Flowlogic™

Flow Cytometry Analysis Software

Developed by scientists, for scientists

User Manual

Version 7.2.1

DocLogic:

Reports and Presentations
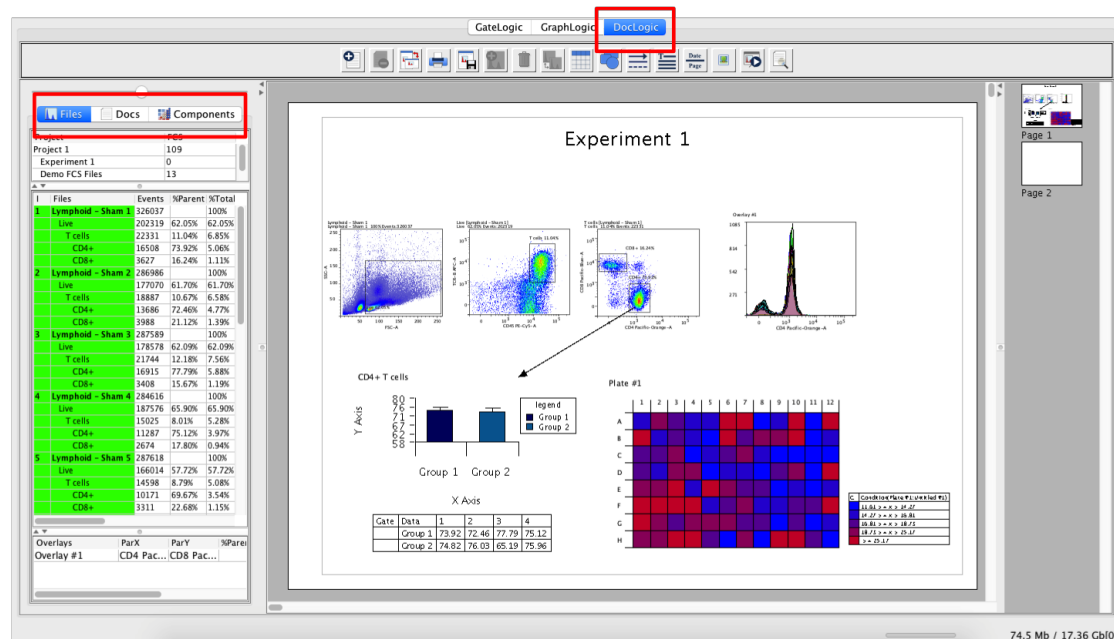
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TECHNOLOGIES

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DocLogic – Reports and Presentations

The Report function in FlowLogic allows you to arrange and annotate plots, graphs, plates, heatmaps and tables. Reports can be printed, displayed as a slideshow or saved as a PDF and any changes made to your analysis will be updated in your report automatically.

Select the report window by clicking on the 'DocLogic' tab above the workspace. Use the tabs at the top of the File Inspector to view your list of FCS files, list of documents (with a document being a report), modify the properties of your report and view a list of all plates and graphs.
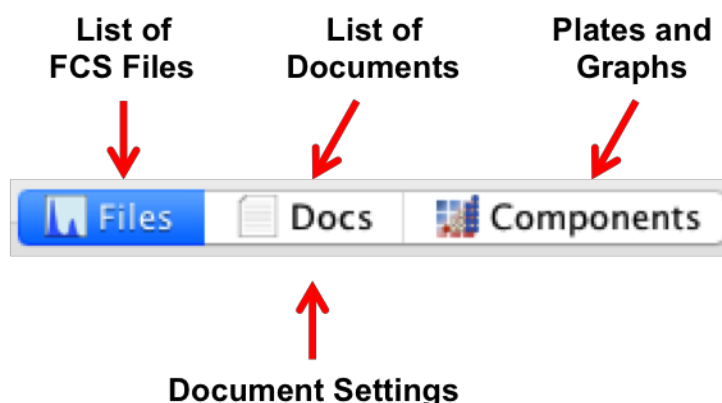
Dot plots, histograms and overlays can be added to a report from within the 'Files' tab window. Once located and selected, individual or multiple plots can be inserted into a report by clicking and dragging, right clicking and inserting or using the 'Add Plot' button in the report toolbar.

Graphs, plates, tables and statistical test summaries can be added to a report from within the 'Components' tab window. These components can be inserted into the report by clicking and dragging or by right clicking and adding.

Population and parameter statistics tables can be added by highlighting the relevant FCS files/populations in the Files tab and inserting the selected rows as a stat table or by clicking on the Add Stat Table icon in the toolbar (for more information, see page 9).

Page Preview

A page preview window exists to the right of the report window. Within the window are thumbnails for each page in the document. Clicking on a page thumbnail will display that particular page of the document.

The Page Preview window can be resized by clicking and dragging the window border or turned off using the 'Display Page Preview icon in the toolbar.
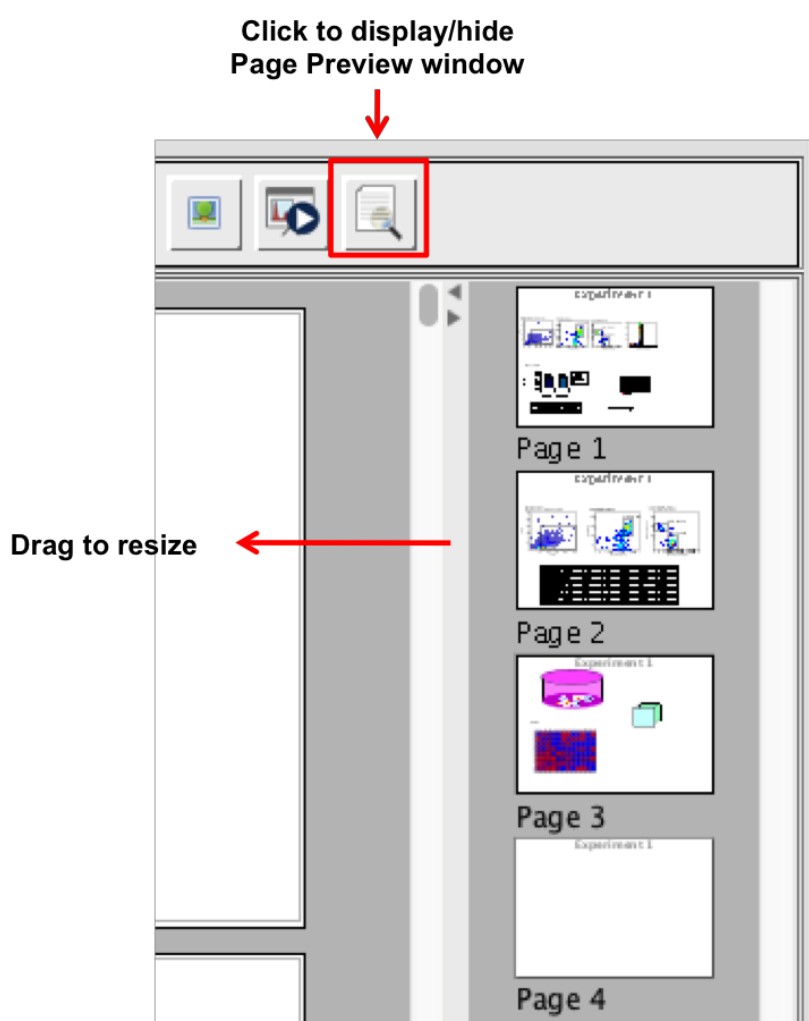
DocLogic Toolbar

The DocLogic toolbar can be used for a variety of functions, including creating and deleting documents, saving reports, adding and removing plots from a report, presenting a slideshow and annotating documents. Below is a description of the toolbar buttons:

New Document and **Delete Document** – Documents can be organized in the **Docs** tab above the File Inspector

Page Setup – Change the page layout using options provided under Screen and Paper default settings. To create new page layout dimensions, choose Paper and Manage Custom Sizes

Print and **Save as PDF**

Add Plot, Delete Item and **Duplicate Plot** – Select the appropriate row/population, plot, graph or table to add to the report, remove (delete) from the report or duplicate within the report

Add Stats Table – Highlight the row/population in the **List of FCS** for which statistics have already been calculated. Then, click the Add Stats Table, choose between the calculated Stat Table or Metadata table and place in the report

Add Shape, Add Line/Arrow and **Add Textbox** – Click the icons to select a shape (rectangle, rounded rectangle or circle), add an arrow or create a textbox. These elements can be edited once added to the report

Insert Date and Page Numbers – Click to add the date or page numbers to the document. Choose from a range of different formats.

Add Image – Insert an image from a file.

Slide Show – Once in slide show mode, progress the slides forward by clicking the mouse. Right click to provide more navigation options.

Display Page Preview – Click on any page in the preview to jump straight to that page

New Document and Delete Document

Individual documents (reports/presentations) can be added by clicking the New Document icon in the toolbar at any time. The new blank document will be visible and is listed in the 'Document' window under the Docs tab. The new document name can also be changed in the bottom window of the Docs tab, in the 'Name' row.

A document can be deleted be clicking on the 'Delete Document' icon in the toolbar when it is displayed on the screen. A confirmation message will appear asking if you are sure to delete the current document. The document dame is also displayed in this message, as shown:
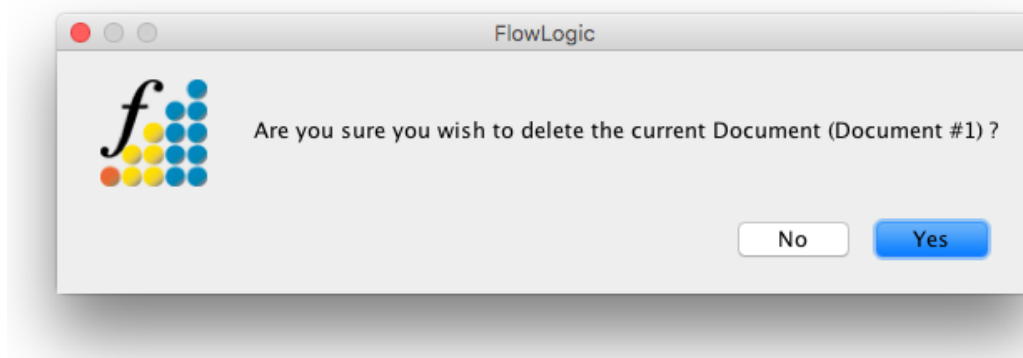
Page Setup

Clicking the 'Page Setup' icon offers two choices: Screen and Paper.
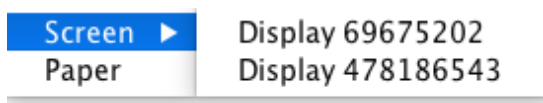
Selecting Paper opens a Page Setup window allowing the Format for a defined printer, the paper size (including custom), orientation and scale to be set, as shown:
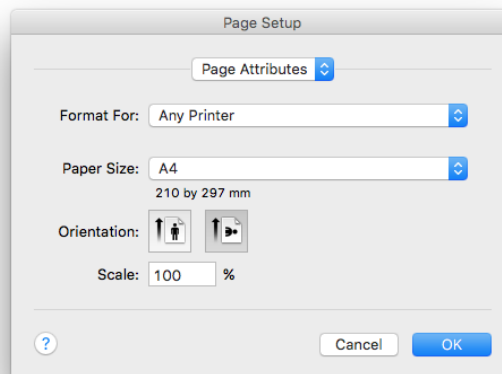
Print

