

What's New in Statgraphics Centurion Version 16.2?

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**STATPOINT
TECHNOLOGIES, INC.**

Version 16.2

A periodic maintenance release incorporating:

- Several new capabilities
- Improvements to specific procedures to fix known issues and limitations.

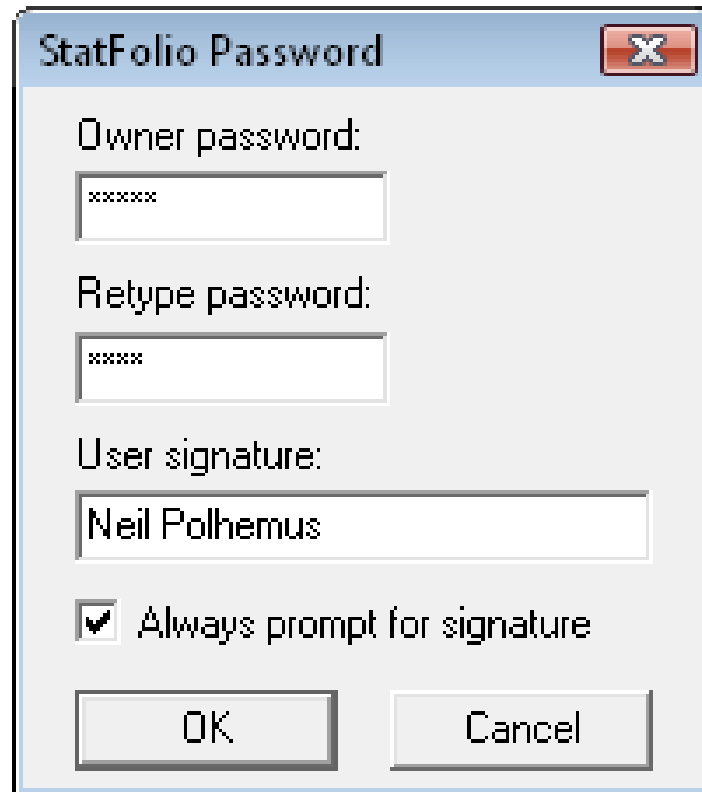
Free update for all Version 16 licensees.

New Capabilities

- StatFolio passwords
- User signatures and StatFolio audit trail
- New summary statistics
- New operators for character data
- Confidence limits and other statistics on normal probability plots
- New distributions for *Statistical Tolerance Limits*
- Zooming on graphs using mouse wheel

StatFolio Passwords

StatFolio passwords are set by selecting *Edit – StatFolio Password* from the main menu:



The image shows a dialog box titled "StatFolio Password" with a close button (X) in the top right corner. It contains three input fields: "Owner password:" with a masked password "xxxxxxx", "Retype password:" with a masked password "xxxxxx", and "User signature:" with the text "Neil Polhemus". Below the signature field is a checked checkbox labeled "Always prompt for signature". At the bottom are "OK" and "Cancel" buttons.

StatFolio Password

Owner password:
xxxxxxx

Retype password:
xxxxxx

User signature:
Neil Polhemus

Always prompt for signature

OK Cancel

Opening StatFolio Containing Password

When a StatFolio containing a password is opened, you must enter the password to load it:



