



Version 4.0

Quick Start Guide

Image Studio™ Lite



LI-COR®

1 Install the Image Studio Software

IMPORTANT: You must be logged in to the Windows® Operating System using an Administrator type account. If necessary, log out and log back in using an Administrator account.

Windows 7, 8, or 8.1 Operating Systems:

Installing via download:

- 1) Download and double-click on the Win_Image Studio Lite_4.x.x.exe file on your computer.
- 2) Click **Next** and follow the instructions in the Setup Wizard

Mac® OS X® 10.8 (Mountain Lion) or 10.9 (Mavericks):

Installing via download:

- 1) Go to your Mac System Preferences and click **Security & Privacy** to open the Security and Privacy window.
- 2) Click the lock symbol in the bottom left corner of the window to allow editing, if necessary.
- 3) Under the **General** Tab, enable the **Mac App Store and identified developers** radio button under the **Allow applications downloaded from** option.
- 4) Download, and double-click on the MacImageStudioLite_4.x.x.dmg file on your computer.
 - a. Click **Agree** to accept the license agreement.
 - b. To install, drag the Image Studio icon into the Applications folder (Figure 1).
 - c. Open the Image Studio Application by double-clicking on the Image Studio icon.
 - d. If a window appears that says "ImageStudio.app is an application downloaded from the internet. Are you sure you want to open it?" click **Open**.



Figure 1

2 Start Image Studio

Double-click the Image Studio icon on the desktop to start Image Studio Lite.

3 Create A New Work Area

The first time you start the software you will need to create the first Work Area, a folder on the hard drive or network where all of the images, analyses and settings are stored.

- 1) Click **Create New** in the Set Active Work Area dialog box (Figure 2).
- 2) In the Name field (Figure 3), provide a name for your work area. Browse to the location where you want this folder to reside and click **Save**.

NOTE: For the first Work Area, do not use the default path. Browse to a location such as My Documents or a folder on the desktop created specifically for Work Areas.

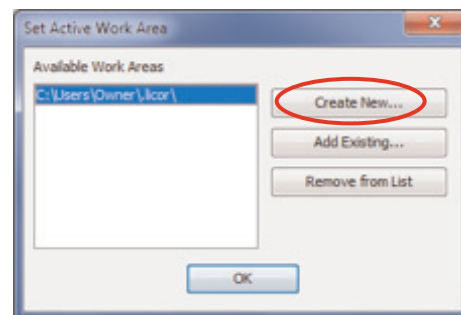


Figure 2

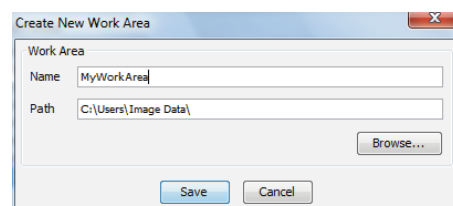


Figure 3

(To remove a Work Area from the Set Active Work Area list, select it and click Remove from List. Removing the folder from the window does not delete the folder or its contents.)

NOTE: Each user should create their own Work Area, as previous settings for the instrument, analysis, image display, etc. from the last session will be applied to the next session in the same Work Area.

4 Image Import

Tutorial images are available at www.licor.com/ISLite. Download the tutorial files.

*NOTE: Image Studio Lite supports **JPG, TIFF, and PNG** files from many different sources. If your image does not appear to import correctly, please contact LI-COR about the image using the submission form found at <http://www.licor.com/bio/contact/support.html>. Select **SOFTWARE** in the "Product Interests" box and attach a sample file for our review.*

- 1) Click the **Application Menu Button** and hover over **Import**. Hover over the Image Studio icon and click **Zip File** (Figure 4). Select the Acquisitions_ISLite.Zip file and click **Open**. The tutorial files will import and are listed in the Images Table at the bottom of the window.

