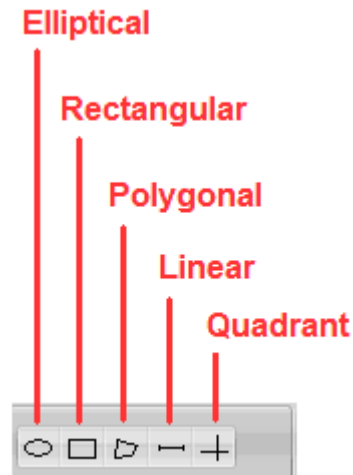


Creating of Regions

Regions are created using the buttons in the **Region** group on the **Analyze** tab. Five region types can be created as illustrated in the figure below:



To create a region on a plot, click the required region type to highlight the button. Then either click on a plot to set the region at the default size, or draw out the required region size on the desired plot.

To cancel the creation of a region, press **Esc** before or during the dragging of that region.

Once the maximum number of 256 regions is reached the buttons in the **Region** group on the **Analyze** tab become disabled.

Only one region can be drawn per button selection for the Elliptical, Rectangular and Polygonal region types.

Linear regions can be applied to multiple selected single parameter plots by pressing **Ctrl** while clicking to add the region.

Quadrant regions can be applied to multiple selected dual parameter plots by pressing **Ctrl** while clicking to add the region.

Deleting of Regions

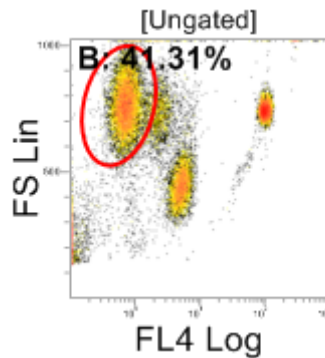
To delete a region, select it and press the **Delete** key or the **Delete** button in the **Editing** group on the **Analyze** tab.

Elliptical Regions

You can use the **Elliptical Region** button  on the **Analyze** tab to draw an elliptical region on the desired plot.

If you select the elliptical region button and click on a dual parameter plot, a default sized elliptical region will be drawn where the plot was clicked.

Alternatively click the button, then left click onto a dual parameter plot and drag out an ellipse from this point.



A 'no entry' type cursor indicates that an elliptical region cannot be created in the current position.

Elliptical regions have four control points; these will be displayed when you click on a region to select it. You can use these control points to re-size, rotate and move the elliptical region.

While an elliptical region is being moved or resized the coordinates of the centre, the axes length and the rotation angle in degrees are displayed:

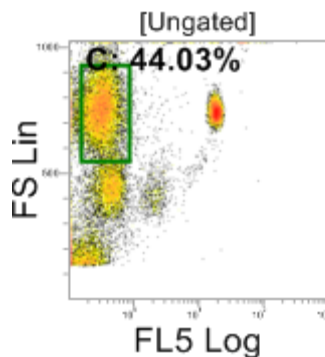
Center (603, 624), Axes (226, 264) Rotation: 0.00 degrees

Rectangular Regions

You can use the **Rectangular Region** button  on the **Analyze** tab to draw a rectangular region on the desired plot.

If you select the **Rectangular Region** button and click on a dual parameter plot a default sized rectangular region will be drawn where the plot was clicked.

Alternatively you can click the button, then left click onto a dual parameter plot and then drag out a rectangle from that point.



A 'no entry' type cursor indicates that a rectangular region cannot be created in the current position.

Rectangular regions have eight control points; these will be displayed when you click on a region to select it. You can use these control points to re-size and move the rectangular region.

While a rectangular region is being moved or resized the coordinates of the top left and bottom right corners are displayed:

Coordinates (193, 183):(850, 732)

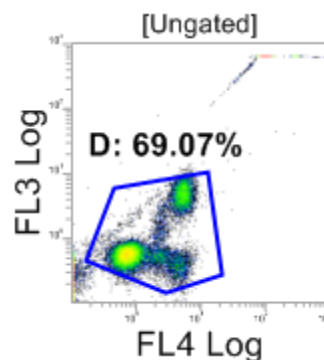
Polygonal Regions

You can use the **Polygonal Region** button  on the **Analyze** tab to draw a polygonal region on the desired plot.

Click the button, and then left click onto a dual parameter plot to determine the first point of the region. Then left click on the plot to add additional points to the polygon. The polygon is then completed by clicking on the start point.

If there are at least three points the polygon is also completed by right clicking (which will complete the polygon by adding a line from the last to first point).

When the polygon is completed, a polygonal region is created on the plot:



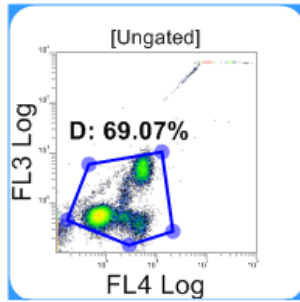
Double clicking on a line inserts a new point which can then be moved to create a modified region.



A 'no entry' type cursor indicates that a polygonal region cannot be created in the current position.

The polygonal region cannot be rotated and cannot be moved outside the plot axes.

Each vertex of the polygon is a control point.



Dragging the vertex will move that vertex only within the polygon. Dragging on a line within the polygon will move the region whilst maintaining the shape of the region. The polygonal region cannot be moved outside the plot axes.

While the vertex of a polygonal region is being moved or resized its coordinates are displayed:

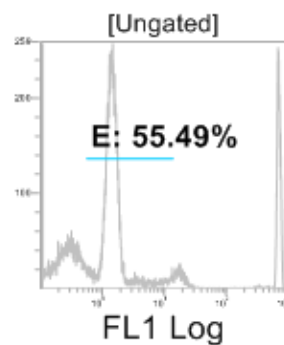
Moving point coordinates (861,775)


Linear Regions

You can use the **Linear** button  on the **Analyze** tab to draw a linear region on a single parameter plot.