Clicking the 'Print' icon opens a standard print settings window allowing the printing attributes to be defined.
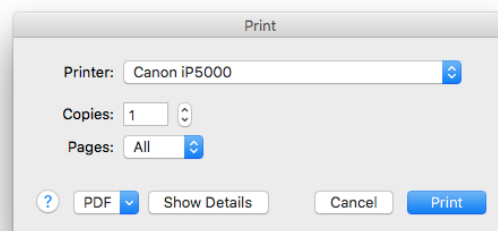
Save as PDF

Clicking the 'Save as PDF' icon opens a window allowing the document to be named and saved as a PDF file or one of a range of other file formats as shown:
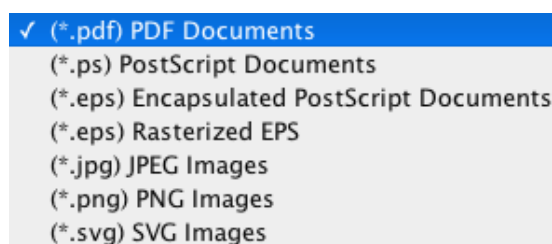
Add Plot

The 'Add Plot' function will insert a dot plot or histogram for any rows that are selected in the 'Files' tab. The files will be placed according to the document layout setting (found in the Docs tab) being either grid or free. The same plots can also be added to a document multiple times. All plots and histograms will take the same plot display settings as defined in the GateLogic Workspace.

If in grid mode, the selected plots will be placed in the order they are listed in the File Inspector, taking the next available position in the document. However, once a plot has been added to a document, the next plot to be added will be inserted after the previous plot, even if it is listed higher in the hierarchy in the File Inspector.

If in free mode and only one plot is selected, after clicking the 'Add Plot' icon, hover over the document and you will see the plot is attached to the cursor. Click on the page to place it. If multiple plots are selected before adding to the document, the plots will be tiled at the top left corner of page one, with the last in the File Inspector order taking the cursor. When this one has been placed in the document, click and drag the remaining plots to the desired location.

Alternatively, plots can be added to a document be clicking and dragging from the File Inspector, or by right clicking and selecting an action from the 'Insert Plots' menu options.

Delete Item

When any item, not just dot plots and histograms, is selected in a document, clicking on the 'Delete Item' toolbar icon will remove it from the report. There is no confirmation window associated with this feature and only one item can be deleted at a time. Once one item has been deleted, the item that was added immediately after will become selected and can likewise be removed with the 'Delete Item' icon. If the last item to be added to the document has been deleted, the nearest item in the added order list will become selected and so on.

Items can also be deleted by selecting them in the document and clicking delete on the keyboard. Multiple dot plots and histograms can be removed from a document together by right clicking on the highlighting rows in the File Inspector and choosing 'Remove Rows'. All dot plots and histograms can be removed from a displayed document by right clicking anywhere in the File Inspector and choosing 'Remove All'. The rows relating to plots in the document do not have to be selected to remove all plots at once.

Duplicate Plot

A selected plot can be duplicated using this icon in the toolbar. This creates an identical plot in the document for which the plot elements (labels, titles, statistics, etc.) can be customized independently. The plot display for both plots will remain as it is set in the GateLogic Workspace.

Add Stats Table

This toolbar icon allows a statistics table created in GateLogic to be displayed in a report. The table needs to be created in the Advanced Functions drawer in the GateLogic tab under Set Statistics. Then, select the row(s) in the File Inspector that statistics have been calculated and click the 'Add Stats Table' icon in the toolbar. Choose the 'Stats' table option, then move the cursor over the document and click to place it. If a row is selected for a gate that statistics weren't calculated for, only the file name will be displayed in the table.

Result when a Stat Table is added for a row for which statistics haven't been calculated:

File
Sample 1

Result when selected rows for which statistics have been calculated are selected:

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%

The following figure depicts the process:

2. Click 'Add Stat Table' icon

| | Stat Table |
| | MetaData |

1. Highlight rows

I	Files	%Parent
1	Sample 1	
	Live	62.05%
	T cells	11.04%
	CD4+	73.92%
	CD8+	16.24%

3. Click to place in the document

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%

Add Shape

To add a shape to the document, click on the 'Add Shape' icon and choose from a rectangle, rounded rectangle or circle. Then move the cursor over the document and click to place. The dimensions of the shapes can be adjusted once in the document. Coloring and other editing options can be found in the Docs tab and by right clicking on the shape (for more information, see page 41).

| Rectangle |
| Rounded Rectangle |
| Circle |
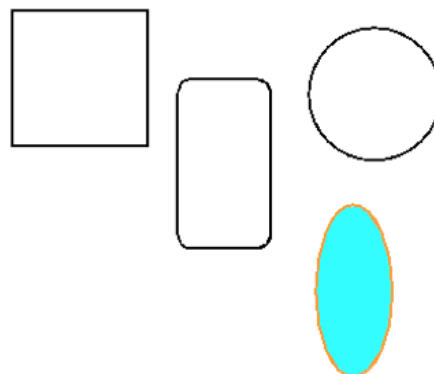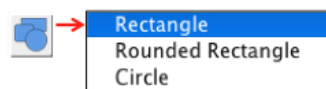
Add Line/Arrow

To add a line or an arrow to a document, click on the Add line/Arrow icon in the toolbar and hover the cursor over the page. By default, an arrow will be created (thin line, wide flat arrowhead) and can be placed by clicking in the desired location.

The arrowhead style and the line style can be changed in the middle window of the Docs tab or through the right click menu. The length and orientation can be adjusted by selecting the line or arrow and dragging either of the ends. The placement can be changed by clicking and dragging from the middle of the line or arrow (for more information, see page 38).

Add Textbox

To add a textbox, click the 'Add Textbox' icon in the toolbar and move the cursor over the page. The new textbox will be attached to the cursor. Move to the desired location and click to set. The default text, 'Double Click to Edit', will be displayed within the textbox and following these instructions will allow you to type new text.

The size of the textbox can be changed by clicking and dragging any of the corner and side points that appear when the textbox is selected. To move the textbox, click in the centre of an unselected textbox and drag to the new location (for more information, see page 39).

Insert Date and Page Numbers

Page numbers and dates can be added to documents in a variety of different formats. To add either a page number or date, click on the 'Insert Data and Page Numbers' icon in the toolbar and hover the cursor over the page. Choose the desired location and click to set. The text within date and page textboxes can be edited as you would a standard textbox.

The different page number and date formats are as follow:

A useful feature is the display 'On Every Page' option in the right click menu and in the Docs tab. After inserting a date or page number, clicking 'On Every Page' will add the element to each page in the document in the same position.

When page numbers are added to a document, the page textbox will detect the page in the report and display appropriately. That is, a single page number added to page 3 will display '3'. When displayed 'On Every Page' the page number will reflect the actual page number in the report.

Add Image

PNG and JPG image files can be imported into a report by clicking the 'Add Image' icon in the toolbar and selecting the image by its file location and name. Imported images can be resized and positioned anywhere in the document (for more information, see page 37).

Slide Show

A document can be displayed as a slide show simply by clicking the 'Slide Show' icon in the toolbar. If multiple screens are available, the different screen options will be displayed after clicking the icon.

Once in slide show mode, click the mouse button to progress the slides and right click to display additional navigation options.

Display Page Preview

The Page Preview is the outline of the pages in the current document displayed down the right-hand side of the Report Workspace. This can be shown or hidden by clicking the 'Display Page Preview' icon in the toolbar. The page thumbnails that are displayed within the page preview window can be used to navigate from one page to another by clicking on the desired page.

## Files – Inserting Dot Plots, Histograms and Overlays

The File Inspector can be viewed in the Report by clicking on the Files tab. Here, all the FCS files and gated populations can be viewed, along with the defined gate statistics.

Right click on one or more rows in the List of FCS Files to display a menu allowing filtering and sorting of files along with various options to insert and remove plots from the document.
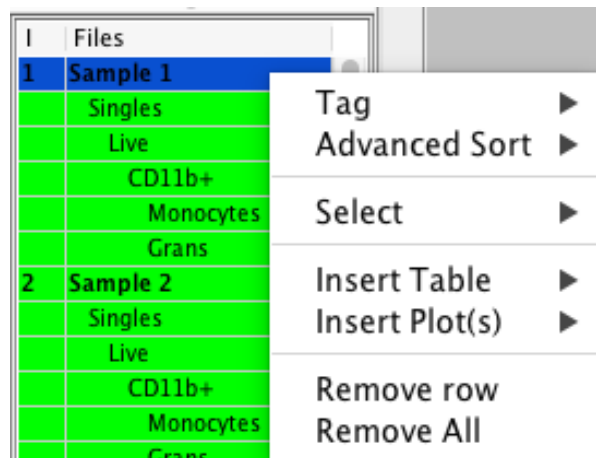
Tag – choose to add tags (user defined or a range of auto-tags) to highlighted samples. Once samples have been tagged, use the filter option in the tag menu to display a select number of samples based on their tags.

Select →
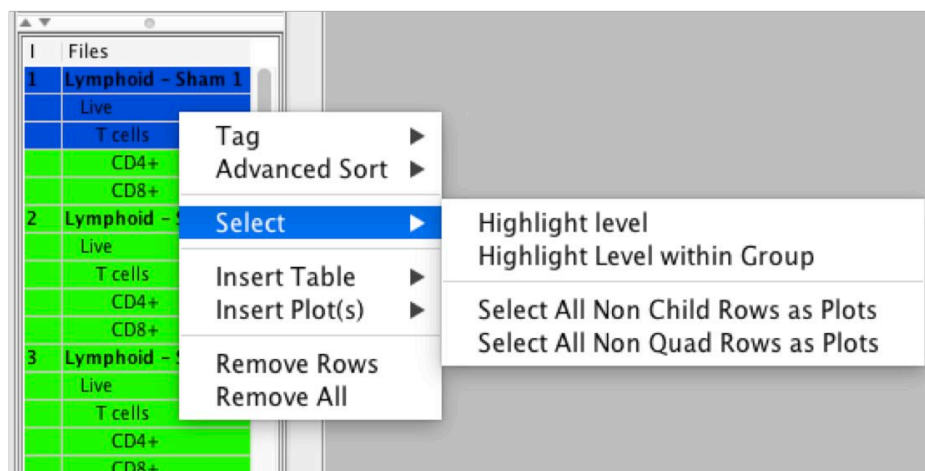
- Highlight Level – select a gate on one file. Clicking 'Highlight Level' results in the same gate being highlighted on every file in the File Inspector.
- Highlight Level within Group – this performs the same function as 'Highlight Level' but only for samples contained within a set of grouped files.
- Select All Non-Child Rows as Plots – this results in all rows being selected except for the lowest level of each gating structure, i.e. the final un-gated population. This is not necessarily the lowest level on an entire gating hierarchy for a sample but the end population of a series of gates identifying a specific cell population.

