



ALPHABETICAL LIST OF FEATURES

Updated for Version 6.0



Alphabetic List of Statistical and Other Features

This list is a guide to JMP® features. Where appropriate, the feature is followed by the name of the platform, in italics, where the feature is found. Newest features are **bold**.

a

ABCD design—screening design for mixtures, DOE, *Mixture Design*

Accelerated failure—parametric survival models, *Fit Model > Parametric Survival*

actuarial life table templates included (see templates)

added-variable plot (see leverage plot)

adjusted means (see least squares means)

A-efficiency (D-optimal designs), DOE, *Custom Design*

AIAG labels—variability chart option, *Gage Chart Variability*

AIC, Akaike's 'A' Information Criterion, *Fit Model Stepwise*

Alias matrix—shows bias from two-factor interactions not in the model, *Custom Design DOE*

aliasing structure table—shows confounding patterns

all possible regressions—*Fit Model Stepwise*

alpha level specification (optional in many platforms)

analysis of covariance—same slopes, *Fit Model SLS*

analysis of covariance—separate slopes, *Fit Model SLS*

analysis of loglikelihood, likelihood ratio—Chi-square test of how well categorical model fits, *Fit Y by X categorical, Fit Model Nominal or Ordinal Logistic*

analysis of variance (general)—profile, contrasts, custom tests, crossed, nested, polynomial, surface and random effects, LSMeans, student's t and Tukey tests for multiway ANOVA, mixed models (with no assignable covariance structure) using REML estimation, *Fit Model*

analysis of variance (one-way)—F test (or t-test if there are only two levels), *Fit Y by X oneway*

analysis of variance (non-parametric)—Wilcoxon, Median and Van der Waerden tests, *Fit Y by X oneway*

animation of statistical graphics—JSL application (see scripting language, some scripts built in)

ANOVA (see analysis of variance), *Fit Y by X, Fit Model*

ANCOVA (see analysis of covariance), *Fit Model*

AR coefficients plot and values—diagnostic for time series modeling, *Modeling > Time Series*

ARIMA and seasonal ARIMA forecasting (see time series modeling and forecasting), *Modeling > Time Series*

attribute charts—p, np, c, and u control charts, *Control Chart*

attribute gage charts

augmented designs—replicate, add center or axial points, foldover designs, DOE, *Augment Design*

autocorrelation—Durbin Watson test for autocorrelation, *Fit Model SLS*

autocorrelation plots and values—diagnostic for time series modeling, *Modeling > Time Series*

auto fill data tables with constant, pattern or random data

automatic derivatives (formula displayed)—nonlinear regression, *Modeling > Nonlinear*

automation of JMP—most of JMP can be driven by OLE automation or the JMP Scripting Language (JSL)

average linkage—cluster method, *Multivariate Methods > Cluster*

axial points—response surface designs or augmented, DOE, *Response Surface Design*

axis scaling—option to scale X and Y in most plots

axis scaling—option for central composite design, DOE, *Response Surface Design*

b

backpropagation—*Modeling > Neural Net*

bar chart—*Chart* option

Bartlett's test for homogeneity of variance, *Fit Y by X oneway*

Bayes plot (Box-Meyer)—screen for active effects in regression model, *Fit Model*

Bayesian D-optimal design—DOE, *Custom Design*

beta fit (see fitting distributions)

between & within charts (see presummarize charts)

Bias report—*Variability/Gage Chart*

biplot (Gabriel)—3-D plot of principal components and variables, **k-means clusters**, *Spinning Plot, Multivariate Methods > Cluster*

binominal fitting—Distribution

bivariate fitting—fit mean, linear, polynomial, transformed values, spline, density ellipses, orthogonal, other (regression and curve fitting), *Fit Y by X*

Box-Behnken—(DOE), *Response Surface Design*

Box-Cox power transformation—screening designs and factor profiling, *Fit Model*

Box-Jenkins time series analysis, *Modeling > Time Series*

Box-Meyer Bayesian analysis (Bayes plot)—*Fit Model*

Box-Wilson response surface design (DOE), *Response Surface Design*

box plot—individual distribution (see quantile box plot and outlier (box & whiskers) box plot), *Distribution*

box plot option—displays sample distributions on means, *Fit Y by X oneway, Control Charts*

Brown-Forsythe test for homogeneity of variance, *Fit Y by X oneway*

Brown-Mood k-sample median test nonparametric test to compare group means, *Fit Y by X oneway*

By-group processing—process by groups, graphs and analyses appear in one window, no presorting data

C

calculator—(formula editor)

calibration—see inverse prediction and orthogonal regression

canonical correlation—save canonical Ys as a new data table column, *Fit Model Manova*

canonical centroid plot—shows points and multivariate means in the two dimensions that best separate the groups, *Fit Model Manova*

capability analysis—long term and short term indices, out of spec as percent and as parts per million, (PPM), Shewhart chart, histogram, quantile plot, one or more capability estimates *s*: long term, specified, short term grouped by fixed subgroup size, short term grouped by column, Sigma Quality (also call Process Sigma) included as a hidden column in report, *Distribution*

categorical analysis, two-way—contingency table for two categorical variables, , two-way frequency table with count, total%, row%, col%, expected, deviation, and cell Chisq, *Fit Y by X categorical*

categorical model fit—nominal or ordinal response, analysis of loglikelihood Chi-square, *Fit Model*

cause-and-effect diagrams (see Diagram)

cell plot—displays data table cells as a matrix of rectangular colors, *Cell Plot*

censored data—right and left censoring, arbitrary censoring, survival analysis, nonlinear fitting, *Survival and Reliability, Modeling > Nonlinear*

central composite designs, DOE, *Response Surface Design*

centroid method—*Multivariate Methods > Cluster*

centroid plot—*Fit Model MANOVA*

chart—stack or overlay, bars, lines, needles; horizontal, vertical, pie chart, means with standard error bars