If you click the **Linear** region button and then click on a single parameter plot a default sized linear region will be drawn, centered on the point where the plot was clicked.

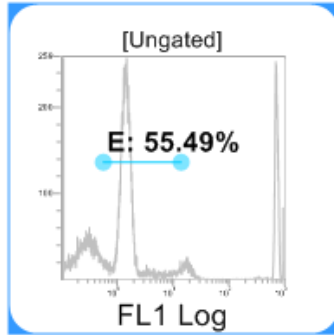
Alternatively click the button, then left click onto a single parameter plot and drag out a line to determine the region size.



A 'no entry' type cursor  indicates that a linear region cannot be created in the current position.

The same linear region can be applied to multiple selected single parameter plots by pressing **Ctrl** while clicking to add the region:

Linear regions have control points situated at each end of the region. You can drag the control points to resize the region. Dragging the line allows you to move the region.



While a linear region is being moved or resized its coordinates are displayed:

Coordinates (21, 829)

Quadrant Regions

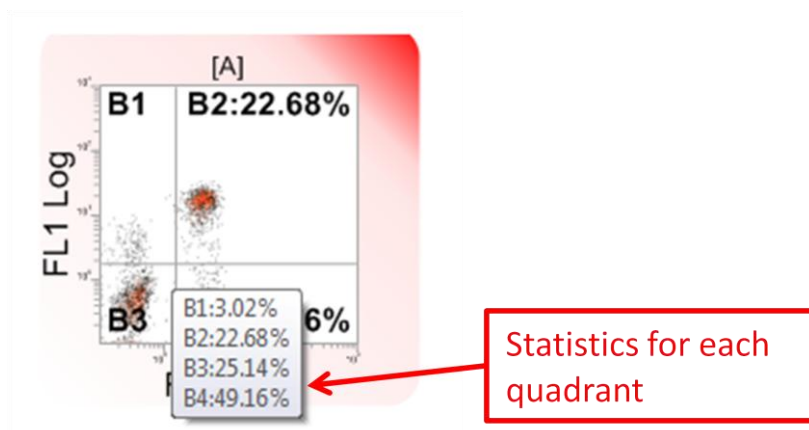
You can use the **Quadrant Region** button  on the **Analyze** tab to insert a quadrant on a dual parameter plot.

Quadrant regions are formed from two divider lines (one vertical, one horizontal). Click the **Quadrant Region** button, and then click onto a dual parameter plot at the point on the plot where you wish the quadrant's intercept to appear.



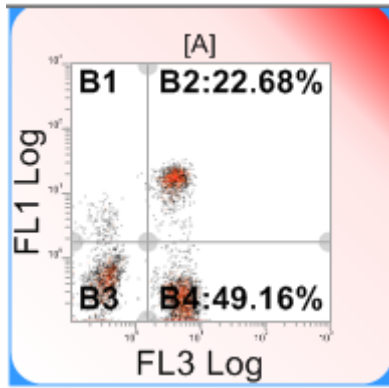
A 'no entry' type cursor indicates that a quadrant region cannot be created in the current position.

Hovering the cursor over the quadrant intercept displays the statistics for each quadrant:



The same quadrant region can be applied to multiple selected dual parameter plots by pressing **Ctrl** while clicking to add the region.

Quadrant regions have five control points; one situated at the divider intercept point and one situated at each end of the two dividers. Each of the control points can be used to modify the quadrant region. The quadrant region cannot be moved outside the plot axes.



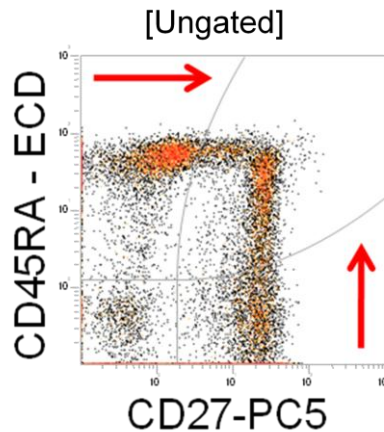
While a control point is moved, the channels of the intercept point are displayed in the status bar:

Coordinates (581, 516) Top (581) Right (721)

Creation of a Bendy Quad

When a broad distribution of events is observed, you may need to create non-linear quadrant dividers.

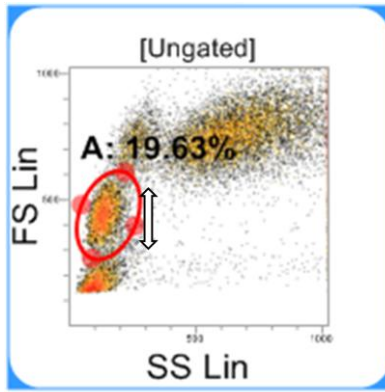
The control point on the right and top can be used to move the horizontal and vertical dividers respectively to a higher channel than the intercept point, creating a 'Bendy Quad' region as illustrated below:



If the 'Bent' divider is moved to a lower value than the intercept point then the divider returns to its straight form.

Editing of Region Orientation/Size and Positioning

Once the regions have been created, their orientation, size and placement can be edited by clicking-on and dragging the handles displayed on the selected region, as indicated by the cursor:



The region can be moved by selecting between the handles, as indicated by the 'Move' cursor, then dragging the region to a new position.

! If you change the region size or position unintentionally, use Undo to restore the previous size or position.