Image Studio Lite

Tutorial Guide

Image Studio
Analysis Software
Version 4.0

LI-COR®

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Getting Started

Install the Software

IMPORTANT: You must be logged in using an administrator account. If necessary, log out and log back in using an Administrator account.
Note: Go to **www.licor.com/islite** and click the Support Materials tab to find the free software.

Windows® 7, 8, or 8.1 Operating Systems

Installing via download:

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

Macintosh® Computers

Installing via download:

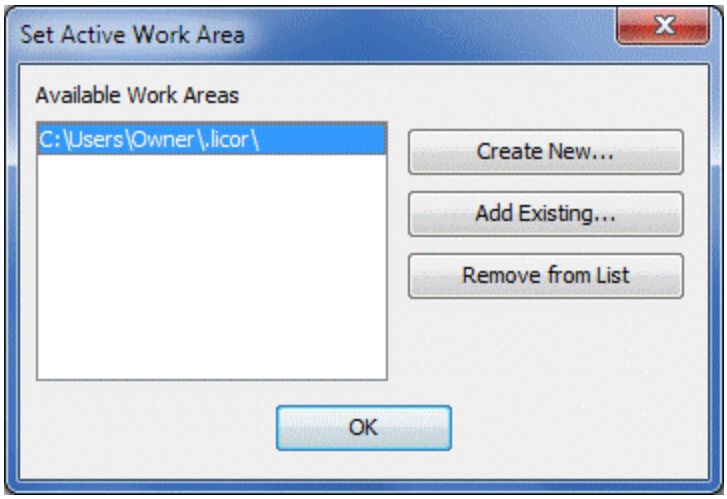
1. Go to your Mac® System Preferences and click **Security & Privacy** to open the Security & Privacy window.
2. Click the lock in the bottom left corner of the window to allow editing, if necessary.
3. Under the General Tab, click **Mac App Store and identified developers** under the **Allow applications downloaded from** option.
4. Download, and double-click the MacImageStudioLite_4.x.dmg file on your computer.
5. Click **Agree** to accept the license agreement.
6. To install, drag the Image Studio icon into the Applications folder
7. Open the Image Studio Application by double-clicking the Image Studio icon.

8. 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**.

Set up a Work Area

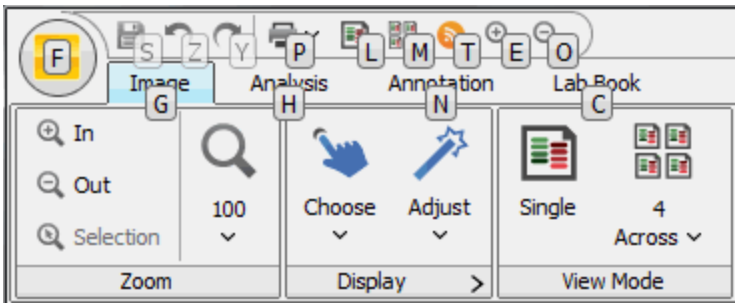
The first time you start the software you will need to create the first Work Area. The Work Area is a folder on the hard drive or network where all of the images, analyses and settings are stored. Click **Create New…** in the Set Active Work Area dialog box to open the Create New Work Area dialog box. Here you can name the folder for the new Work Area and browse to a location on the hard drive or network where it will reside. This folder will now appear in the Available Work Areas window each time the software is opened. Select the folder and click **OK** to set it as the Work Area. (To remove a Work Area from the window, 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 the previous settings for analysis, image display, etc. from the last session will be applied to the next session in the same Work Area.*



Optional Key Tips

Activate Key Tips to use the keyboard to access the ribbon tabs and other features of the Image Studio software. Press *Alt* (alt/option key on Mac® computers) to display the Key Tips for all ribbon tabs and application quick launch buttons. Press the letter key next to the application quick launch buttons to select that application (e.g. press ‘H’ to open the Analysis tab, as shown below).



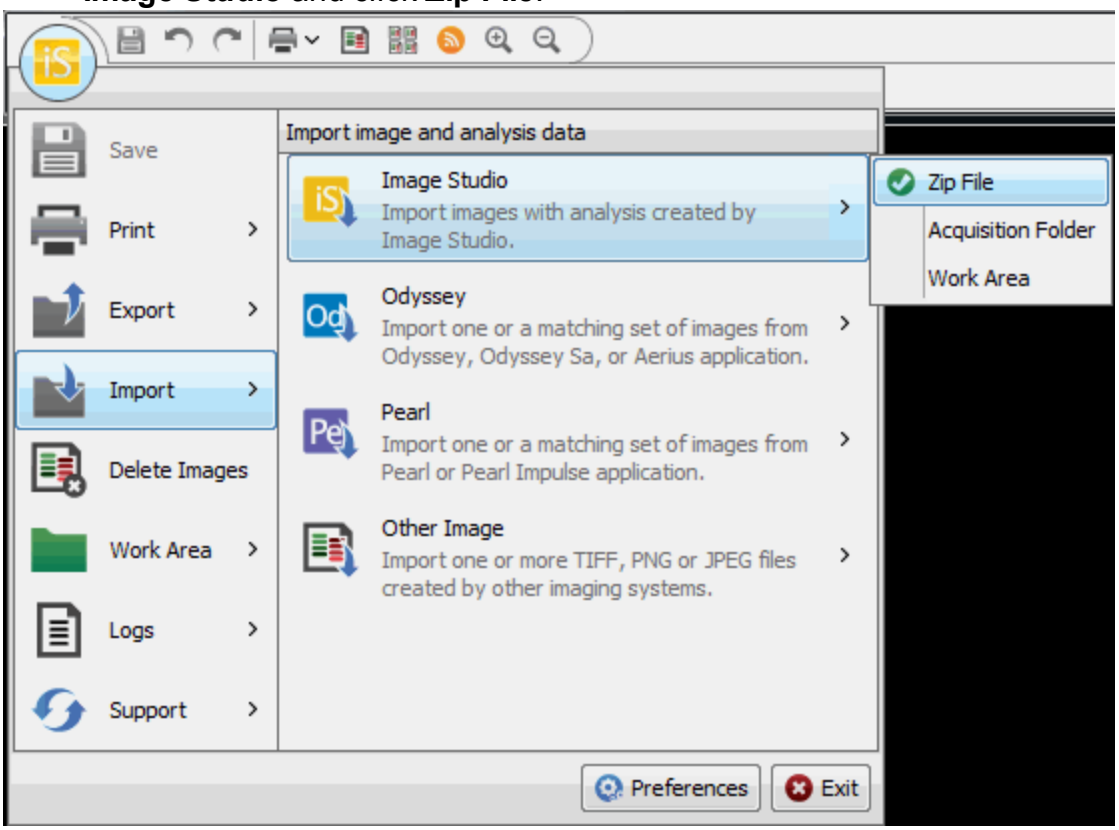
Press the letter key next to the ribbon tabs to view the ribbon for the selected tab and the key tips for the commands on that ribbon. Press the letter key next to the commands to activate the commands or open another menu. For Key Tips with two letters, press the keys sequentially on the keyboard.
In this manual, instructions refer to selecting tabs and commands with the mouse. Press *Alt* at any time to use the Key Tips to select the tabs and commands with the keyboard.

Image Files

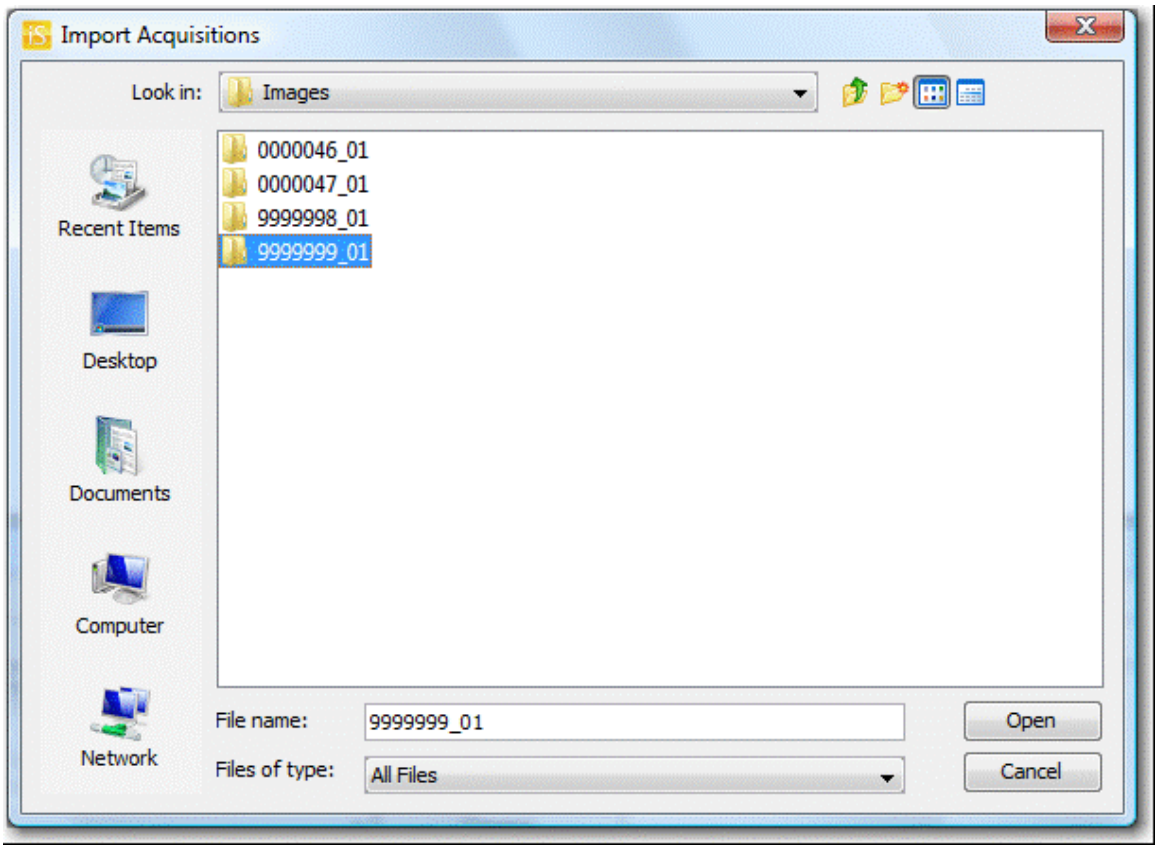
Import an Image

Tutorial images are provided at **www.licor.com/islite** in the Support Materials tab. The folder name for the Western Image is '9999999_01'. Follow these instructions to open the image.

1. Download the image to your computer.
2. Click the Application Menu Button and hover over **Import**. Hover over **Image Studio** and click **Zip File**.