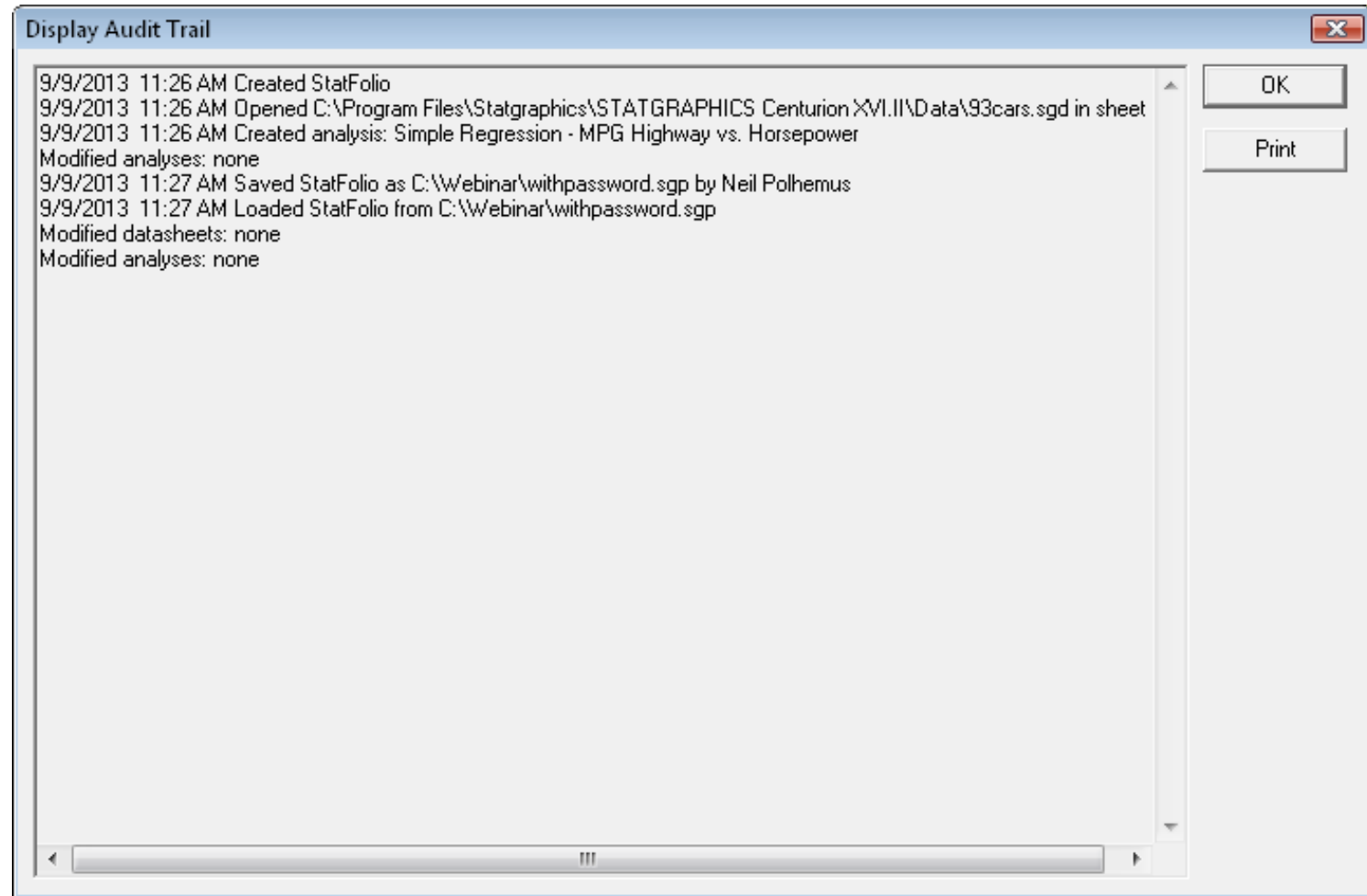
A screenshot of a dialog box titled "StatFolio Password". The dialog box has a light blue header bar with the title and a red close button (X) on the right. The main area is light gray and contains two input fields. The first field is labeled "Enter password:" and contains five asterisks (*****). The second field is labeled "User signature:" and contains the text "Someone else". At the bottom of the dialog box, there are two buttons: "OK" and "Cancel".

Cautions

- StatFolios do not have passwords unless you select *Edit – StatFolio Password* before you save them.
- If you forget the password for a saved StatFolio, you will have to contact us for details on how to load it.
- StatFolios saved using Version 16.2 cannot be opened by previous versions.