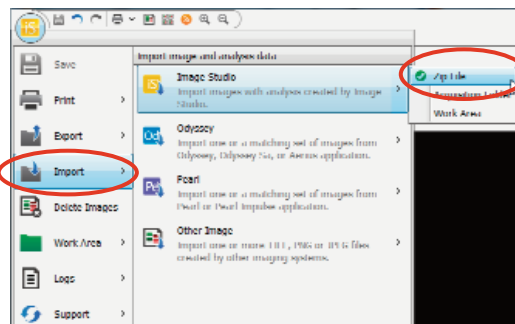


Figure 4

- 2) *NOTE: Images from the Odyssey Application Software (versions 1.x, 2.x, or 3.x) can be imported into Image Studio software for analysis by clicking **Import > Odyssey**. Images from the Pearl Imager software can be imported by clicking **Import > Pearl**. Other non-LI-COR® image files (TIFF, PNG, or JPEG) can be imported by clicking **Import > Other Image**.*

- 3) Double-click the '9999999_01' image in the **Images** table.
- 4) The image appears in the display window.

5 Image Display

- 1) In the **Image** ribbon, click on the Choose button found in the Display group. Select **800 channel** (Figure 5). Click the view with the best display (Figure 6).

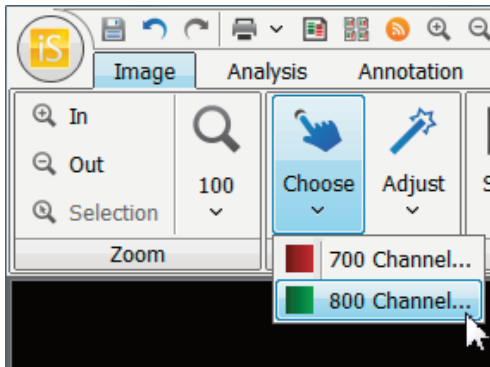


Figure 5

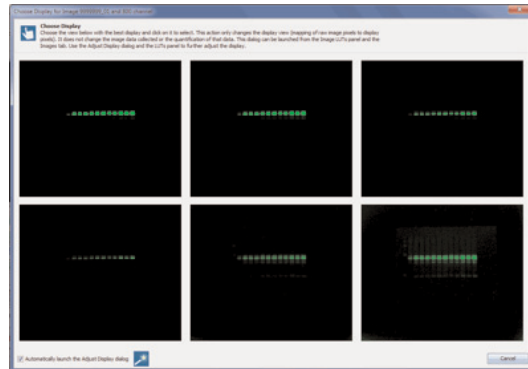


Figure 6

- 2) The *Adjust Display* dialog will open (Figure 7) to allow for further adjustments as needed.
- 3) Click **Signal** at the bottom left to adjust the maximum point on the curve in the Lookup Tables; **Background** to adjust the minimum point; or **Midtones** to adjust the K value. Click **Dimmer** or **Brighter** to change the visual appearance of the image. When finished, click **Done**.

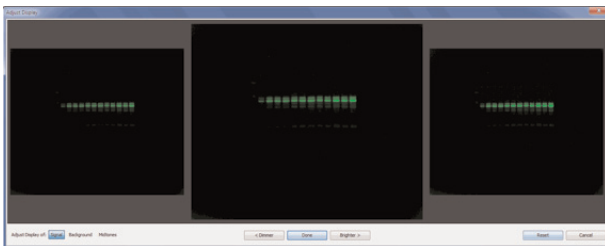


Figure 7

- 4) Additional Brightness/Contrast enhancements may be implemented using the adjustable sliders on the Image LUTs Tab on the right side of the window Figure 8, A). For finer adjustments, click the Curves tab (B).

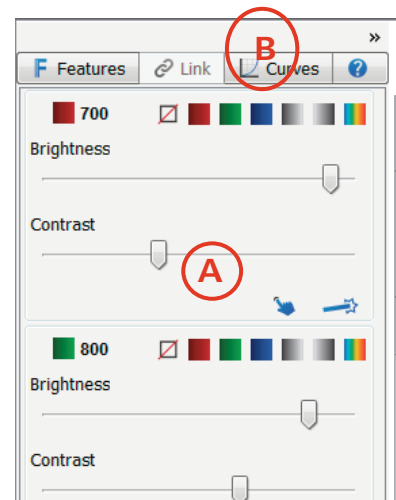


Figure 8

For fine adjustments, carefully adjust the three points on the histogram (Figure 9, A). To view the entire histogram, click the Show All icon (B).

