

Controls Support for LARP and LAFS

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Overview

Two Roles while at CERN

- LARP and LAFS Liaison
- CERN BE/CO infrastructure and security project, next step beyond LAFS RBAC project.

LARP and LAFS Liaison

- Liaison and Controls/Software support for LARP and LAFS projects
- Physically located at CERN to assist in Transatlantic Communications
 - Interface with CERN teams, including Beam Instrumentation, Operations, and Controls
 - Communicate with LARP/LAFS teams
- Extension of some of Elliott McCrory's work, after he returned to Fermilab

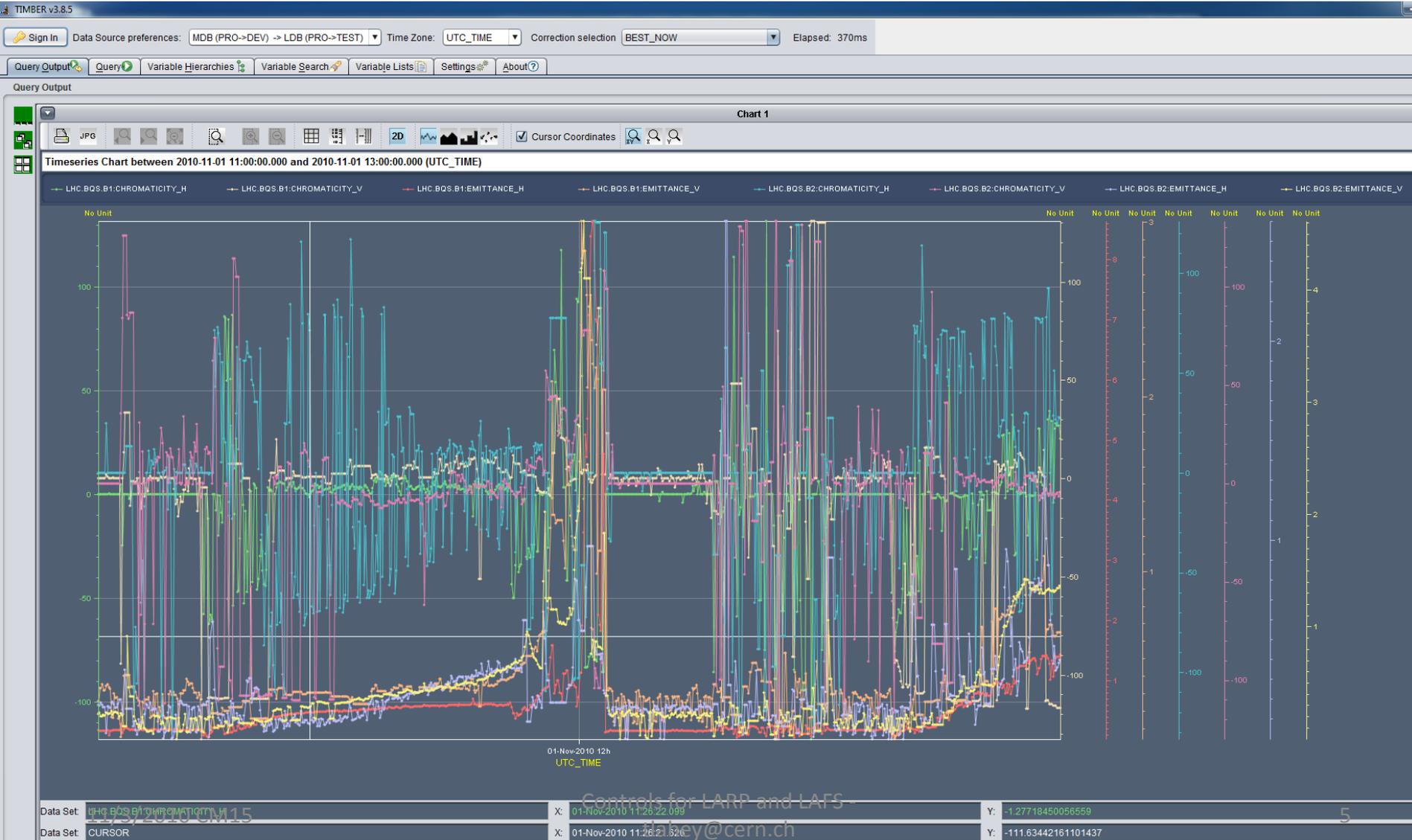
LARP and LAFS projects: Schottky

- Work with CERN teams for control of instruments that are being transferred to CERN.