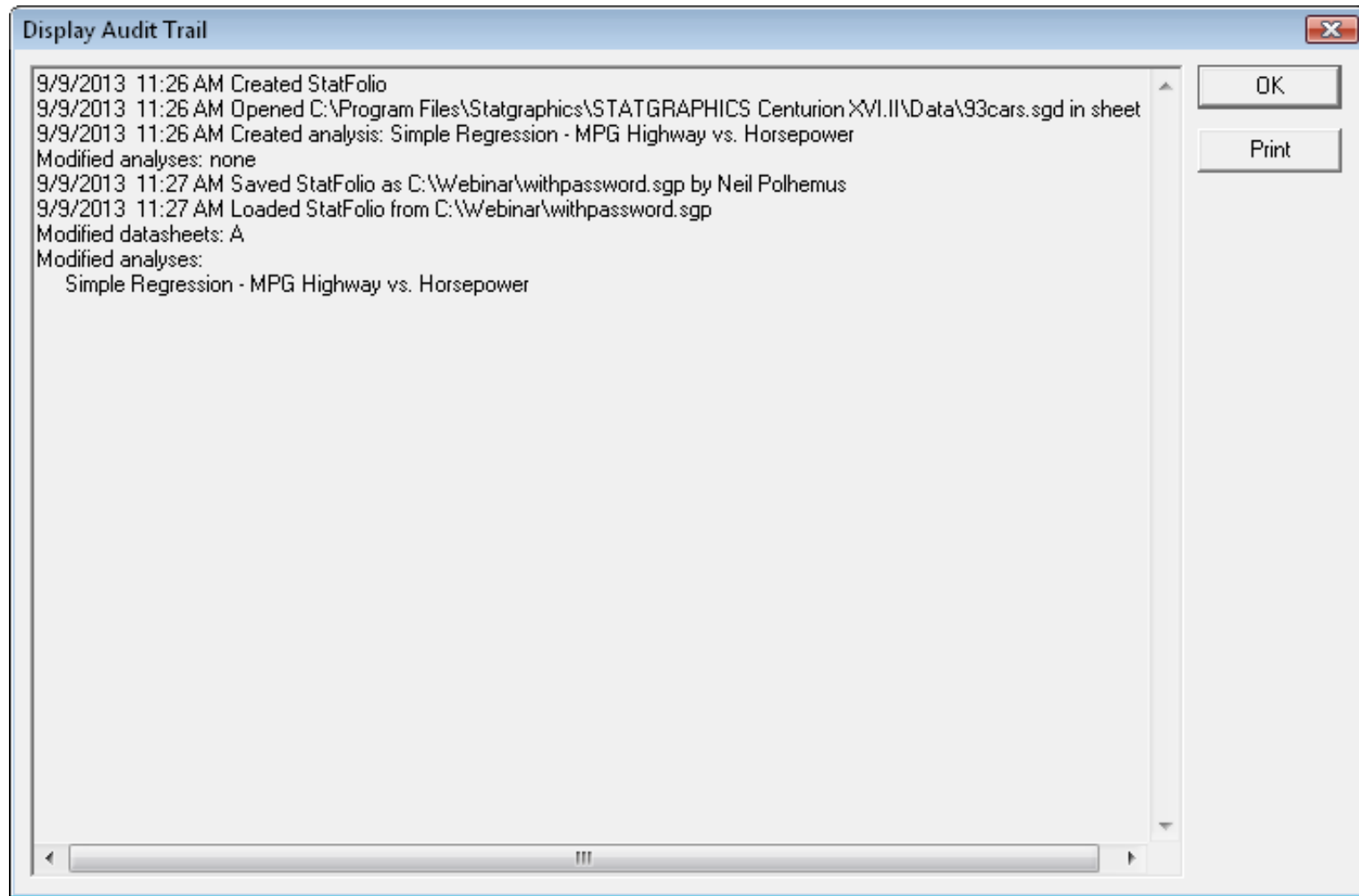
Audit Trail and User Signatures

Selecting *File – Display Audit Trail* from the main menu will give you information about the current StatFolio:



