

Minutes of LHC-CP Link Meeting 14

- Subject** : LHC Controls Project
- Date** : 28th June, 2001
- Place** : 936-Conference Room
- Participating Groups**
- | | |
|---------|----------------------|
| EST-ISS | P. Martel |
| LHC-ACR | apologies, |
| LHC-ECR | M. Pezzett, |
| LHC-IAS | no representative |
| LHC-ICP | F. Rodriguez Mateos, |
| LHC-MMS | no representative, |
| LHC-MTA | no representative, |
| LHC-VAC | R. Gavaggio |
| PS-CO | apologies, |
| SL-AP | E. Wildner, |
| SL-BI | J-J. Gras, |
| SL-BT | E. Carlier, |
| SL-CO | apologies, |
| SL-HRF | E. Ciapala, |
| SL-MR | R. Billen, |
| SL-MS | no representative, |
| SL-OP | M. Lamont, |
| SL-PO | Q. King, |
| ST-MO | apologies. |
- Others** :
- A. Daneels (Project Planning)
 - R. Lauckner (Chair),
 - I. Laugier (LHC-VAC)
 - M. Tyrrell (Alarm Sub-Project).
 - M. Vanden Eynden (Core Team),
- Distribution** :
- Via LHC-CP website: <http://cern.ch/lhc-cp>
 Notification via: lhc-cp-info@cern.ch
- Agenda** :
- | | |
|--|-------------|
| 1. Matters arising from previous meeting | |
| 2. LHC-CP News | R. Lauckner |
| 3. Planning for the QRL Controls | A. Daneels |
| 4. Database Forum | R. Billen |
| 5. Rôle of the TCR | P. Solander |
| 6. AOB | |

1. Matters arising from previous meeting

A. Bland had pointed out that the measurement he had shown at the previous meeting demonstrated the spread across 190 LynxOS systems and not the jitter.

After the previous meeting the chairman had discussed with J. Wenninger and he will continue to develop the Post Mortem System requirements without the creation of a working group for the time being.

2. LHC-CP News R. Lauckner

A one day review of the control system for the LHC transfer lines and the TT41 line towards Gran Sasso will take place on July 10th. Organisers are V. Mertens, M. Lamont, R. Lauckner and M. Vanden Eynden. The agenda is available at http://cern.ch/lhc-cp/lti_cnsgs/Agenda.html.

The planning initiative for Sector Test controls is now launched. In the first meeting Q. King had discussed the Magnet Current Control System (MCCS). Minutes will be posted on the project web site: <http://cern.ch/lhc-cp/Planning/planning.html>.

At the Controls Board meeting on 7th June it had been agreed that the next phase of the LDIWG would not be launched in 2001 leaving time to clarify the LHC-CP position on Middleware.

A new console has been installed in the PCR to provide a platform for Java Applications. Major evolution in PCR consoles is a rare event, approximately every 10 years; so this is a clear candidate for LHC commissioning and operation.

The provisional schedule and main topics for the next LHC-CP meetings are:

17/7	Rôle of TCR, Front End architectures	Sollander, Gayet, Ribeiro
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3. Planning for the QRL Controls A. Daneels

A. Daneels **presented** the results of the planning work for controls for QRL commissioning. The schedule is based on the LHC Project – Summary Installation Schedule”, 24 Apr. 01 (cf. LHC Project Document LHC-PM-MS-0009 rev.1.7), several planning meetings and private discussions. There was also a meeting with the LHC Technical Co-ordination team to define the interface to central planning.

The latest version of the planning can be consulted at web address in the previous chapter. The columns indicating start, finish and duration of tasks are only indicative of the period during which the work will be performed and not the resources. Resource management is outside the scope of the LHC-CP and remains the responsibility of the groups. Controls related tasks appear in red, work appearing in black appears because it depends on the delivery from controls tasks.

A conflict has been discovered concerning the delivery of optical fibres, shown in blue. P. Anderssen is aware of this problem.

Before this planning can be adopted as a baseline and tracking started more information is required from the database and alarm activities. These tasks require around 2-3 milestones in 2002 in order to be able to demonstrate they are on schedule.

ACTION: A. DANEELS, R. BILLEN, M. TYRRELL

Link men are requested to feedback any discrepancies in this planning. After the baseline has been established tracking meetings are foreseen with a period of about 2 months during the next year.

R. Lauckner pointed out that A. Daneels was available to help planning effort within the groups if requested but available effort is limited by the workload for the Sector Test and other controls projects in SL.