Chi-square tests—fitted distributions, *Distribution*

Chi-square tests—for general categorical response models, Wald and Likelihood ratio, *Fit Model*

Chi-square nonparametric tests—Wilcoxon, Median, Van der Waerden, *Fit Model*

Chi-square statistic—Likelihood Ratio, Pearson's for two-way tables, *Fit Y by X categorical*

cluster analysis—hierarchical, k-means, normal mixtures clustering, geometric scale, color map, dendrogram, Self Organizing Maps (SOMS), save cluster hierarchy, biplots available for k-means cluster, *Multivariate Methods > Cluster*

Cochran-Mantel-Haenszel for testing association of X and Y variables across groups, *Fit Y by X categorical*

coefficient of variation (CV)—hidden column in Moments table and in REML and EMS results, available in data table using the Summary command, *Distribution*

collinearity—leverage plots show when model factors are linear combinations of others, *Fit Model SLS*

comparison circles—graphically shows one-way multiple comparisons, *Fit Y by X Anova*

competing risk analysis, competing causes analysis or recurrence analysis—*Survival and Reliability*

complete linkage clustering method—*Multivariate Methods > Cluster*

concatenate—append JMP data tables end to end

confidence curves—on scatterplot (individual and mean) for regression fits, optionally specify alpha level, *Fit Y by X bivariate*

confidence limits, individual and mean—for mean and standard deviation, save as new data table column, for inverse prediction, for nonlinear fitting

confounding—DOE aliasing report, *Screening Design*

confounding—shows if terms in a model are linearly related in DOE, singularity details table in *Fit Model*

contingency tables—see categorical analysis, two-way

contour plots—equal probability contours from 2-dimensional density estimation, *Fit Y by X bivariate*

contour plots—contours with labels, legends, color fills, predicted response within a ternary plot, response surface model effects, *Contour Plot*

contour profiler (overlaid contour plots)—*Fit Model SLS*, also *Graph > Contour Profiler*

contrasts—test a linear combination of parameters in a general linear model, *Fit Model SLS*

control charts—Shewhart charts (Mean, R, S, and Individual Measurement charts), UWMA and EWMA moving average charts, Cusum (Cumulative Sum) charts with V mask, charts for attribute data, p, np, c and u, Presum, Run, Levey-Jennings, *Control Charts*

Cook's D—influence statistics, save as a new data table column, *Fit Model SLS*

coordinate exchange algorithm—create custom D-optimal designs, DOE, *Custom Design*

Correlation—bivariate scatterplot with density ellipses and report, *Fit Y by X bivariate*

correlation—many variables, pairwise report with significance probabilities, histogram of correlations (Pearson's R, Spearman's Rho, Kendall's Tau, Hoeffding's D), inverse correlation, partial correlation, scatterplot matrix with density ellipses, *Multivariate Methods > Multivariate*

correspondence analysis—graph for categorical model shows which rows and columns are similar in a two-way contingency, *Fit Y by X categorical*

Cotter designs—DOE, *Screening Design*

covariance—covariance matrix, *Multivariate Methods > Multivariate*

Cox proportional hazards model, *Fit Model, Survival/Reliability > Proportional Hazard*

Cp—selection of stepwise model (Mallow's Cp) *Fit Model Stepwise*

Cramer-von Mises W statistic—goodness of fit statistic for one-way distribution fitting, *Distribution*

Cronbach's alpha and standardized alpha—based on average correlation of items (item reliability analysis), *Multivariate Methods > Multivariate*

crosstabs—see categorical analysis, two-way

cube plot—DOE, *Screening Design*

cumulative distribution function (CDF) plot, for distribution fits, *Distribution*

cumulative logistic probability plot—logistic regression, *Fit Y by X logistic*

cumulative sum chart—Cusum control chart with V mask, *Control Charts*

curve fitting—bivariate fitting of line, polynomials, spline, and density ellipses, curves from a nonlinear fit, smooth curve fitting of histograms^o distribution fitting of histograms, *Fit Y by X* bivariate

Custom Design—create custom designs for both standard and nonstandard design situations, DOE, *Custom Design*

custom loss function—maximum likelihood estimation in nonlinear regression, *Modeling > Nonlinear*

custom tests—construct specialized tests for general linear model hypotheses, *Fit Model SLS*

d

data entry—key in data, paste from clipboard, import data, access other databases

D-efficiency, D-optimal designs—DOE, *Custom Design*

decision tree—see Partition

DPU—defect per unit and analysis calculates and compares defect rates across and within groups, *Graphs > pareto plot*

Deming regression—see orthogonal regression

dendrograms—cluster diagram, *Multivariate Methods > Cluster*

density ellipse with two variables—visualization of correlation, *Fit Y by X* bivariate

density ellipses, scatterplot matrix for many variables— visualization of correlation, *Multivariate Methods > Multivariate*

density estimation—distribution fit on histogram, equal probability contours on bivariate scatterplot, *Distribution* and *Fit Y by X* bivariate

derivatives—nonlinear regression, *Modeling > Nonlinear*

DOE (Design of Experiments)—commands build experimental designs for almost every situation

desirability profiling—prediction profile, helps visualize and optimize the response at different factor settings, optimize screening, response surface, and mixture designs, DOE, *Custom Design* and *Fit Model SLS*

