Box Plots

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

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.

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**Quantile Box Plot**

- The lines on the Quantile Box Plot correspond to the quantiles in the distribution output.

<table>
<thead>
<tr>
<th>Quantiles</th>
<th>100.0% maximum</th>
<th>99.5%</th>
<th>99.0%</th>
<th>97.5%</th>
<th>95.0%</th>
<th>90.0%</th>
<th>75.0% quartile</th>
<th>50.0% median</th>
<th>25.0% quartile</th>
<th>10.0%</th>
<th>5.0%</th>
<th>2.5%</th>
<th>0.5%</th>
<th>0.0% minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66530.1</td>
<td>66530.1</td>
<td>66530.1</td>
<td>66530.1</td>
<td>5421.5</td>
<td>36889.4</td>
<td>20481.3</td>
<td>9975.31</td>
<td>5241.51</td>
<td>-8426.6</td>
<td>-37600.0</td>
<td>-37600.0</td>
<td>-37800.0</td>
<td>-37800.0</td>
</tr>
</tbody>
</table>

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**Outlier Box Plot**

- 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).
  - A confidence diamond showing the mean (middle of the diamond) and the upper and lower bound of a 95% confidence interval for the population mean.

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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.
5. 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 Library)

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).