Box Plots

Use to display the distribution of continuous variables. They are also useful for comparing distributions.

Quantile

Box Plots – One Variable

- 1. From an open JMP[®] data table, select **Analyze > Distribution**.
- 2. Click on one or more continuous variables from **Select Columns**, and Click **Y**, **Columns** (continuous variables have blue triangles).
- 3. Click **OK**. An outlier box plot is displayed by default next to the histogram (or above if horizontal layout). To display a quantile box plot, select the option from the **red triangle** for the variable.



		Box Plot	Box Plot	
The lines on the Quantile Box Plot correspond to the quantiles in the distribution output.	Quantiles 100.0% maximum 66530.1 99.5% 66530.1 97.5% 66530.1 90.0% 36859.4 75.0% quartile 20481.3 50.0% median 9975.31 25.0% quartile 5421.51 10.0% -8428.6 2.5% 2.5% -37800 0.5% 0.0% minimum -37800			 The Outlier Box Plot shows the box, plus: IQR = the 3rd quartile minus the 1st quartile. Whiskers drawn to the furthest point within 1.5 x IQR from the box. Potential outliers (disconnected points). A red bracket defining the shortest half of the data (the densest region).

Outlier

Box Plots – Two Variables

- 1. Select Analyze > Fit Y by X.
- 2. Click on a continuous variable from Select Columns, and Click Y, Response.
- 3. Click on a categorical variable and click X, Factor (categorical variables have red or green bars).
- 4. Click **OK**. The Oneway Analysis output window will display.
- Click on the red triangle, and select Display Options > Box Plots to display quantile box plots, or select Quantiles to display both box plots and quantiles (shown right).

Example: Companies.jmp (Help > Sample Data)	La Fit Y by X - Contextual - JMP Distribution of Y for each X. Modeling types determine analysis. Select Columns Cast Selected Columns into Roles Large Co Asales (SM) # Employ profits (SM) # Employ Assets		Action OK Cancel Remove Recall	Profits (\$M)	Companies - Fit Y by X of Profits (SM) by Size Co - JMP							
	Image: Control of the second secon	Block Weight Freq By	optional optional numeric optional numeric optional	Help	⊿(C L b n s	0- -1000 ■ Quantile Level M big medium small	es Minimum -639.3 -424.3 -680.4	10% -639.3 -424.3 -287.91	ium ' Size Co 25% 546.55 176 23.425	• smal Median 829 412.7 70.15	75% 1092.1 939.5 144.325	90% 3758 1495.4 369.51

Notes: Box plots for one or more variables can also be generated from **Graph > Graph Builder**. For more information on box plots, see the book **Basic Analysis** (under **Help > Books**).