- Select All Non-Quad Rows as Plots – this results in all rows/populations being selected except for populations resulting from a quadrant gate. If a population derive from a quadrant gate is subsequently gated, then it will be included in the selection.

Insert Table →
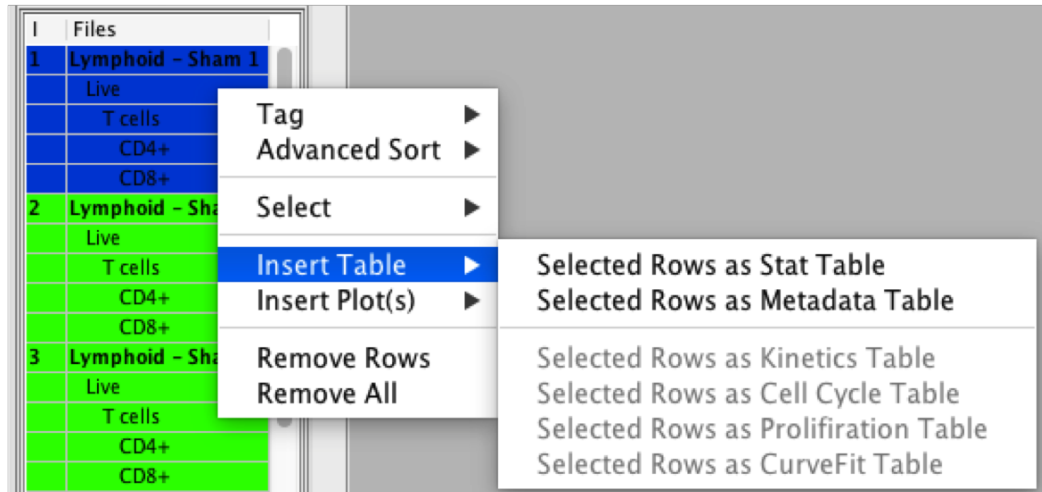
- Selected Rows as Stat Table – this option allows tables containing gate/population statistics (e.g. %Parent) and parameter statistics (e.g. MFI) to be inserted into the document. The process requires the statistics be calculated in GateLogic in the Advanced Functions drawer (see page 123 of the full manual) and then for the relevant rows/populations to be selected in DocLogic. Once the required rows are highlighted, right click and choose Insert Table→Selected Row as Stat Table. Move the cursor to the document and position the table as desired and click to place it. If the required statistics have not been calculated in GateLogic, simply update the selection in the Advanced Functions drawer and this will update the table in the report. If the required samples are not included in a stat table, create a new table with the correct selection.
- Selected Rows as Metadata Table – this option inserts a table containing all of the metadata associated with the selected files.
- Selected Rows as Kinetics Table – if kinetics analysis has been performed, then the option to insert the resulting data as a table becomes available. Select all rows associated with the file to include the Resolution, Response and Background gate data. The resulting table will resemble the following:

File /Gate	GeoMean	Mean	Median	Start T	End T	Delta T	Peak Y	Peak T	Area	Slope
Kinetics.fcs	264.02	273.12	238.00	0.00	2068.48	2068.48	540.00	225.28	54078.00	256369.78
Resolution [Kinetics.fcs]	264.98	272.20	239.00	430.08	2068.48	1638.40	537.50	450.56	43824.00	208724.54
Response [Kinetics.fcs]	367.77	380.33	339.75	261.12	437.76	176.64	540.00	430.08	6846.00	32455.11
Background [Kinetics.fcs]	197.17	197.20	197.00	0.00	202.24	202.24	204.00	194.56	3944.00	49493.33

Insert Plot(s) →
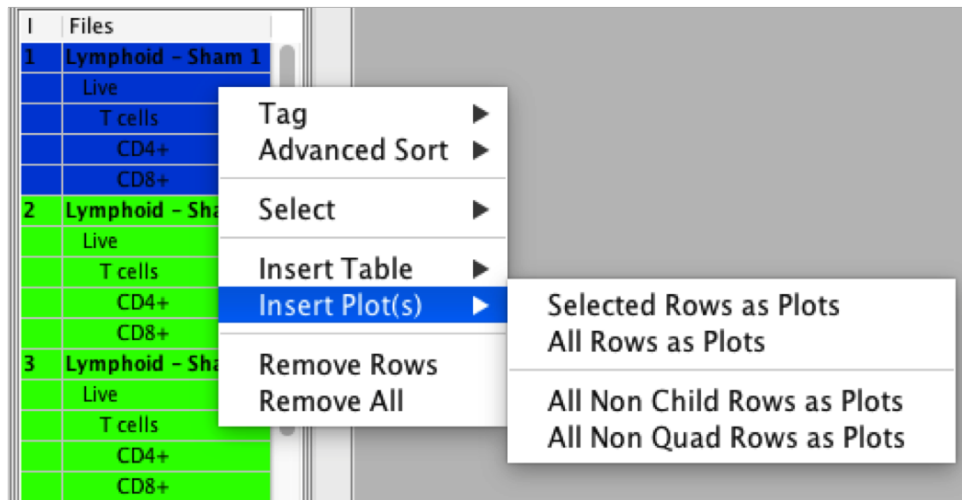
- Selected Rows as Plots – after selecting one or multiple rows, choose this option to add all highlighted rows to the document as dot plots or histograms (this is determined by the display setting in the workspace in the GateLogic tab). Plots will be added in the order that they appear in the File Inspector but their placement will depend on the document layout settings, i.e. grid or free.
- All Rows as Plots – all dot plots and histograms can be added to a document at once with this option. It does not matter which or how many rows are selected before choosing this option. All overlays will also be added to the document.
- All Non-Child Rows as Plots – this feature adds all plots containing a gate has been applied. That is, any resulting child population at the end of a series of gates will not be added.
- All Non-Quad Rows as Plots – this feature will result in all plots and histograms being added except for those resulting from quadrant gates. If gates are applied to populations resulting from quadrant gates, then they will be including in this selection.

Remove Rows – if plots have been added to a document, a selection can be removed by highlighting the populations in the File Inspector and choosing Remove Rows. This prevents having to visually identify the plots in the document in order to remove them.

Remove All – this feature deletes all plots from the document that are derived from files in the Experiment folder displayed in the File Navigator.

Once plots are on the page layout, use the functions from the toolbar to annotate your document.

Components – Inserting Graphs, Plates, Heatmaps and Tables

From the windows under the Components tab, graphs, plates, heatmaps and statistical data tables can be located and added to a document.

The Components section is divided into two windows with the first, being the Data Array window, containing all data array/plates related elements and the second, the Statistics window, containing elements from GraphLogic, being graphs, graph data sets and statistical test results. The two windows are shown below.
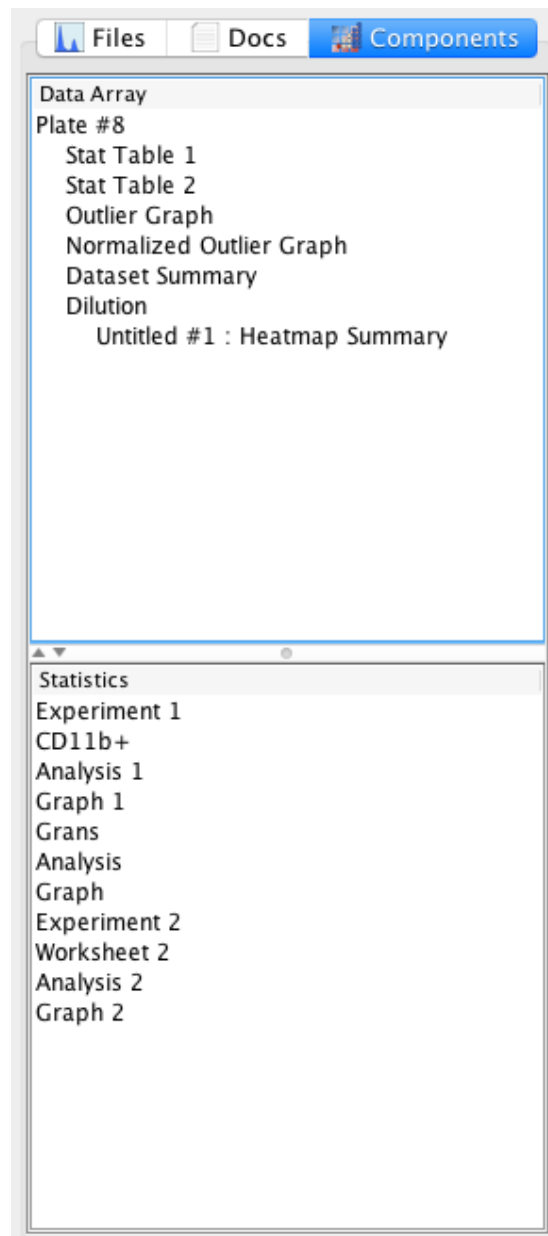
All Data Array elements can be added to a document either by clicking and dragging into the document or by selecting, right clicking and choosing 'Add'.
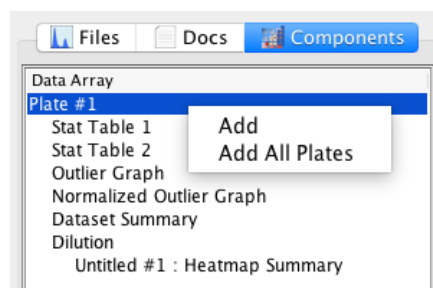
Selecting 'Add All Plates' will add the same selected element for all plates that exist in the in the analysis, whether they are from different Experiment or Project folders.

Elements in the Components Data Array window
- Plate # - Plates will be listed with the name that is assigned in the data array tab in the GraphLogic Advanced Functions drawer.
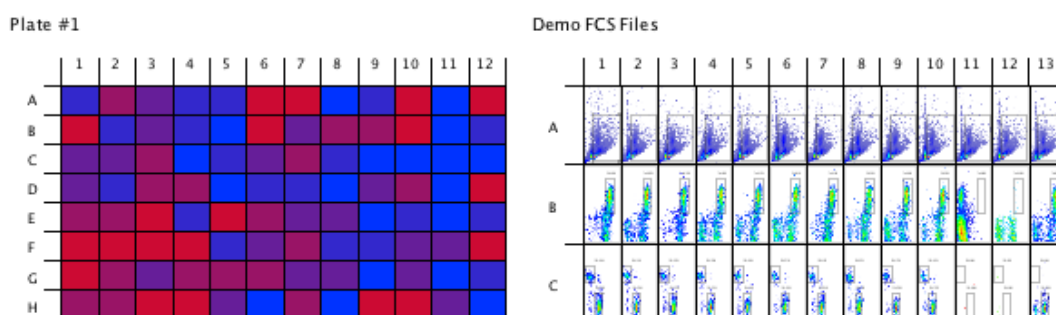
Listed under each plate in the DocLogic Components tab are a variety of statistics and data tables, as follow:

- **Stat Table 1** – this table shows the statistics defined in the plate side drawer and can be colored with the heatmap colors (foreground or background) as defined in the plate side drawer.