Diagram—produces ishikawa charts, fishbone charts, cause-and effect diagram, *Diagram*

discriminant analysis—compute discriminant scores, classify points, save discriminant scores, optional stepwise selection, canonical plots, *Multivariate Methods > Discriminant*

distribution fitting—fitting, graphing, capability analysis, quantile plots for distributions: Beta, Normal, Lognormal, 2 & 3 parameter Weibull, Extreme Value, Gamma and Exponential, Binomial, Poisson, p value and power animations, tolerance Intervals computed, *Distribution*

Duncan's multiple comparison test—not available, see Tukey-Cramer

Dunnett's test—tests multiple comparison to a control group, *Fit Y by X* one-way

Durbin Watson test—test that residuals are autocorrelated, *Fit Model SLS*

e

E matrix—multivariate models *Fit Model Manova*

ED50 & LD50—nth percentile with confidence limit using logistic regression and inverse prediction, *Fit Model SLS* and *Fit Y by X* bivariate

editing table—standard Edit Menu commands

effect screening—scaled estimates, normal plot, Bayes plot, Pareto plot, *Fit Model SLS*

eigenvalues, eigenvectors—*Fit Model SLS*, response surface analysis

ellipses—bivariate density, *Fit Y by X* and *Multivariate Methods > Multivariate*

errors in measurement (see orthogonal regression)

EWMA control chart—guards against small shifts in sample means, quality control, *Control Chart*

Expected Mean Squares (EMS)—*Fit Model SLS*

experimental design—see DOE

exponential exploratory plot—*Survival and Reliability*

exponential fit — fitting distributions, *Distribution*

exponential model fitting—nonlinear regression with loss function, *Modeling > Nonlinear*

exponential smoothing time series forecasting—*Modeling > Time Series*

exponential survival curve analysis (see survival analysis)

export JMP tables (Linux)— Save As command for tab delimited text file, SAS transport files, Open Office Spreadsheet

export JMP tables (Macintosh)— Save As command for tab delimited text file, SAS transport files, Excel file

export JMP tables (Windows)—Save As command for tab delimited text file, SAS transport, **SAS datasets**, JMP file, Excel, ODBC compliant package and Access

extreme value distribution fitting—nonlinear regression with loss function, *Modeling > Nonlinear*

extreme vertices design—DOE, range and linear constraints, general constraints with JSL, *Mixture Design*

f

F test for all analyses where appropriate

factor analysis—little jiffy factor analysis (Kaiser), *Spinning plot* and *Multivariate Methods > Multivariate* platforms

factorial designs—fractional factorial, full factorial, blocking factor, *Full Factorial Design*

failure-plot analysis—univariate survival analysis, *Survival and Reliability > Survival/Reliability*

Fieller's theorem—confidence limits for inverse prediction, *Fit Model*

fishbone chart—*Diagram*

Fisher's Exact test—for two-way contingency tables, *Fit Y by X* categorical

Fisher's Kappa—test for white noise, see Spectral Density, *Modeling > Time Series*

fitting distributions—distribution curve fits and parameter estimates for continuous one-way data, includes Normal, Lognormal, **Poisson**, 2 & 3 parameter Weibull, Extreme Value, Gamma, Beta, Exponential and a nonparametric density smoother, *Distribution*

fitting personalities—standard least squares, stepwise, Manova, loglinear variance, nominal logistic, ordinal logistic, proportional hazard, parametric survival, *Fit Model*

fitting transformed data—Fit Special fits natural log, square root, square, reciprocal, and exponential transformations of either or both Y and X variables, *Fit Y by X* bivariate

forecasting—*Modeling > Time Series*

fractional factorial designs—DOE, *Custom Design* and *Screening Design*

frequency counts—one-way and two-way cross-tabulation table with Chi-square tests, *Distribution* and *Fit Y by X* categorical

frequency counts—column in data table produced by *Tables > Group/Summary* command

full factorial design—DOE, *Full Factorial Design*

g

Gabriel biplot—3-D plots of principal components and variables, *Spinning Plot*

Gage R&R report—for two factor crossed models, *Graph > Variability/Gage Chart*

Gamma fit (see fitting distributions)

G-efficiency (D-optimal designs)—DOE, *Custom Design*

Generalized Linear Models—regression analysis for Poisson, Binomial, Normal and Exponential distributions with a variety of link functions. Overdispersion adjusted likelihood ratio tests and confidence intervals are also supported.

goodness of fit—Chi-square statistic based on proportions, see lack of fit test

goodness of fit tests for one-way distribution fitting—Shapiro-Wilk and KSL tests for Normal, KSL for Lognormal and Exponential, Cramer-von Mises W for Weibull and Extreme Value, *Distribution*

Greenhouse-Geisser adjustment—multivariate model fit adjustment, *Fit Model Manova*

grouping variable option in many platforms

h

H matrix—multivariate models, *Fit Model Manova*

heat maps (see cell plots)

heteroschedasticity—group variances differ, *Fit Y by X* oneway

hierarchical clustering, *Multivariate Methods > Cluster*

hierarchy chart—*Diagram*

histograms—linked to data table, summary statistics, moments report, count axis, prob axis, error bars, counts and percents on bars, *Distribution*

Histogram borders—option in any *Fit Y by X* bivariate plot

Hoeffding's D—nonparametric correlation, *Multivariate Methods > Multivariate*

homogeneity of variances—O'Brien's, Brown-Forsythe, Levene's and Bartlett's, *Fit Y by X* oneway

Hotelling-Lawley Trace—approximate F test for multivariate analysis of variance, *Fit Model Manova*

Hotelling's T^2 —*Fit Model Manova*

Hsu's MCB test—multiple comparison that tests to a selected 'best' group—*Fit Y by X* one-way

