDITS...	Check...	OK
Get Live Edits...	Get... Skip	skipped
Refresh _dev Inventory...	Refresh... Skip	skipped
Audit _dev Workspace...	Perform... Skip	
Merge (or Selective Merge) _dev Workspace	Merge... Skip	
Audit DEV LIVE Workspace...	Perform... Skip	
Save OPS to History Snapshot...	Save... Skip	
Copy DEV LIVE to OPS...	Copy... Skip	

*Don't forget to remove the Admin Lock when you are finished.

Developments - Utilities

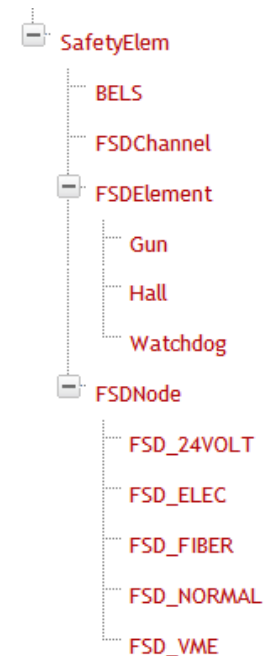
- Tools to simplify common use cases
 - Ex:ced_diff

```
[62] theo@ops100 > ced_diff -w HallD -e IICAD00C
WARNING: element IICAD00C does not exist in OPS Workspace
Differences between HallD and OPS
<HallD
-----
>OPS

IICAD00C
< Controlled_by:      ioctsbdiag
< EPICSName:          SLDAD03
< HCOSystem:          IonChamber
< NameAlias:          ShieldWall
< S:                  7139.55
< ScreenX:            79.87311
< ScreenY:            104.7
< ScreenZ:            319.56201157
< SegMask:            S_hallD+A_HallD
< VMECard:            TSBA
< VMEChannel:         4
-----
> (NE)
```

Developments - Applications

- myRestore
 - Can use CED as a data source to keep restore sets current
 - Interrogates CED to determine iocs that are auto-restore
- FSD
 - Mask file replaced by CED
 - Trip events linked to CED elements if possible
 - More details in Ryan's talk later
- Viewers
 - XML for insertables daemon generated from CED
 - New OTF Viewer Commander



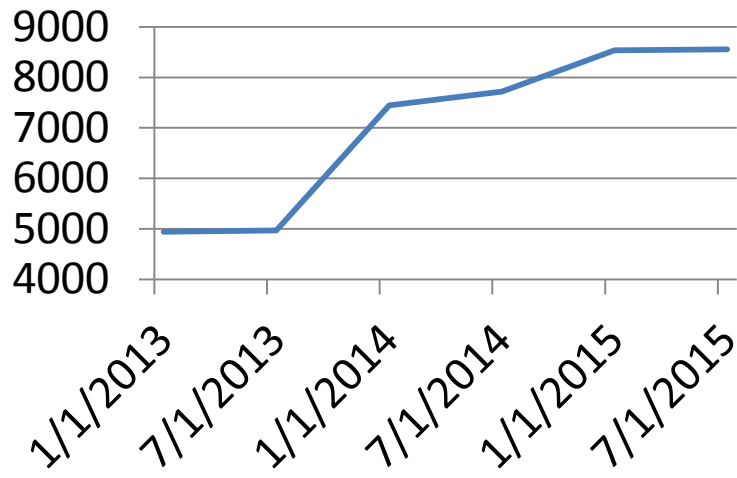
Future Developments

- Admin tool improvements
 - Web-based catalog management
 - Enhanced Auditing
 - Plugin interface for system-specific audits
 - Improved merge request tracking
- Improvements for users
 - Songsheet Zones
 - Access to property value history
 - Enhanced web forms
 - Plugins to allow system-specific form enhancements

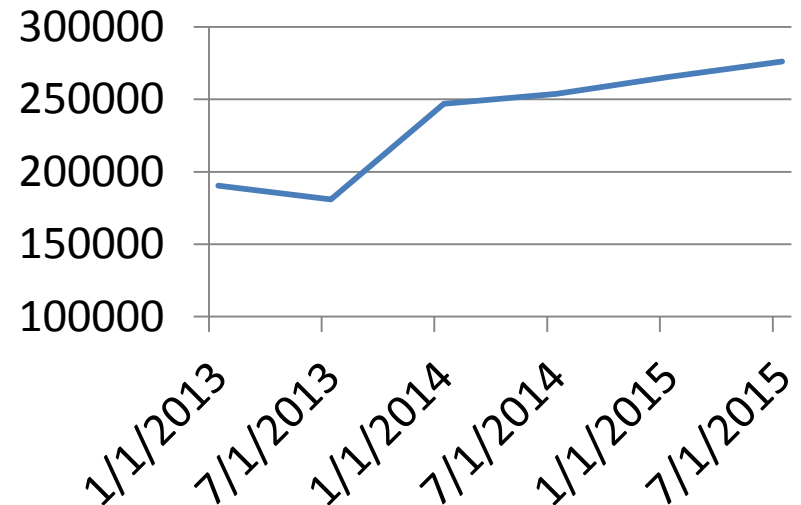
Status - CED Contents

- Since the 12GeV build-out, the number of CED Elements has been relatively steady.
- The number of stored attributes continues to grow

Elements



Properties



Maintaining the CED Contents

- Transitioning away from bulk-loading by developers and database admins to updates by Techs, Region Coordinators, etc.