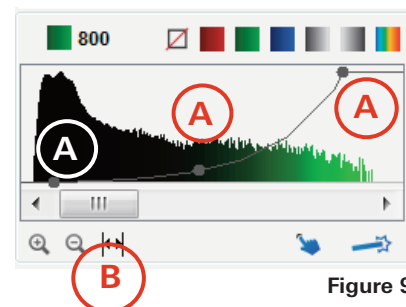


Figure 9

6 Data Analysis

Add and Manipulate Shapes

- 1) Click the **Analysis** ribbon (Figure 10).

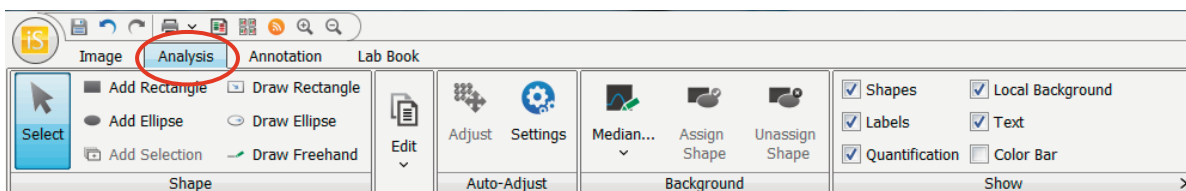


Figure 10

- 2) If you want to analyze only one channel, you can deselect the channel you are not interested in analyzing. Click the 700 channel's **Don't Show Channel** thumbnail in the Image LUTs, leaving only the 800 channel displayed (Figure 11).

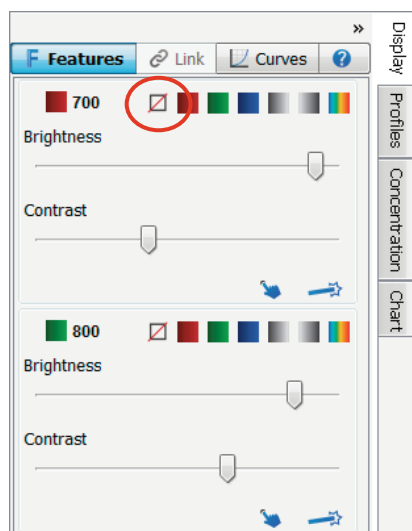


Figure 11

- 3) Click **Add Rectangle** to add a rectangle to the image, or **Add Ellipse** to add an ellipse (Figure 12). (Alternatively, to manually draw a shape, choose **Draw Rectangle** or **Draw Ellipse**).

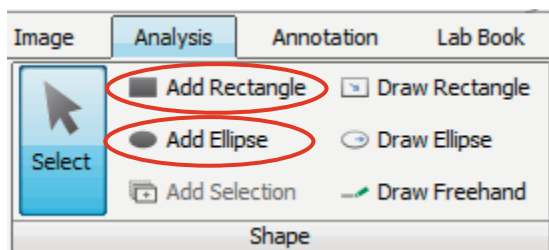


Figure 12

Click in the center of a feature to place a rectangle or ellipse around it.

(NOTE: If adding multiple shapes, do so in a logical order, as the data are sorted by an ID number that is generated sequentially).

After adding all of the desired shapes, click **Select** or press the Esc key on your keyboard to return the cursor to the selection tool.

6 Data Analysis *(Continued)*

- 4) To move or resize a shape, click once on the shape to select. Dotted lines indicate the shape is selected.
 - a. To move the shape, drag the four-pointed cursor within the selection shape (Figure 13).

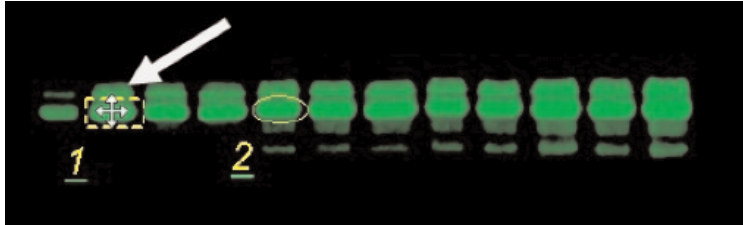


Figure 13

- b. To resize the shape, hover over any corner or side of the shape. Drag the yellow dotted line to resize (Figure 14).