Huynh-Feldt—adjusts degrees of freedom, *Fit Model Manova*

i

import data (Linux)—Open command for JMP data tables, JMP journals, JSL scripts, JMP reports, text files, Open Office Spreadsheets; Download files from website and open any database having UNIX ODBC driver

import data (Macintosh)—Open command for JMP data tables, JMP journals, JSL scripts, FACS files, Excel files, text files, SAS transport files, and SAS data sets

import data (Windows)—Open command for JMP tables, JMP journals, JSL scripts, SAS data sets, SAS transport files, automatic format discovery, Microsoft® Excel and Microsoft® Access files, dBase® files, FoxPro® files, and any other ODBC supported databases.(see also ODBC), Download files from website

individual measurement—*Control Chart*

inertia—correspondence analysis quantity *Fit Y by X* categorical analysis

influence statistics—Cook's D regression diagnostic, *Fit Model SLS*

instrument data source for collecting real-time data

Ishikawa charts—*Diagram*

interaction plots—matrix of interaction profile plots of all two factor interactions, *Fit Model SLS*

interaction plot matrix—matrix of two factor interactions in DOE, *Screening Design*

interaction tests—Test Slices tests many main effects and interactions at one time, *Fit Model SLS*

inverse correlation matrix—*Multivariate Methods > Multivariate*

inverse prediction (calibration)—predict X for a given response, Y, *Fit Model SLS*

I-optimality—DOE, *Custom Design*

Item Analysis—score tests with the Item Response Theory (IRT), *Multivariate Methods > IRT*

iteratively reweighted least squares (IRLS)—nonlinear regression, *Modeling > Nonlinear*

j

jackknifed Mahalanobis distance plot—*Multivariate Methods > Multivariate*

jittered points—outlier box plot, *Distribution*

join (merge)—join tables side by side, join by key fields, Cartesian join (all levels of table1 with all levels of table2), Tables menu

journal—capture JMP analysis into an editable window

JSL—JMP Scripting Language (see rerun analysis and scripting language)

JSL Editor—continuing enhancements

k

Kackar-Harville—standard errors in mixed models

Kaplan-Meier life table analysis—*Survival and Reliability > Survival/Reliability*

Kappa statistic—agreement statistic for two-way tables when there are equal levels in both variables, *Fit Y by X* categorical

Kappa, Fisher's—see Fisher's kappa

Kendall's tau-b—nonparametric correlation, *Multivariate Methods > Multivariate*

kernel smoothing—two-way nonparametric density contours for scatterplots *Fit Y by X* bivariate

Kenward-Roger—tests on fixed effects in mixed models

K-means clustering—iterative process to form the number of user-specified clusters, optional parallel coordinate plot, *Multivariate Methods > Cluster*

Kruskal-Wallis test—nonparametric test of k sample means, *Fit Y by X* oneway

KSL (Kolmogorov-Smirnov-Lilliefors) test—nonparametric goodness of fit to normal distribution for large sample size, $n > 2000$, Shapiro-Wilk test statistic for smaller samples, Lognormal, and Exponential distributions, *Distribution*

Kurtosis—*Distribution*



L18 and L36—DOE, *Screening Design*

labels—identify data points in any plot with values in one or more columns

lack of fit tests—for linear models when appropriate

Latin Hypercube—method of generating a Space Filling Design, DOE, *Space Filling Design*

lattice mixture designs—DOE, *Mixture Design*

layout command—Edit menu command captures results of a JMP analysis, layout results are editable

least squares fitting—standard fitting method for all linear models

least squares means comparisons for multi-way layouts—Tukey's HSD for multiple comparisons and Student's t for pairwise comparisons, *Fit Model* SLS

left-censored survival models (see tobit model)

Lenth's method, pseudo-standard error—method fits line to normal quantile points of parameter estimates in regression analysis, *Fit Model* SLS

letter report (presentation of multiple comparisons results), *Fit Model* SLS

Levene's test for homogeneity of variance, *Fit Y by X* oneway

leverage plots—effect test graph of a partial F test, *Fit Model* SLS

Levey-Jennings chart type, *Control Chart*

life tables (actuarial) templates included in sample data library

life tables (product-limit or Kaplan Meier)—*Survival and Reliability > Survival/Reliability*

Likelihood Ratio Chi-square test, two-way contingency table analysis, logistic models, *Fit Y by X* categorical and *Fit Model* Nominal or Ordinal Logistic

Lilliefors confidence bands—normal quantile plot, *Distribution*

line chart—single or overlay plots, points connected or unconnected, needle plot, linear or log scales, *Chart*

linearity study—graphs linearity and summarizes linearity of bias in variability charts, *Variability/Gage Chart*

logarithmic axes—overlay plot and bivariate plot

logistic regression—analysis of loglikelihood Chi-square statistic, save probability scores, Wald's and Likelihood Ratio Chi-square, *Fit Y by X* logistic and *Fit Model* Nominal or Ordinal Logistic

log-linear model—see logistic regression

loglogistic distribution model fitting—nonlinear regression with appropriate loss function (see also loss function templates)

lognormal fits—see fitting distributions

lognormal survival curve analysis—*Survival and Reliability > Survival/Reliability*

log-rank test—*Survival and Reliability > Survival/Reliability*

loss function templates—for exponential, extreme value, loglogistic, lognormal, normal, tobit, and Weibull distributions, used with arbitrary censoring

LSD (Least Significant Difference)—difference in means that is significant at a given p-value in multiple comparison test tables, *Fit Y by X* oneway

LSMeans—test for ANOVA effects, *Fit Model* SLS

LSN (Least Significant Number)—sample size determinations shown in power calculations results, *Sample Size and Power* (DOE menu)

