

Controls Configuration Service

Future CCS applications with ACW
Lukasz Burdzanowski

on behalf of CCS team

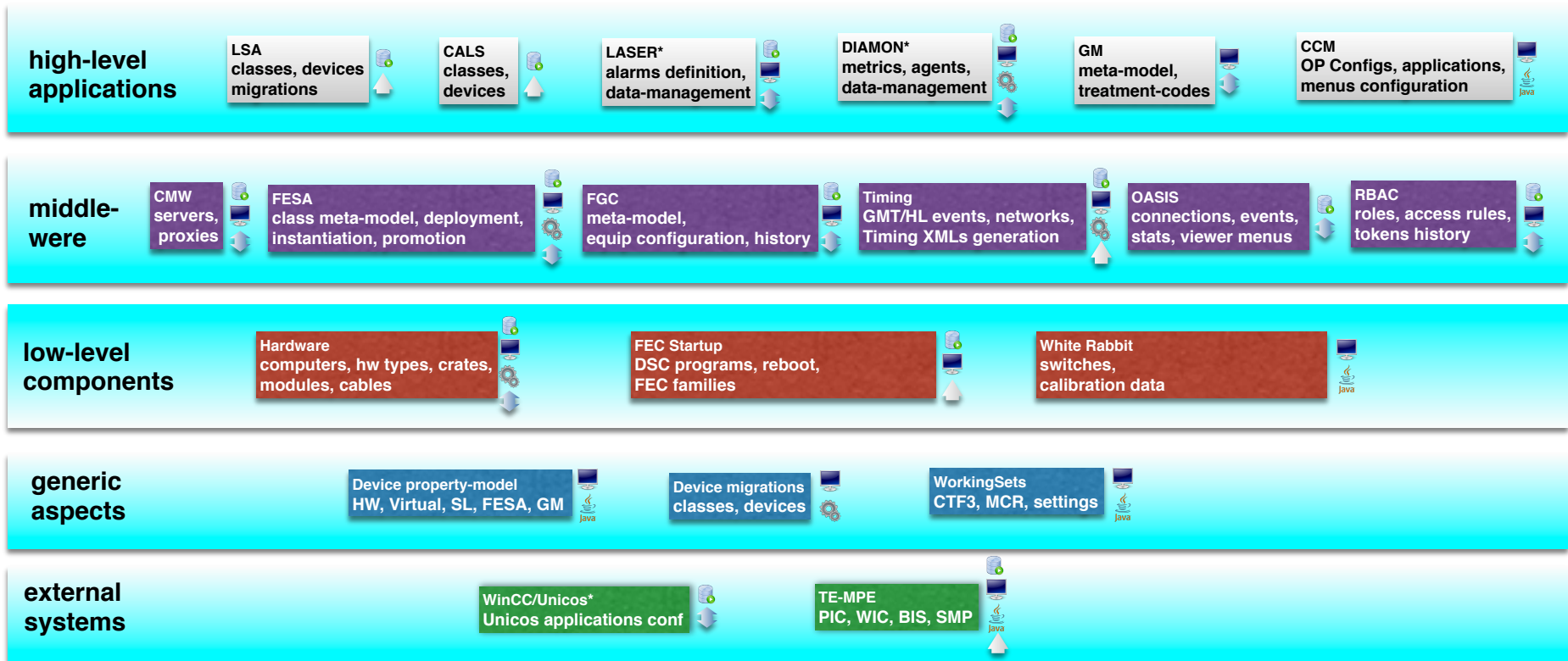
**Ana Lameiro Fernandez, Anti Asko,
Jose Rolland Lopez de Coca & Katarzyna Penar**

The Controls Configuration Service helps to bind all the Control system layers together by providing complete and coherent configurations.

It is a database oriented system based on:

- an Oracle database (2-node RAC cluster)
- a set of high-level client Java APIs
- database level client APIs (PL/SQL interfaces)
- GUIs based on proprietary Oracle technologies: ADF and APEX
- new generation GUIs based on ACW (Spring, HTML5, AngularJS)

CCS Stakeholders



DB access
 GUI Tools
 Processing
 Java API
 read-only
 read-write

*Major domains and stake-holders of the Controls Configuration Service.
Highlights of the range of provided tools and data-flow.*

Last remaining ADF applications (GM, CCM, WorkingSets) are scheduled for suppression during EYETS2016.

