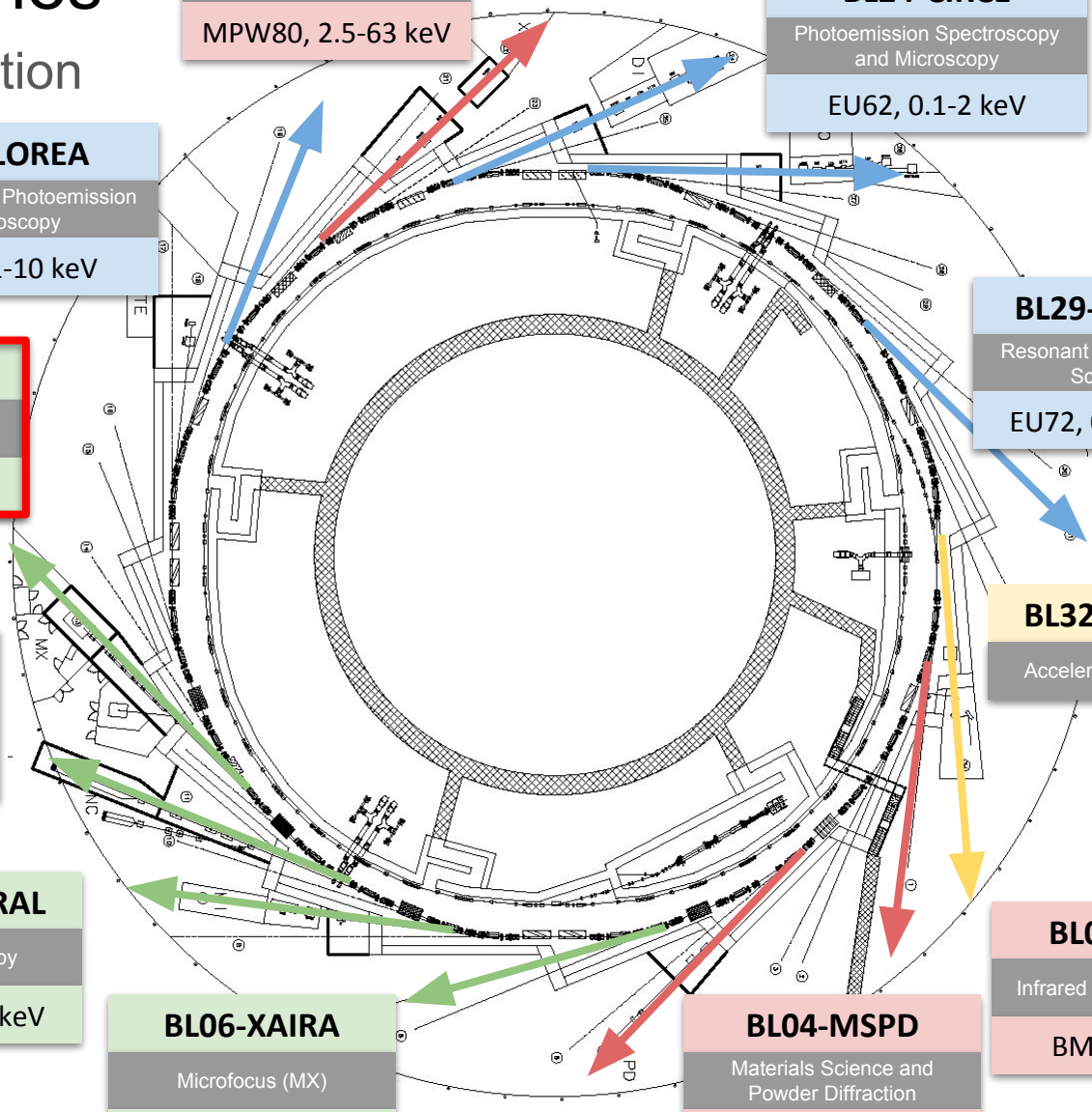
MXCuBE 2 @ ALBA
status report

Jordi Andreu,
On behalf of the controls group

MXCuBE meeting,11 September 2018,
Elettra (Trieste)