Schottky:

- Assist with the debugging, releasing and commissioning of the Schottky software suite
- Working with teams at Fermilab (E. McCrory, R. Pasquinelli, J. Cai, A. Jansson) and CERN (R. Jones et.al., BE/CO teams for software and logging)
- Assist with transfer to CERN people who will be taking over this software: G. Crockford (BE/OP) control room GUI, M. Favier (BE/BI) fits and daemon, M. Misiowiec (BE/CO) controls system tools
- Integrating Schottky into LHC logging database for archiving Schottky data
 - Currently in the measurement database
 - next step to validate data preparing for implementation in logging database for long term availability

LARP and LAFS projects: Schottky Parameters in Measurement DB



LARP and LAFS projects: SuperTable

- Liaison to BE/OP on “Super Table” project
 - Mike Lamont wants an LHC version of this Fermilab Application
 - Summarizes physics fills: luminosities, emittances, intensities, lifetimes, Injection & Beta Star Scheme
 - Prototype is available at <https://lhc-supertable.web.cern.ch/lhc-supertable/index.html>
 - Revise cells as we get input: eg. add “initial emittance from luminosity”
 - Next step is to release application to production with added JAVA dynamic interface (BE/OP)
 - Mario Pereira (BE/OP) and Elliott McCrory (LAFS) coding, Lahey, liaison and testing

Super Table summarizes Fills

LHC Supertable - Windows Internet Explorer

https://lhc-supertable.web.cern.ch/lhc-supertable/index.html

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PL/SQL Tutorial - PL/SQL ... Lahey, Terri - Outlook We... LHC Supertable Lhc lafs - Google Search Home - Accelerators and ... Web site details

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 **LHC Prototype Super-Table**

Super-Table All Physics Fills - Level LUMINOSITY

[Web View](#) | [Tab-delimited \(Excel\) Format](#) | [Errors](#) | [Algorithms](#) | *Wed Nov 03 11:34:21 CET 2010*

OVERVIEW

- All Stores
- Last 10
- Best 10

LUMINOSITY

- All Stores
- Last 10
- Best 10

BOTH BEAMS

- All Stores
- Last 10
- Best 10

CYCLE SUMMARY

- All Stores
- Last 10
- Best 10

ALL VISIBLE

- All Stores
- Last 10
- Best 10

Fill Number (1)	Fill Start Time (2)	Fill End Time (3)	Fill Duration (4)	Beta star scheme (5)	Fill Pattern (6)	Energy (7)	Time between Stable Beams - Setup time (8)	End of fill cause (9)
1459	2010-10-31 00:24:17	2010-10-31 06:25:33	6.0211	3.5-3.5-3.5-3.5	50ns_109b_91_12_90_12bpi10inj	3500	N/A	Normal programmed beam dump after fill. More l...
1455	2010-10-30 03:33:47	2010-10-30 06:32:20	2.9761	3.5-3.5-3.5-3.5	Single_5b_5_1_1	3500	N/A	with OP switch
1453	2010-10-29 02:16:21	2010-10-29 08:36:44	6.3399	3.5-3.5-3.5-3.5	150ns_368b_348_15_344_4xbpi19inj	3500	N/A	Typical dump of fill with operator button (368...
1450	2010-10-27 22:44:57	2010-10-28 13:17:34	14.5437	3.5-3.5-3.5-3.5	150ns_368b_348_15_344_4xbpi19inj	3500	N/A	Programmed dump after physics fill of ~ 15 hours.
1444	2010-10-26 11:35:29	2010-10-26 18:48:11	7.2119	3.5-3.5-3.5-3.5	150ns_368b_348_15_344_4xbpi19inj	3500	6	Programmed dump at top energy, after ~7h of st...

LARP and LAFS projects (cont'd)

- Liaison to BE/OP on the existing LAFS-supplied application: Wire Scanner Application and Synchrotron Radiation Monitor Application.
- Fermilab Remote Operations Center: improve login procedure and connection from ROC consoles to CERN
- Upcoming projects for LARP instruments and LAFS applications:
 - Work with PS and PSB staff, and the InCA team to develop documentation for the Tomoscope and the LKTIM projects
 - Liaison to BE/CO for Luminosity Monitor Software
- General liaison to facilitate the acquisition and access to LHC accelerator data related to LARP hardware and/or accelerator physics studies.

LARP and LAFS Communication

Logistics

- Attend morning commissioning meeting and report to LAFS. This is being extended to a website for viewing by LARP members.
- Weekly video meeting with LAFS
- Email and phone
- Direct communication with CERN personnel

LAFS Personnel

LAFS personnel:

- Gerald Annala (Fermilab AD/Tevatron)
- Jerry Cai (Fermilab AD/EE-Support)
- Suzanne Gysin (Fermilab CD/FP&E/A&DS&S/CET)
- Terri Lahey (LARP/LAFS/CERN, on leave from SLAC)
- Elliott McCrory (Fermilab AD/HQ)
- Dave McGinnis (Fermilab AD/EE-Support)
- Dennis Nicklaus (Fermilab AD/Controls)
- Jim Patrick (Fermilab AD/Controls)

Observing personnel:

- Erik Gottschalk (PPD/EP; Head of LHC@FNAL ROC)
- Eric Prebys (Fermilab APC; Head of LARP)

CERN A&T Project: Control System Interdependencies and Security Risks

- Requested by Accelerators & Technology (A&T) sector to
 - document control system network security and infrastructure dependencies
 - improve documentation, security and reliability, and minimize possible risks to Operations
- Supporting LHC operation and LAFS collaboration, this is a follow-up project to the very successful LAFS Role Based Access Control (RBAC) project that is firmly established in LHC.