ADF stands for Application Development Framework, a JSF/JEE like framework developed by Oracle in 1999 and used in CCS since 2006.

Active development of APEX applications is stopped and only critical bugfixing takes place. Beginning of LS2 is a foreseen end-of-life for the complete APEX suite.

Practically 2 years from now we plan to be free of APEX and provide instead a single application based on ACW stack, developed in established CI and HA environments.

The Controls Configuration Data Editor (CCDE) is a single-page web application implemented based on ACW stack.

The CCDE is designed around user profiles and authorization model giving users access to functions based on their role in the system and strong focus on usability.

As a part of CCDE we are planning to develop domain agnostic features like:

- user home page,
- favorites and recently visited “entities”,
- in-app communication between users (send entity, etc.),
- “spotlight” like search of application pages and views,
- UI components for integration with history mechanism,
- and more...

CCDE Admin panel

Admin Panel

Users and E-groups Administration

User Search: controls-configuration-team

Profiles

Profile Name	Description
Test profilsss	Test profile
CCS User	General read-only access to CCS tools
CCS CMW expert	Read-write access to CMW configuration
CCS Devices editor	General read-only access to CCS tools
CCS Devices expert	Read-write access to advanced devices configuration and dic...
CCS Diamon expert	Read-write access to Diamon configuration

Roles

- CCS-USER
- CCS-FEC-EDITOR

controls-configuration-team E-group Name

User Name	Full Name	Group	Type
lburdzan	Lukasz Burdzanowski	BE-CO-DS	PERSON
Lycee-PaysdeGex	Lycee-PaysdeGex		E-GROUP
controls-configuration-team	controls-configuration-team		E-GROUP
anlameir	Ana Lameiro Fernandez	BE-CO-DS	PERSON
anasko	Anti Asko	BE-CO-DS	PERSON

Users and E-groups Administration

controls-configuration-team E-group Name

User Name	Full Name	Group
kpenar	Katarzyna Penar	BE-CO-DS
jolgonza	Jose Luis Gonzalez	TE-VSC-ICM
anlameir	Ana Lameiro Fernandez	BE-CO-DS
lburdzan	Lukasz Burdzanowski	BE-CO-DS
jrolland	Jose Rolland Lopez De Coca	BE-CO-DS

Cancel Save

CCDE Admin panel providing management of users, their profiles and profiles management.

CCDE White Rabbit switch management view

White Rabbit

Switch browser

Switch	Version	Timing Mode
<input type="text"/>	<input type="text"/>	<input type="text"/>
Switch Name	Version [HW / FW]	Timing Mode
cfc-193-reth2	2.3.4 / 1.2.3	Grand Master
ccdb_magic	2.3.4 / 1.2.3	Grand Master
csv-ccr-lhc4	2.3.4 / 1.2.3	Grand Master
cfv-363-atrfb	2.3.4 / 1.2.3	Grand Master
ccdb_magic_fec	2.3.4 / 1.2.3	Boundary Clock
cfv-867-btvdev	1.2.5 / 1.2.3	Grand Master
wrs-test1	3.4 / 4.2	Grand Master

Version browser

Hardware Version	Firmware Version
<input type="text"/>	<input type="text"/>
4.0.5	4.0
2.3.4	1.2.3
3.4.7	4.3.6
1.222.2	1.2.4
1.2.5	1.3.5
1.2.5	1.2.3
2.2.5	2.2.3
1.2.8	1.4.9
1.1.1	9.9.9
1.2.3	1.2.4

Basic | **Advanced** | Ports

Config file location

- Use local
- Use DHCP response
 - No error if DHCP fails
- Use remote location
 - URL

Logging configuration

- Use UDP for Syslog
- Use TCP for Syslog
- Don't use defaults

Logging for HAL <input type="text" value="daemon.info"/>	Logging for RTU <input type="text" value="daemon.info"/>
Logging for PTP <input type="text" value="daemon.info"/>	Logging for SNMP <input type="text" value="Swd"/>
Logging for Monit <input type="text" value="syslog"/>	Logging for W-DOG <input type="text" value="daemon.info"/>

Alarm thresholds

- Don't use defaults

FPGA Temperature <input type="text" value="80"/>	PLL Temperature <input type="text" value="80"/>
Power Supply 1 <input type="text" value="80"/>	Power Supply 2 <input type="text" value="80"/>
SWcore HP rate <input type="text" value="0"/>	SWcore RX rate <input type="text" value="0"/>
SWcore RX prio rate <input type="text" value="0"/>	