ALBA Beamlines

BL13-XALOC Location



BL22-CLAESS
X-ray Spectroscopy
MPW80, 2.5-63 keV

BL24-CIRCE
Photoemission Spectroscopy and Microscopy
EU62, 0.1-2 keV

BL20-LOREA
Angle resolved Photoemission Spectroscopy
EU, 0.01-10 keV

BL29-BOREAS
Resonant Absorption and Scattering
EU72, 0.08-3 keV

BL13-XALOC
Macromolecular Crystallography (MX)
IVU-21, 5-22 keV

BL32-XANADU
Accelerator Diagnostics

BL11-NCD
Non-Crystalline Diffraction
IVU-21, 6-15 keV

BL09-MISTRAL
X-ray Microscopy
BM, 0.27-2.6 keV

BL01-MIRAS
Infrared Microspectroscopy
BM, 0.01-1 eV

BL06-XAIRA
Microfocus (MX)
IVU-19

BL04-MSPD
Materials Science and Powder Diffraction
SCW31, 8-50 keV

BL13 - XALOC Beamline

MX experiments

Detector: Pilatus2 6M (Dectris) LimaCCDs (Core 1.7) OS openSuSE 10.3.
Diffractometer: MD2M (Arinax) Icepap driven (no server).
Sample Changer: CATS (Irelec) spine/unipuck (double gripper) + plates.
Intrumentation control: Sardana/Taurus + Tango7.
OS platform: Linux (openSuSE 11.1/12.1)
Remote connection: NX Enterprise (No Machine)

Integration of MXCuBE 2 (Qt4) @ ALBA

A looong way...

Bessy (June 2015)

DESY (June 2016)

Diamond (February 2017)

ALBA (December 2015)

ESRF (February 2017)

Trieste (September 2018)

Integration of MXCuBE 2 @ ALBA

Implementation

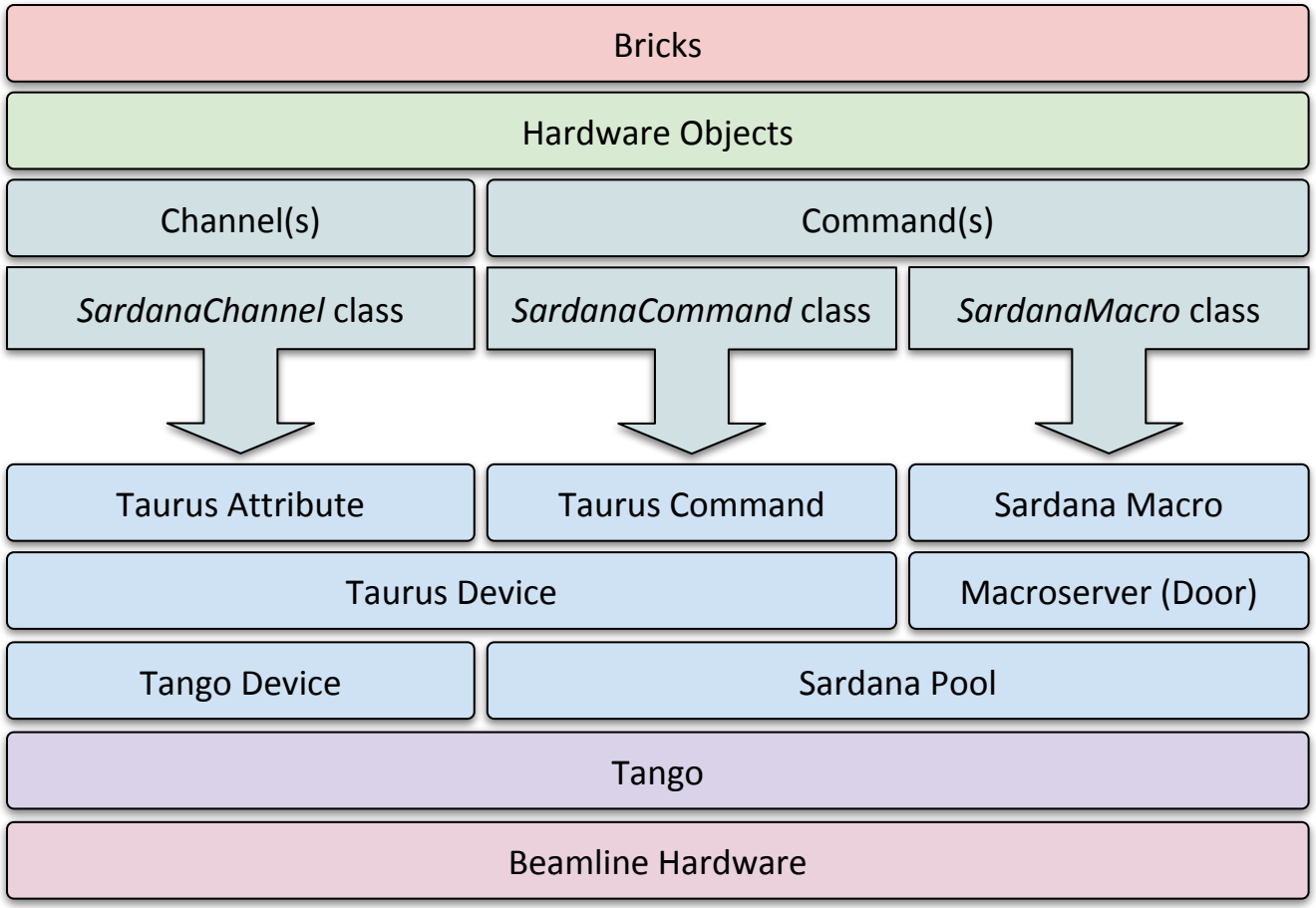
1. Add support to SARDANA/TAURUS.
2. Operate Beamline Phases (Tango DS)
3. Implement HwObjs & Bricks