	1	2	3	4	5	6	7	8	9	10	11	12
A	15.77	19.09	18.41	15.94	15.91	93.59	31.02	12.75	14.44	42.75	13.52	95.30
B	28.00	14.88	18.25	16.02	12.92	65.01	18.06	24.97	22.31	82.44	11.90	16.11
C	17.50	17.54	21.81	11.87	15.65	17.05	21.61	16.64	13.67	11.70	13.02	12.76
D	18.47	15.60	21.61	18.73	11.61	16.36	16.72	14.09	18.07	19.69	12.73	26.48
E	21.61	21.98	95.69	16.22	55.95	21.99	18.24	18.38	12.76	15.50	12.12	14.64
F	39.14	87.37	43.88	91.85	16.68	17.58	18.89	15.99	14.74	16.81	16.87	25.91
G	35.49	19.90	18.09	21.76	23.95	24.28	17.18	17.03	13.01	17.16	13.86	14.27
H	20.79	20.94	25.17	42.34	18.40	12.61	24.68	13.73	34.11	68.17	18.35	14.02

- **Stat Table 2** – this table shows the same data in a different layout and with the addition of two comments columns. Comments can be added from within the plate side drawer in GraphLogic.

Pos	Name	Param	Stat	Value	Comment 1	Comment 2
A1	A1		% Parent	15.77		
A2	A2		% Parent	19.09		
A3	A3		% Parent	18.41		
A4	A4		% Parent	15.94		
A5	A5		% Parent	15.91		
A6	A6		% Parent	93.59		
A7	A7		% Parent	31.02		
A8	A8		% Parent	12.75		
A9	A9		% Parent	14.44		
A10	A10		% Parent	42.75		
A11	A11		% Parent	13.52		
A12	A12		% Parent	95.30		
B1	B1		% Parent	28.00		
B2	B2		% Parent	14.88		
B3	B3		% Parent	18.25		
B4	B4		% Parent	16.02		
B5	B5		% Parent	12.92		
B6	B6		% Parent	65.01		

- **Outlier Graph –** see page 118 of the full manual
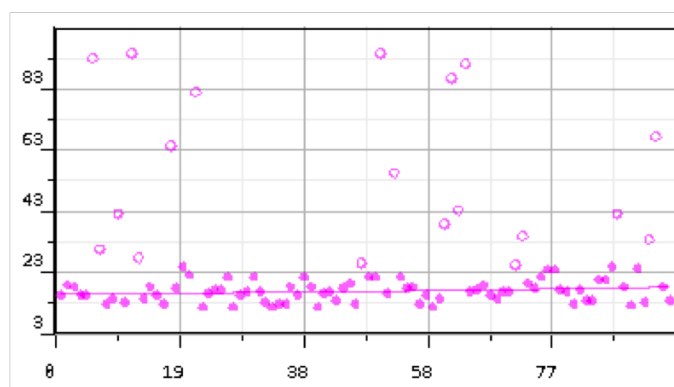
- **Normalized Outlier Graph**

Plate #1

19
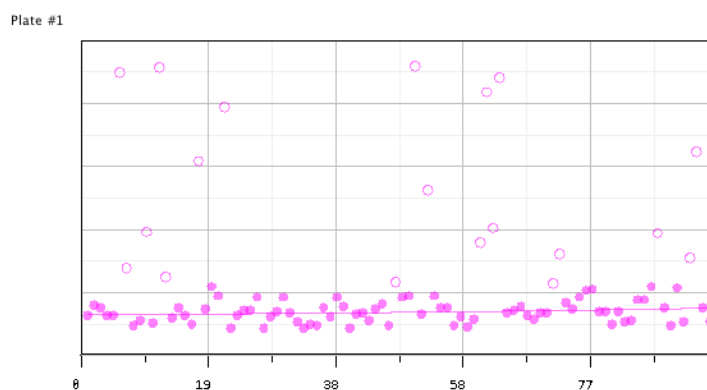
- **Dataset Summary** – datasets can be used to separate different samples or populations within a plate. This can be matched to the different groups created for group analysis. Alternatively, the same files could be added multiple times, labeled as different datasets and then analysed independently. The datasets are defined by a color and a name and the dataset summary table provides this information. More information on datasets can be found on page 111 of the full manual.

C	Name	Setting (Plate #1)
	Untitled #1	R5.FSC-A.% Parent

- **Heatmap Summary**

C	Condition(Plate #1:Untitled #1)
	11.61 >= x > 14.27
	14.27 >= x > 16.81
	16.81 >= x > 18.73
	18.73 >= x > 25.17
	>= 25.17

Elements in the Components Statistics window

The elements in the Statistics window are displayed in a tree, as they are in GraphLogic. For each Workspace (the GraphLogic spreadsheet) there can be multiple Tables where data can be added in GraphLogic. Associated with each Table is a statistical analysis table and a graph. These elements, once created and customised in GraphLogic can be added to a report in DocLogic. If they Table, Analysis or Graph have been renamed, then they can be identified by the new name. Here is a description of the four elements:

- **Workspace** – the Workspace heading is for reference only and cannot be added to the report

- **Table** – this is the data set used to build the associated graph

Gate	Data	1	2	3	4
	Group 1	73.92	72.46	77.79	75.12
	Group 2	74.82	76.03	65.19	75.96

- **Analysis** – this is the resulting statistical analysis summary

Description	Analysis
Unpaired t test Welch-Satterthwaite approximation	
two-sided null hypothesis	false
Are means different?	NO
p-value two-tailed	0.74
one-sided null hypothesis	false
Are means different?	NO
p-value one-sided	0.37
t statistic	0.34
Group 1	Group 1
Number	5.00
Mean	73.79
SD	3.02
Variance	9.13
Skewness	-0.09
Kurtosis	0.25
Min	69.67
Max	77.79
Group 2	Group 2
Number	5.00
Mean	72.95
SD	4.54
Variance	20.57
Skewness	-1.81
Kurtosis	3.27
Min	65.19
Max	76.03

- **Graph** – this is the graph derived from the data set in the associated Table

CD4+ T cells
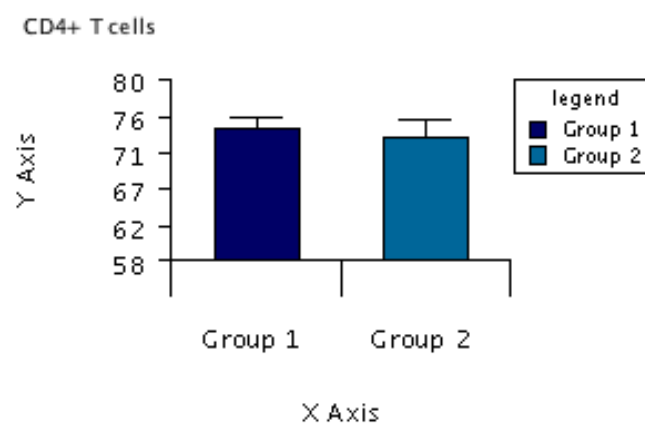
Docs
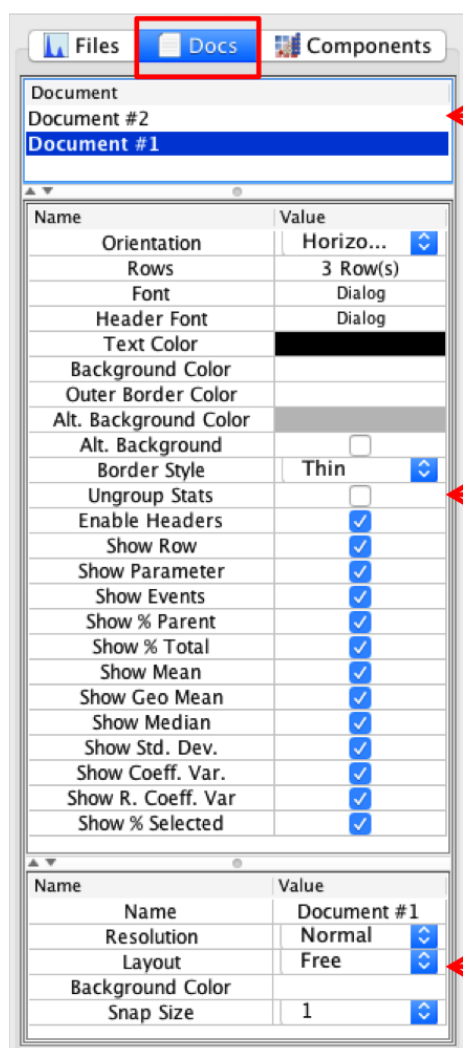
Navigate between different documents

These property settings define how each document element is displayed in the document. Clicking on each element will reveal the list of relevant items that can be displayed or hidden, or edited (such as font or different coloring options)

Rename the document (double click the field), set to normal or high resolution, swap between free and grid layouts, choose the document background color and set the grid snap size.

The property settings for each plot, graph, plate, table, etc., match the right click menu for each element. The above example shows the property settings for a statistics table. These settings described in more detail from .

Name	Value	
Name	Document #1	
Resolution	Normal	
Layout	Grid	
Background Color		
Horizontal	5	
Vertical	4	
Header Size	0	
Footer Size	0	
Left Gap Size	0	
Right Gap Size	0	
One Tube Per Page		

When in grid mode, the number of plots to be placed horizontally and vertically can be set along with the header, footer, left gap and right gap margins. The size of the plots is determined by these layout settings.

These settings can be changed after plots have been added to a document.

When plots relating to multiple samples are added to a document, ticking the 'One Tube Per Page' box will start the first plot from each sample on a new page, regardless of the number of plots added for each sample.

In Grid mode, the plots are placed in a fixed position on each page. Choose the Free layout if you wish to position them yourself. Adjust the snap size to help with plot alignments. When in grid mode, it is possible to free some individual elements, such as dot plots, from the grid. This option can be found in the property settings window when the relevant item is selected in the document, as shown below:

Name	Value
Sample	Lymphoid – Sham 1
Name	Lymphoid – Sham 1
Fixed	
Title	✓
Statistics	
Axis	✓
Axis Values	✓
Axis Labels	✓
X Axis Label	FSC–A
Y Axis Label	SSC–A
Maintain Aspect Ratio	✓

Un-tick 'Fixed' to place the element anywhere on the page, even when in Grid mode.

The following images show the different property setting windows for remaining document elements.

