

# eCLF Project progress

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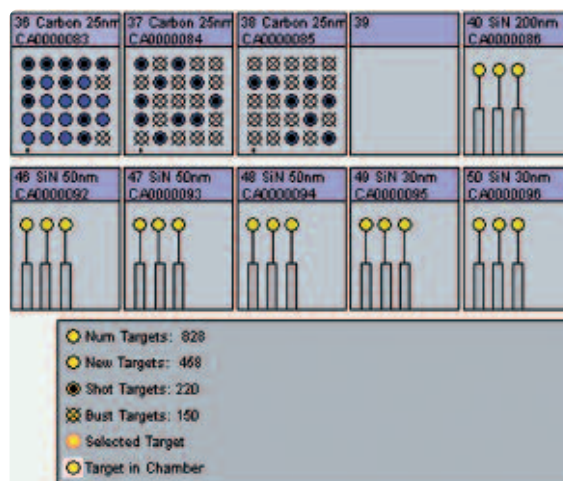
This past year has shown the first real use of the eCLF project.<sup>[1,2]</sup>

At the beginning of the year the software was rolled out to the laser and target areas. However, in practice the use of nexus files to hold and transport the data to the viewer machines was found too cumbersome and greatly reduced the performance of the system. (A 3 Mb file was needed to be copied for each shot and interrogated to retrieve the data). Midway through the year an alternative approach was floated and implemented whereby the singular value data and links to the images and traces were stored in an Oracle database. Also the number of visible rows of shot data was limited to 40 per page to reduce the processor workload. Thus the software now interrogated the database to retrieve the records of interest to the user and the thumbnail images were then directly loaded from the samba-drive. It also had the advantage of being able to use the inherent database functions to sort, filter and order the data, further reducing the workload on the local m/c. This change was found to improve the performance of the user interface dramatically.

The new version was used for the Libra experiment and installed on several PCs both on and offsite. Extra software was also written primarily to interface with the GA target inserter and keep track of which targets had been prepared, aligned and shot. It was written such that Target Fabrication staff could define the target material, thickness etc. present on each puck and keep track of shot targets on each carousel from their office. The experimenters had a GUI to select which targets they were shooting. This software then sent metadata about the target on each shot to the database.

Following the success during the Libra run and the increasing reliance on the system it was decided to concentrate on its robustness. This has included fixing instabilities of the interface, i.e. database connection errors, writing operating instructions for each part of the pipeline and developing a system diagnostic for the key control and diagnostic PCs.

The role of the systems diagnostic is to monitor and alert the laser operators/users to potential problems with the laser system and diagnostic data flow within



**Figure 1. Screenshot of Target Request and Carousel Setup (TRACS) software showing targets prepared for Gemini experiment.**

the data pipeline. This is taking the form of a web page which can be accessed from any machine on the network. It is designed to check all the stages in the data pipeline including whether the laser is running, individual diagnostic PCs, data transfer directories, ingestion software, thumb-nailer, links to the database and database contents. If any error is detected the viewer is alerted to the problem. Since the data copier software runs on all diagnostic PCs it was decided to incorporate the monitoring functions to this software. It now checks that it itself is still running, what files it has copied and that the local diagnostic software has been started. This information is copied to a database on the windows gateway machine every few minutes.

Additional functionality has been added in other areas of the system: automatic calculations at the ingestion stage (e.g. calculating peak heights of radiation scope data so it can be searched on in the database), connection of a 7.2 TB raid array to store laser data, preparation to move from 10 g database at Daresbury to 11 g database at RAL and inclusion of scope data from the Gemini Target area.