TN Interdependencies & Risks: Work Packages

1. Phase I

- Make an inventory of service/system and their dependencies
- Implement a questionnaire to collect the A&T sector data
- Implement a Data Base with a web interface to enter the data
- Populate the database
- Extract the security risks from A&T sector data

2. Phase II

- Mitigate these risks with the A&T management and derive the actions needed to address them
- Propose action in management
- Proceed with implementation of agreed actions

Pierre Charrue, group leader of BE/CO Infrastructure is project leader.

TN Interdependencies & Risks

- Computer, System, and software owners will use this tool to
 - Describe what other computers and services they depend upon
 - answer questions identifying risk in their control system component
- BE/CO and BE/OP will use this tool to
 - Identify and minimize possible risks to Operations
 - Plan for improvements
- Deliverables
 - Finalize Questions
 - Create TN Questionnaire web-based tool and database integrated with the existing LHC distributed databases
 - Work with system owners in Beams, Engineering, and Technologies Departments to identify their system-specific needs and to help them enter their data
 - Interdependencies Summary to Steve Myers

Example Questions

Group	Item	Question	Low risk	Medium risk	High risk	Unknown risk	Inherited risk	Manually identify Risk	
Service/System									
Service/System	General	Name	What is the name of this service/system ?	Name					
		Owner Group	Which group is responsible for the system?						
		Owner	What is the name of the system owner ?				Unknown	[Account]	
		Area of Responsibility	What is this group responsible for: all/servers/scads/						
		Date	When was this questionnaire filled out ?	Date					
		Revision date	date of most recent revision to system (only one						
		Provider	By whom was this questionnaire filled out ?					[Account]	
		revision comment	Comment entered by provider						
	computers		Provide a list of all computers connected to the Ethernet					List of [computer]	
	Other Internal dependencies								
	Data Stores		Provide a list of all data stores containing service/system data, documentation, information, ...					List of [DataStores]	
	External Dependencies							[Dependencies]	
	Procedures							[Procedures]	
	Security Risk Assessment							[Security Risk]	
Training							[Training]		
Computer (ethernet node)									
Computer (ethernet node)	General	Name	What is the name of this computer ?	Name					
		WebReq	Provide the link in the network database	Automatic Link		Not existent			
		WebReq correctness	Is the WebReq information correct ?	Yes		No			
		LayoutDB	Provide the link in the layout database	Automatic Link		Not existent			
	Operating System		Which operating system is this computer running ?				Unknown	Name; Version	
		Patch/upgrade means	How is this O/S upgraded/patched ?	CMF centrally	CMF locally	Manually; never	Unknown		
		Patch/upgrade	When has this computer been upgraded/patched the	3mos	6mos	>6 mos,	Unknown		
		Link to CMF	CMF: please provide a link to CMF	Automatic Link		None			
	Anti-Virus		Which anti-virus software is this computer running ?				Unknown	Name; Version	
		Patch/upgrade means	How is the virus signature file updated ?	CMF centrally	CMF locally	Manually; never	Unknown		
		Patch/upgrade	When was the last update ?	This month	Last 3 months	Last 6 months or	Unknown		
	Logging		Where is this computer logging it's important system & security parameters ?			No	Unknown	List of [Data Store]	
		Review	Who is reviewing this logging data ?				Unknown	List of [Account]	
		Review frequency	How often is this data reviewed ?	Real-time (via	Weekly	Monthly or	Unknown		
	ACLs		Is this computer applying IP access control lists ?			No		Yes	
		IPs	Provide a list of computers permitted access (incoming & outgoing)	None		All	Unknown	List of [computers]	
	Firewall (identify if exists; and whether just IP or also ports)	local firewall	Is this computer restricting firewall openings ?			No		Yes	
		IPs	Provide a list of computers permitted access	None	All, but port filtered	All	Unknown	List of [computers]	
		TCP ports	Which are the open TCP ports and what service is using the port ?	None, SSH, RDP, HTTPS, NTP	HTTP, SNMP	FTP, TELNET, RLOGIN, SHELL, EPMAP, NETBIOS	Unknown		List of other ports

Summary

- Working on projects to support LARP/LAFS and their collaboration with CERN Instrumentation, Controls, and Operations
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