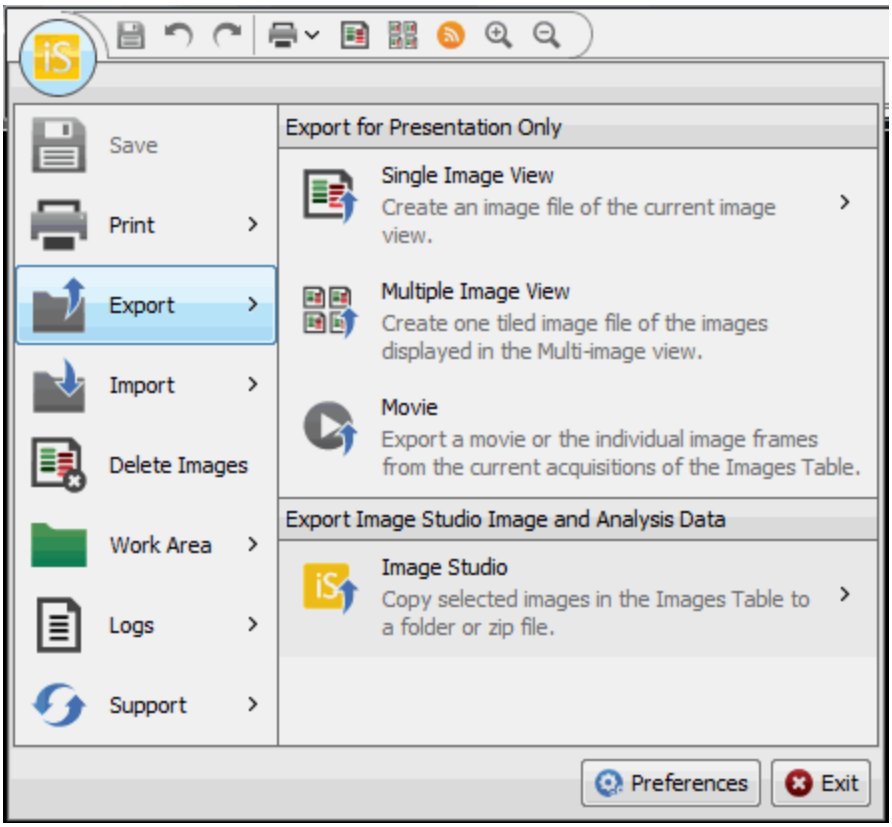
3. Browse to the '9999999_01' folder. Click **Open** to display the image.



4. The image opens and the file appears in the Table.

Export Acquisition Data and Images

In the Images Table, click on a row to select an image acquisition. To select multiple image acquisitions, drag over the rows or press the *Ctrl* key on the keyboard and click each row to select it. Click the Image Studio Application Button and hover over **Export** to view the *Export image and analysis data* menu.



1. To save the image acquisition, click **Image Studio** and choose **Folder** or **Zip File**. Click **Zip File** to save the image acquisition(s) as a compressed (zip) file. Either choice opens a window where you can select the folder to which to save the image acquisition.

Note: You can save image acquisitions to another Work Area or create a zip file to share with another Image Studio user.

2. To save the image to a graphics file, click **Single Image View** to view a choice of **Current Image**, **Selected Images in Images Table**, or **Color Bar Only**. Each choice opens a window where you can select the folder, the file type (TIFF, PNG, or High Quality JPEG), and resolution.

Note: Images saved as these file types (TIFF, PNG, or High Quality JPEG) are for presentation purposes and should not be used for further analysis.

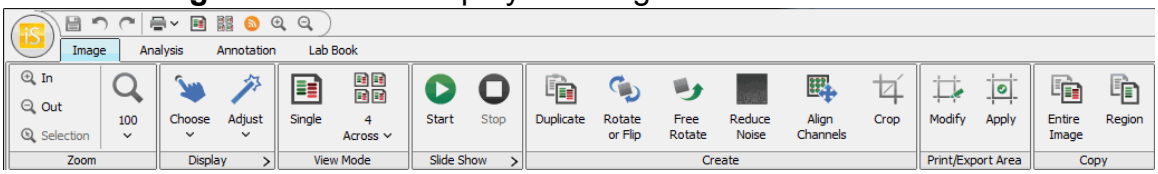
3. To save a tiled image file from images in the Table, click **Multiple Image View** to open a browse window where you can select the folder, the file type (TIFF, PNG, or High Quality JPEG) and resolution.

Note: You can quickly and easily save the data in the Tables to a spreadsheet. Refer to *Exporting Data* in the Tables chapter.

Image Display

View the Image

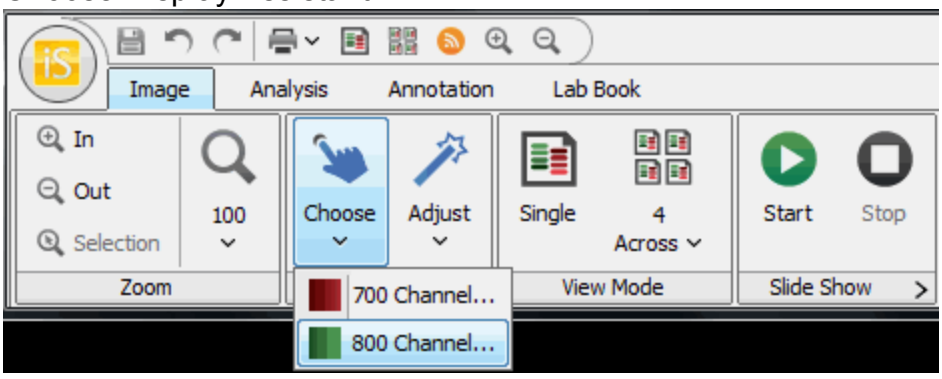
Click the **Image** ribbon tab to display the Image ribbon.



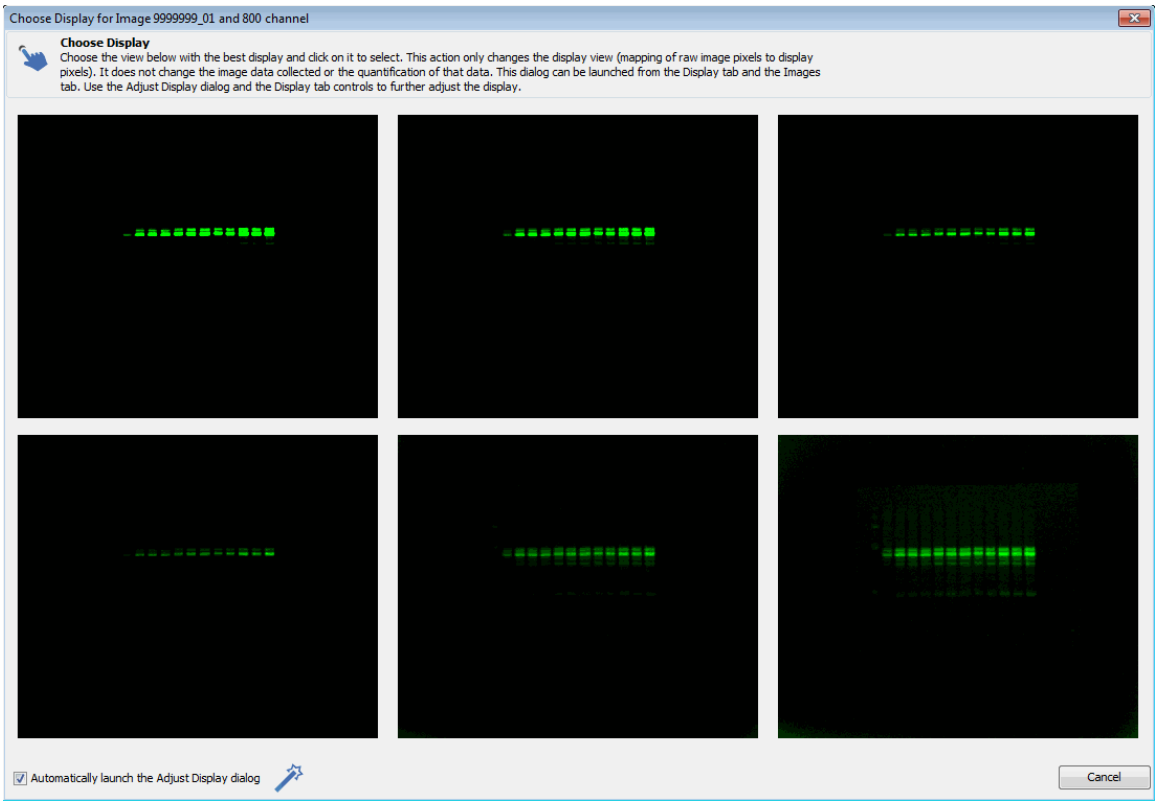
In the *Zoom* group click the magnifier icons to enlarge or reduce the displayed image. You can also scroll the mouse wheel or use the scroll function of a keypad to zoom in or out.

Display

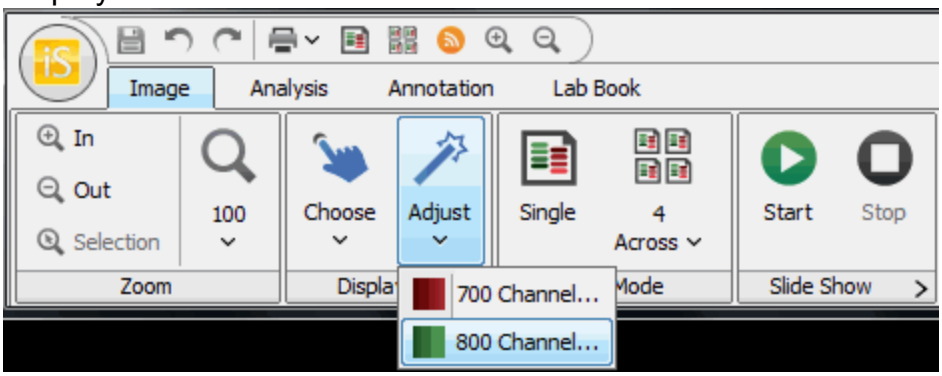
The Choose Display and Adjust Display Assistants are alternate ways to adjust the image display.
Click **Choose** in the *Display* group and select the **800 channel** to open the Choose Display Assistant.



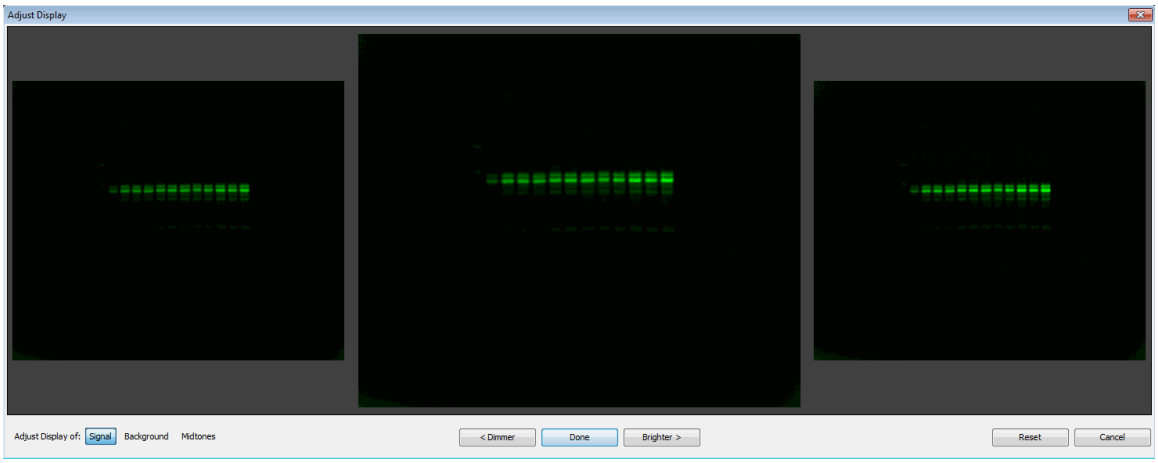
Click the view with the best display. The Adjust Display dialog will open for further adjustment.