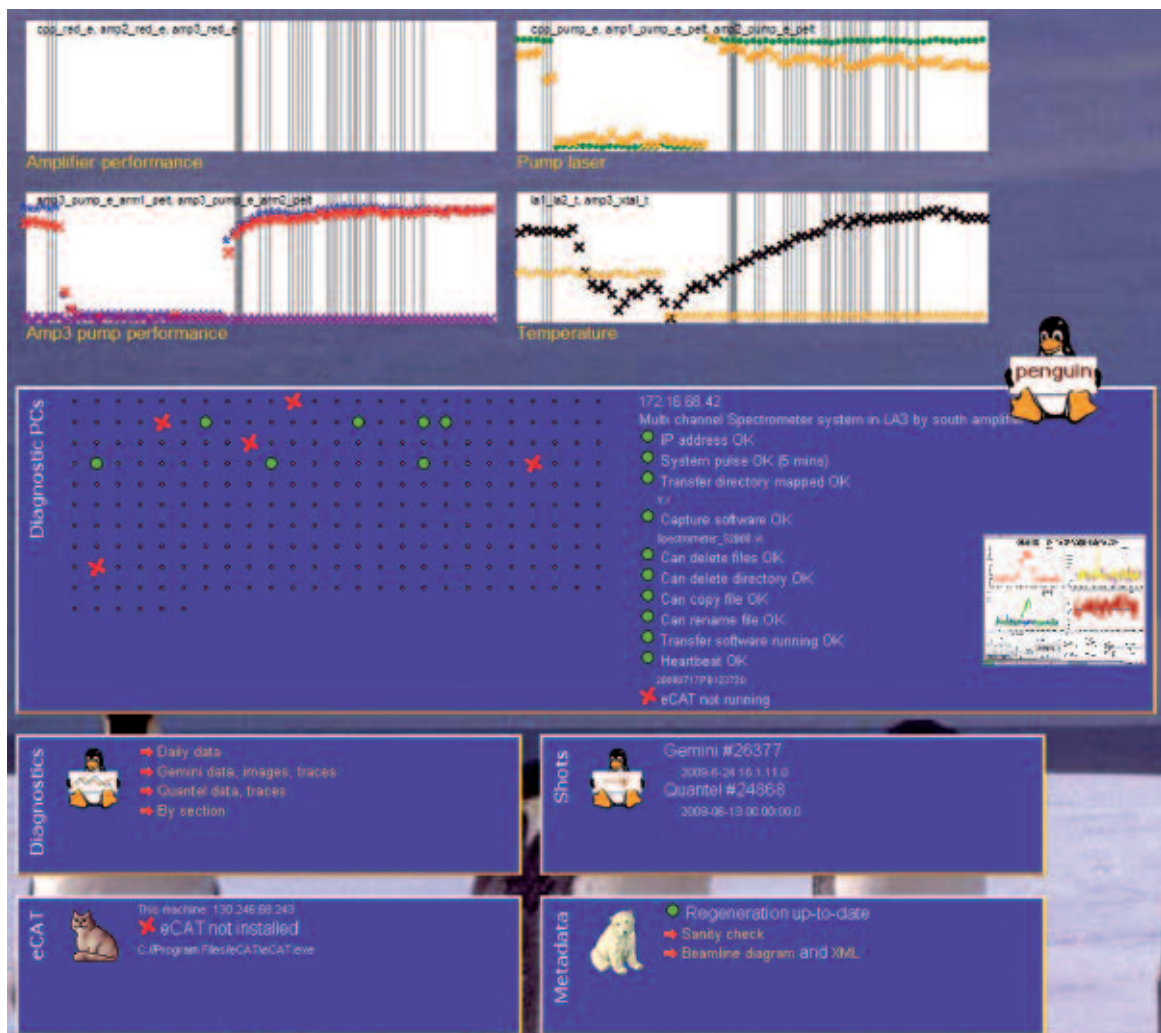


Figure 2. Penguin interface showing status of Gemini control and diagnostic machines.

The EU project CONSEQUENCE is building the infrastructure for usage policy for data, an important issue for scientific data, especially for leading research. A version of eCAT is being used by the eScience team as a test-bed for the usage policy to understand the requirements that arise if NeXus files are downloaded by a number of users.

## References

1. E. J. Divall *et al.*, eCLF project progress, CLF Annual Report, RAL-TR-2008-025, 229, (2008).
2. K. Hayrapetyan, eScience-CLF data acquisition system, CLF Annual Report, RAL-TR-2008-025, 236, (2008).