

## Topic

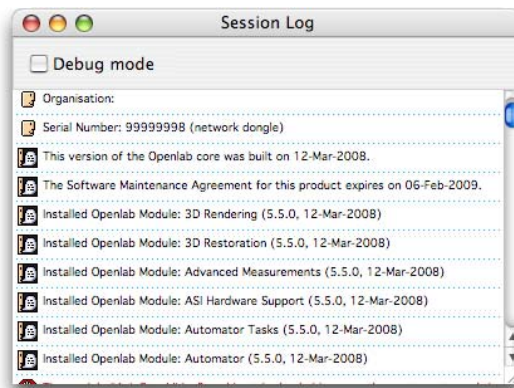
This technical note explains what to expect when you upgrade to Openlab 5.5 and directs you to some resources for making the most of the additional functionality.

## Discussion

If your SMA is valid on 28 March 2008 you may download and install the Openlab 5.5 release from the Improvision website.

If your SMA is not valid you will need to purchase a new SMA, or an upgrade if you are using Openlab 4 or lower. Contact [sma@improvision.com](mailto:sma@improvision.com) with your dongle or serial number to obtain a quote.

Your SMA expiry date is recorded in the session log. Go to the File menu and choose **Show Session Log...**



Before performing the upgrade you will need to understand the system requirements for Openlab 5.5. Openlab 5.5 requires Mac OS X 10.4.6 or higher.

You must also check the supported hardware list. You will not be able to upgrade to Openlab 5.5 if your hardware is not supported under Mac OS X 10.4 or higher. This particularly applies to devices that require PCI cards to operate.

[http://www.improvision.com/support/tech\\_notes/detail.php?id=416](http://www.improvision.com/support/tech_notes/detail.php?id=416)

If you are an Openlab Darkroom user Openlab 5.5 is a maintenance release. No additional functionality will be installed. To upgrade to a full Openlab license contact [sma@improvision.com](mailto:sma@improvision.com) with your dongle or serial number to obtain a quote.

If you are using any other configuration of Openlab, version 5.5 unlocks all of the modules apart from 3D Restoration.

All available user guides for Openlab can be found in PDF format here:

<http://www.improvision.com/support/guides/openlab.php>

## Camera and Hardware Support

If you don't already have these you will get all the modules for hardware and camera support. This means that, within the restrictions of your computer hardware and operating system you may be able to use additional hardware as the need arises. Always refer to the Openlab supported hardware list before choosing hardware.

[http://www.improvision.com/support/tech\\_notes/detail.php?id=416](http://www.improvision.com/support/tech_notes/detail.php?id=416)

## Additional Palettes

Installing new modules may mean that additional palettes appear in your Openlab session. If you do not want to see the palettes, simply close them by clicking on the red X in the top left hand corner.

## Advanced Measurements

Measure large numbers of objects, and make measurements over time using a binary layer to indicate which objects are to be measured. Use Density Slicing to create a binary layer by thresholding on properties such as pixel intensity. Create custom measurements based on the default measurements by combining them in expressions. Advanced Measurements together with the Automator streamlines the workflow of morphological analysis.

Advanced Measurements User Guide may be downloaded from this page:

<http://www.improvision.com/support/guides/openlab.php>

Creating Custom Measurements:

[http://www.improvision.com/support/tech\\_notes/detail.php?id=45](http://www.improvision.com/support/tech_notes/detail.php?id=45)

When making measurements it is important that images are spatially calibrated. See the Openlab User Guide for more information.

## Volume Deconvolution

Remove out of focus intensity from widefield images to generate confocal quality results. Processing is performed on stacks of optical sections, a single image may be processed from a stack of just three using the nearest neighbor algorithm. Include more neighbours to increase quality.

The Deconvolution User Guide may be downloaded from this page:

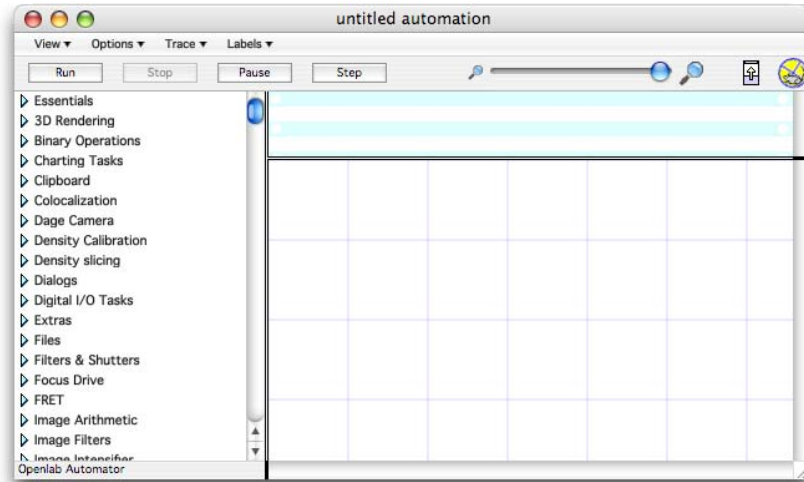
<http://www.improvision.com/support/guides/openlab.php>

## Automator

You may now have the full Automator where previously you used only the Automator Lite or no automations at all.

The Automator is a visual programming language which can be used to design experiments controlling the camera and microscope hardware and even performing image processing. Add new versatility to your system. The Automator is the tool, an automation is a set of instructions written using the Automator language.

Select **New Automation** from the Automator menu.



Drag tasks from the lists on the left hand side and place them in the order of execution on the work area. Connect tasks together. Save automations by selecting **Save...** from the File menu.

Download the Automator User Guide from this page:

<http://www.improvision.com/support/guides/openlab.php>

### Application Tools

Specific modules are available for Colocalization, Ratio and FRET.

View a scatter plot showing the relationships between intensities in two selected images using the Colocalization view. Generate colocalization statistics such as Pearson's Correlation as described in M.M. Manders, P. J. Verbeek & J. A. Aten, *Measurement of co-localization of objects in dual colour confocal images*, Journal of Microscopy. Vol. 169, Pt 3, March 1993, pp. 375-382.

[http://www.improvision.com/support/tech\\_notes/detail.php?id=348](http://www.improvision.com/support/tech_notes/detail.php?id=348)

Generate normalized or netFRET images using the 3-image FRET technique, as described by Gordon et al. (1998) and Xia and Liu (2001).

[http://www.improvision.com/support/tech\\_notes/detail.php?id=320](http://www.improvision.com/support/tech_notes/detail.php?id=320)

Ratio pairs of images to generate results which reflect the ratio between two intensity values at each pixel location. Ratio images can then be measured to provide data in studies such as ratiometric ion imaging.

<http://www.improvision.com/support/guides/openlab.php>

To prepare for quantitative applications such as Colocalization, FRET and Ratio you may need to perform background subtraction and/or registration correction. Tools for both of these are available in Openlab.

### Technical Support

Following the release of Openlab 5.5 on 28<sup>th</sup> March 2008 you will require a valid SMA to obtain phone and email support from the technical support desk. There is no restriction on the support areas of the Improvision website.

<http://www.improvision.com/support/>