Q. King underlined the usefulness of this work and expressed his personal thanks to A. Daneels for his efforts in this domain.

4. Database Forum R. Billen

This [presentation](#) started with an explanation of the mandate of the PCR Software Committee that has been an important forum for software developers in SL division during the LEP period. As Oracle is an important tool in the SL control system database issues are frequently discussed. This has lead to the decision to create a separate PCR Oracle Committee with representatives from each SL group to steer database work related to accelerator operation and to ensure that data management is taken very seriously by the projects related to preparing the LHC control system and operation. The SL group leaders approved this mandate in a recent meeting.

The new committee will involve all equipment groups and MR group in particular and the IT/DB section who support Oracle at the DBA level. While equipment groups are responsible for the proper management of their own data SL/MR will provide consultancy, design support and promote policy, (see <http://cern.ch/lhc-cp/Minutes/minutes4.pdf>, the minutes of the 4th LHC-CP meeting).

R. Billen aims to bridge the gap between database operation in SL today and the current database activities in the LHC project. The committee would be expected to mandate working groups to address specific issues and much of the work will be directed towards LHC control and operation and reported to the LHC-CP.

Several SL groups and one LHC group have already named their representatives.

R. Lauckner pointed out that the door was open and LHC groups concerned with LHC control were encouraged to join this committee.

M. Tyrrell asked who would be the LHC database engineer responsible for designing a coherent database for LHC Operation. R. Billen replied that the committee was only the first step. We need to bridge the SL-LHC production data and LHC operation. Although the committee is created within the context of the PCR he expects LHC-CP may be the main topic.

Felix remarked that it is not possible to separate the installation and the operational databases for the LHC. He sees the installation database as sitting between production data (EST) and operational data (LHC-CP). Furthermore it would not be possible to commission the machine (hardware) without the installation data.

M. Lamont said that it was necessary to further clarify the scope of the PCR Oracle Committee with respect to operational data and also to understand who will be responsible for the installation database.

Pedro Martel said that the MTF work stops when equipment is installed in the tunnel but that he considers that this records the layout.

RL summarised that we need:

- 1. to understand who will manage installation data*
- 2. to launch an activity to prepare the databases for QRL operation*
- 3. to understand the scope of the data required for operation but originating from the construction and installation activities.*

The ORAPCR committee should deal with the 2nd and 3rd items.

ACTION: R. BILLEN, R. LAUCKNER

5. Rôle of the TCR. P. Solander

This topic was postponed because of the unavailability of the speaker

6. AOB

There was no further business.

Long Term Actions	People
Establish Real-time sub-project.	R Lauckner
Establish Post Mortem sub-project	R. Lauckner
Attach leaves to EDMS tree	All, M. Vanden Eynden
Clarify Middleware services to be used by LHC-CP	Core Team

Reported by R. Lauckner



QRL Commissioning

Control System Planning

(Status and Analysis of current Planning and next Steps)

Axel Daneels

Content

- Status of current Planning
- Analysis
- Next Steps

28 June 2001

Axel Daneels SL/DI

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Status of current Planning

Cf. URL: <http://lhc-cp.web.cern.ch/lhc-cp/Planning/QRL/gant.pdf>

Based on:

- **several planning meetings & private discussions**
- **2nd LHC-CP Workshop (5-6 Apr. 01)**
- **“LHC Project – Summary Installation Schedule”, 24 Apr. 01** (cf. LHC Project Document LHC-PM-MS-0009 rev.1.7)
 - General Services available: 6 Jan. 03
 - QRL Installation: 06 Jan - 9 May 03
 - QRL Commissioning and Acceptance: 12 May - 22 Aug. 03.
- **agreed “Planning Activity for LHC Control System” (10 Apr. 01)**
 - tasks whose planning falls within the scope of the LHC-CP project
 - overall time frames in which tasks are performed (... i.e. “plages d’activités”)

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Axel Daneels SL/DI

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Planning: Analysis (1)

- **Task names**
 - Controls related tasks appear in **red**
 - **However**: some other tasks, not directly related to controls, or understood as belonging to activities whose detailed planning is undertaken elsewhere, are included (in black) because they depend on the delivery of some control tasks at a particular phase of their execution : CRYO Control System, Vacuum Control System, QRL Pre-Commissioning, Commissioning and Reception

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Planning: Analysis (2)