Click **Adjust** in the *Display* group and select the **800 channel** to open the Adjust Display Assistant.



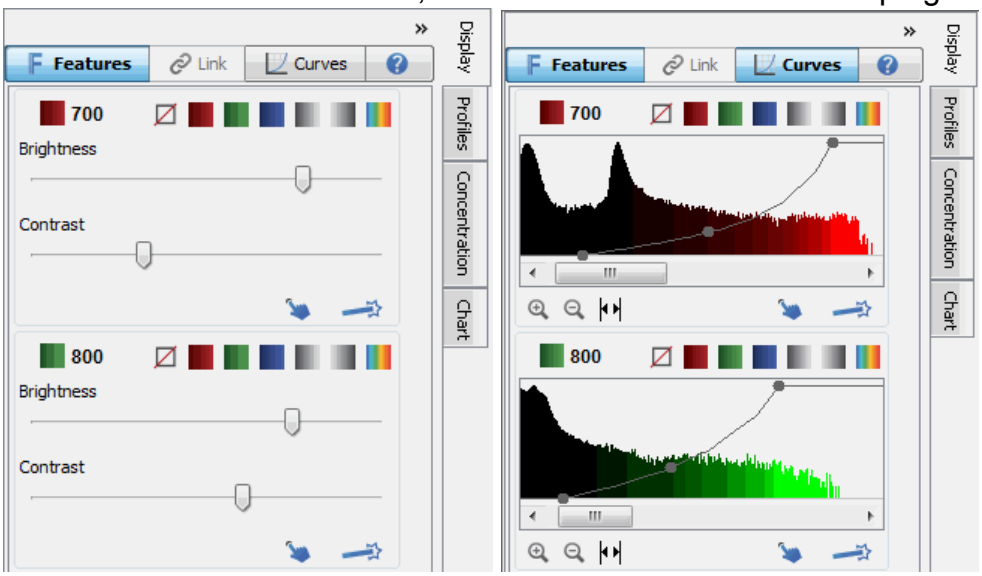
Select **Signal** at the bottom left to adjust the maximum point on the curve, **Background** to adjust the minimum point, or **Midtones** to adjust the K value. Click **Dimmer** or **Brighter** to change the visual appearance of the image. When finished, click **Done**.



Adjust the Image Appearance

The Display tab is on the right side of the screen. You can adjust the image appearance by dragging sliders or points on a curve for each channel acquired for the image.

1. Click the **Display** tab to view either slider bars or histograms overlaid with a curve. To hide this view, click the double arrows in the top right corner.



2. Click **Curves** at the top right to toggle between Brightness/Contrast sliders and Curves. When **Curves** is highlighted, a histogram of overlaid with a curve is shown.
3. Click the appropriate colored button above the graph to select a different color scheme for each channel, or to disable a specific channel.

Note: Multiple channels can be viewed, printed, and exported in gray scale.

4. To adjust the intensity of the image in the Brightness/Contrast view, click and drag each slider.
5. To adjust the intensity of the image in the histogram view,

a. Drag the left (min) dot on each graph to adjust the lower threshold of pixel values that will shade to the same color on the viewed image. Shading the lower intensity pixels to the same color will create a visually cleaner background on the image.
b. The rightmost (max) dot on each graph adjusts the upper threshold of pixel values that will shade to the same color on the viewed image.
c. Click and drag the middle dot on each graph vertically to change the K value.

Note: Changing the visual image will not change the data collected for that image or the quantification of that data. It only changes the mapping of raw image pixels to display pixels.

6. Further explanation can be found in the online Help system by clicking the question mark next to the **Curves** button.

Features

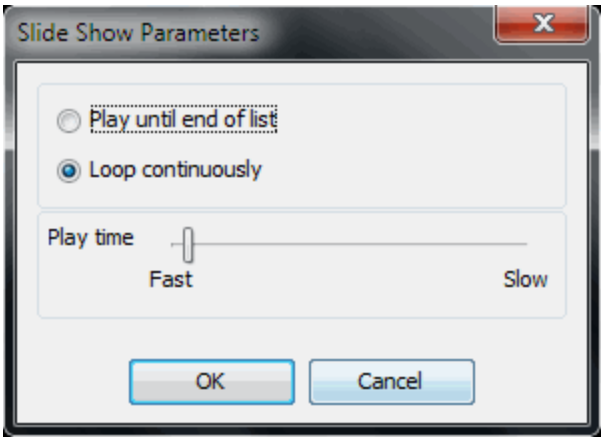
Click **Features** at the top right to toggle between showing and hiding features on the image. Features include text, arrows, lane markers, shapes, and other items. When **Features** is highlighted, these objects appear on the image and in all exports of the image. Click **Features** to hide these objects from the image and all exports of the image. To hide these items individually, open the Analysis ribbon and disable the check box next to the item(s) in the Show group.

View Mode

Select **Single** in the View Mode group to view and analyze a single image. Click the **Show Multiple Images** button and select the number of images to view from the drop-down menu.
Note: You can not analyze an image in Multiple Image View.

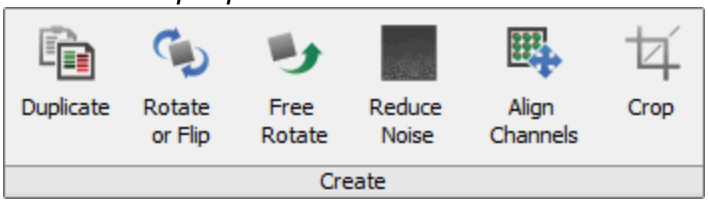
Slide Show

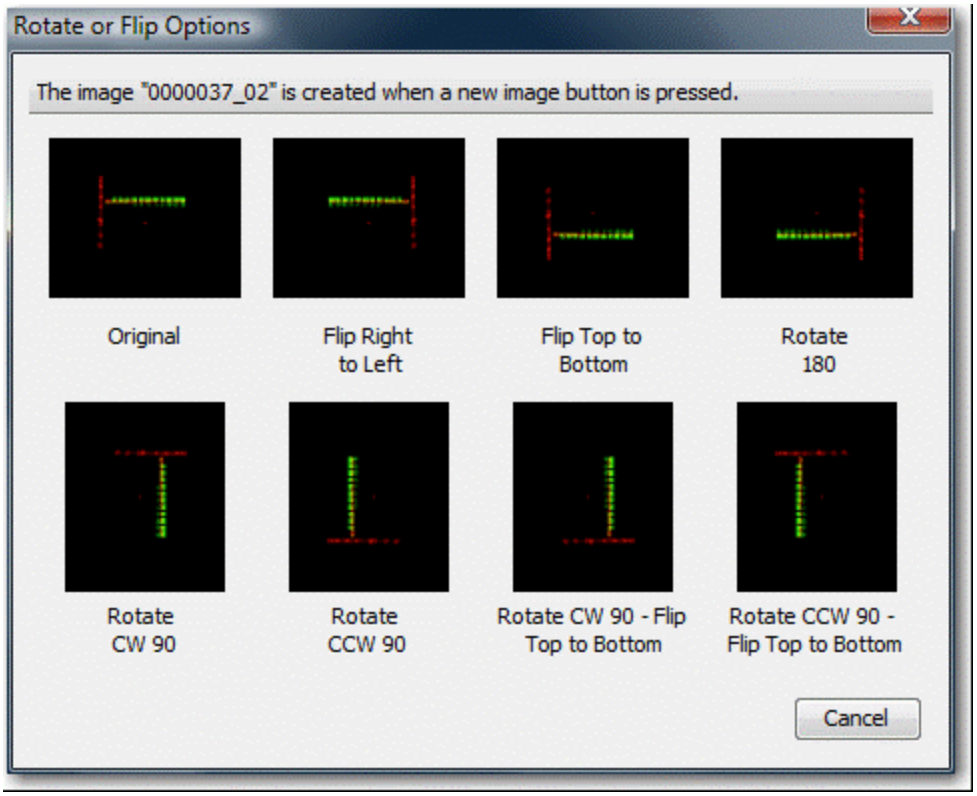
Click **Start** and the images in the Table will appear in the window sequentially. Click **Stop** to return to normal viewing. Click the arrow (**>**) on the Slide Show group to open the *Slide Show Parameters* menu. Choose to display the images in the Table and stop at the end, or return to the beginning of the table and continue displaying the images (**Loop continuously**). Adjust the slider to modify the amount of time each image is displayed.



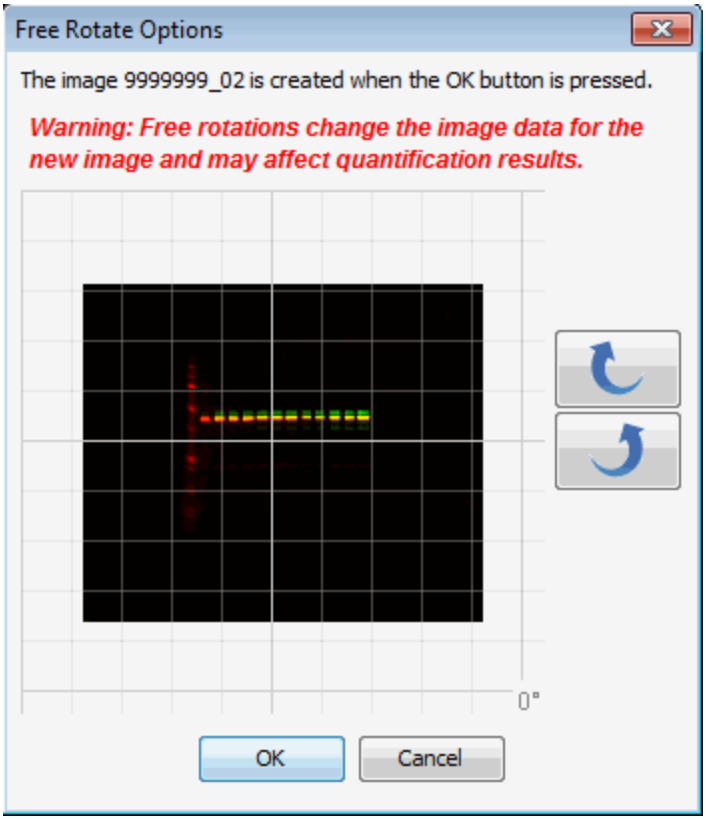
Create

Click a button in the Create group to create a new image acquisition file with the designated action applied. The original image acquisition remains unchanged. Click **Duplicate** to create a copy of the image. Click **Rotate or Flip** to open the *Rotate or Flip Options* menu and select an orientation.

