

# PSB & PS Cycles Management Review

IEFC Workshop 2011

Stephane Deghaye (BE/CO)

# Agenda

- # Users in PSB & PS
- # Needs for more & problems
- # Possible solutions
- # New user usage in PSB & PS
- # Consequences
- # Pending problems
- # Medium term plans

# Users in PSB & PS

- # Old control system is user based
- # 24 available slots in the front-ends
- # Users are named (reserved) after the beam they produce
- # User renaming requires experts
- # Archives are kept either in DB or files
- # References per user for best settings

# More users needed

- # Pending request for few years
- # Many beams produced
  - ▣ PS: LHC, EAST, TOF, SFT, CNGS, MD...
  - ▣ PSB: PS beams, ISOLDE + MD
- # More than 24 beams available even though never played at the same time
- # Worse this year with double batch.

# Problems to give more

## # Software

- ▣ Not straight forward but feasible
- ▣ Requires a reasonably long shutdown
- ▣ Not only a FE problem (X/Motif apps...)

## # Hardware

- ▣ Problem with modules implementing the PPM in hardware
- ▣ 200 GFAS devices in the PSB & PS

# Solution 1: Hardware

- # GFAS is obsolete & should be replaced by CVORB
- # Massive deployment
  - ▣ +/- 100 devices per accelerator
- # Cabling issues (2 channels → 16 ch.)
- # Requires a real shutdown
  - Nothing before LS1

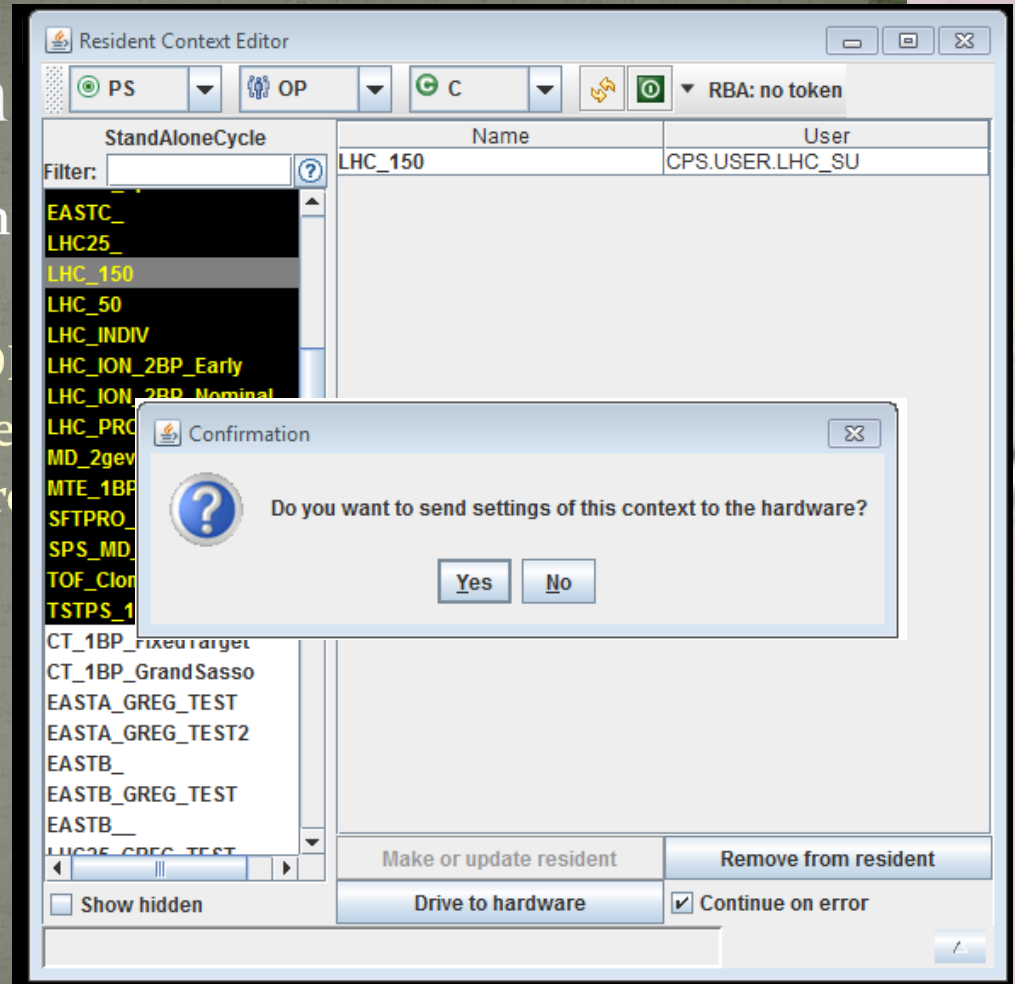
# Solution 2: Software

- # Requires InCA to be deployed
- # Presented @ IEFC workshop 2010
- # Based on LSA context mapping

# Back to 2010...

## InCA Solution

- Introduction of Contexts
- The Context:
  - are always in the D
  - can be made reside
  - can be made non-r



10-02-2010

S. De...



# Generic users

## # PS

- ▣ InCA deployed since July 2010
- ▣ Operation based on context mapping
- ▣ Needs to be fully validated but fast (1 min/cycle)