- **Images** – imported images can be named, displayed in the same position on every page, fixed to the grid or replaced with a different image on file.

- **Arrows and lines** – arrows and lines are effectively the same thing, with arrows being lines with a selected end 'Style'. Arrows and lines can be named, displayed at the same position on every page, have the arrowhead style changed, have the line thickness and line style changed and assigned a color.

Name	Value
Name	Line #1
On Every Page	☐
Style	Thin Angle
Line Style	Medium
Color	

- **Text** – text boxes can be named, displayed on every page and fixed to the grid. The text within a text box can be edited in terms of font type, style, size and alignment. The text box background and border can be colored, word wrap and colored.

Name	Value
Name	Text #1
On Every Page	☐
Fixed	☐
Font	Dialog
Background	☐
Border	☐
Align	CENTER
Word Wrap	☐
Editable	☑
Text	Analysis
Color	

- **Shapes** – rectangles, rounded rectangles and circles can be added to a report. Once on the page these shapes can be named and displayed at the same position on every page. The shape border and internal area can be colored and for rounded rectangles, the size of the rounded corners (arc) can be increased or decreased. Also, the shape itself can be changed from one to another whilst maintaining all of its properties.

Name	Value
Name	Shape #0
On Every Page	☐
Border Style	Thick
Shape	Round Rectangle
Fill	☑
Foreground Color	
Background Color	
Arc	20

Editing Dot Plots, Histograms and Overlays in DocLogic

Dot plots, histograms and overlays can be formatted once added to a report by right clicking on the plot and making selections from the subsequent menu. The formatting options include the order/depth on the page, setting the plot to free even when the document is set to grid mode, displaying and hiding various elements, the ability to detach a plot from the grid and an option to apply any settings to all plots in a report. The dot plot/histogram menu appears as follows:
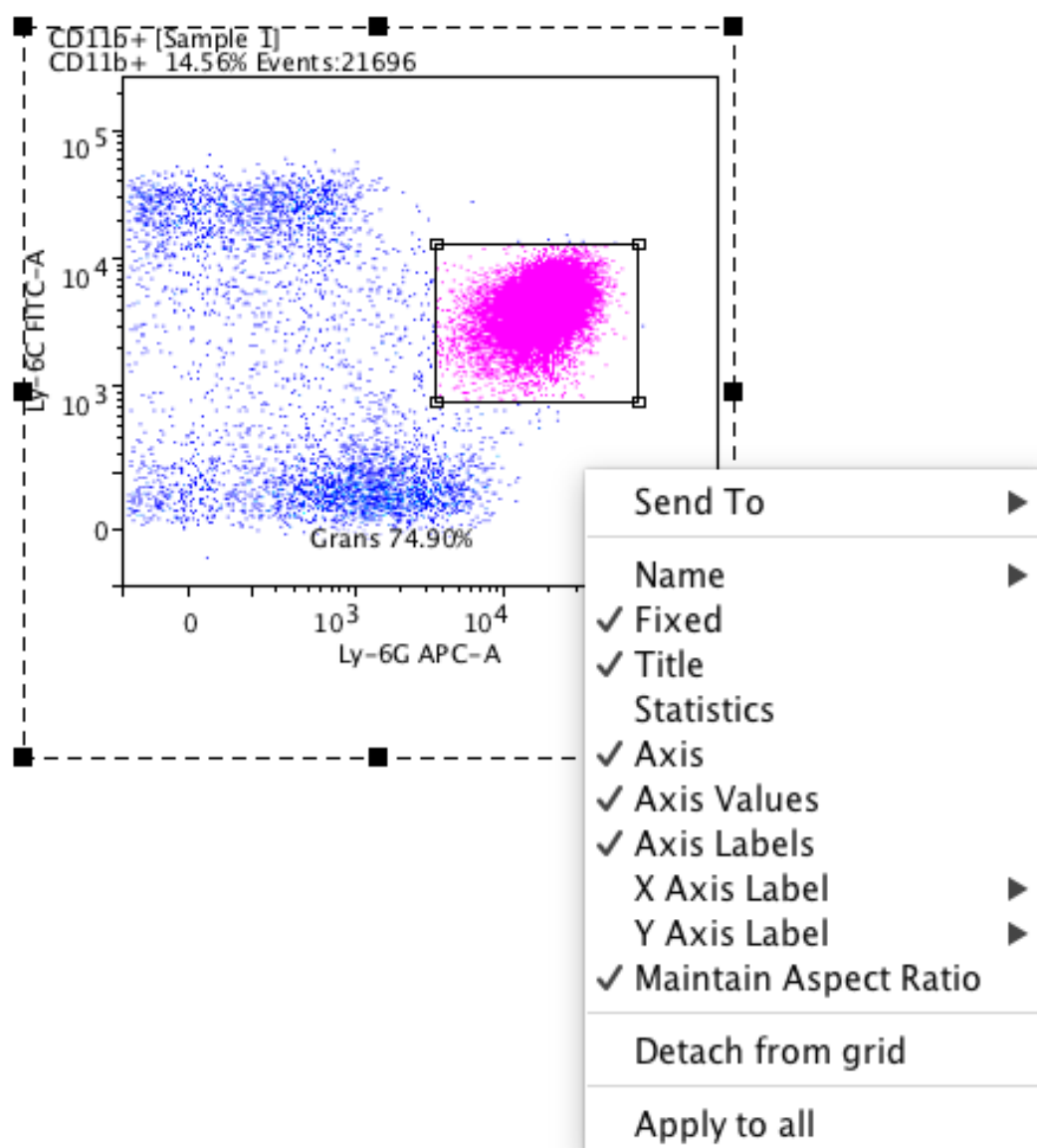
Send To →
- When multiple items overlap in a report, the order that they appear relative to each other can be set.
- In FlowLogic, a plot can be sent to the back of a stack, to the front of a stack or to a select position within a stack of plots.

Plot elements

Various plot elements can be displayed or hidden by clicking on the options in the right click menu. The different elements are represented in the following image:
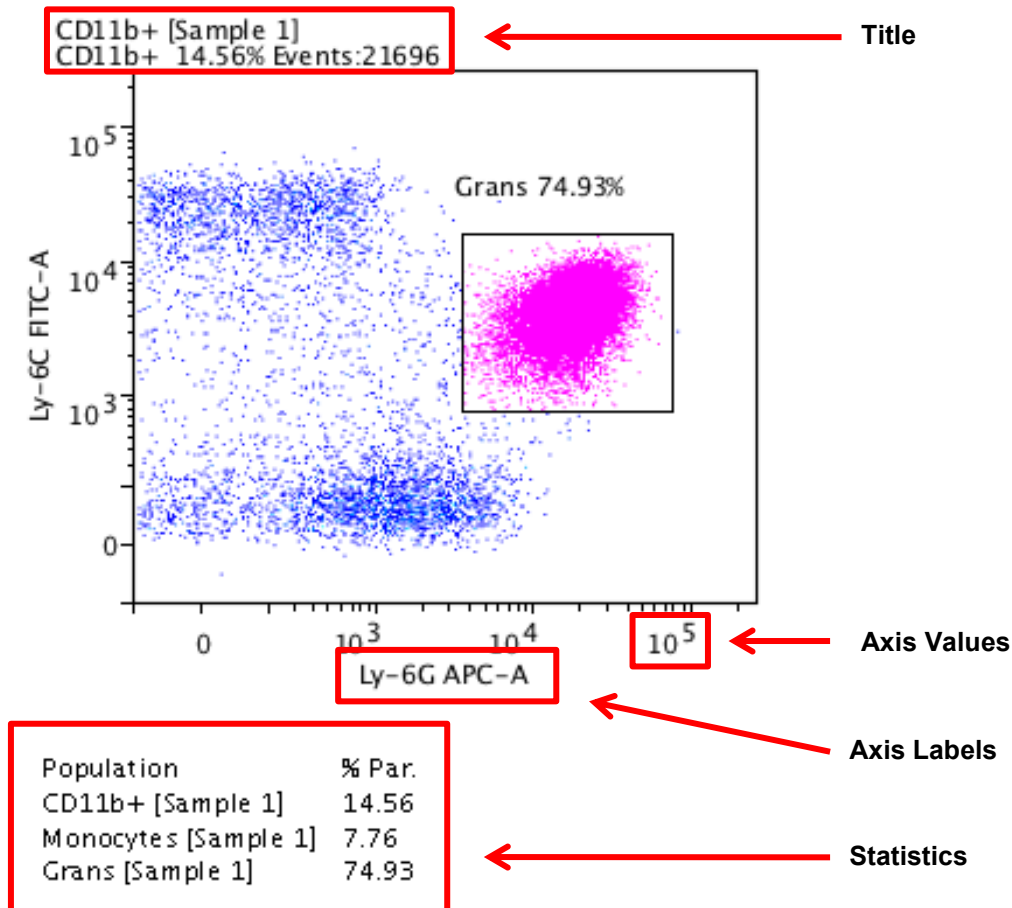
Fixed – unselecting this option allows the plot to be moved freely around the report, even when the document is set to grid mode.

Title – the name applies to the title positioned above the plot.

Statistics – statistics calculated in Analysis can be displayed beneath the plot in the report. Changing the statistics calculated in GraphLogic will update the plot statistics displayed in the report.
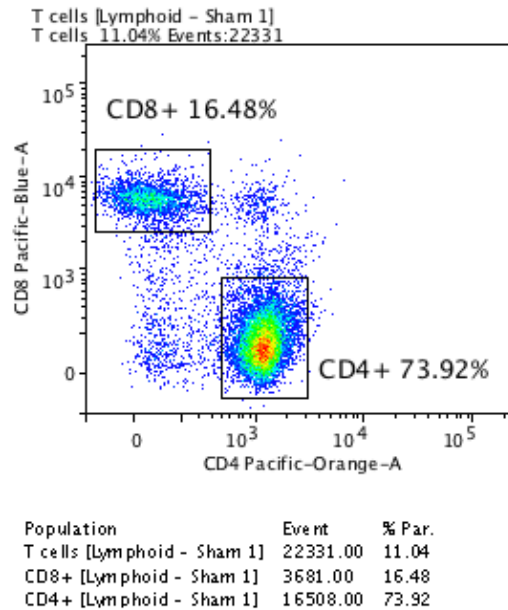
T cells [Lymphoid – Sham 1]
T cells 11.04% Events:22331

CD8+ 16.48%

CD4+ 73.92%

CD8 Pacific-Blue-A

CD4 Pacific-Orange-A

Population	Event	% Par.
T cells [Lymphoid – Sham 1]	22331.00	11.04
CD8+ [Lymphoid – Sham 1]	3681.00	16.48
CD4+ [Lymphoid – Sham 1]	16508.00	73.92

Axis – this refers to all axis elements (but not the plot border). Unselecting this option will remove the axis ticks, axis values and axis labels, leaving the plot with a simple border only.

Axis Values – these are the numbers positioned along each axis.

Axis Labels – these are the parameter titles associated with each axis.