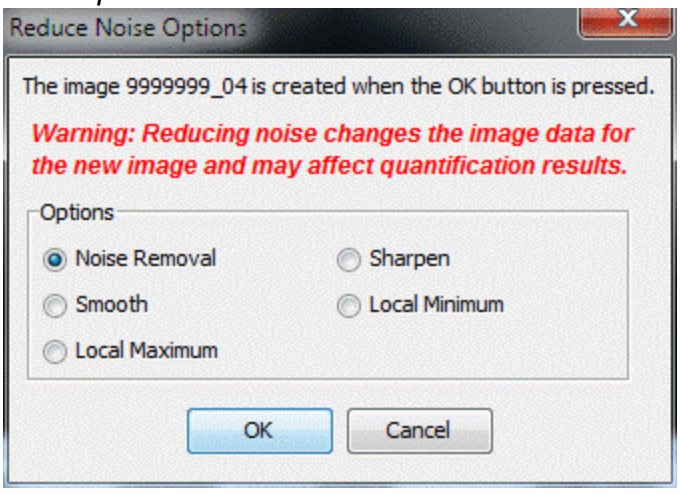




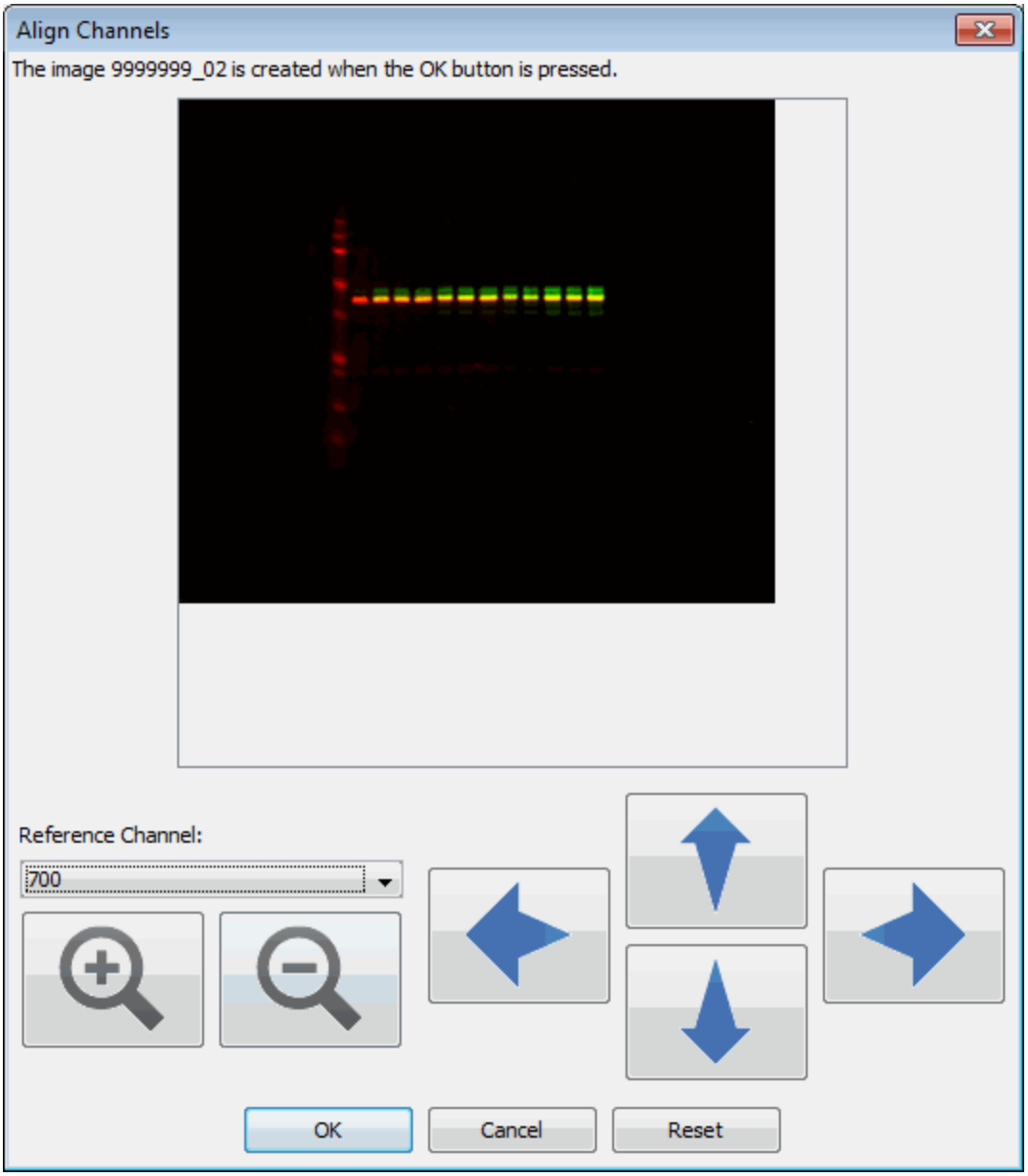
Click **Free Rotate** to open the *Free Rotate Options* dialog box and click the arrow buttons to rotate the image clockwise or counterclockwise. ***Warning:*** *Free rotations change the image data for the new image and may affect quantification results.*



Click **Reduce Noise** to open the *Reduce Noise Options* dialog box and select an option. Hover over each option to open a tooltip explaining the method. Click **OK**. ***Warning:*** *Reducing noise changes the image data for the new image and may affect quantification results.*



Click **Align Channels** to open the *Align Channels* menu. Select one channel as the static reference and adjust the other channel using the arrow buttons. Click **OK**.



Crop the Image

Click **Crop** to create an image that contains only the area within the bounding box. Adjust the crop area by dragging the boxes in the corners or at the center. Click **OK** to crop the image.

Print/Export Area

Place crop marks on the image to indicate the area of the image to print or export. These crop marks can apply to the selected image, or all images in the Images table.

1. Click **Apply** and marks indicating the corners of the cropped area appear on the image.
2. Click **Modify** to open the *Modify Image Print/Export Area* dialog. Two boxes appear as dotted lines on the image.
3. Drag the small box in the middle of the image to center the crop marks. Drag the corners of the large box to surround the area of the image to print or export.
4. Click **Current Image** to mark this image with these crop marks and click **OK**. Small crop marks indicating the corners of the cropped area appear on the image at the new location.

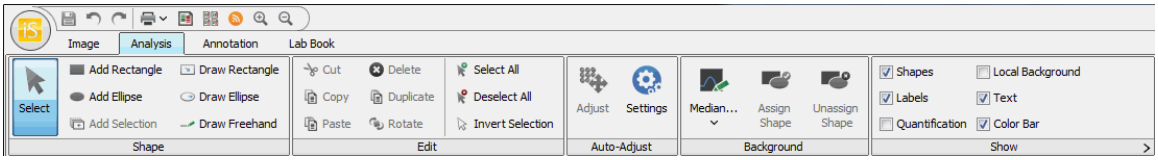
Note: If **Images in images table** is selected, this crop definition applies to all images in the Images Table.

Note: Small crop marks appear on the image as long as **Apply** is selected. The crop area will apply to any print or export action. To remove the small crop marks and print or export the full image, click **Apply** again to toggle it off. You can change the color of the crop marks by clicking **Edit Color** in the *Modify Image Print/Export Area* dialog.

Data Analysis

Add and Manipulate Shapes Manually

1. Click the Analysis tab to open the Analysis ribbon. Set the Analysis Type to **Manual**.

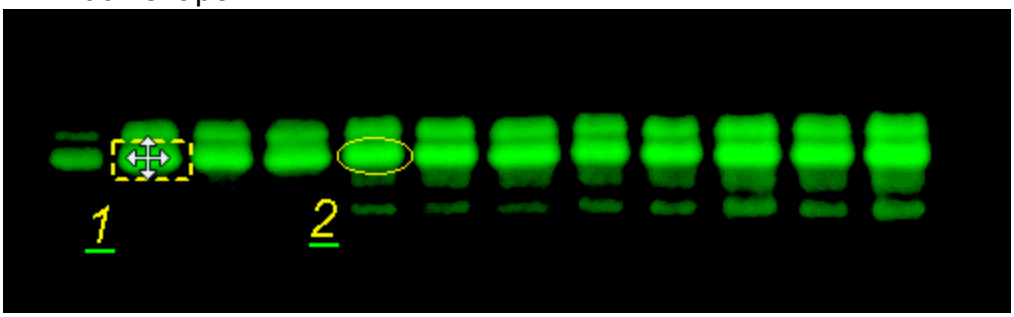


2. Click **Add Rectangle** to add a rectangle to the image or **Add Ellipse** to add an ellipse. Click in the center of the an area of fluorescence to place the rectangle or ellipse around it. After adding the desired shapes, click **Select** or press the Esc key on your keyboard to return the cursor to the selection tool.

Note: Shapes are added to all selected channels. To add shapes to only one channel, make sure it is the only channel selected in the **Display** panel on the right.

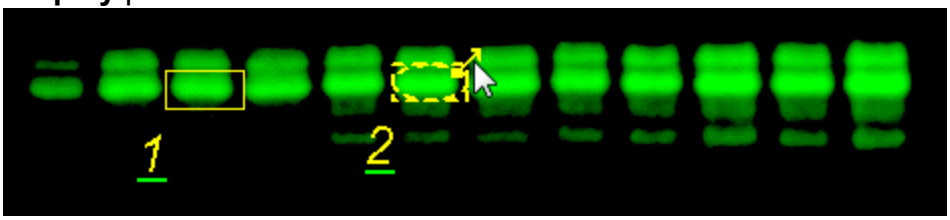
3. To move or resize a shape, first select the shape by clicking on it once. Dotted lines indicate the shape is selected.

    a. To move the shape, drag the four-pointed cursor within the selection shape.



    b. To resize the shape, hover over any corner or side of the shape. Drag the double-sided yellow arrow to resize.

Note: To find the double-sided yellow arrow, the cursor must be on the selection tool (click **Select** in the Shapes group or push the Esc key on the keyboard). You must have only one channel selected to resize a shape. Disable all channels except the desired channel in the **Display** panel.



c. To view the shapes and labels on the image, enable the **Shapes** and **Labels** check boxes in the Show group. Disable the check marks to hide the shapes and labels from the image.

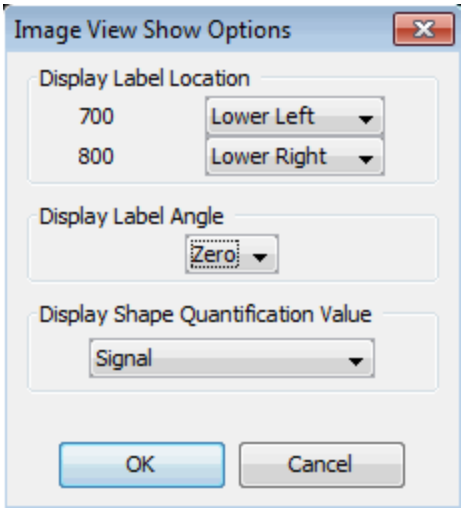
Note: You can also click **Features** on the top left of the Display tab to toggle between showing all features and hiding all features.

d. To edit the label, click the **Shapes** tab at the bottom of the screen to view the Shapes Table. Under the column **Name**, double-click on the cell for this shape and edit the text. Press Enter on the keyboard and the new text will appear on the image.