## # PSB

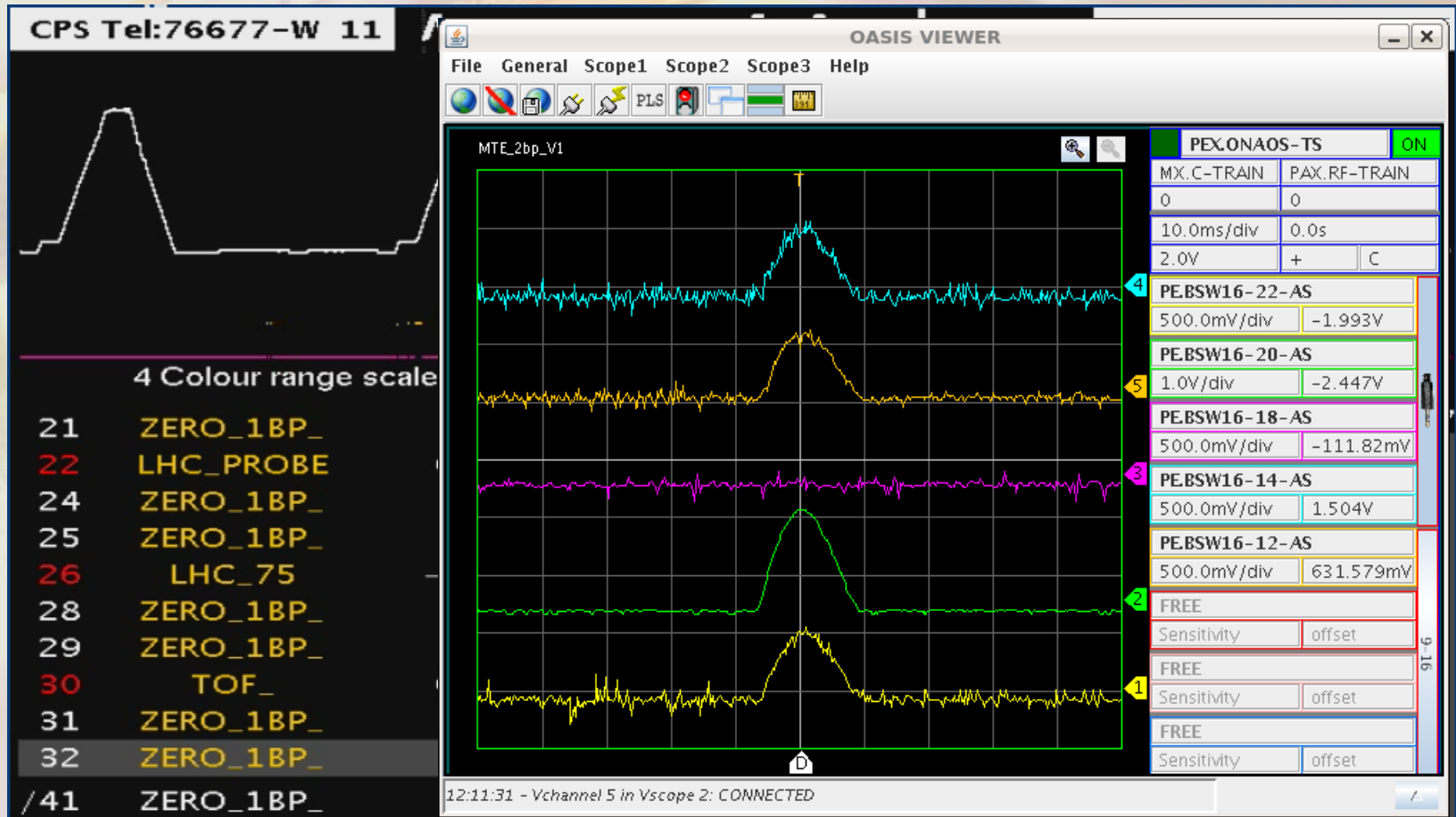
- ▣ InCA not yet deployed → rely on old archives (10 mins/archives)
- ▣ Increases pressure to deploy InCA@PSB

# Generic users in use

PSB	PS	Description
LHC_A	LHC	LHC production
LHC_B		
LHC_SU_A	LHC_SU	LHC setting up
LHC_SU_B		
LHC_MD_A	LHC_MD	LHC MD
LHC_MD_B		
LHCPROBE	LHCPROBE	Probe beam
LHCINDIV	LHCINDIV	LHC indiv bunch

# 3(6 @ PSB) users for 25, 50, 75 and 150 ns beam (single and double batch)

# Side effects (1/2)



# Side effects (2/2)

- # No solutions for the X/Motif apps
  - ▣ New problems (LKTIM propagation)
  - ▣ Increases the need to renovate
- # Not integrated in sequence manager
  - ▣ See medium term plans
- # Today is a first step. We'll go further and generalise more the users

# Pending problem for LHC

## # PS devices

- ▣ Devices with settings =  $f(\# \text{ PSB rings})$
- ▣ Manual intervention when # PSB rings changes
- ▣ 2 solutions
  - ▣ N-PPM devices + PS telegram modification
  - ▣ Makerules & virtual parameters

# Solution comparison

N-PPM devices	Makerule
Good old solution	Need to be validated
Handled by CBCM & FEC	Handled by LSA
Dev in FEC by other groups (RF...)	DB config + makerule to dev
OP manages n devices (some common)	OP manages n parameters in 1 device
Single call from inj seq	Possible but need PSB cycle



# Going further

- # Today = Intermediate state
  - ▣ Not comfortable for OP
- # OpenCBCM project - timing renovation
  - ▣ Ensure the new concepts are used
  - ▣ Sequence manager with cycles and not users
  - ▣ Beam structure in LSA
  - ▣ ...
- # All generic users & automatic mapping

# Summary

- # Limited # of users more problematic with double batch beams
- # Not possible to increase users soon
- # Solution based on cycle mapping in the PS
- # Will be available in PSB end of Q2 2011
- # Better integration as renovation goes on
- # More generic users if positive experience
- # Replacement of GFAS in LS1 still needed?