- **Task Duration**
 - duration is the time frame in which a task will be performed. It = “Finish date” - “Start date”
 - when a task will be executed and its real duration depend on priority, estimated effort, availability of resources (**this is not taking into consideration in this planning**)
- **Link-person**
 - no resources!
- **Scheduling: a conflict!**
 - “QRL Pre-Commissioning” and “Vacuum control System” need optical communication fibre **early 2003** whereas the “Installation of Optical Fibres” is currently scheduled **Jan. 2003 - March 2003**. Pål Anderssen is aware of this problem

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Planning: Analysis (3)

- **Milestones**

System	Task / Milestone	Date
Cryogenics	CRYO Control System Ready	Wed 5/3/03
Vacuum	Vacuum Control Ready	Fri 9/5/03
QRL	QRL Installed (Mechanical elements, General Services, Alcoves, etc)	Fri 9/5/03
	QRL Acceptance	Fri 22/8/03
Communications	900 MHz Leaky Feeder installed	Fri 29/11/02
	Optical Fibres installed	Mon 6/01/03
Database & Logging	Database available	Fri 29/3/02
	Logging / Archiving available	Fri 20/12/02
Alarms	Alarms' UR Document available	Fri 28/9/01
	Decide on Alarm's technology	Fri 21/12/01
	Functional + Architectural Specs Doc available	Fri 29/3/02
	Operational Prototype available	Fri 20/12/02
Timing	Time-stamping (UTC)	Mon 9/4/01
Control rooms	CRYO Control Room	Wed 19/3/03
Control Rooms	TCR ready	Fri 20/6/03
SCADA	Define which SCADA will be used	Mon 7/5/01



Planning: Analysis (4)

- **Warning!**

- planning shows no resources, no "effort", no task schedule, no priorities: **difficult to anticipate problems**
- link-persons are responsible for their parts

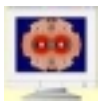
- **Milestones**

- most are insufficient to allow tracking progress, in particular:
 - "Database" and "Logging / Archiving" should produce a work plan
 - "Alarms": work plan for 2002, indicating how one will evolve from the "Functional and Architectural Spec", expected by Q1 2002 (i.e. ~ 29/03/02), until the delivery of an Operational Prototype at the end of 2002.
- In general: 2 to 3 milestones / year (~ one every 4 or 6 months) = significant delivery (e.g. UR document, technical decision, development phase, test,...)



Next Steps

- **Check planning for completeness, correctness, etc.**
- **Identify milestones**
- **Baseline Planning**
- **Track Progress**
 - regular meetings with link-persons to
 - track progress
 - identify possible problems in time (... the link-persons ring a "bell")
 - frequency of meetings:
 - e.g. every 2 months in 2001 and in the first half of 2002
 - next at a higher frequency depending on how critical the tasks become, or in case a problem arises



ORAPCR History



- Many Oracle related issues raised during 71st PCR SW meeting on 23/2/2001
 - ☞ DBMS and Development tools upgrade
 - ☞ HP-UX 10.20 limitations, NICE Windows more up-to-date
 - ☞ software environment, client libraries, dependencies
 - ☞ interesting new features of 8i not exploited (OO, Java)
- ☞ Special meeting with Oracle developers held on 6/3/2001
 - ☞ decisions on deployment, actions for developers
 - ☞ audit on development tools (HP-UX) needed
 - ☞ levels of support need to be clarified
- ☞ This outcome was presented in 72nd PCR SW meeting on 16/3/2001

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PCR Oracle Committee

R. Billen SL/MR/DBS



ORAPCR Motivation



- Meeting 26/3/2001 to clarify different database responsibilities
 - ☞ present: IT/DB, SL/CO, SL/MR/DBS
- ☞ At the 73rd PCR SW meeting (20/4/2001) the idea of a **PCR Oracle Committee** was presented
 - ☞ place to discuss & decide on policy for developments
 - ☞ roles of "expert" entities remain
 - ☞ ownership of data remains in equipment groups
- At the GLM of 11/6/2001 this committee was announced
- On 12/6/2001 GL were invited to appoint their ORAPCR representative

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PCR Oracle Committee

R. Billen SL/MR/DBS



ORAPCR Mandate



- To **review, consult** and **decide** on database issues concerning development and software design in the framework of the **SL control system**, directly related to data management based on the **Oracle RDBMS**.
- This committee reports to the SL Operations Committee (SLOC) on "**operations**" issues and to the LHC Controls Project (LHC-CP) on specific issues regarding the **LHC control system**.
- The ORAPCR committee is composed of software developers with **Oracle knowledge** who design and implement software applications for the SPS/LHC control system, with the PCR as end user. The **IT/DB** group is also represented in the committee.