Example – Adding a New Viewer

- CASA, EGG, or EES adds the new device to the Viewers Workspace.
 - Confirms name with Nomenclature Czar (if necessary)
- Email automatically notifies relevant stakeholders
 - Region Coordinators, Model Team, AHLA, EES, LLAPPS, etc.
- In parallel, the stakeholders flesh out device configuration in CED
 - EES Techs set card, channel information
 - CASA delivers updated Elegant deck with twiss & coordinates
 - Controls Developer sets EPICS properties
- Controls Developer coordinates with CED admin to merge completed element into OPS and reboot necessary IOC.
- New Insertables Daemon XML config auto-generated.
- New Viewer placed into queue to be incorporated into next Songsheet update.

CED/Songsheet Relationship

- Paradigm
 - The Songsheets a graphical rendering of the Line Elements in the Operational CED.
 - Removals and additions to the CED will be reflected in Songsheet revisions.
 - Nomenclature and placement issues get resolved as part of making the element operational, before going onto the songsheet.

Songsheet Updates After CED

2.1.1 The CED Revision Process

A well-defined revision control process is critical for maintaining the integrity of the CED. This includes defining roles and responsibilities and providing appropriate communication tools. Figure 2-1, below, provides an overview of the process.

Songsheet updates follow the Operational CED on a quarterly basis.

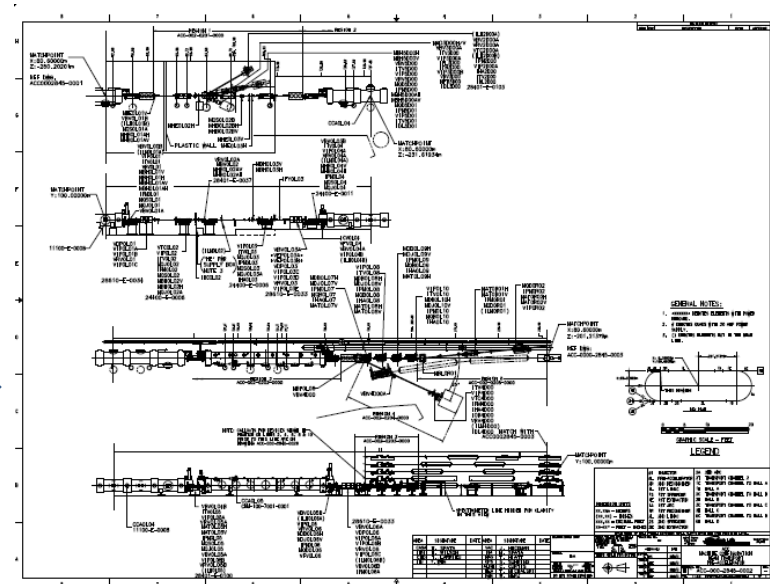
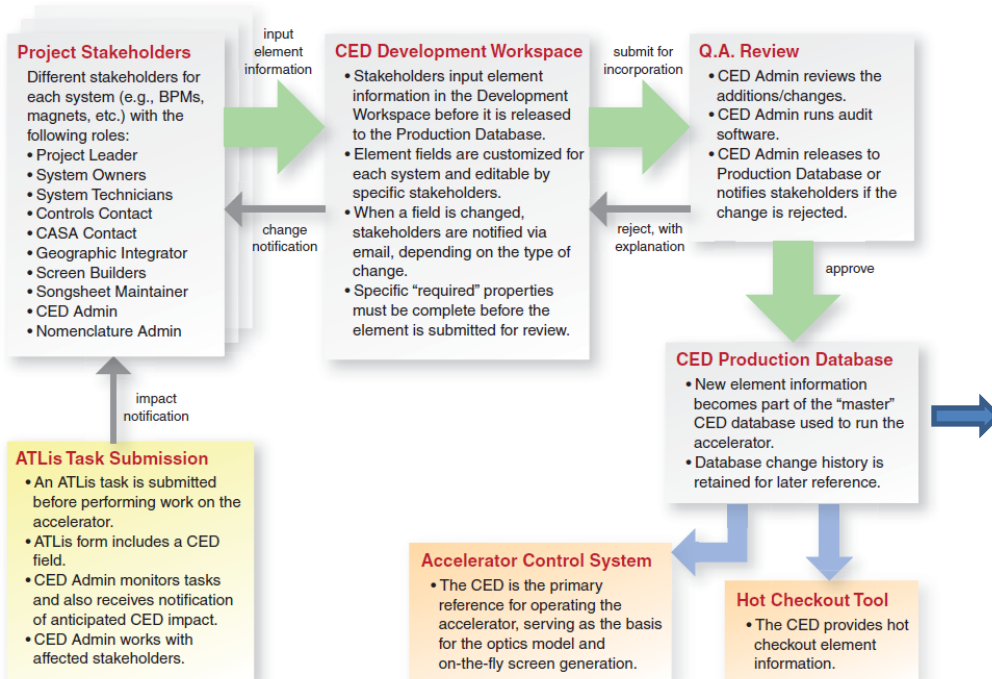


Figure 2-1: The CED Revision Process

Steps to Codify the Relationship

- AHLA
 - Get remaining elements (e.g. VRV) into CED
 - Create CED zones that correspond one-to-one with songsheets to allow easy correlation.
 - Provide reporting tool to allow ME to examine changes to a songsheet zone since a given date.
- ME
 - Provide stable URLs for CED elements to link.
 - Generate revised songsheet drawings on a regular schedule (e.g quarterly).