Note: You must press Enter or click on another cell in the Table to save the change to the Table cell before saving the acquisition.

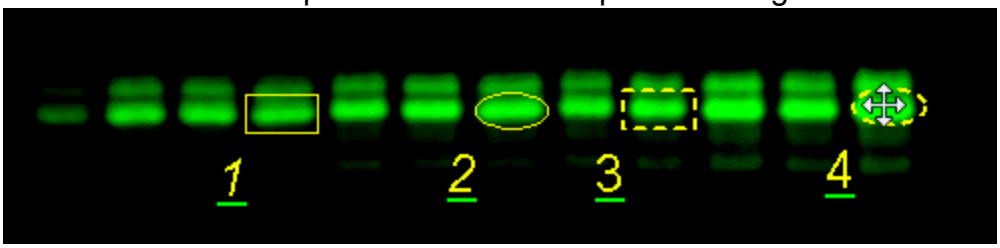
e. To change the location of the label, right-click the selected shape and hover over Label Location. Click the new position for the label.

f. To change the location of the label for new shapes, click the small arrow on the Show group to open the *Image View Labels* menu. You can also adjust the angle of the label and select the quantification value to display.

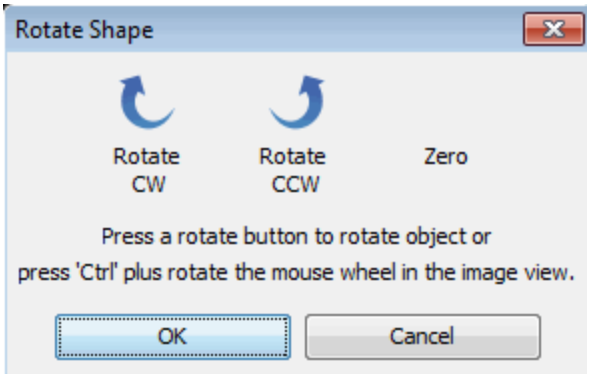


Note: Select **Draw Rectangle**, **Draw Ellipse**, or **Draw Freehand** to manually draw Shapes. Drag the mouse to create the shape. The resulting shape can be moved or resized in the same way that an auto shape is moved or resized.

4. To quickly add shapes in one or more channels, use the **Add Selection** tool.
    a. Drag a rectangle around the shapes to select them. Dotted lines indicate the shapes are selected.
    b. Click **Add Selection** in the Shape group.
    c. Click the image to add the shapes to the image.
    d. To move the shapes, drag the four-pointed cursor that appears within either shape. The selected shapes move together.



5. To rotate shapes in one or more channels, use the **Rotate** tool.
    a. Drag a rectangle around the shapes to select them. Dotted lines indicate the shapes are selected.
    b. Click **Rotate** in the Edit group or right-click on the image and select **Rotate** from the pop-up menu.
    c. Click the buttons in the pop-up menu to rotate clockwise or counterclockwise. Click **Zero** to return to the original orientation.

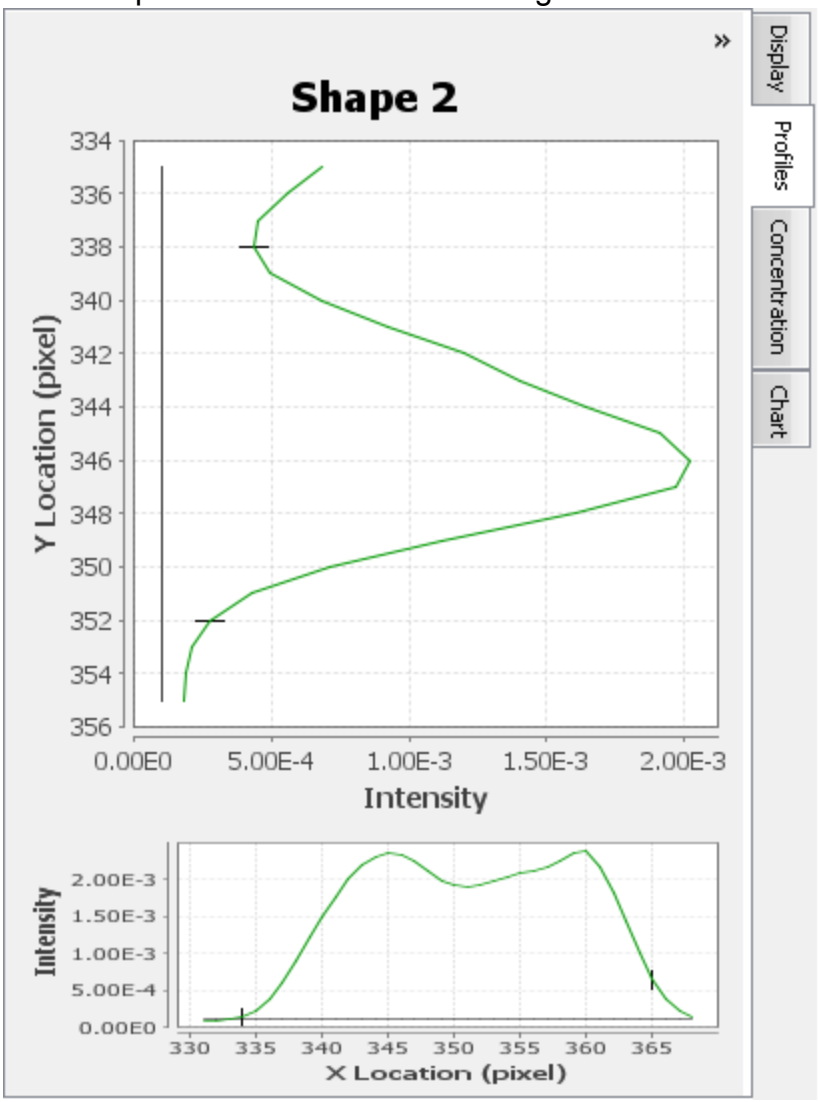


    d. You can also rotate shapes by selecting them, pressing the Ctrl key on the keyboard, and scrolling with the mouse.

Profiles Tab

1. Select ‘Shape 2’ by clicking on the shape with the selection arrow until it changes to a dashed line.
2. On the right side of the screen, click the **Profiles** tab to view two graphs of the pixels within a selected shape. The top graph is a cross section of the

pixel intensities from top to bottom. The bottom graph is a cross section of the pixel intensities from left to right.



3. Adjust the size of 'Shape 2' by dragging the arrows on the corners of the shape. Notice how the graph changes.

Note: The small black marks indicate the boundaries of the shape. Move the shape around the band so that the small black marks are close to the edges of the peak to capture the entire signal for that band.

Auto Adjust

The software moves selected shapes to fully enclose areas of fluorescence near the shapes.

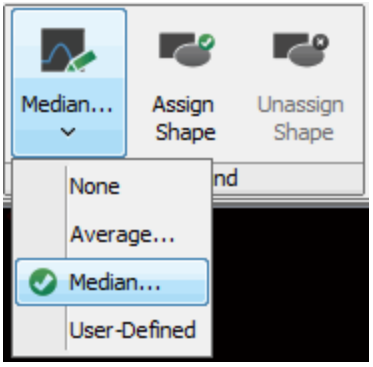
1. Drag a rectangle around the shapes to select them. Dotted lines indicate the shapes are selected.
2. Click **Auto Adjust** and the shapes will move slightly to better enclose nearby areas of fluorescence.

Subtract the Background

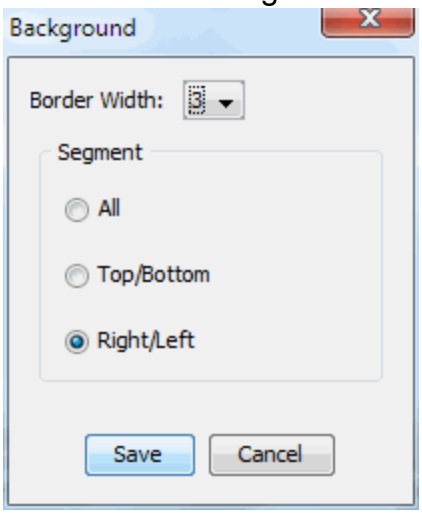
Subtract the background of the blot or gel from the shapes to obtain consistent data. The software will not calculate **Signal** for the shapes if a background method is not selected.

1. Click the first button in the Background group and select **Median** from the drop-down menu to subtract the median value of the pixels in the background segment. This method is useful if the pixel intensities in the background segment are not uniform.

Note: Select **Average** for the Background Method to subtract the average value of the pixels in the background segment.



2. In the pop-up window set the Border Width to **3** and select **Right/Left** to select the segments on the left and right sides of the shape for this tutorial.



3. Click **Save**.

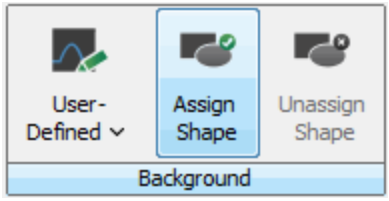
Note: The black line in the **Profiles** indicates the background that will be subtracted.

Subtract a User-Defined Background

A region of the image can be chosen for the background.

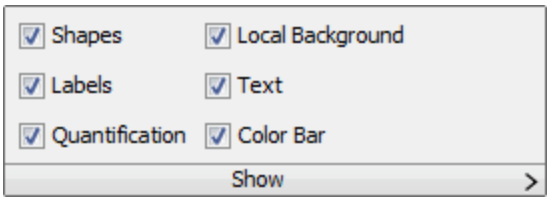
1. Click the first button in the Background group and select **User-Defined** from the drop-down menu.

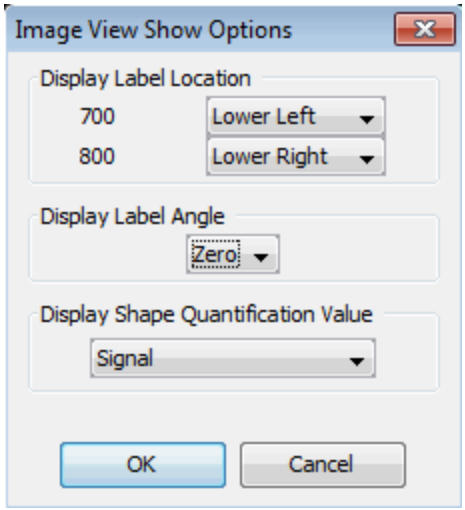
2. Using what you've learned from *Add and Manipulate Shapes Manually* in this chapter, place a shape on the image in the region that you have chosen as the background.
3. Select the shape by clicking on it with the selection arrow so the shape outline becomes a dashed line.
4. Click **Assign Shape** in the Background group.



Show

In the Show group, enable all check boxes, indicating all items will appear on the image. To specify the location of the labels, click on the arrow at bottom right to open the *Image View Labels* menu.