PPSI config file

- Autogenerated
- Custom local
 - Config location
- Custom remote
 - Config location

Management port configuration

- Use DHCP
- Try DHCP, otherwise use static IP
- Use static IP

IP address <input type="text"/>	Subnet mask <input type="text"/>
Network <input type="text"/>	Broadcast <input type="text"/>
Gateway <input type="text"/>	DNS Server <input type="text"/>
DNS Domain <input type="text"/>	

SNMP configuration

- Don't use defaults

Traps(v1) sink <input type="text"/>	Traps(v2) sink <input type="text"/>
RO community name <input type="text" value="public"/>	RW community name <input type="text" value="private"/>

CCDE WhiteRabbit switches management, switch calibration data management and in future WR networks configuration and visualization using the TVC ACW component.

CCDE History browser

CCS History Browser

HARDWARE DEVICE RBAC OTHER

COMPUTERS CRATES MODULES DSC PROGRAMS DEFINITIONS DSC PROGRAMS HARDWARE TYPES

REFERENCE TIME USER NAME OPERATION CRATE_ID CRATELABEL COMPNAME

REFERENCE TIME	USER NAME	OPERATION	CRATE_ID	CRATELABEL	COMPNA..	BUS_LOOP	MODULE_CRATE	BUILDING	ROOMCO..	RACK	FUNCTION	LAYOUT_ID	LAYOUT_NAME
2016-09-30 12:58:53.0	mjaussi	U	18728	CFV-864-AGPSB	cfv-864-aglna			864	R-A01	RF2	PSB VXS te...		
2016-09-30 09:00:55.0	mbjork	I	24969	CFC-866-RETH6	cfc-866-reth6			866	1-D17		LABORATO...		
2016-09-30 08:59:48.0	mbjork	I	24968	CFC-866-RETH5	cfc-866-reth5			866	1-C04		LABORATO...		
2016-09-29 14:00:33.0	mbjork	U	24948	CFC-363-AGLEI	cfc-363-aglei			363	R-020	RAF0...	RF GENER...		
2016-09-29 13:04:57.0	mjaussi	I	24948	CFC-363-AGLEI	cfc-363-aglei			363	R-020	RAF0...	RF GENER...		
2016-09-23 14:21:28.0	mbjork	I	24930	CFC-BA1-BISEMIO	cfc-ba1-bis...			868	R-002		PC TO CO...		
2016-09-22 15:21:48.0	mbjork	I	24929	CFC-180-DQFAIR	cfc-180-dqf...			180	R-001		B180 - FAI...		
2016-09-21 17:14:09.0	mbjork	I	24928	CFC-2250-RADA...	cfc-2250-ra...			2250	R-005		Spectromet...		
2016-09-19 09:45:16.0	mbjork	I	24909		cfc-774-cg...								
2016-09-19 09:36:44.0	bninet	I	24908	CFC-193-TELENA	cfc-193-tel...			193	S-H03	TYE01	ELENA SC...		
2016-09-13 14:44:36.0	mbjork	U	24868		cfc-865-mk...								
2016-09-13 06:53:05.0	mbjork	D	24888		cfv-865-mk...								
2016-09-13 06:51:15.0	mbjork	I	24888		cfv-865-mk...								
2016-09-12 11:46:37.0	mbjork	I	24868		cfc-865-mk...								
2016-09-07 15:31:29.0	mbjork	I	24854		cfc-197-tta...								
2016-09-07 15:23:27.0	mbjork	I	24853		cfv-ba2-allt...								
2016-09-07 15:22:59.0	mbjork	I	24852		cfv-ba2-allt...								
2016-09-07 13:16:43.0	anag	U	24851	CFV-400-BPMLN...	cfv-400-bp...			400	1-014	BY12	LINAC4 BP...		
2016-09-07 13:16:11.0	anag	I	24851	CFV-400-BPMLN...	cfv-400-bp...			400	1-014	BY13	LINAC4 BP...		
2016-09-07 13:14:56.0	anag	D	16712	CFV-400-BPMLN...	cfv-400-bp...			400	1-014	BY12	LINAC4 BP...		
2016-09-07 10:02:09.0	anag	U	24850	CFV-400-BPMLN...	cfv-400-bp...			400	1-014	BY11	LINAC4 BP...		
2016-09-07 10:01:26.0	anag	I	24850	CFV-400-BPMLN...	cfv-400-bp...			400	1-014	BY13	LINAC4 BP...		