Modified StatFolios

The *Audit Trail* will indicate whether or not you have modified the StatFolio and/or the data:



New Summary Statistics

Harmonic mean (often used to average rates):

$$\bar{x}_h = \left(\frac{1}{n} \sum_{i=1}^n x_i^{-1} \right)^{-1}$$

New Summary Statistics

Geometric standard deviation (variation around the geometric mean, useful for lognormal distribution):

$$s_g = \exp \left(\sqrt{\frac{\sum_{i=1}^n \left(\ln \frac{x_i}{\bar{x}_g} \right)^2}{n}} \right)$$

New Summary Statistics

Mean absolute deviation (not to be confused with MAD, which is the median absolute deviation):

$$\frac{\sum_{i=1}^n |x_i - \bar{x}|}{n}$$

New Summary Statistics

Gini coefficient (used to measure inequality of income or wealth):

$$G = \left(\frac{n}{n-1} \right) \frac{\sum_{i=1}^n \sum_{j=1}^n |x_i - x_j|}{2n^2 \bar{x}}$$

0 = perfect equality

1 = maximum inequality

New Operators for Character Data

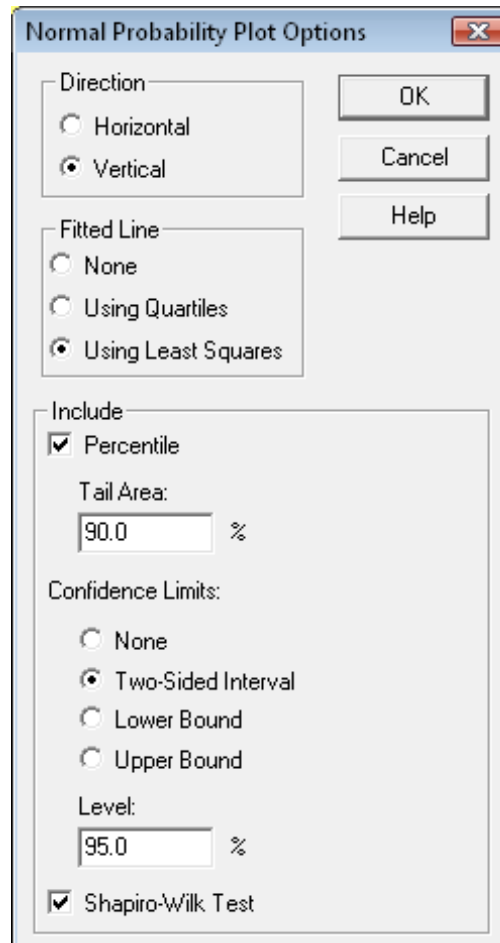
- LOWER(make) – converts strings to lowercase.
- UPPER(make) – converts strings to uppercase.
- PROPER(make) – capitalizes first character of each word and converts other characters to lowercase.
- TRIM(make) – removes any leading or trailing blanks.

New Operators for Character Data

- $\text{LEN}(\text{make})$ – counts the number of characters in each cell.
- $\text{LEFT}(\text{make}, 10)$ – takes leftmost 10 characters of each cell.
- $\text{RIGHT}(\text{make}, 10)$ – takes rightmost 10 characters of each cell.
- $\text{MID}(\text{make}, 3, 10)$ – takes 10 characters from each cell starting at position 3.