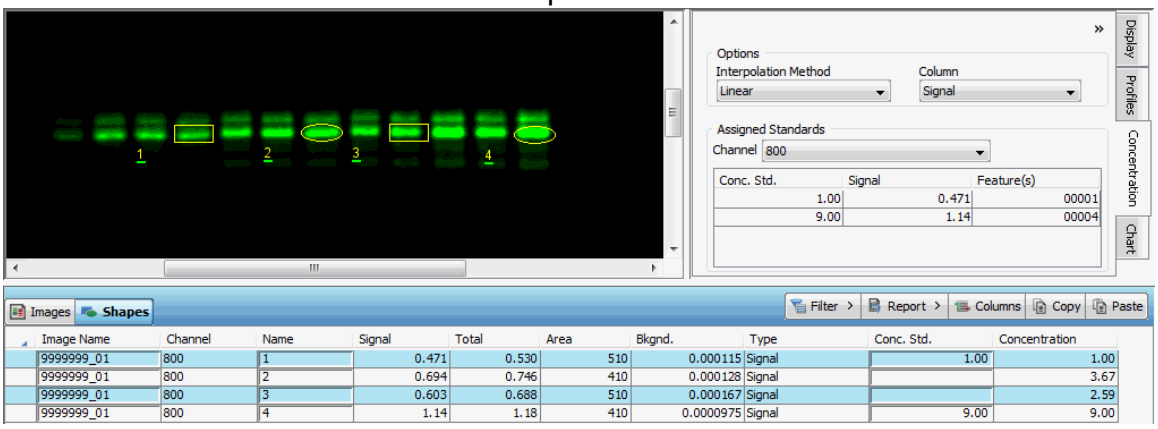


Concentration

You can assign concentration values to two or more shapes or Bands and the Image Studio software will assign a value to the other shapes or Bands based on their relative Signal.

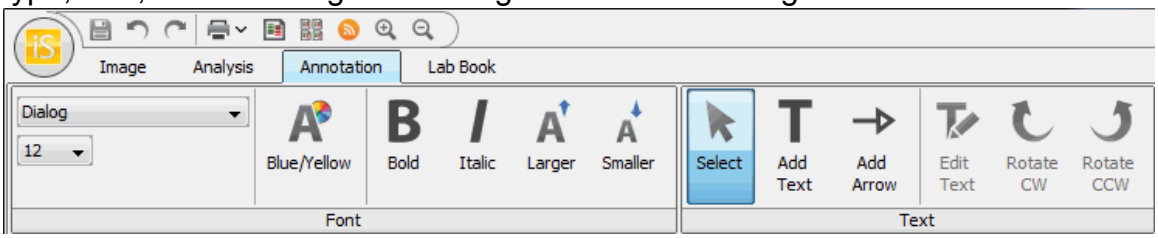
1. Click the **Shapes** tab at the bottom of the table to open the Shapes Table, if necessary. Add Conc. Std. and Concentration to the Shapes Table by clicking **Columns** and enabling the check boxes and clicking **Save**.
2. Double-click the *Conc. Std.* cell for shape **1** and enter **1**.
3. Double-click the *Conc. Std.* cell for shape **4** and enter **9**.
4. Click the **Concentration** tab on the right side of the screen to view the assigned concentration standards.

5. Click the down arrow under *Interpolation Method* and click **Linear** from the drop-down menu to assign a linear interpolation.
6. You can see the concentration values assigned to Shapes 2 and 3 in the *Concentration* column in the Shapes Table.

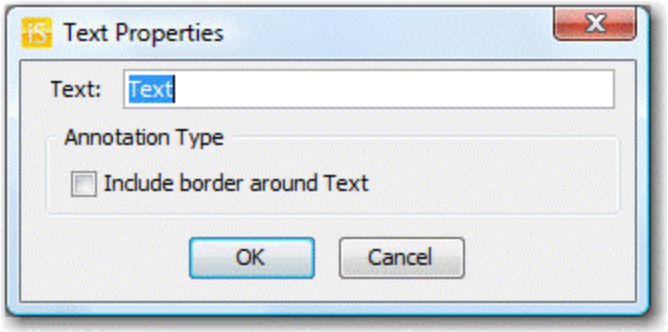


Annotate the Image

Click the **Annotation** tab to open the Annotation ribbon. Here you can choose the font type, size, and color of text. You must select the text first to change its font type, size, or color. Drag a bounding box around existing text to select it.



1. Click **Add Text** in the Text group and click on the image. Type the desired text in the *Text:* box. Click **OK** to add the text to the image.



2. Click **Add Arrow** and click on the image to add an arrow to the image. Click **Select** or press the *Esc* key on the keyboard to toggle the cursor back to the selection tool. Click the text or arrow that was added to the image with the selection tool. A dashed box appears around the text or arrow. Use the tools in the Font group to change the appearance of the text or arrow.
3. Click **Rotate CW** or **Rotate CCW** in the Text group to rotate the text or arrow.

4. Click **Edit Text** in the Text group to view the *Text Properties* menu for the selected item. Insert different text or add a border to the text with this menu. If the selected item is an arrow, click and drag the sides of the dashed box to change the size of the arrow.

Tables

Image data are stored in the folder selected as the Work Area when Image Studio is opened. The data are easily accessed in the Tables below the image window. In the Images Table, each row represents one image. Various fields in that row contain identifying information about the image. These fields are grouped as columns that can be moved, added, deleted, sorted, or filtered.

Images Table

1. Click the **Images** tab at the top left of the Table to show the Images Table.

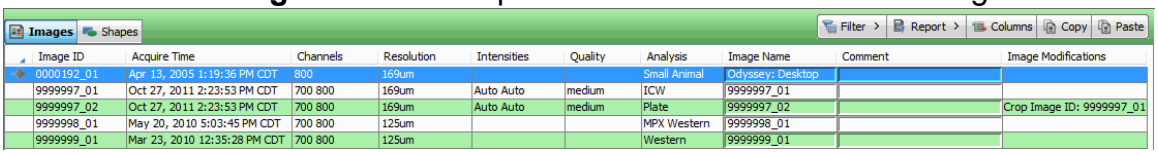
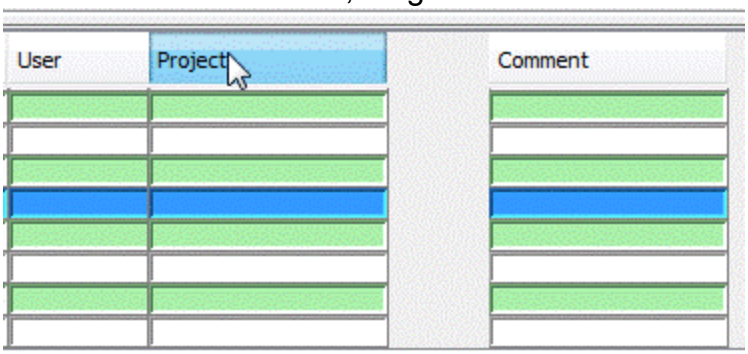


Image ID	Acquire Time	Channels	Resolution	Intensities	Quality	Analysis	Image Name	Comment	Image Modifications
0000192_01	Apr 13, 2005 1:19:36 PM CDT	800	169um			Small Animal	Odyssey: Desktop		
9999997_01	Oct 27, 2011 2:23:53 PM CDT	700 800	169um	Auto Auto	medium	ICW	9999997_01		
9999997_02	Oct 27, 2011 2:23:53 PM CDT	700 800	169um	Auto Auto	medium	Plate	9999997_02		Crop Image ID: 9999997_01
9999998_01	May 20, 2010 5:03:45 PM CDT	700 800	125um			MPX Western	9999998_01		
9999999_01	Mar 23, 2010 12:35:28 PM CDT	700 800	125um			Western	9999999_01		

2. Hover the mouse over any row to display a thumbnail picture of that image.
3. Click any cell to select the entire row and display that image in the window.
4. Click the corner button to select all of the images or press *Ctrl+A* on the keyboard.
5. Right-click any cell to view a menu with options that include duplicate an image, delete an image, or view the properties of an image.
6. To move a column, drag the column header to the new location.



The fields in each row contain information about the image and are organized as columns across all of the images. Some of the columns are properties of the image and cannot be edited. Examples of these columns include Image ID,

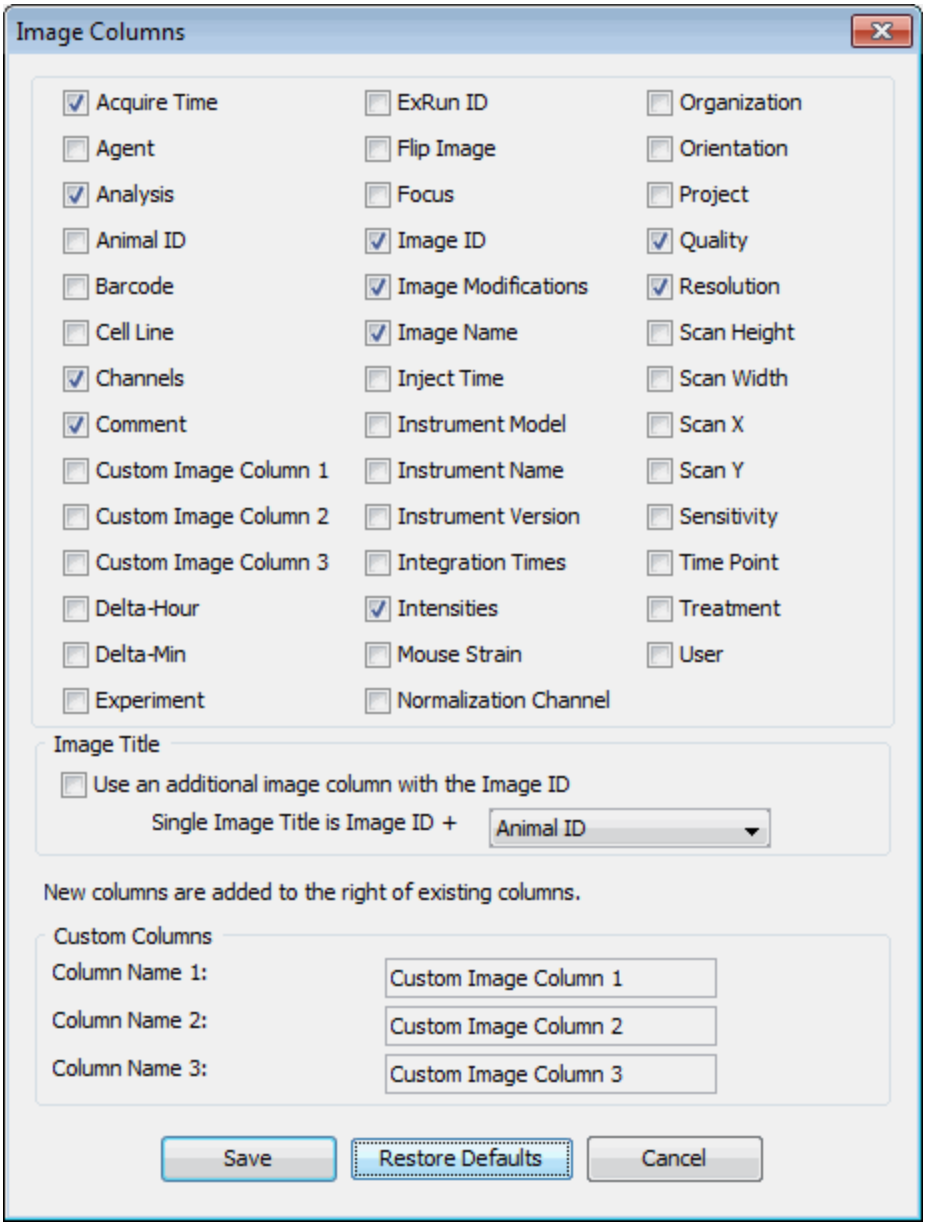
Acquire Time, Channels, Resolution, and Instrument Name. Other columns can be edited with information for that image.