X Axis Label – the X axis label can be renamed in the field displayed after hovering over this option. This renaming is specific to the plot displayed in the report and not a global program setting.

Y Axis Label – the Y axis label can be renamed in the field displayed after hovering over this option. This renaming is specific to the plot displayed in the report and not a global program setting.

Maintain Aspect Ratio – when this option is selected when resizing the plot, the square aspect ratio of the plot itself will be maintained. With this option unselected, the plot can be resized to form a rectangle.

Attach to/Detach from grid
When a report is set up in grid format, each plot is positioned as determined by the grid settings under the Docs Tab. Plots will be ordered as they appear in the Files list. By selecting 'Detach from grid', an individual plot can be moved around the report in a free manner.

Apply to all
Selecting 'Apply to all' after making changes to the elements displayed on one plot will update all other plots in the report with the same display settings. If a plot has been detached from the grid, selecting 'Apply to all' will detach all other plots from the grid.

Overlays

As shown below, right clicking on an overlay in DocLogic offers the same menu as with standard dot plots and histograms.
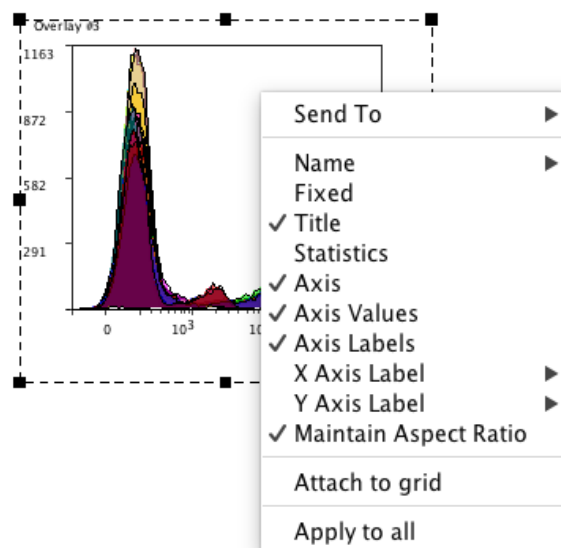
One difference between standard plots and overlays is that when displaying the statistics, the overlay sample color is also displayed. It is also possible to create a freestanding statistics window to be positioned independently of the overlay itself. To do this, duplicate the plot by selecting it on the page and then click the 'Duplicate Plot' icon in the toolbar. Then on the duplicated overlay, right click and deselect 'Maintain Aspect Ratio'.
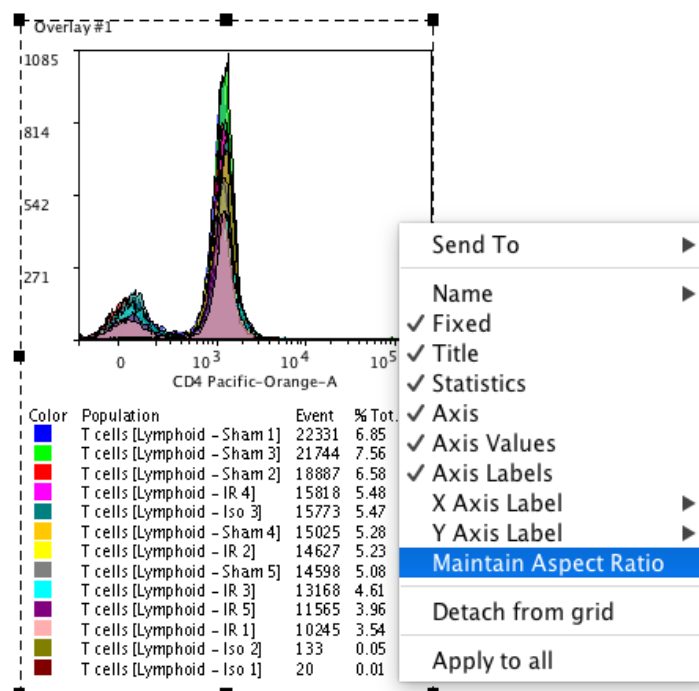
Finally, reseize the plot window to the point where the overlay itself disappears and all that remains is the statistics table. This can now be positioned anywhere on the page.

Drag down to resize

Overlay #1

Color	Population	Event	%Tot.
	T cells [Lymphoid – Sham 1]	22331	6.85
	T cells [Lymphoid – Sham 3]	21744	7.56
	T cells [Lymphoid – Sham 2]	18887	6.58
	T cells [Lymphoid – IR 4]	15818	5.48
	T cells [Lymphoid – Iso 3]	15773	5.47
	T cells [Lymphoid – Sham 4]	15025	5.28
	T cells [Lymphoid – IR 2]	14627	5.23
	T cells [Lymphoid – Sham 5]	14598	5.08
	T cells [Lymphoid – IR 3]	13168	4.61
	T cells [Lymphoid – IR 5]	11565	3.96
	T cells [Lymphoid – IR 1]	10245	3.54
	T cells [Lymphoid – Iso 2]	133	0.05
	T cells [Lymphoid – Iso 1]	20	0.01

Overlay #1

Color	Population	Event	%Tot.
	T cells [Lymphoid – Sham 1]	22331	6.85
	T cells [Lymphoid – Sham 3]	21744	7.56
	T cells [Lymphoid – Sham 2]	18887	6.58
	T cells [Lymphoid – IR 4]	15818	5.48
	T cells [Lymphoid – Iso 3]	15773	5.47
	T cells [Lymphoid – Sham 4]	15025	5.28
	T cells [Lymphoid – IR 2]	14627	5.23
	T cells [Lymphoid – Sham 5]	14598	5.08
	T cells [Lymphoid – IR 3]	13168	4.61
	T cells [Lymphoid – IR 5]	11565	3.96
	T cells [Lymphoid – IR 1]	10245	3.54
	T cells [Lymphoid – Iso 2]	133	0.05
	T cells [Lymphoid – Iso 1]	20	0.01

Editing Graphs in DocLogic

Graphs can be formatted once added to a report by right clicking on the graph and making selections from the resulting menu. The formatting options include the order/depth on the page, displaying and hiding various elements, the ability to detach a plot from the grid and an option to apply any settings to all plots in a report. The graph right click menu appears as follows:
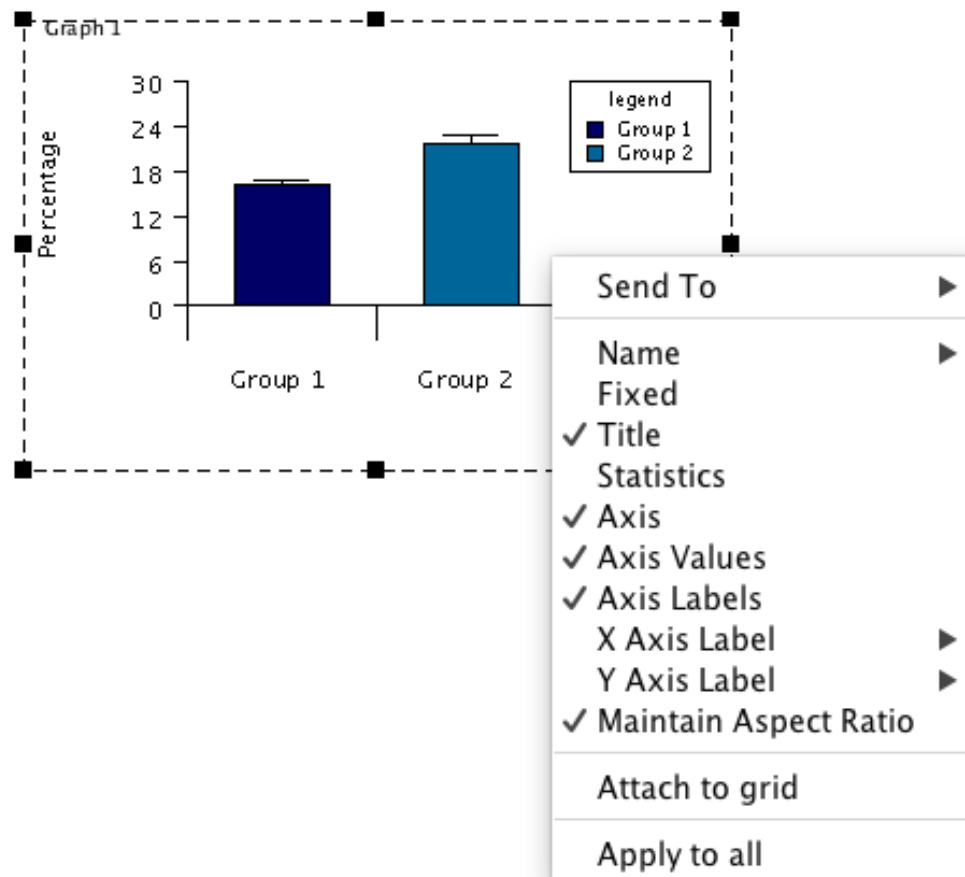
Send To →
- When multiple items overlap in a report, the order that they appear relative to each other can be set.
- In FlowLogic, a graph can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

Editing Statistics Tables in DocLogic

Statistics tables can be formatted once added to a report by right clicking on the table and making selections from the resulting menu. The formatting options include the order/depth on the page, the orientation of the data, font and cell color options, border styles, the ability to display and hide various elements and access to a Table Editor and an option to apply any settings to all tables in a report. The table right click menu appears as follows:

File	Live PE-Cy7-A Median	Monocytes % Parent	Grans % Parent
Sample 1	465.39	7.35%	74.90%
Sample 2	452.14	7.92%	74.62%
Sample 3	494.34	9.38%	
Sample 4	526.80	8.24%	
Sample 5	461.42	8.25%	
Sample 6	584.90	9.14%	
Sample 7	588.20	9.45%	
Sample 8	556.33	8.04%	
Sample 9	525.66	8.62%	
Sample 10	504.42	7.68%	

Send To ▶

Orientation ▶
Font
Header Font
Text Color
Background Color
Outer Border Color
Alt. Background Color
Alt. Background
Border Style ▶
Ungroup Stats
✓ Enable Headers
✓ Show Row
✓ Show Parameter
✓ Show Events
✓ Show % Parent
✓ Show % Total
✓ Show Mean
✓ Show Geo Mean
✓ Show Median
✓ Show Std. Dev.
✓ Show Coeff. Var.
✓ Show R. Coeff. Var
✓ Show % Selected

Edit Table

Apply to all

Send To →
- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, a table can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

Orientation →
- **Vertical –** with a vertical orientation, individual statistics are displayed in columns with each sample occupying a single row.
- **Horizontal –** with a horizontal orientation, the sample names form the column titles with the individual statistics taking a row each.