Normal Probability Plots

May elect to add crosshairs for a selected percentile, confidence limits for all percentiles (assuming normality), and the Shapiro-Wilk test:



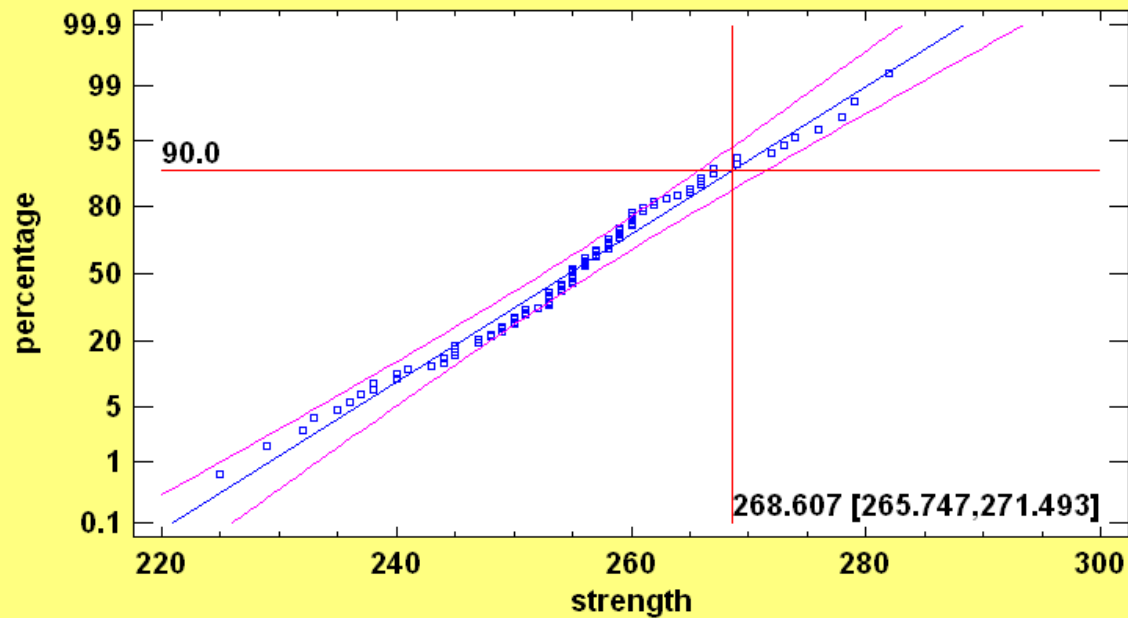
The image shows a dialog box titled "Normal Probability Plot Options" with a close button (X) in the top right corner. The dialog is organized into several sections:

- Direction:** Two radio buttons are present: "Horizontal" (unselected) and "Vertical" (selected).
- Fitted Line:** Three radio buttons are present: "None" (unselected), "Using Quartiles" (unselected), and "Using Least Squares" (selected).
- Include:** A checked checkbox labeled "Percentile". Below it is a "Tail Area:" label followed by a text input field containing "90.0" and a percent sign symbol (%).
- Confidence Limits:** Four radio buttons are present: "None" (unselected), "Two-Sided Interval" (selected), "Lower Bound" (unselected), and "Upper Bound" (unselected).
- Level:** A "Level:" label followed by a text input field containing "95.0" and a percent sign symbol (%).
- Shapiro-Wilk Test:** A checked checkbox labeled "Shapiro-Wilk Test".

On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Help".