Integration of MXCuBE 2 @ ALBA

Sardana Support for BlissFramework

BlissFramework
Hardware Repository

ALBA Control System
Sardana & Taurus



*Implemented by V. Rey in *CommandContainer.py* and *Sardana.py* files.

Phases for MXCuBE 2 @ ALBA

Diffractometer TANGO DS

Diffractometer TANGO DS

Control the diffractometer and sample environment for safety operations.

Any access to the equipment is done through this DS (when available).

Goniometer
omega
omegax
omegay
omegaz
centx
centy
kappa

Aperture
aperx
aperz

Fixed Beamstop
bstopx
bstopz

Moveable Beamstop
bsx
bsy
bsz

Detector table
diftabx
diftabz

DUSP
yagy
yagz

PLC signals
Sample on magnet, ...

BL parameters
Pinlength, ...

Actions
GoBeamViewPhase
GoSampleViewPhase
GoTransferPhase
GoCollectPhase

Phases for MXCuBE 2 @ ALBA

Beamline Supervisor TANGO DS

Beamline Supervisor TANGO DS

Coordinate the beamline elements for safety phase transitions.

Prepare the beamline elements according to the phase description.

Instruments

diffractometer
sample changer
shutters
cryostream

PLC signals

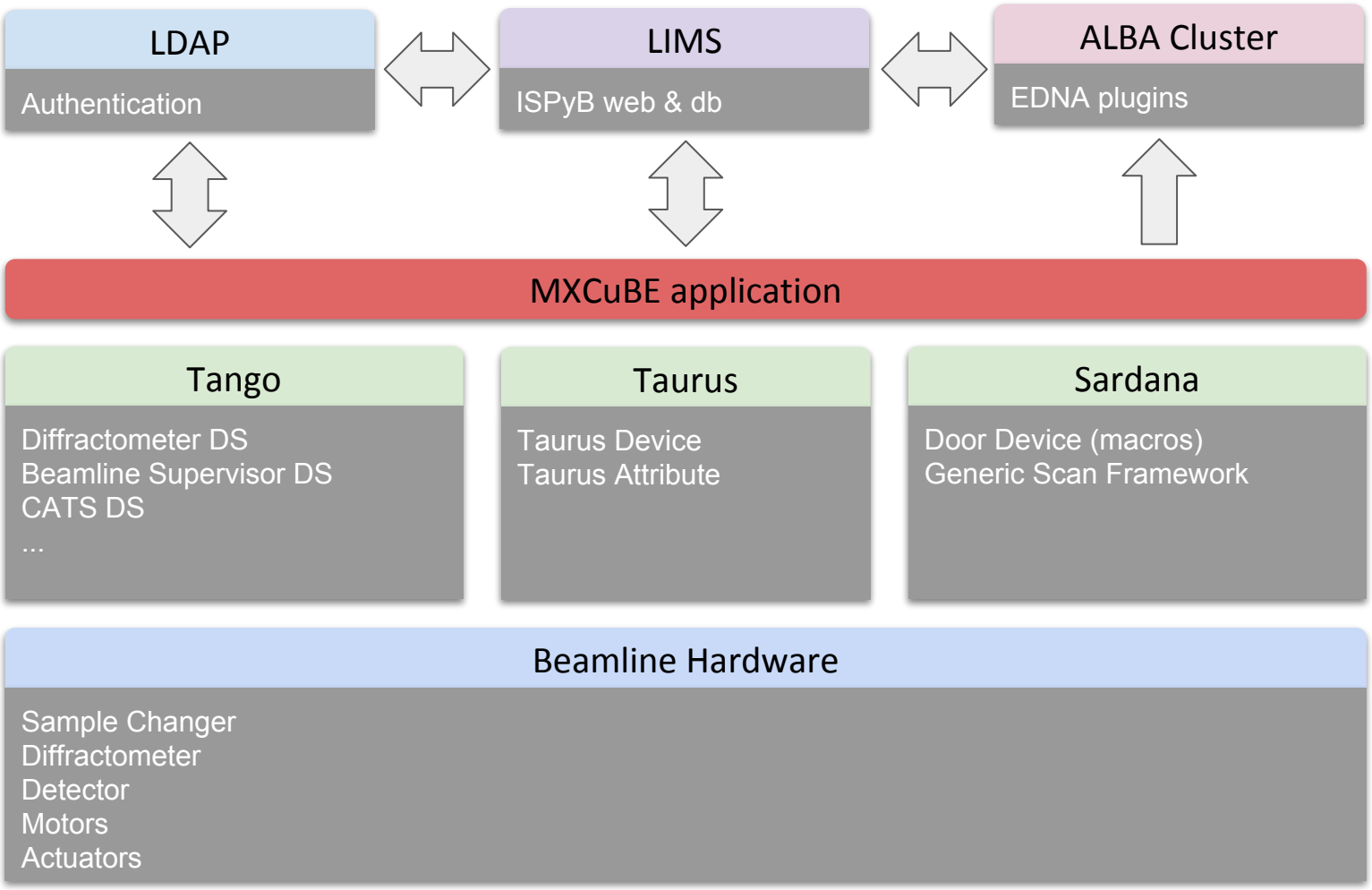
DetDistanceSafe
DetCoverOpen
CryoPosition
FastShutterCollectPosition