LSV (Least Significant Value)—parameter determinations, shown in power calculations results, *Sample Size and Power* (DOE menu)



M Matrix—*Fit Model* Manova

Mahalanobis distance outlier plot—distance of point from n-dimensional centroid of points, *Multivariate Methods > Multivariate*

Mallow's Cp—stepwise selection criterion, *Fit Model* SLS

Mann-Whitney U test—same as Wilcoxon 2-sample or Kruskal-Wallis k-sample, *Fit Y by X* oneway

MANOVA and MANCOVA—Multivariate Analysis of Variance, Multivariate Analysis of Covariance, *Fit Model* Manova

Mantel-Haenszel test—tests for association between Y and X classification variables across categories, *Fit Y by X* categorical

marginal means—*Fit Model* SLS

Mauchly criterion—see sphericity test

matched pair analysis—paired t-tests and grouped data with two repeated measures, *Matched Pairs*

matrix algebra—available in scripting language (JSL)

maximize desirability—set desirability functions to identify best process variable settings, see desirability functions and prediction profiler

maximum likelihood—nonlinear regression, loss function is a negative loglikelihood, *Fit Model* Manova

Maximum r-square—lack-of-fit test shows maximum possible r-square, *Fit Model* SLS

MCF plot—mean cumulative function, *Survival/Reliability > Recurrence Analysis*

mean—estimates with confidence interval

mean control chart for variables—quality control, *Control Chart*

mean equal to a given value—z test, t test, signed rank test, *Distribution*

means across groups—in data table using *Group/Summary* command

means diamonds—shows mean and 95% confidence interval for each group, *Fit Y by X* oneway

means with error bars—means optional with one standard error above and below the mean, option for std. dev. lines, *Fit Y by X* oneway

means—single population, *Distribution*

measurement regression—see orthogonal regression

median—quantiles in *Distribution* and as data table column from *Group/Summary* command, shown on *Fit Y by X* oneway box plots

median and % total summary statistics—given in JMP table produced by *Group/Summary* command

median moving range charts (see Control Charts)

median test—2-sample and Brown-Mood k-sample, *Fit Y by X* oneway

minimum potential—spherical space filing design, *DOE*

missing data pattern—table menu command to generate a JMP data table of missing data patterns

mixed-level designs—DOE, *Custom Design*

mixed model— includes randomized complete block and incomplete block designs, split, strip, and split-strip plot designs, repeated measures designs, random effect models, uses REML estimation, *Fit Model* SLS

mixture designs—DOE, Mixture Design, *Custom Design*

modeling type—modeling type (nominal, ordinal, or continuous) of variable defines method of analysis

moments, descriptive statistics—*Distribution* or columns in data table produced by *Group/Summary* command

mosaic plot—stacked bar chart of proportion levels for single variable or side-by-side for cross-tabulations, *Distribution* and *Fit Y by X* categorical analysis

moving average analysis of time series—see time series modeling and forecasting

moving average charts—UWMA and EWMA, *Control Chart*

multi-var chart—shows variation over groups, *Variability/Gage Chart*

multicollinearity—see collinearity

multiple comparisons—one-way ANOVA, Student's t, Tukey-Kramer, Dunnett's test, Hsu's MCB test, *Fit Y by X* oneway

multiple regression—*Fit Model* SLS

multivariate control charts—*Multivariate*

multivariate techniques—MANOVA models, 3-D spinning plot, principal components, biplots, discriminant analysis, canonical correlation, cluster analysis, Item Analysis, Little Jiffy factor analysis, multivariate outlier plots, PLS (partial least squares)

multivariate tests—Wilks' Lambda, Pillai's Trace, Hotelling-Lawley Trace, Rows Maximum root Criterion, *Fit Model Manova*

n

navigation—JMP Starter helps novice users find and launch correct platforms for analyses and graphics

needle mean chart—Xbar (mean) control chart, *Control Chart*

needle plot—line charts with lines replaced by needles from x-axis to points, *Chart*

nested design analysis—*Fit Model* SLS

Neural Net—neural net modeling using a single hidden layer with interactive crossvalidation, *Modeling > Neural Net*

No-intercept models—mixture model analysis, *Fit Model* SLS

nominal logistic regression—*Fit Y by X* or *Fit Model*

nonlinear design—DOE for nonlinear models, *DOE > Nonlinear Designs*

nonlinear least squares fitting—*Analyze > Modeling > Nonlinear*

nonparametric correlations—Kendall's tau, Spearman's rho, Hoeffding's D, *Multivariate Methods > Multivariate*

nonparametric density smoothing—density estimation of bivariate density, *Fit Y by X* bivariate

nonparametric goodness of fit tests—KSL, Shapiro-Wilk and Cramer-von Mises W, tests fitted distribution, *Distribution*

nonparametric one-way ANOVA and mean tests—Kruskal-Wallis (Wilcoxon), Median, Van der Waerden rank tests, *Fit Y by X* oneway

normal curve—distribution fit, *Distribution*

normal mixtures—robust, diagonal or full covariance

normal plot—plots normal quantiles of parameter estimates, *Fit Model* SLS

normal quantile plot (QQ plot)— plots normal standard line and deviations from normality, *Distribution*

normality test—Shapiro-Wilk test, KSL test, *Distribution*

np control chart for attributes—quality control, *Control Chart*

O

O'Brien's test—homogeneity of variance, *Fit Y by X* oneway

ODBC (Open DataBase Connectivity) compliance—to query and retrieve from databases

odds ratios—see logistic regression

ordinal logistic regression—*Fit Y by X* or *Fit Model*

orthogonal array—DOE, *Screening Design, Taguchi Design*

orthogonal designs—DOE, *Screening Design, Response Surface Design*

orthogonal regression—line adjusted for variability in X as well as Y, *Fit Y by X* bivariate