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PCR Oracle Committee

R. Billen SL/MR/DBS



ORAPCR Activities



- ✓ Establishing policy and guidelines for the developers
- ✓ Proposal, discussion and approval of new database developments
- ✓ Reports on current database developments
- ✓ Evaluation of new database techniques
- ✓ Spawn working groups to address specific work or dedicated projects

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PCR Oracle Committee

R. Billen SL/MR/DBS

Minutes on the meeting with respect to the responsibilities on database related issues in the SL division.

Held on Monday 26 March 10:30-12:15 in the Pavilion conference room

Present: R. Billen, P. Charrue, M. Collados, E. Hatziangeli, N. Segura, M. Tyrrell, M. Vanden Eynden

Data management is an important issue and becomes critical in the view of the upcoming projects related to LHC. This meeting enforces the fact that data management is taken very seriously in the SL division.

In the SL context, the term "database" is equivalent to "Oracle", since it is the supported database. The main intervening parties are: IT/DB, SL/CO, SL/MR/DBS and the developers in the equipment groups. It was noted that the scope goes beyond the SL division and includes all users of the control infrastructure.

It is clear that developers need guidance with in the data management domain. However the knowledge and the ownership of the data should remain within the (equipment) group.

The intervening entities divide the responsibilities as follows:

IT/DB: Availability of Oracle RDBMS, Oracle Tools

Advise on new techniques and tools that should be used

SL/CO: Oracle programming environment, client side

SL/MR/DBS: database design, consultancy, info, tuning

Groups: maintenance of their Oracle implementation and data

Application development for interfacing to Oracle

A more detailed and explained list of the different database aspects, with the corresponding "responsible" entity can be found at the bottom.

Although there was no unanimous agreement in the meeting, it was felt that data management can not be centralized completely. As a consequence, Oracle knowledge is required at the group level. The "glue" between the intervening parties could be a "PCR Oracle Committee" composed the Oracle knowledgeable link people and IT/DB, where the policy is imposed and the guidelines explained. In this committee, data management proposals will be discussed and approved.

In view of the major projects that are underway, it is already clear that the manpower resources are inadequate to address all the data management issues correctly. However, with the proposed distribution of responsibilities and the creation of the "PCR Oracle Committee", a lack of resources for specific database domains might be identified in due time.

List of database aspects, explanation, responsible

- 1) Consultancy
 - This is my data problem, should I use Oracle?
 - I want to use Oracle, where can I develop, what can I use?
 - Technical and contact information
 - ==> SL/MR ; IT/DB
 - Policy & guidelines
 - ==> The "PCR Oracle Committee"
- 2) Database Design
 - This is my data -> data model -> Oracle objects
 - ==> SL/MR
- 3) Oracle implementation, DBA level
 - Availability of RDBMS's: host servers, purpose
 - DB Instance, DBU, Tablespaces,
 - Availability of Oracle development tools
 - ==> IT/DB
- 4) Oracle implementation, user level
 - Tables, views, stored procedures, triggers + maintenance
 - Use of development tools (non-)Oracle
 - ==> the Developer
- 5) Interfacing with Oracle, environment
 - Oracle directories, libraries, scripts, versions for client dev.
 - Infrastructure for appliances.
 - All according to supported IT/DB products
 - ==> SL/CO
- 6) Interfacing with Oracle, tools
 - Programming: C, Java applications
 - End-user: Forms, dynamic web pages
 - ==> the Developer
- 7) involvement in current and upcoming projects
 - LHC-CP, SPS-2001, CESAR, Middleware, INB
 - ==> all parties involved
- 8) Tuning
 - Help on performance issues
 - ==> SL/MR ; IT/DB
- 9) exploring new features & tools
 - 8i, Java stored procedures,
 - Designer, Developer, JDeveloper, Portal
 - ==> IT/DB ; SL/MR

PCR ORACLE COMMITTEE

R. Billen
28-Jun-2001

<u>Division</u>	<u>Group</u>	<u>Representative</u>
SL	AP	Elena Wildner
	BI	
	BT	Han Verhagen
	CO	
	HRF	Andy Butterworth
	MR	Ronny Billen
	MS	
	OP	Mike Lamont (LHC) Markus Albert (Ops)
	PO	(John Pett) -> new SW Eng.
ST	MO	Robin Martini
LHC	VAC	Isabelle Laugier
IT	DB	Nilo Segura
EST	ISS	Christophe Delamare