Actions

GoBeamViewPhase
GoSampleViewPhase
GoTransferPhase
GoCollectPhase

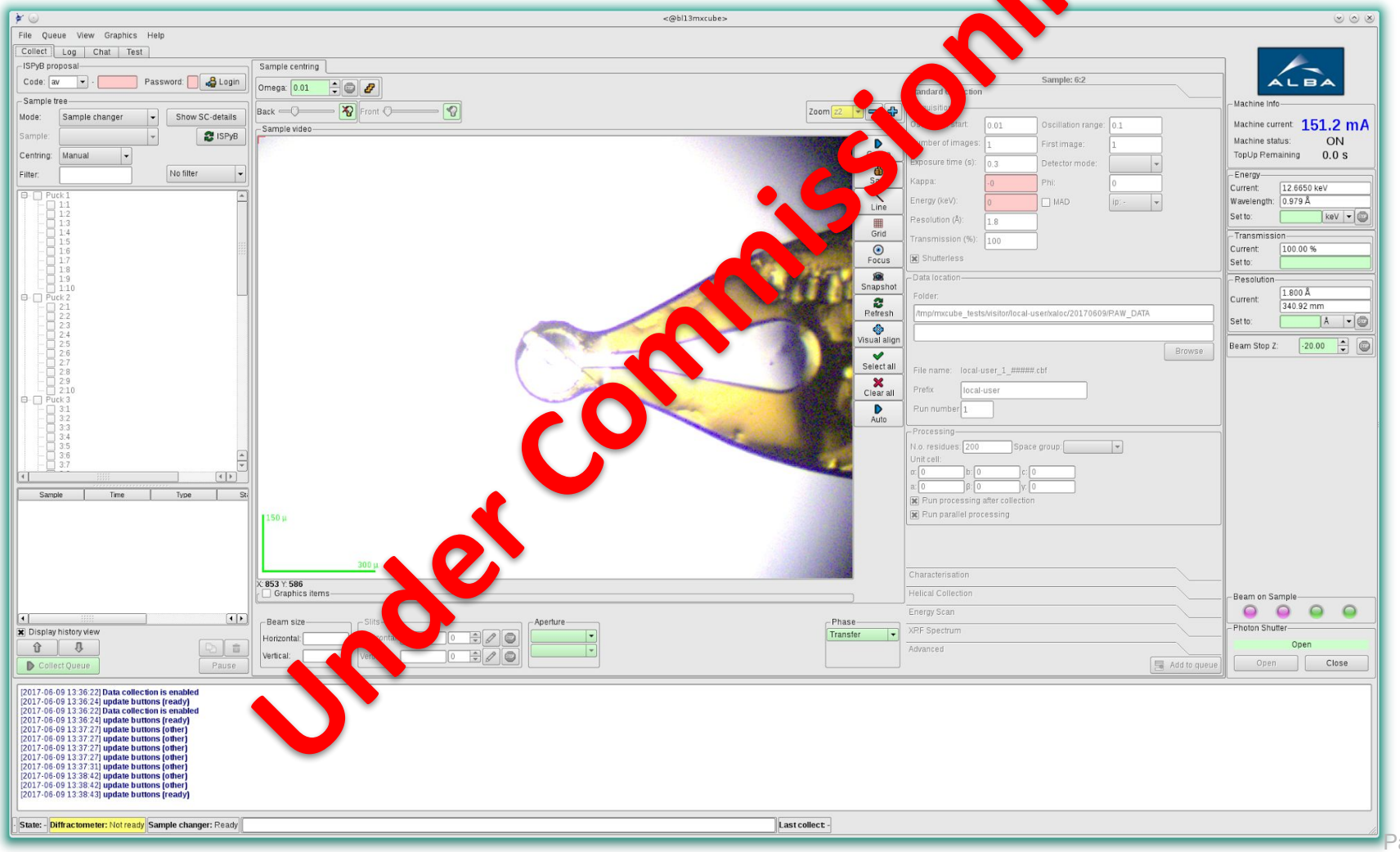
Integration of MXCuBE 2 @ BL13-XALOC

Architecture



MXCuBE 2 @ BL13-XALOC

MXCuBE app snapshot



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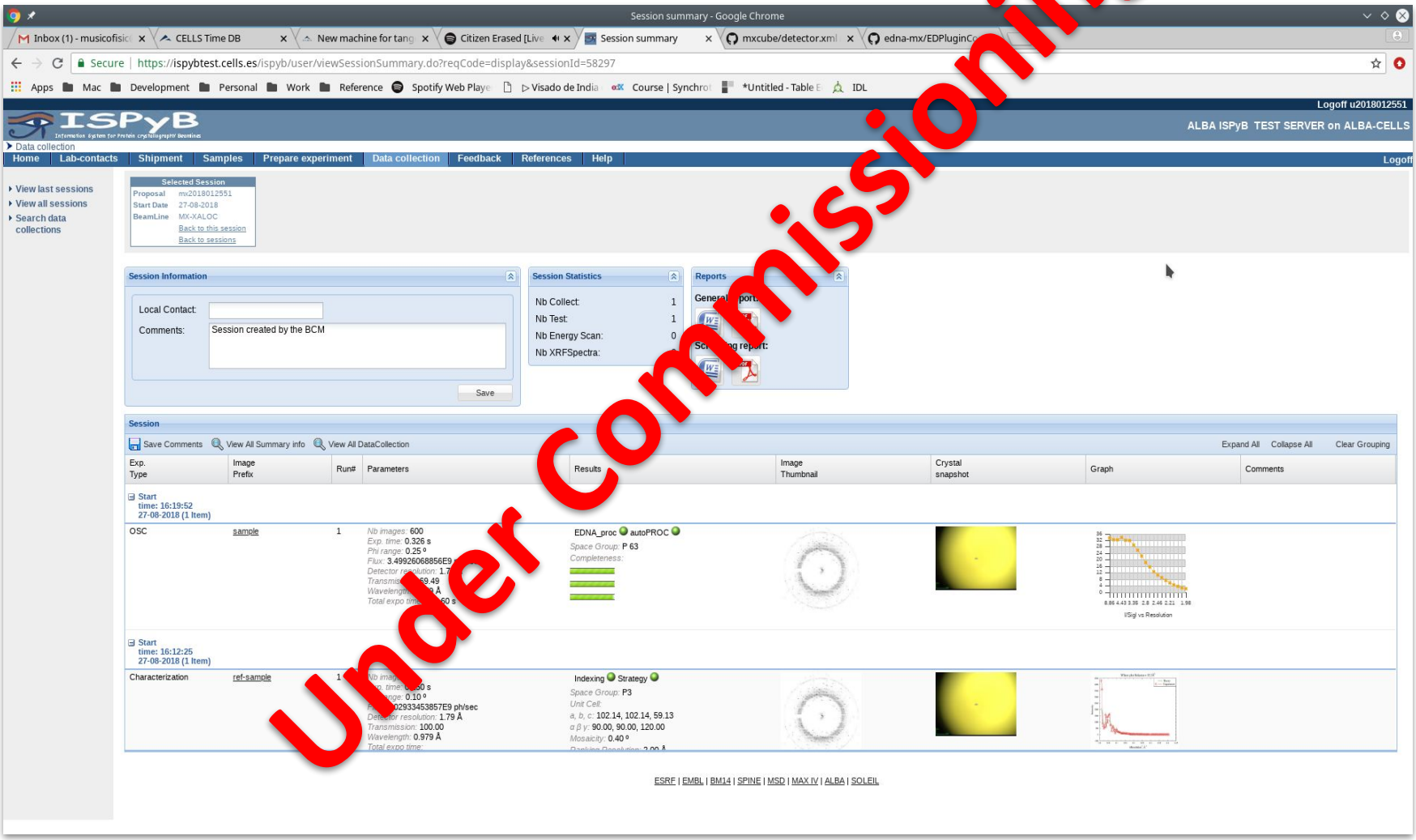
ISPyB portal snapshot



MXCuBE 2 @ BL13-XALOC

MXCuBE development and features

- Development on Qt4/master branch (merging, PRs pending).
- Systems and MIS actively involved.
- Bixente Rey (TXO Solutions).

☑ Done	☒ ToDo
Optical Centring procedures. Standard Data Collection. LDAP authentication. EDNA postprocessing. ISPyB database. Remote Access.	Migration to Debian9. Integrate to Sardana Scan Framework (trigger by position) ● Energy Scan. ● Helical Data Collection. ● Mesh Data Collection. X-ray Centring.

MXCuBE 2 @ BL13-XALOC

EDNA / ISPyB developments and features

- Development on master branch (PRs submitted).
- Optimize cluster performance (ongoing work).

☑ Done	☒ ToDo
EDPluginControlInterfaceToMXCuBEv1_3	EDPluginControlDozorv1_1
EDPluginControlAutoPROCv1_0	
EDPluginControlEDNAprocv1_0	

ISPyB status on thursday morning session (by Daniel Salvat from MIS).

Acknowledgements

The people

Thank you for your attention

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MIS
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Externals
Bixente Rey