orthogonal t-test—tests parameter estimates after transformation makes them independent and indentially distributed, *Fit Model* SLS

outlier (box & whiskers) box plot—*Distribution*

outlier distance plot or jackknifed Mahalanobis distances—outlier detection, *Multivariate Methods > Multivariate*

output and clipboard formats—text (RTF, HTML) graphics for windows (WMF, EMF, JPEG, PNG, PICT) graphics for Macintosh (PICT, JPEG, PNG (requires Quickload® 4.1 or higher))

overlay plots—line and bar, double Y axes, plot y as a function of x, *Overlay Plot*

p

p chart—control chart for attributes, *Control Chart*

pairwise correlation matrix—*Multivariate Methods > Multivariate*

Parallel Plot—Graph menu platform that draws connected line segments across all responses for each row in the data table, *Parallel Plot*

Parallel Coordinate Plots—option in K-Means Cluster report, *Multivariate Methods > Cluster*

parameter estimates— given for all models, includes t-tests

Pareto Chart— general, one-way comparative, two-way comparative histograms, *Pareto Plot*

Pareto Chart— effects in a screening design model, *Fit Model SLS*

partial autocorrelation plot and values—diagnostic for time series modeling, *Modeling > Time Series*

partial correlation, group—*Fit Model Manova*

partial correlation matrix—pairwise, *Multivariate Methods > Multivariate*

partial least squares—predicting Ys with many Xs, often more Xs than observations, *Multivariate Methods > PLS*

partial plot (see leverage plot)

Partition—(CARTTM, CHAIDTM, C4.5, C5), recursively partitions data to predict a response, creates a tree of partitions, *Modeling > Partition*

Pearson Chi-square test—two-way contingency table analysis, *Fit Y by X categorical*

Pearson correlation coefficient—*Fit Y by X categorical analysis and Multivariate Methods > Multivariate*

percentage profiles—*Distribution and Fit Y by X categorical*

percent of total (% Total)—column in table produced by *Group/Summary* command, option in *Chart*

phase control charts

pie chart—*Chart* option

Pillai's trace—approximate F test for multivariate analysis of variance, *Fit Model Manova*

Plackett-Burman two-level designs—DOE, *Screening Design*

Plot—x-y plot of continuous data allows overlay of different y's in the same plot

PLS—see partial least squares

Poisson fitting—*Distribution*

Poisson regression—see Generalized Linear Models

polynomial curve fitting—polynomial regression, *Fit Y by X bivariate*

post-hoc comparisons—see multiple comparisons

power analysis (prospective)— power calculations for single, two sample, and k-sample situations, one-variance, one-sample proportion, two-sample proportions, counts per unit, computes sigma quality level, *Sample Size and Power* (in DOE menu)

power analysis (retrospective)—option for parameter estimates in *Fit Model SLS*

power transformation—see Box-Cox power transformation

predicted values—save with prediction formula as new column in the data table for most models

profiler—shows predicted Y response for each combination of independent effects, includes desirability profiles, uses constraints in mixture design analysis, *Fit Model SLS*

prediction interval (*Distribution*)

prediction variance profiler—shows the relative variance of prediction for each combination of independent effects, DOE, *Custom Design*

Press statistic—helps assess the goodness of a linear model in *Fit Model SLS*

Presummarnize control charts

principal component analysis—*Spinning Plot and Multivariate Methods > Multivariate*

probability plot—logistic regression, *Fit Y by X logistic*

probability scores from logistic regression—save as a new data table column, *Fit Y by X logistic and Fit Model Nominal or Ordinal Logistic*

probit model—categorical response, *Fit Model Nominal or Ordinal Logistic*, or *Modeling > Nonlinear*

probit regression—see Generalized Linear Models

Process Sigma (Sigma Quality)—in capability report of *Distribution*

product-moment life table—also product-limit (Kaplan-Meier) survival analysis, univariate survival analysis, *Survival and Reliability > Survival/Reliability*

profile plots of effects and interactions—*Fit Model SLS*

profile-likelihood confidence intervals—for parameters corresponding to changes in the likelihood function, *Modeling > Nonlinear, Modeling > Generalized Linear Models*

proportional hazards (Cox) model—semi-parametric survival regression model, *Survival and Reliability > Proportional Hazards*

proportions, percentages—of counts in contingency table, *Fit Y by X categorical*

p-value and power animations—accessible after testing a mean, animates changing sample size and alpha levels, *Distribution*

q

QQ plot (Normal Quantile Plot)—plots normal standard line and deviations from normality, *Distribution*

quality improvement—see control charts, capability indices, Pareto plot, Gage R&R and variability charts

quantile box plot—*Distribution*

quantile (normal quantile or QQ plot)— plots normal standard line and deviations from normality, *Distribution*

quantiles- maximum, minimum, median and other percentiles—*Distribution*

r

R (range) control chart for variables—*Control Chart*

R-square statistic—summary statistic for all analyses where appropriate

random effects models—expected mean squares, variance component estimates, tests with respect to random effects, (see Mixed Model, REML), *Fit Model SLS*

random row selection—for JMP and SAS data tables

randomizing runs—available in DOE *Custom Design*

rank tests—see nonparametric goodness-of-fit tests

real-time data acquisition—use custom JSL script

recurrence analysis—analyzes multiple-recurrent data recurrent data as an MCF (Mean Cumulative Failure) plot and an event plot, *Survival and Reliability > Recurrence Analysis*

recursive partitioning—see Partition

regression and curve fitting—linear, polynomial with confidence limits, splines, density ellipses, fit each value, fit orthogonal, fit special, transformations of x and/or y variables, *Fit Y by X* bivariate

regression—linear, multiple, ANOVA, MANOVA, MANCOVA, nonlinear, polynomial, proportional hazards (Box model), logistic, response surface, orthogonal (error in measurement), stepwise, matched pair, loglinear-variance models, *Fit Model SLS*

