Percentile Methods

When graphing error bars and creating box plots, you can select the method of computing percentiles.

1- Standard method
2- Cleveland method

Both the Cleveland method and the Standard method use linear interpolation to determine the percentile value, but each uses a different method of rounding when determining the smallest data index used for the interpolation. The two methods give the same result when computing the 50th percentile (median).

If the data in increasing order is x1, x2, ..., xN and the percentile is p, then the two methods compute the data percentile value v using the following formulas:

Cleveland: Let k be the nearest integer to N*p/100, and let f = N*p/100 + .5 - k.

Standard: Let k be the largest integer less than or equal to (N+1)*p/100, and let f = (N+1)*p/100 - k.

To compute the percentile value, each of the above methods uses the formula: v=f*xk+1+(1-f)*xk.

By default, SigmaPlot uses the Standard method to calculate percentile values for box and quartile plots. You can change this setting to the Cleveland method on the General tab of the Options dialog box:
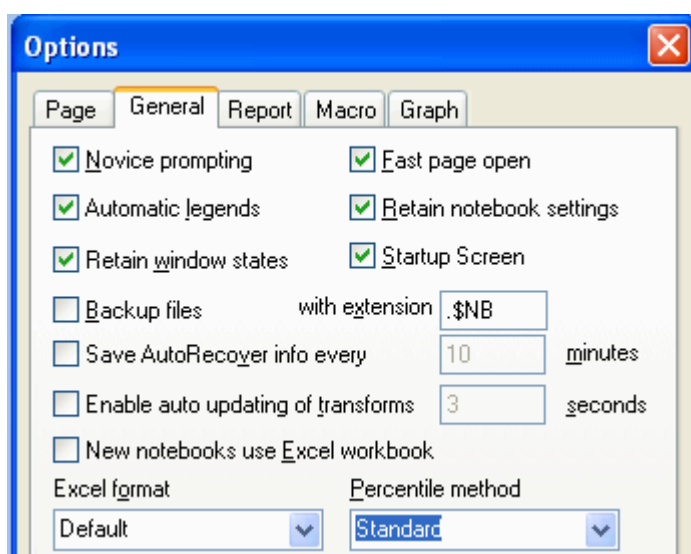
Click on the Application button in the upper left corner. Click on the Options button, and select the General tab. From the Percentile method listbox, select Standard of Cleveland.

"Rank and Percentile" Macro

You can also select the percentile method to use in the "Rank and Percentile" macro (from the ToolBox > Macros dialog).
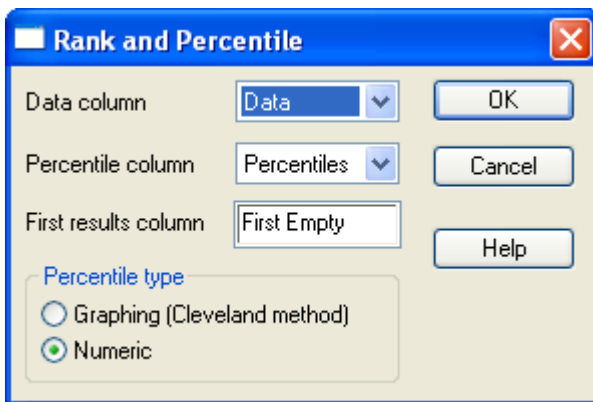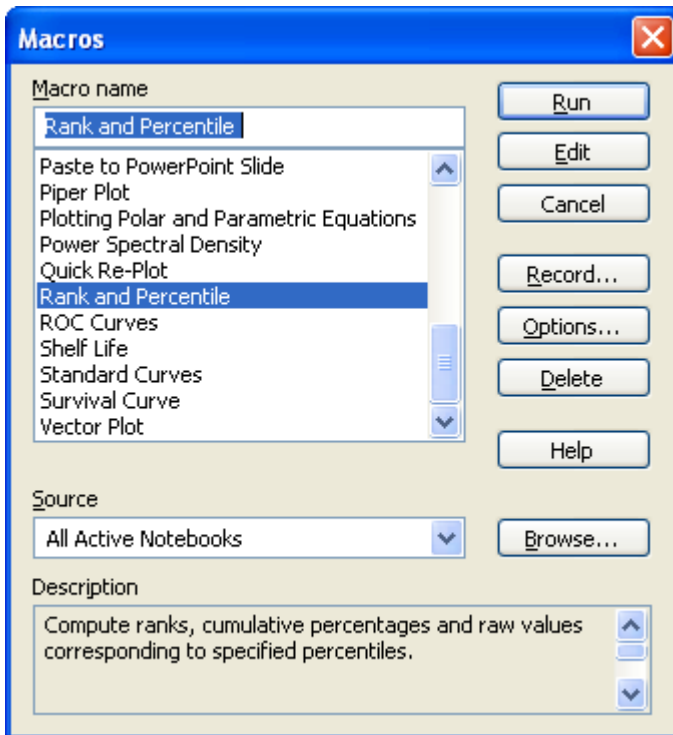
For details about this macro, please see the "Rank and Percentile" macro TechTip:
http://www.systat.de/TT201305/R&P_EN.pdf