Normal Probability Plots

Normal Probability Plot
with 95% limits



n:100
Mean:254.64
Sigma:10.6823
W:0.97781
P:0.4162

Statistical Tolerance Limits

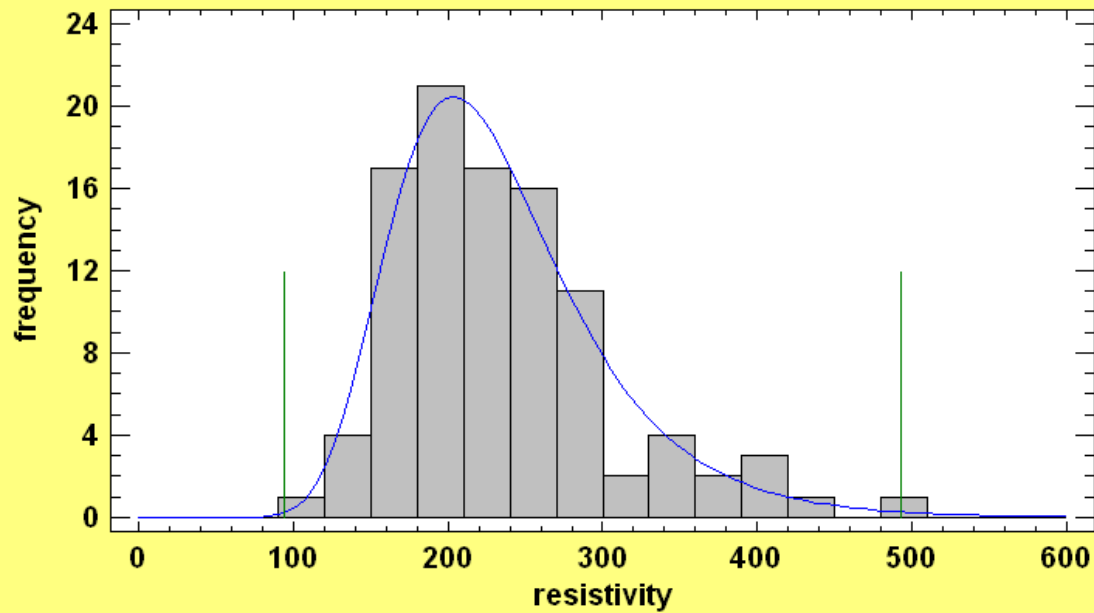
Used to bound a specified percentage of a population with a given level of confidence. The *Analysis Options* dialog box has been expanded to include 8 new distributions:

The image shows a screenshot of the 'Statistical Tolerance Limits Options' dialog box. The dialog is titled 'Statistical Tolerance Limits Options' and has a close button (X) in the top right corner. It is divided into several sections:

- Distribution:** A list of radio buttons for selecting a distribution:
 - Normal
 - Lognormal
 - Weibull
 - Normal after transformation
 - Nonparametric (specified confidence)
 - Nonparametric (specified proportion)
 - Cauchy
 - Exponential
 - Exponential (2-parameter)
 - Gamma
 - Laplace
 - Largest extreme value
 - Pareto
 - Smallest extreme value
- Power:** A text box containing the value '1.0'.
- Interval Depth:** A text box containing the value '1'.
- Type of Limits:** A group box containing three radio buttons:
 - Two-sided
 - Lower limit only
 - Upper limit only
- Confidence Level:** A text box containing '95.0' followed by a '%' symbol.
- Population Proportion:** A text box containing '99.0' followed by a '%' symbol.
- Threshold:** A text box containing '0.0'.
- Pareto Threshold:** A text box containing '1.0'.
- Buttons:** Three buttons are located on the right side: 'OK', 'Cancel', and 'Help'.