Relative variance of prediction—table of precision for estimates for custom designs, DOE

reliability analysis—see survival analysis

Remember Settings—DOE, option in prediction profiler remembers responses and desirability and reports on differences between various settings, *Custom Design*

REML (Restricted Maximum Likelihood) estimation—for variance component estimation (see mixed model)

repeated measures design analysis—univariate (mixed models) with test for sphericity and two adjustments to degrees of freedom, (Greenhouse-Geisser and Huynh-Feldt), *Fit Model Manova*

report table customization—show or hide columns, put borders around columns, sort by one of the columns, convert report to a JMP data table

rerun analysis—script command on all platforms to rerun any analysis or graph, optionally save script to data and rerun.

residual plot (by predicted)—*Fit Model SLS*

residual plot—*Modeling > Time Series*

residuals—save as new data table columns

residuals (studentized)—save as new data table columns

resolution of a design—DOE, *Screening Design*

response surface design—DOE, *Response Surface Design*

response surface model analysis—contour plots, analysis with critical values and eigenstructure, *Fit Model SLS*

right-censored survival model—*Survival and Reliability*

robust regression—see iteratively reweighted least squares

ROC (Receiver Operating Characteristic) curve for binary logistic regression—plots area under the curve of true positive by false positive, *Fit Y by X* logistic

Root Mean Square Error (RMSE)—all analyses where appropriate

rotated components—orthogonal and oblique rotation of principal components, *Spinning Plot* or *Multivariate Methods > Multivariate*

row exchange algorithm—in DOE the row exchange algorithm iteratively improves the random starting design, *Custom Design*

Roy's maximum root—approximate F test for MANOVA models, *Fit Model Manova*

Run Charts—Control Charts

S

S (standard deviation) control chart for variables— quality control, *Control Chart*

sample size calculations (LSN)—shown in power calculations tables (see power analysis)

SBC (Schwarz's Bayesian Criterion)—goodness of fit, *Modeling > Time Series*

scaled parameter estimates—for designed experiments and any multiple regression, *Fit Model SLS*

scatterplots—bivariate plots, *Fit Y by X* bivariate or *Overlay Plot*

scatterplot matrix—plots of all pairs of variables with density ellipses—*Multivariate Methods > Multivariate*

scene 3D JSL commands—build your own 3D displays new Billboard text, Blendfunc, Pickcommand

schematic plot— outlier box plot, *Distribution*

scree plot—shows the sorted eigenvalues as a function of the eigenvalue index, *Multivariate Methods > Multivariate*

screening designs—DOE, *Screening Designs*

scripting language—JSL, an extensive scripting language with commands to record, repeat, program, automate and customize tasks, do matrix algebra , animate graphs, write simulations and/or complex operations: **JMPversion() command; enhanced show tree structure () command**

Sequential Sum of Squares (Type 1 SS)—*Fit Model*

Shapiro-Wilk test—nonparametric goodness of fit to test normality in smaller samples (N<2000), KSL test used for larger samples (see also goodness of fit one-way distribution fitting), *Distribution*

Shewhart control chart (see control charts)—quality control, *Control Chart*

signed rank test—nonparametric test for one sample test of Mean, *Distribution*

simplex centroid mixture design—DOE, *Mixture Design*

simplex lattice mixture design—DOE, *Mixture Design*

simulation of fitted models—Profilers

skewness—*Distribution*

smoothing—(see spline fitting) also (see time series modeling and forecasting)

smooth curve—see density estimation

SOM—Self Organizing Map, *Multivariate Methods > Cluster*

sort—sort a JMP data table by one or more columns, ascending or descending

Space Filling Design—generate design when there is no random error, DOE, *Space Filling Design*

Spearman's rho—nonparametric correlation, *Multivariate Methods > Multivariate*

specification limits, capability indices—quality control features in *Distribution*

spectral density plots—spectral density by period or frequency, Fishers' Kappa test for white noise, *Modeling > Time Series*

Sphere Packing—method of generating a Space Filling Design, (DOE), *Space Filling Design*

sphericity test—univariate repeated measures test, uses Mauchly criterion, *Fit Model Manova*

spinning plot—3-D spin of points, *Spinning Plot*

spline fitting—specify stiffness parameter (lambda), *Fit Y by X* bivariate

split column—reformats the layout of a JMP table, splits one or more columns into multiple columns based on the values of an ID variable

split plot designs—generate design of experiments and analyze with *Fit Model*

stack columns of a JMP data table, *Stack* command

standard deviation—estimate and confidence interval for standard deviation in *Distribution*

standard deviation tests equal to a given value; two-sided and one-sided Chi-square tests, *Distribution*

standard error of the individual values—save as new data table column, *Fit Y by X* bivariate

standard error of the mean—shows when appropriate

standard error of the predicted values—save as new data table column, *Fit Model* SLS

standard error of the residual values—save as new data table column, *Fit Model* SLS

standard errors of estimates—wherever appropriate

standard least squares options for parameter estimates—estimate, standard error of the estimate, t-ratio, significance p-value, 95% confidence limits, standardized beta and variance inflation factor (VIF)

standardizing data—save standardized values as a new data table column, *Distribution*

statistical quality control (SQC)—see control charts

stem-and-leaf plot—*Distribution*

step chart—step plot, connects points in time as steps *Overlay Plot*

stepwise regression—all possible regressions, Fit Model Stepwise platform and *Multivariate Methods > Discriminant*

straight-line regression—*Fit Y by X* bivariate

Student's t, t-test—one-way Anova (multiple comparison of all pairs of groups), *Fit Y by X* bivariate

studentized residuals—compute then save as new data table column, *Fit Model* SLS

subset a JMP data table—use Subset command or double-click histogram bars

summary tables of statistics—for all analyses when appropriate, result of *Group/Summary* command

supersaturated design in DOE—used when the number of runs is less than the number of terms in model, *Custom Design*