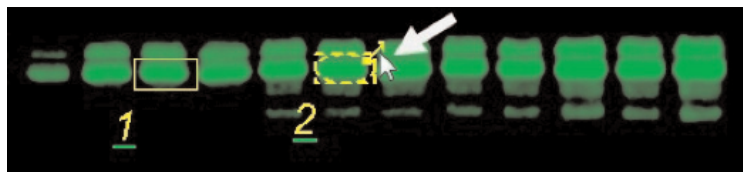


Figure 14

Subtract Background

- 1) Click the first button in the **Background** group and select **Median** from the drop-down menu to subtract the median value of pixels in the background segment (Figure 15).

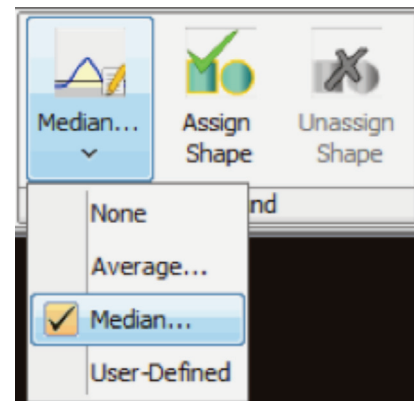


Figure 15

- 2) Set the Border Width to 3 in the Background dialog and select the segments to be used for the background calculation (Figure 16).

(NOTE: When choosing which segments to use, select the segments that best represent the actual background of the image).

- 3) Click **Save**.

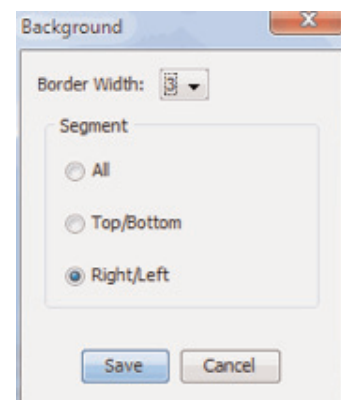
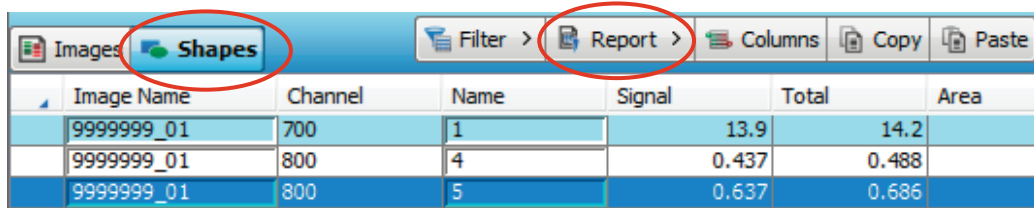


Figure 16

7 Export Data

- 1) Click the **Shapes** tab found above the table and then click the **Report** button (Figure 17).



| Image Name | Channel | Name | Signal | Total | Area |
|------------|---------|------|--------|-------|------|
| 9999999_01 | 700 | 1 | 13.9 | 14.2 | |
| 9999999_01 | 800 | 4 | 0.437 | 0.488 | |
| 9999999_01 | 800 | 5 | 0.637 | 0.686 | |

Figure 17

- 2) Click **Save As** or **Launch Spreadsheet**.
- 3) Name the file.
- 4) Browse to a location for the file to be saved.
- 5) Click **Save**.
- 6) A report containing the analysis information is created. The Signal column contains the background corrected values that should be used for further analysis.

8 Export Image for Publication

- 1) Click the **Images** tab found above the table and then click on the image to be exported (Figure 18).

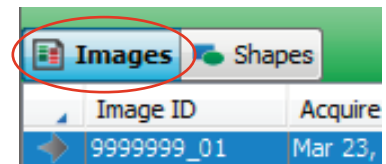


Figure 18

Click the **Image Studio icon** and hover over **Export**. Click **Single Image View** and select **Current Image** (Figure 19).

- 2) Make sure the size priority is set to Inches (or cm) and then click **Reset Inches (or cm)** to ensure the file is at its original size. If a larger image is required, adjust the output size accordingly.
- 3) Select 300 dpi (print) as the Publication Resolution and TIFF file as the Image Format.
- 4) Specify where you want the image to be exported and click **Save**.