Vertical

File	Live PE-Cy7-A Median	Monocytes % Parent	Grans % Parent
Sample 1	465.39	7.35%	74.90%
Sample 2	452.14	7.92%	74.63%
Sample 3	494.34	9.38%	71.62%
Sample 4	526.80	8.24%	73.38%
Sample 5	461.42	8.25%	75.31%
Sample 6	584.90	9.14%	77.76%
Sample 7	588.20	9.45%	77.38%
Sample 8	556.33	8.04%	76.60%
Sample 9	525.66	8.62%	76.49%
Sample 10	504.42	7.68%	76.99%

Horizontal

File	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
Live PE-Cy7-A Median	465.39	452.14	494.34	526.80	461.42	584.90	588.20	556.33	525.66	504.42
Monocytes % Parent	7.35%	7.92%	9.38%	8.24%	8.25%	9.14%	9.45%	8.04%	8.62%	7.68%
Grans % Parent	74.90%	74.63%	71.62%	73.38%	75.31%	77.76%	77.38%	76.60%	76.49%	76.99%

Font – choosing 'Font' opens the FontChooser window where the font type, style (plain, bold or italics) and size can be set. A preview of the selection is displayed in the sample window. A setting in the program preferences to 'Limit Available Fonts' restricts the options to the five Java logical fonts: Serif, Sans serif, Monospaced, Dialog and DialogInput. It is possible to deselect this option and choose from the range of fonts available in the computer, however, this may cause font display issues if a saved analysis file is opened in another computer with a different range of available fonts.

Header Font – the header refers to the column titles. The font for these titles can be set independently from the rest of the table.

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Text Color – this option allows the text color throughout the table to be selected or changed. The cell borders will also take the same color selection.

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Background Color – this option allows the entire background, being the area within the external table borders, to be colored.

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Outer Border Color – this option allows the outer border color to be chosen or changed

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Alt. Background Color – a color can be assigned to alternating rows, beginning with the header row, using this option. The remaining rows will remain white. If you wish for the white rows to be colored, select a color for the 'Background Color'.

The 'Alt. Background Color' option allows for the selection of the color, whilst the proceeding option, 'Alt Background', allows the feature to be turned on and off. A color selection will be remembered even if the coloring is turned off.
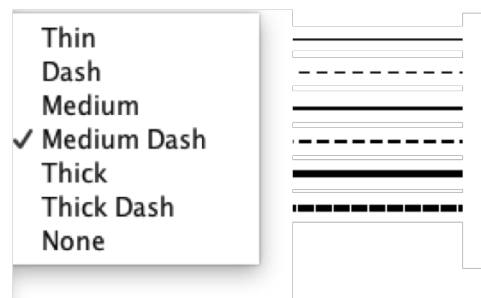
With no background color selected:

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

With a background color selected:

File	T cells % Parent	CD4+ % Parent	CD8+ % Parent
Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Alt. Background – click this menu option to color alternating rows with the color selected from the 'Alt. Background Color' palette. If no color has been selected, selecting this option will have no visible effect.

Border Style → The border style refers to the border around each cell. Examples of the different line styles are as follow:

Ungroup Stats – when statistics are ungrouped, each column only describes one type of statistic. For example, if the %Parent is displayed for multiple populations, only one column will contain the %Parent values and the different subpopulations will be displayed as separate rows in hierarchical order.

Row	Parameter	% Parent	Median
Sample 1			
Live [Sample 1]			
T cells [Sample 1]		11.04%	
CD4+ [Sample 1]	Pacific-Orange-A	73.92%	1181.44
CD8+ [Sample 1]		16.24%	
Sample 2			
Live [Sample 2]			
T cells [Sample 2]		10.67%	
CD4+ [Sample 2]	Pacific-Orange-A	72.46%	1205.45
CD8+ [Sample 2]		21.12%	
Sample 3			
Live [Sample 3]			
T cells [Sample 3]		12.18%	
CD4+ [Sample 3]	Pacific-Orange-A	77.79%	1238.23
CD8+ [Sample 3]		15.67%	
Sample 4			
Live [Sample 4]			
T cells [Sample 4]		8.01%	
CD4+ [Sample 4]	Pacific-Orange-A	75.12%	1294.66
CD8+ [Sample 4]		17.80%	
Sample 5			
Live [Sample 5]			
T cells [Sample 5]		8.79%	
CD4+ [Sample 5]	Pacific-Orange-A	69.67%	1211.97
CD8+ [Sample 5]		22.68%	

Enable Headers – when 'Enable Headers' is not selected, the first row of the table is removed from the display.

Sample 1	11.04%	73.92%	16.24%
Sample 2	10.67%	72.46%	21.12%
Sample 3	12.18%	77.79%	15.67%
Sample 4	8.01%	75.12%	17.80%
Sample 5	8.79%	69.67%	22.68%

Show Row – when 'Show Row' is not selected, the first column of the table is removed from the display.

T cells % Parent	CD4+ % Parent	CD8+ % Parent
11.04%	73.92%	16.24%
10.67%	72.46%	21.12%
12.18%	77.79%	15.67%
8.01%	75.12%	17.80%
8.79%	69.67%	22.68%

Show Parameter, Events, %Parent, %Total, Mean, Geo Mean, Median, Std. Dev, Coeff. Var., R. Coeff. Var., %Selected – if a particular statistic has been calculated and is ticked in the right click menu, then it will appear in the table. Clicking on a displayed statistic in the right click menu will un-tick that option and remove the statistic and the column or row it is displayed in from the table. Clicking on the statistic in the menu will add it back to the table.

Edit Table
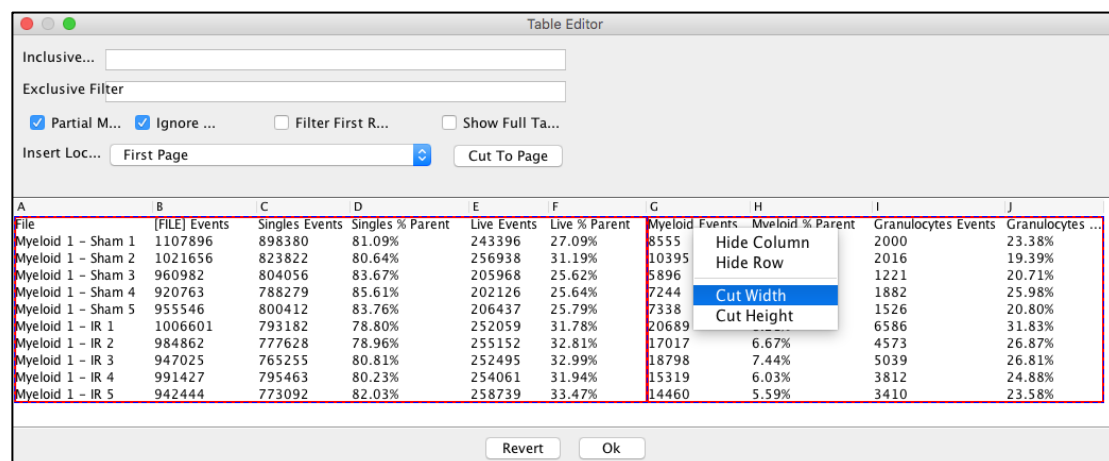
Apply to All – this option applies the setting made to the current element to all similar elements in the report.

Editing Plates/Heatmaps in DocLogic

Plates and heatmaps (from data array analysis) can be formatted once added to a report by right clicking on the graph and making selections from the resulting menu. The formatting options include the order/depth on the page, changing the plate name, setting the plate to free even when the document is set to grid mode, displaying and hiding various elements, locking the aspect ratio when resizing, draw and normalize outlier graphs, the ability to detach a plot from the grid and an option to apply any settings to all plots in a report. The graph right click menu appears as follows:
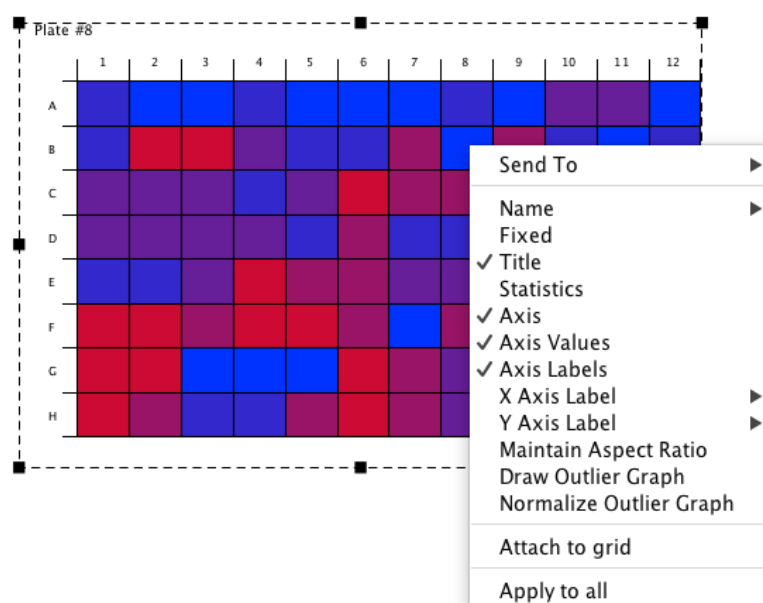

Send To →

- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, a plate can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

Plot elements

Various plot elements can be displayed or hidden by clicking on the options in the right click menu. The different elements are represented in the following image:
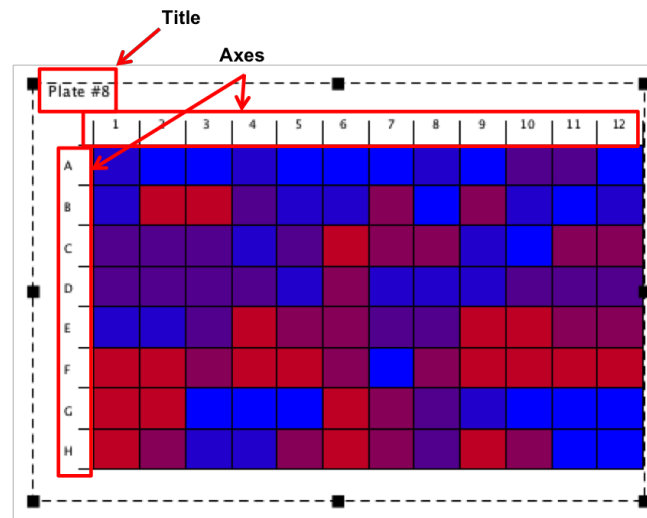
**Title** – the name applies to the title positioned above the plot.

Axis – this refers to all axis elements (but not the plot border). Unselecting this option will remove the axis ticks, axis values and axis labels, leaving the plot with a simple border only.

Maintain Aspect Ratio – when this option is selected when resizing the plate, the square aspect ratio is set and will be maintained. With this option unselected, the plate can be resized freely.

