

each box or violin to be displayed in the trace. If your data is in a 2D wave, turn on the One Multicolumn Wave checkbox below the list on the left.

If you are using 1D waves, after you have transferred the list of waves to the righthand list, you can reorder the waves by dragging up or down. The order of the waves in the list sets the order of the plots in the trace. If you use a multicolumn wave, the order is set by the columns in the wave.

You may also need to select an X wave. If you select `_calculated_`, the positions of the plots along the X axis are computed by Igor. For a list of 1D waves, the plots are positioned at 0, 1, 2, .... If your datasets are columns in a multicolumn wave, choosing `_calculated_` results in plots positioned according to the Y scaling of the wave, that is, the scaled values of the column dimension indices.

The X Wave menu contains both numeric and text waves. Choosing a numeric wave allows you to position each plot at an arbitrary point on the X axis. Choosing a text wave results in a category X axis (see **Category Plots** on page II-355). The waves shown in the X Wave menu are limited to those waves that have the one point for each selected dataset.

The New Box Plot or New Violin Plot dialog can also make a new text wave for you. Selecting “\_new text wave\_” from the X Wave menu causes the dialog to generate commands which make a new text wave of the appropriate length, fill it with placeholder text, and display it in a table for editing. The result is a category X axis using the new text wave.

You can give your new trace a custom name by checking the Trace Name checkbox and entering the name in the associated edit box. A custom name is especially useful when you use a list of 1D waves because the default trace name, based on the name of the first data wave, is confusing.

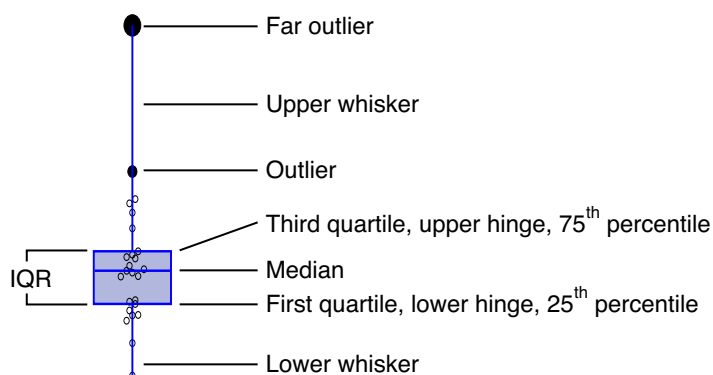
The X Axis, Y Axis and Swap XY Axes controls work the same way as they do in the New Graph dialog (see **Creating Graphs** on page II-277).

A graph can hold more than one box plot or violin plot trace and you can mix the two. To add another box plot or violin plot, choose Graph→Append to Graph→Box Plot or Graph→Append to Graph→Violin Plot.

## Box Plots

The box plot, or box and whisker plot, was invented by John W. Tukey to present an easy-to-understand display of the distribution of the data points (see **Box Plot Reference** on page II-337).

A box plot has several parts:



The bottom and top of the box are at the first and third quartiles of the dataset, with a line drawn across the box to represent the median value. Thus, the box gives an indication of the width of the distribution and the median line an indication of the central location of the distribution. The whiskers represent more information about the width of the data distribution such as the length of tails or the symmetry of the distribu-