

USER ACCESS CONTROL AND PROFILE CONFIGURATION UTILISING CUSTOM HARDWARE AND SOFTWARE SOLUTIONS TO INTERFACE WITH THE PPMS FACILITY MANAGEMENT PLATFORM

James Springfield, Nicholas Condon, Mark Scott, John Srnka
Institute for Molecular Bioscience
University of Queensland, Queensland, Australia
E-mail: j.springfield@uq.edu.au

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Historically, microscope booking, usage tracking and billing in our microscopy facility was a labour intensive and often inaccurate manual task. At this time, we were using 300-hour Mercury lamps for fluorescence illumination, which required frequent replacement due to being unintentionally left on.

With expansion of the facility we required a better system to tracking equipment usage and through extensive research we arrived at the PPMS facility management platform. This allowed us to accurately track usage across all of our systems as well as provide invoicing features using a locally installed script on each PC. However this did not provide a solution to accurately monitor systems that do not require a PC to function, such as basic Widefield Microscopes.

In order to improve the tracking efficiency and solve the lamp failure issues we were experiencing, we developed the Automatic Microscope Controller. Based on a microcontroller and solid state relays, this system addresses these issues by, providing power to the equipment only after successful user login (Tracked by PPMS) and multiple timers within the controller regulate lamp shutdown and cooling.

We have deployed custom scripts on each microscope and analysis server PC to provide a discrete environment tailored for each individual, where they cannot affect other user's settings. These scripts also provide simple tools for facility staff to reset each user's environment to default if an issue arises.

Finally, utilizing the PPMS API we have developed custom GUI based software to control user access to each PC and microscope. The software ensures that the user has a valid booking, as well as provide additional functionality to report incidents, quickly extend their booking, complete facility questionnaires and receive email updates on their remaining booking time. Together these systems have provided our facility with complete user access control to our hardware and software platforms, in a multi-user facility environment.

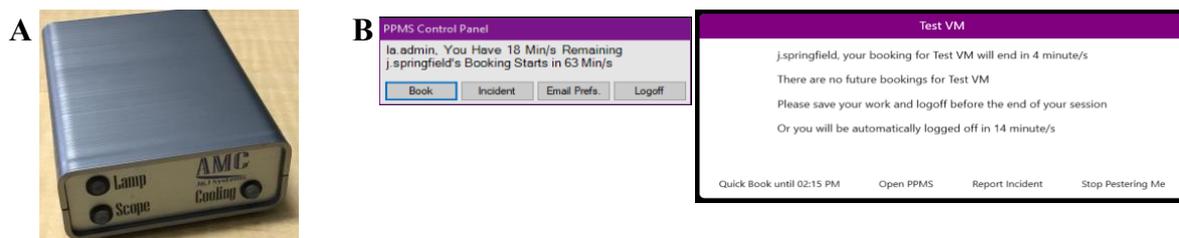


Figure 1: IMB Developed Custom Hardware and Software Solutions for Access Control.
A Automatic Microscope Controller. **B** Screenshots of PPMS Access Control