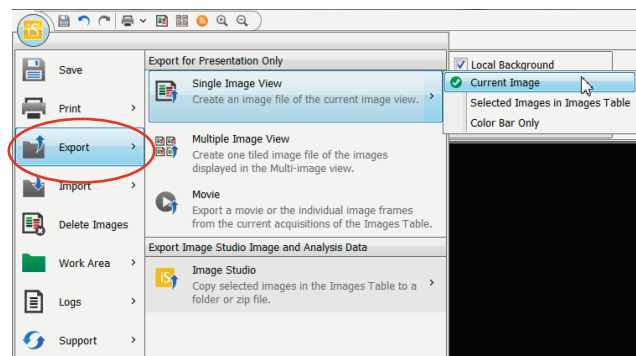


Figure 19

NOTE: If you want the entire image to be exported and only a portion of the image is shown, Cancel out of the Export Current Image window, click on the Image ribbon, and deselect Apply in the Print/Export group.

Export Image for Image Studio Analysis on Another Computer

- 1) Click the Images tab found above the table and then select the image(s) to be exported (Figure 18).
- 2) Click the **Image Studio** icon and hover over Export. Click **Image Studio** and select Zip File (Figure 20).
- 3) Specify where you want the image(s) to be exported and click **Save**.

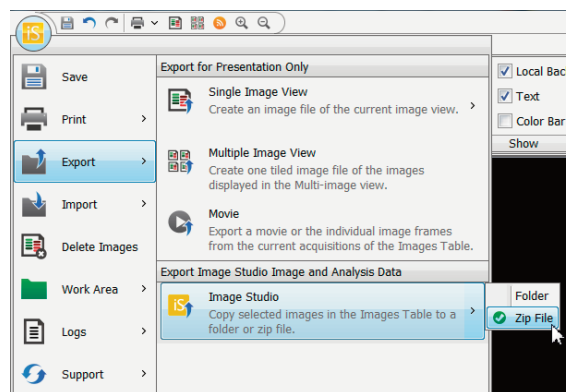


Figure 20

NOTE: Refer to section 4 for instructions on how to import the Zip file into a Work Area on another computer.

9 Create a Report

- 1) Click the Lab Book ribbon (Figure 21)
- 2) In the layout group, select **Shapes Lab Book** (Figure 22).
- 3) In the PDF Group, click **Save**. This will save the selected image using the Shapes Lab Book layout.
- 4) To create a custom report in the Layout group, click **Edit**. This will open the Lab Book Layout Editor (Figure 23).
 - a. To add an item to the report, highlight it in the 'Available' list and click the **< Add** button (Figure 23).
 - b. To remove an item from the 'In Use' report, highlight it and click the **Remove >** button.
 - c. Click **OK**.
 - d. From the Layout group, click on Custom and select Save Current Lab Book.
 - e. Enter a name for the new Lab Book.
 - f. Click **OK**.

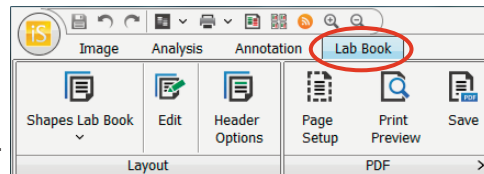


Figure 21

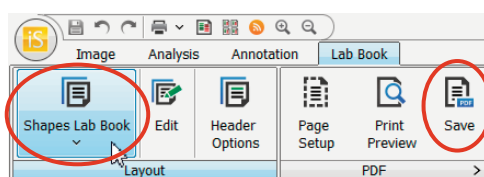


Figure 22

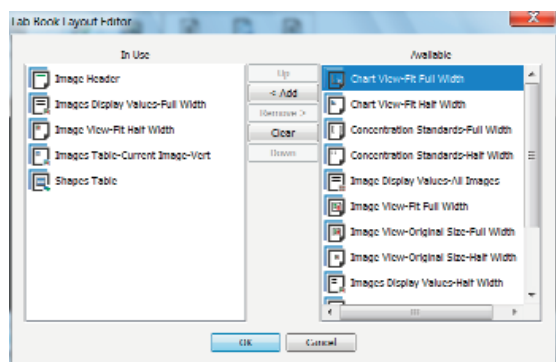


Figure 23

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