Editing Shapes, Text, Lines/Arrows and Imported Images in DocLogic

Images imported from file

The size and shape of imported images can be adjusted by dragging the corner and side markers displayed when the image is selected. Additional options exist via the right click menu. These are as follow:
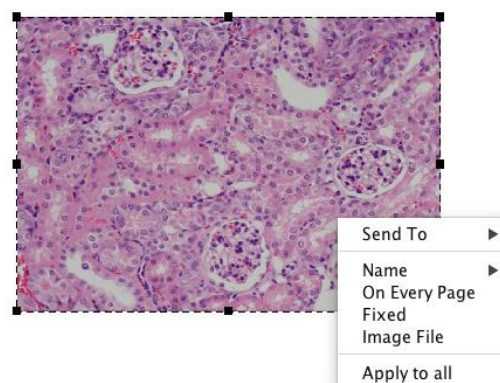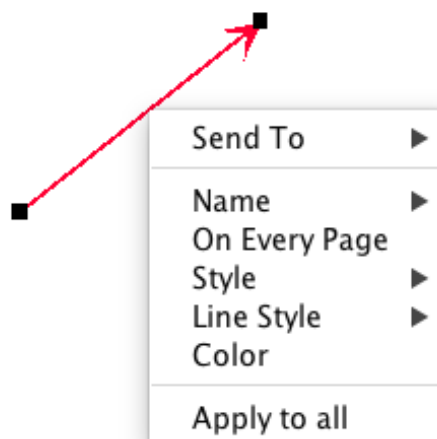
Send To →

- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, an image can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

On Every Page – when this option is selected, the element is replicated on each page taking all the properties of the original element. This includes the size and shape, position on the page and all other formatting settings. Any of the replicated images can be edited or moved and all others will be updated. If any of the elements is deleted, all elements will be deleted and if the 'On Every Page' option is deselected on any of the replicated elements then all but the original element will be deleted.

Image File – an image imported from a file can be replaced with another file by choosing the 'Image File' option in the right click menu. This will open a file search window in order to select the replacement image file.

Lines and arrows
Lines and arrows are effectively the same thing, although an arrow head can be added to one end using settings in the Properties window of the Docs tab or from the right click menu. The options in this right click menu are as follow:
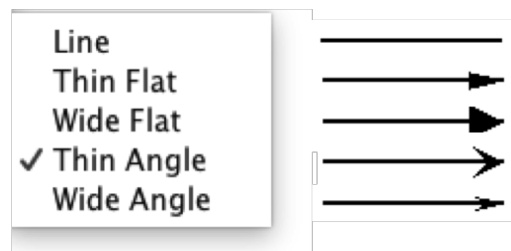
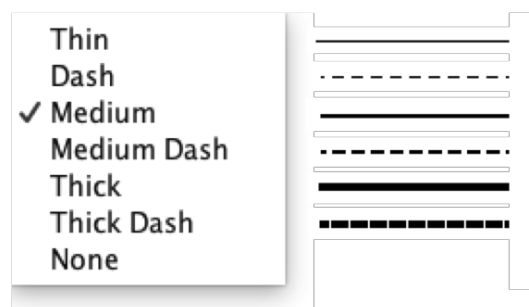| Send To	▶
Name	▶
On Every Page	
Style	▶
Line Style	▶
Color	
Apply to all	

Send To →

- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, an arrow/line can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements

On Every Page – when this option is selected, the element is replicated on each page taking all the properties of the original element. This includes the size and shape, position on the page and all other formatting settings. Any of the replicated images can be edited or moved and all others will be updated. If any of the elements is deleted, all elements will be deleted and if the 'On Every Page' option is deselected on any of the replicated elements then all but the original element will be deleted.

Style → The style refers to the arrowhead, of which there are four options. The other option is to have a standard line. Examples of the different styles are as follow:
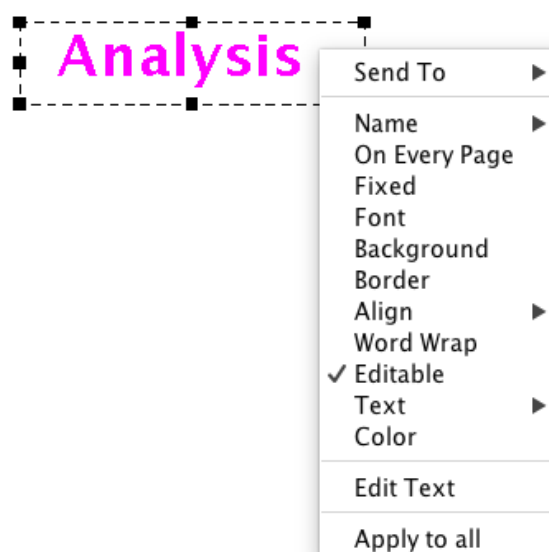

Line Style → The line style refers to the body of the line/arrow. Examples of the different line styles are as follow:

Color – the color of the line/arrow can be selected from the displayed color palette.

Text boxes

Text within an added text box can be edited by double clicking and typing the desired text. The text properties can be edited in Properties window of the Docs tab or from the right click menu. The options in this right click menu are as follow:

Send To →
- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, an arrow/line can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

On Every Page – when this option is selected, the element is replicated on each page taking all the properties of the original element. This includes the size and shape, position on the page and all other formatting settings. Any of the replicated images can be edited or moved and all others will be updated. If any of the elements is deleted, all elements will be deleted and if the 'On Every Page' option is deselected on any of the replicated elements then all but the original element will be deleted.

Font – choosing 'Font' opens the FontChooser window where the font type, style (plain, bold or italics) and size can be set. A preview of the selection is displayed in the sample window. A setting in the program preferences to 'Limit Available Fonts' restricts the options to the five Java logical fonts: Serif, Sans serif, Monospaced, Dialog and DialogInput. It is possible to deselect this option and choose from the range of fonts available in the computer, however, this may cause font display issues if a saved analysis file is opened in another computer with a different range of available fonts.
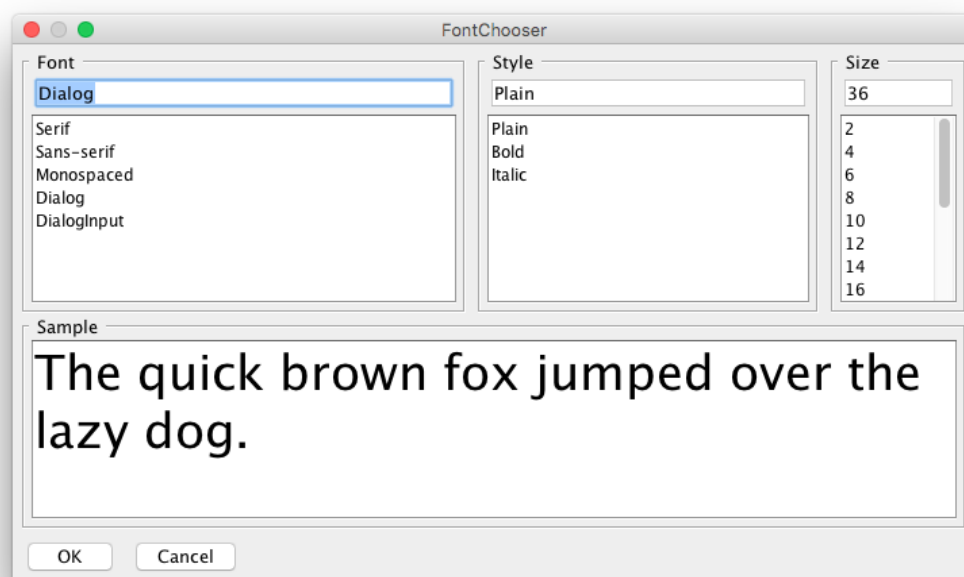
Border – selecting this option creates a border that matches the size of the text box. As the text box can be enlarged without altering the size of the text, a border can be created that is wider and longer than the text area. The border itself is a solid line.

Align → the text can be aligned to the left, centre or right of the text box.

Color – the text color can be selected from the displayed color palette.

Shapes: rectangles, rounded rectangles and circles
Three different shapes can be added to a document: rectangles, rounded rectangles and circles. Whilst the shape selection can be made when clicking on the 'Add Shape' button in the toolbar, one shape in a document can be changed to another via the right click menu. Any formatting will be retained if it is relevant to the new shape, e.g. the background color or the border style.

Shapes can be edited via option in the Properties window of the Docs tab or from the right click menu. The options in this right click menu are as follow:
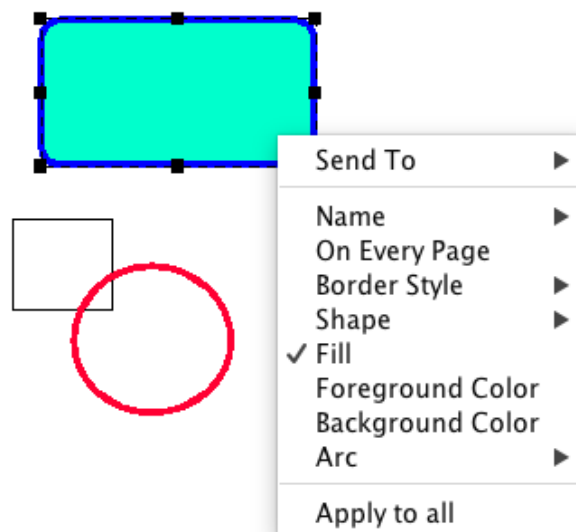

Send To →
- When multiple items overlap in a report, the order that they appear relative to each other can be changed.
- In FlowLogic, a shape can be sent to the back of a stack, to the front of a stack or to a select position within a stack of elements.

On Every Page – when this option is selected, the element is replicated on each page taking all the properties of the original element. This includes the size and shape, position on the page and all other formatting settings. Any of the replicated images can be edited or moved and all others will be updated. If any of the elements is deleted, all elements will be deleted and if the 'On Every Page' option is deselected on any of the replicated elements then all but the original element will be deleted.

Border Style → The border style for each shape can be set as one of the following options:
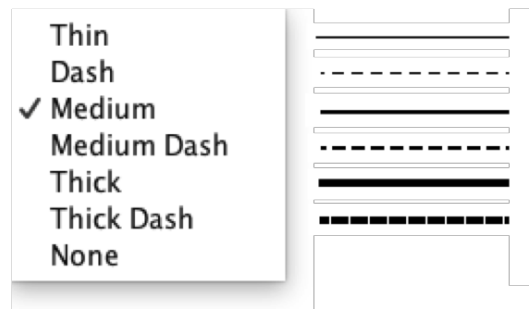
Shape → The shape itself can be changed even after it has been added to a document. The color, border setting and relative size are maintained in the new shape.

Fill – if a Background color has been set, then ticking 'Fill' will color the shape. By deselecting 'Fill', the shape becomes transparent (except for the border).

Foreground Color – The foreground color represents the border color. This can be selected from the displayed color palette.

Background Color – The background color represents the fill color. This can also be selected from the resulting color palette.

Arc → The arc values range from 0 to 20 and represent the roundness of the corners on the rounded rectangle with 0 being square and 20 being the most rounded. When changing shape from a rounded rectangle to a rectangle or circle, the arc value is retained and applied if the shape is changed back to a rounded rectangle.