7. To edit a field, double-click on the cell so that a cursor appears. If a cursor does not appear, that field cannot be edited.
8. Add text where the cursor appears. Press *Enter* when complete.

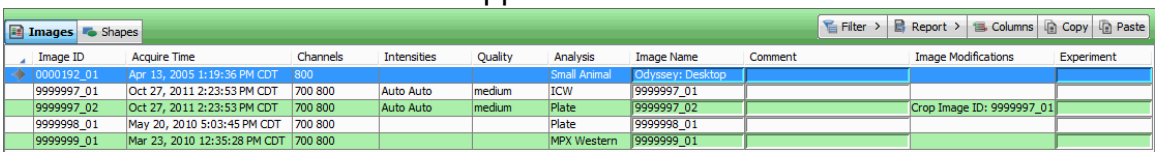
Note: To easily find images later, enter identifying information in one or more fields after acquiring an image.

Add or Remove a Column

1. Click **Columns** on the top right of the Table to open the *Image Columns* menu.



2. To add the Experiment column, click the column description to enable the check box, indicating that column will appear in the table.
3. To remove the Resolution column, click the column description to disable the check box and remove that column from the table.
4. Click **Save**. The table now appears as shown below.



Note: You can also right-click the header of any column and select **Insert Column** or **Remove Column** from the pop-up menu to quickly add or remove a column.

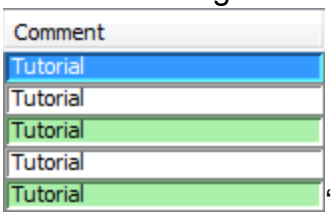
Add Custom Columns

1. Click **Columns** on the top right of the Table to open the *Image Columns* menu.
2. In the *Custom Columns* section, replace *Custom Image Column 1* with *Department*.
3. Click **Save**.

Paste Data in a Column

Click **Paste** at the top right of the Table to quickly fill a column with information.

1. Double-click the first cell in the Comment column so that a cursor appears in the cell.
2. Type 'Tutorial' at the cursor position using the keyboard.
3. Drag the mouse over 'Tutorial' to highlight it. The cursor should still appear in the cell.
4. Press *Ctrl+C* on the keyboard to copy the data to the clipboard.
5. Drag the mouse over the cells in the Comment column (or press the Ctrl key while clicking each cell once) to select which cells to fill with 'Tutorial'.
6. Click **Paste** at the top right of the Table, press *Ctrl+V* on the keyboard, or use the right-click menu to paste the data in the selected cells.



'Tutorial' added to cells in Comment column.

Paste Data from a Spreadsheet to a Column

1. In a spreadsheet, select data and press *Ctrl+C* on the keyboard to copy the data to the clipboard.

2. In the Table, drag the mouse over the cells in the Comment column (or press the *Ctrl* key while clicking each cell once) to select the cells to fill with the data.
3. Click **Paste** in the top right of the Table, press Ctrl+V on the keyboard, or use the right-click menu to paste the data in the selected cells.

Copy Data to a Spreadsheet

Click **Copy** at the top right of the Table to quickly copy rows to a spreadsheet.

1. Drag the mouse over the rows or press the *Ctrl* key while clicking on each row once to select the rows to copy. To copy all rows, press *Ctrl+A* on the keyboard.
2. Click **Copy** at the top right of the Table, press *Ctrl+C* on the keyboard, or use the right-click menu to copy the data to the clipboard.
3. In a spreadsheet, press *Ctrl+V* on the keyboard to paste the data in the selected cells.

Note: The column headings will be pasted above the data.

Sort by Column

1. To sort by any column, click once on the header. The table will be sorted by that column. **Note:** No change will be made if the fields in a column are all the same.
2. To change the direction of sorting, click the header again. Or, right-click on the header and select **Sort Ascending** or **Sort Descending**.

Filter the Table Manually

1. To manually choose images, drag to highlight the rows to select the desired images. Or, select the desired images by pressing *Ctrl* on the keyboard and clicking once on each row.
2. Click **Filter** at the top right of the Table and click **Selection** from the drop-down menu. Only the selected images appear in the table. The **Filtered** button at the bottom right of the Table will be highlighted.
3. Click **Filter** at the top right of the Table and click **Display Filtered** from the drop-down menu to toggle between showing only the selected images and showing all images in the table.
4. To remove the filter, click **Filter** at the top right of the Table and click **Clear Selection** from the drop-down menu to remove only the Selection filter, or **Clear All** to remove all filters currently applied.

Filter by Column

One or more defined filters can be applied to any column to show only the images of interest.

1. Click **Filter** at the top right of the Table.
2. Hover over **Column** to view the drop-down menu of the current column headings.
3. Click **Analysis** to filter using the Analysis column.

Note: Right-click on any column header in the Table to view a drop-down menu for that column.

4. Deselect **ICW** and **Plate** by disabling their respective check boxes.
5. Click **OK**. Only images without **ICW**or **Plate** in the Analysis column will appear in the Table.

For more Filter Options…

1. Click **Filter** at the top right of the Table.
2. Hover over **Column** to view the drop-down menu of the current column headings.
3. Click **Analysis** to filter using the Analysis column.

Note: Right-click on any column header in the Table to view a drop-down menu for that column.

4. Click **Define Filters…** in the top part of the pop-up menu.
5. Click one of the filtering phrases to show the Column Filter Analysis menu.
6. Select filtering phrases from the drop-down menu by clicking on the down arrows next to each box, or type your own phrase.
7. Click **OK**.

Note: If you close Image Studio, your filtering criteria are preserved.

View the Shapes Table

1. Click the **Shapes** tab at the top left of the Table to view the data for each shape.
2. The default columns are defined below.
    a. *Image Name*- Original acquisition name
    b. *Channel*- 700, 800, or other channel
    c. *Name*- Shapes are assigned a number in sequential order. Double-click on the number in the column to edit the shape name.
    d. *Signal*- The Signal is the sum of the individual pixel intensity values (**Total**) for a shape minus the product of the average/median intensity values of the pixels in the background (**Bkgnd.**) and the total number of pixels enclosed by the shape.
    e. *Total*- Sum of the individual pixel intensities for the shape
    f. *Area*- Total number of pixels enclosed by a shape

   g. *Bkgnd.*- Designated background subtraction
   h. *Type*- Signal or Background
3. Move, add, delete, sort, and filter the columns in the same way as in the Images Table.

Exporting Data

Click **Save As** or **Launch Spreadsheet** in the **Report** drop-down menu to prepare or open an '.xls' file with the selected data. Click **Options** to select the format of the file and whether to export selected rows or all rows.

Save File

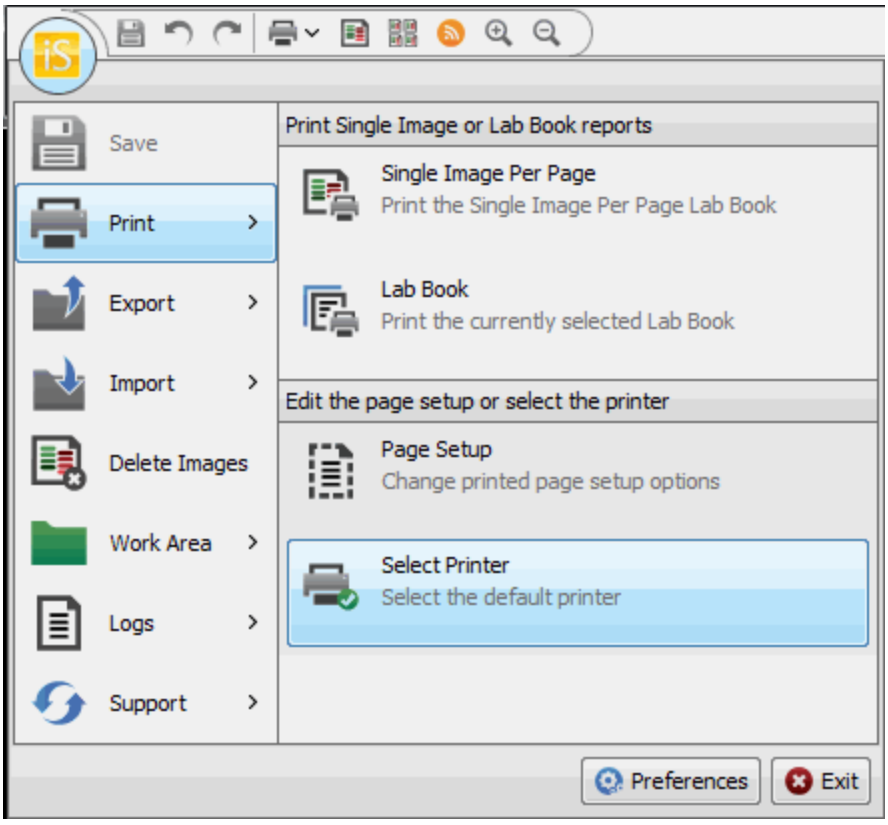
1. Click **Report** at the top right of the Table to open the drop-down menu. Choose the file format (text or xls) and whether to export all rows or selected rows. Click Save.
2. Click **Save As** to open the Export menu.
3. Browse to the desired destination folder or create a new one. You can also edit the name of the file.
4. Click **Save**.
5. The file will be saved in the selected folder.

Launch Spreadsheet

1. Click **Report** at the top right of the Table to open the drop-down menu.
2. Click **Launch Spreadsheet** to open the Launch Spreadsheet menu.
3. Browse to the desired destination folder or create a new one. You can also edit the name of the file.
4. Click **Save**.
5. An application that uses these types of files will open with the selected data and corresponding column headings.

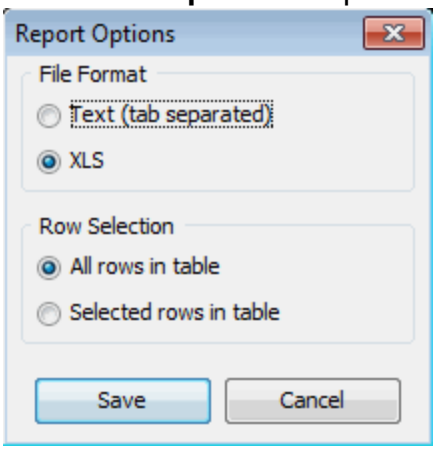
Print

1. Click **Report** at the top right of the Table to open the drop-down menu.
2. Click **Print** and the document will be sent to the default printer.
3. Select the default printer by clicking the Image Studio Application button, hovering over **Print**, and clicking **Select Printer**.