Statistical Tolerance Limits

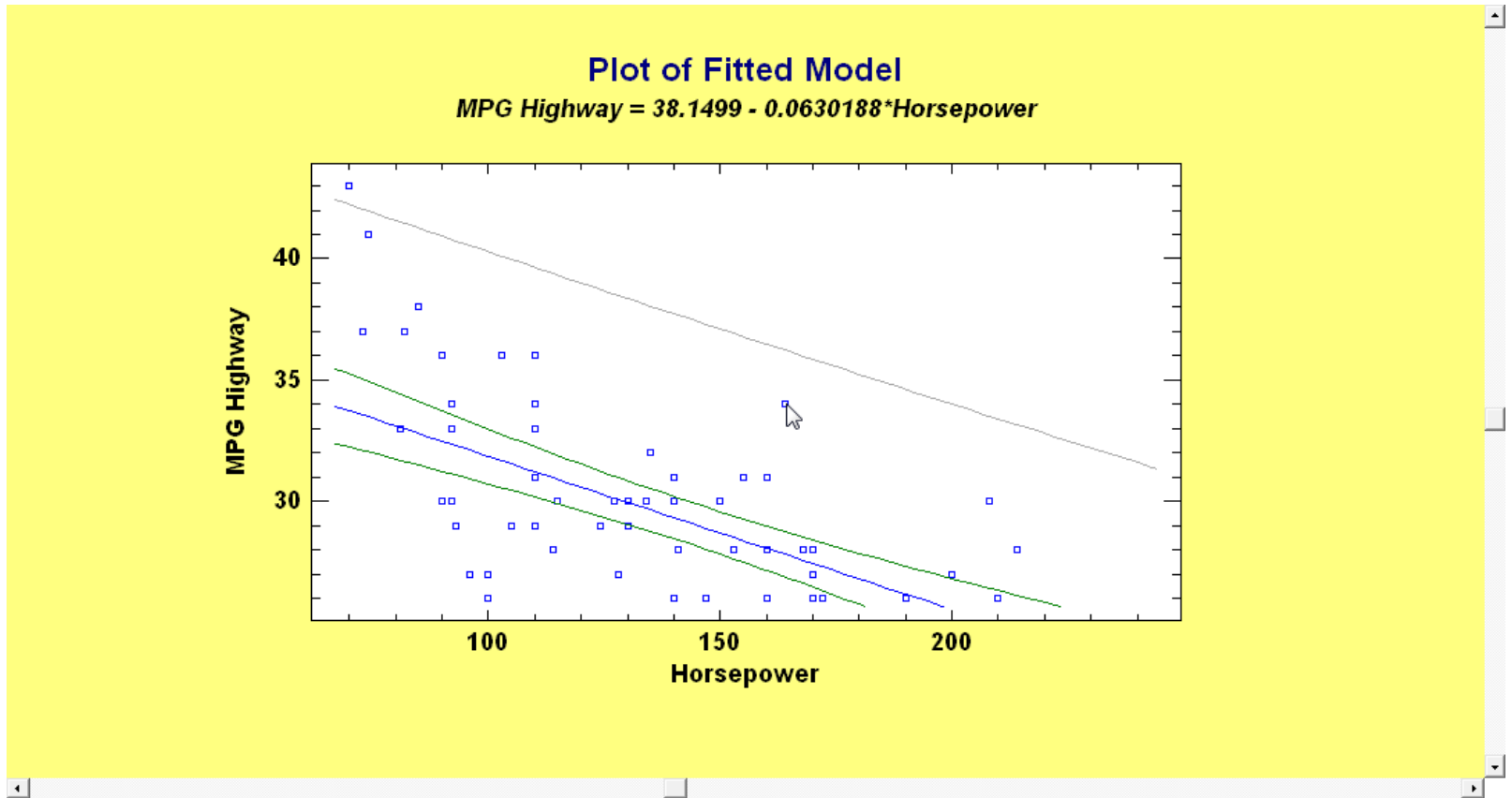
Fitted Largest Extreme Value Distribution
mode=203.355, scale=53.9342



95-99 Limits
UTL: 492.62
LTL: 94.36

Mouse Wheel on Graphs

Expands graph around the current mouse position:



Specific Improvements

- May now import strings with more than 70 characters.
- Cluster Analysis: may now be run first time to cluster variables.
- Tabulation: now handles data with more than 40 characters.
- PCA: all component weights are now saved.
- PCA: standard and principal coordinates may now be saved to datasheet.
- XML script tags for legend position and size are honored.
- Taguchi designs from previous versions may be analyzed.
- Interactive applets now display in browser after StatPublish.
- GLM: *Exclude* button works on Plot of Fitted Model.
- MCA: may now specify supplementary points on first dialog.