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BE-CO

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version 1.0

Browser of history data (data changes) presented as a stand-alone application and currently being integrated into CCDE as a module. In future recent changes and history of changes of an "entity" will be presented here.

CCDE Hardware data management

This is an example of history link. In new editor any entity that is expressed in our system will be a link and every entity that has history will have link/icon to facilitate search for logs

This computer exists in LanDB, but some properties differs. Check highlighted fields. [Synchronize with LanDB](#)

The screenshot displays the 'Computers' management interface. At the top, a browser address bar shows 'http://ccde.cern.ch/computer/cfv-1234-xbv/crate/cfv-1234-xbv'. The main section is titled 'Computer information' and contains several fields: 'Computer name' (cfv-1234-xbv), 'Type' (DSC), 'PLS Machine' (LHC), and 'Description' (This description has been imported from LanDb and then updated in CCDE). Below these are 'Operational' status, 'Layout', 'Diamon', and 'MTF' icons, and 'Location' (774/1-062.RA03), 'Responsible' (ccde-support), and 'OP support' fields. A 'History' link is visible next to the computer name. Below this is an 'Additional details' section with a redacted area and the text 'Read-only data from LanDB'. The interface has tabs for 'Physical configuration', 'Logical configuration', 'Computer Relations', 'Devices', and 'Logs&Comments'. The 'Crates' section contains a table with columns for 'Crate label', 'Crate type', 'Location', 'Function', and 'Layout'. The 'Modules' section has tabs for 'Module information', 'Signals', 'Interrupts', 'Exceptions', and 'Blocks', and a table with columns for 'Slot', 'Module type', 'Lun', and 'Tag'. At the bottom, there are 'Remove', 'Duplicate', and 'Save changes' buttons.

Location edition for crate should be disabled if crate exists in Layout

Only when crate is selected

min: 0, max: 79, avg: 1.7 Crate/FEC
min: 0, max: 126 avg: 4.25 Module/Crate

Mockup of the "CCDE Hardware" application module providing management of Crates, Modules, equipment configuration types definitions and more.

CCDE FEC Startup management

This computer exists in LanDB, but some properties differs. Check highlighted fields.

Synchronize with LanDB

onHover Computers

http://ccde.cern.ch/computer/cfv-1234-xbv

Computer information

Computer name: cfv-1234-xbv LanDB Type: DSC PLS Machine: LHC Description: This description has been imported from LanDb and then updated in CCDE

Operational Layout Diamon MTF

Location: 774/1-062.RA03 Responsible: ccde-support OP support: op-support OP support 2: op-support

Additional details

Read-only data from LanDB

Physical configuration | Logical configuration | Computer Relations | Devices | Logs&Comments

Startup sequence

Family name: familyA Go to family

	Program	Inhib	Prio	Parameters
-1	TIMSERVICE	<input type="checkbox"/>	-3	Parameter1: 86 Parameter2: 86
0	WAIT_TGM	<input type="checkbox"/>	-	
1	FESA3_S	<input type="checkbox"/>	-	Parameter1: 86 Parameter2: 86
2	DISABLED	<input checked="" type="checkbox"/>	-	Parameter1:

+ Add new startup

Add program

Program name: FESA3_M Apply this changes to family

Prio: Inhibi: Click:

Parameters: Parameter1: 86 Parameter2: 86 Parameter3: Parameter4:

Program definition: Read only data

Remove Done

Remove Duplicate Save changes

Double click for inline edition

Enabled only for experts

Mockup of the "CCDE FEC Startup" module providing management of FEC startup sequences (DSC programs), their parameters and access to computer families. Also highlights of data synced with NetOPs (LanDB).

CCDE development roadmap

By end of this year the CCDE will be deployed in a High-Availability scenario with White Rabbit switches management module, Data Reporting and History Browser, Admin panel and base user home page.

The majority of CCDE components should be ready by mid-2018 following the time-line:

- End of 2017 Q2 – CCDE Hardware management module (Crates, Modules, FEC startup management)
- End of 2017 - FESA Instantiation Units management
- End of 2018 Q2 – RBAC and Devices management

In mean time...

- Integration of a new module to configure NXCALS data logging
- And all the smaller modules: CMW, FGCs, Timing, Laser, etc.
- Configuration of other domains of the Controls system could be integrated as necessary