Options

1. Click **Report** at the top right of the Table to open the drop-down menu.
2. Click **Options** to open the *Report Options* menu.



3. Choose the file format and whether to export all rows in the Table or just selected rows.
4. Click **Save**.

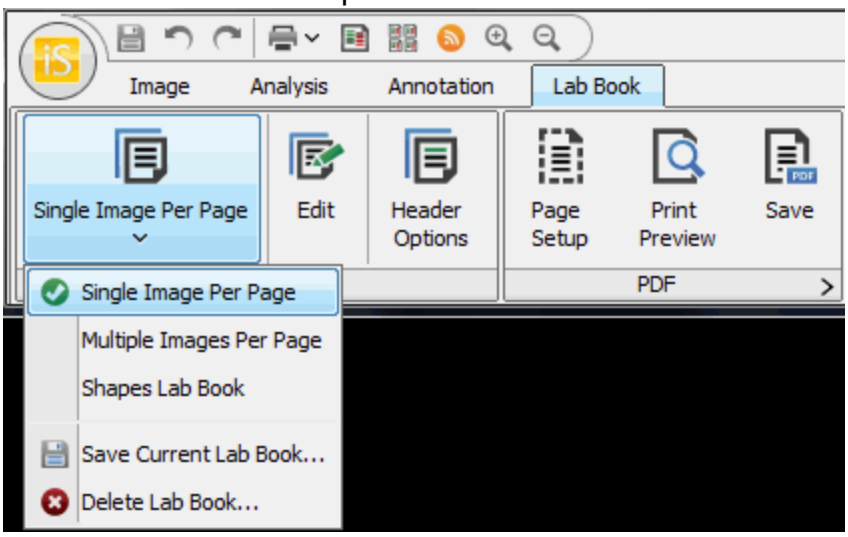
Reporting

Print an Image

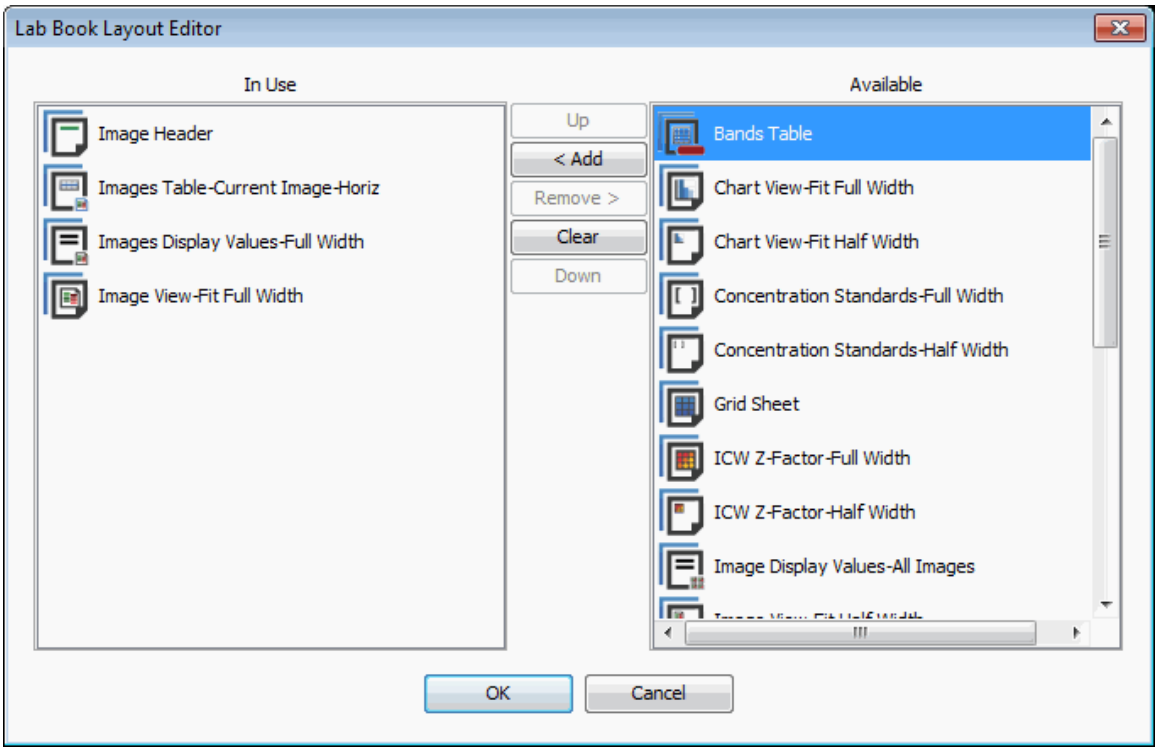
1. Click the printer icon in the quick access tool bar, press *Ctrl+P* on the keyboard, or click the Image Studio Application Button and hover over **Print**.
2. Click **Single Image Per Page** to print the currently displayed image.

Create a Lab Book PDF

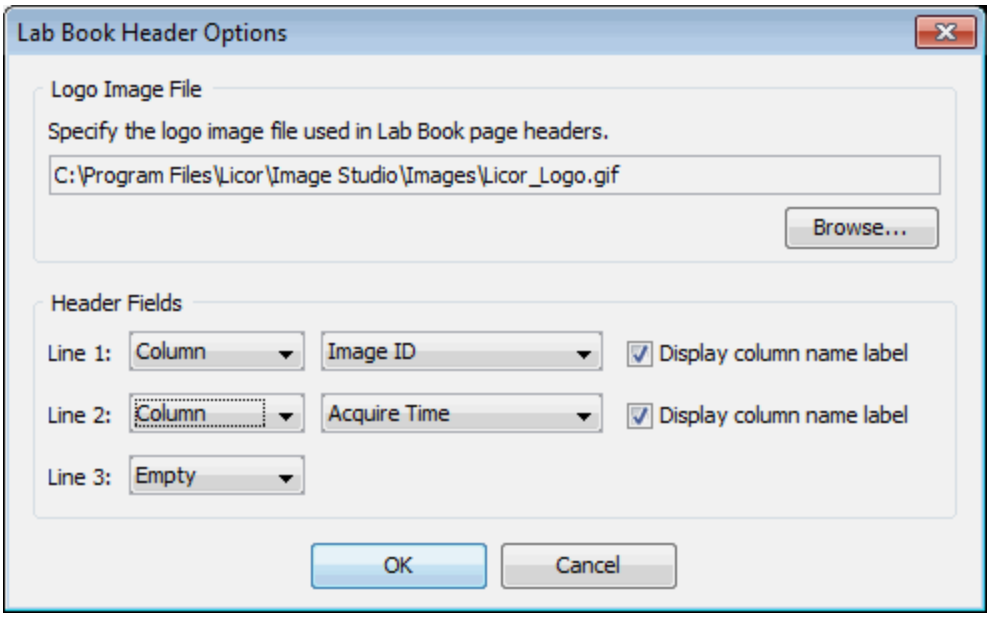
1. Click the **Lab Book** tab at the top of the application window to open the Lab Book ribbon.
2. Click the first button on the Lab Book ribbon to open a drop-down list of possible lab book templates.



3. Click **Single Image Per Page** to select this template.
4. Click **Edit** in the Lab Book ribbon to open the *Lab Book Layout Editor* menu. You can add or remove parts of the lab book, creating a Custom Lab Book. To save a Custom Lab Book, click the first button and select **Save Current Lab Book** at the bottom of the drop-down list.



5. Click **Header Options** to open the *Lab Book Header Options* menu. You can select an image to appear in the header, and up to three lines of information.



6. Click **Page Setup** to select the size of the paper and set the margins. Click **Print Preview** to view the current lab book. Click **Save** to create a PDF of the lab book.

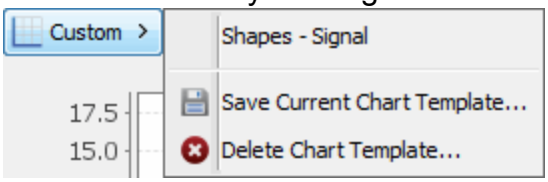
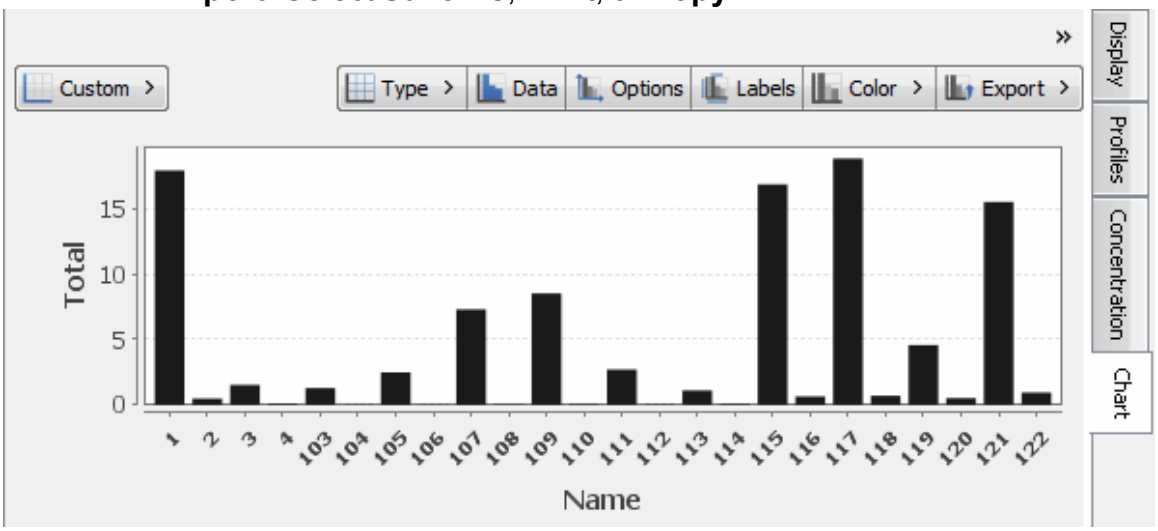
Print a Lab Book

1. Click the printer icon in the quick access tool bar, press *Ctrl+P* on the keyboard, or click the Image Studio Application Button and hover over **Print**.
2. Click **Lab Book** to print the current lab book.

Create a Chart

1. Click the **Chart** tab on the right of the application window.
2. Click the button at the top left of the Chart view and choose a template from the drop-down menu.

Note: When you edit the chart, the button will change to **Custom**. You can save the edited chart by clicking **Save Current Chart Template**.



3. You can edit the chart using the buttons on the top right of the Chart view.
   a. **Type**- Choose **Bar Chart** or **Scatter Plot**.
   b. **Data**- Specify the data to use in the chart.
   c. **Options**- Select from several scaling options for the y- and x-axes.
   d. **Labels**- Designate a title for the chart and the y- and x-axes.
   e. **Color**- Choose a color style.
   f. **Export**- Select **Save As**, **Print**, or **Copy**.