Surface Plot—Graph menu platform that draws three-dimensional surfaces, rotates, has directional lighting, variable mesh, complete color selection, **overlay four surfaces (ISO surfaces, density surfaces keyboard shortcuts, residuals, background spinning)**, *Surface Plot*

survival and reliability analysis— product limit (Kaplan-Meier) survival estimates, proportional hazards, (Cox model) regression, parametric survival models (for example exponential, extreme value, lognormal and Weibull estimation), competing causes analysis (see also recurrence analysis); Weibayes, Survival, Density and Hazard by Time plots, Failure Plots, *Survival and Reliability > Survival/Reliability*

t

t-test—1 sample to test Mean, 2 groups equal variance, 2 groups unequal variance, match paired, parameter estimates whenever appropriate, *Distribution* and *Fit Y by X* bivariate

Tabulate—platform to present summary data in customized tabular form, has a drag and drop interface

Taguchi design generation—DOE, *Taguchi Design*

templates—data tables in the sample library stored with commonly needed formulas

ternary plot—plots points or contours of a fourth variable against three independent variables, *Ternary Plot*

tests for special causes (Western Electric Rules, Westgard rules)—quality control, Control Charts platform, *Control Chart*

tests of independence—two-way contingency table analysis, Pearson and Likelihood Ratio Tests, *Fit Y by X* categorical

three-dimensional spinning plot—look for clusters, patterns, and outliers, *Spinning Plot*

time series modeling and forecasting—time series plots with forecasted values, residual plot, diagnostic charts, Differencing, ARIMA, Seasonal ARIMA, Smoothing Models (simple, double, linear, damped trend linear, and seasonal), and Winters Method, *Modeling > Time Series*

tobit model—nonlinear regression with appropriate loss function (also see loss function templates), *Modeling > Nonlinear*

tolerance intervals—one & two-sided, *Distribution*

transpose—rows and columns interchanged in a JMP data table, optional By groups, *Transpose* command

Tukey-Kramer test—multiple comparison of each pair of groups for one-way Anova, *Fit Y by X* oneway

type 1 SS (sequential sum of squares)—general linear models, *Fit Model*, SLS

U

U control chart for attributes—quality control, *Control Chart*

uncertainty—measured as total loglikelihood

Uniform—method of generating a space filling design (DOE), *Space Filling Design*

uniform precision—DOE, *Response Surface Design*

uniformly weighted moving average chart—*UWMA Control Charts*

univariate repeated measures—with sphericity test and degree of freedom adjustments (Greenhouse-Geisser and Huynh-Feldt), *Fit Model Manova*

V

V Mask—see cumulative sum plot, *Control Chart*

Van der Waerden test—nonparametric test that k samples have equal means, *Fit Y by X oneway*

variability analysis—variance component estimates, Gage R&R reports and plots, *Variability/Gage Chart*

variance component estimates—random effects model specify one or more effects as random (see also mixed models), handles unbalanced designs, *Fit Model SLS*

variance homogeneity—tests that the group variances are the same in a one-way ANOVA (see also Welch ANOVA, and O'Brien's, Brown-Forsythe's, Levene's, and Bartlett's test of homogeneity), *Fit Y by X oneway*

varimax rotation—rotated components, *Spinning Plot*

variogram—diagnostic for time series modeling, *Modeling > Time Series*

W

Wald Chi-square test—logistic regression, *Fit Y by X logistic*

Weibull analysis—nonlinear regression with appropriate loss function, (see also loss function templates) *Modeling > Nonlinear*

Weibull fitting—fits a Weibull 2- or 3- parameter Weibull distribution to data, *Distribution*

Weibull survival curve—*Survival and Reliability > Fit Parametric Survival*

Welch ANOVA—one-way ANOVA when there is non-homogeneity of variance, *Fit Y by X oneway*

Western Electric Rules (tests for special causes)—quality control, *Control Chart*

Westgard rules (tests for special causes)—quality control, *Control Chart*

white noise tests—tests whether a time series is white noise, the Fisher-Kappa and BKS statistics are calculated for spectral density plots, *Multivariate > Time Series*

Wilcoxon rank sum—two sample rank test equivalent to Mann-Whitney (see also Kruskal-Wallis for k samples), *Fit Y by X oneway*

Wilcoxon signed-rank nonparametric test of mean, in matched pairs, tests the difference between two columns is zero, *Distribution and Matched Pairs*

Wilcoxon test—survival analysis, *Survival and Reliability > Survival/Reliability*

Wilk's lambda—approximate F test for multivariate analysis of variance *Fit Model Multivariate*

Winters method time series forecasting—(see time series modeling)

Z

z test—compare single Mean to a value, *Distribution*

zone lines—zones for control charts, used with tests for special causes (see Western Electric Rules)

zooming—use the magnifier glass tool to zoom in or out on any subset of a plot

JMP® help features

Online help
Yes

Topicwise help Yes

Extensive help Yes
(Help descriptions tied to the JMP documentation)

Help Menu Yes

Context Sensitive help Yes
Use the question mark tool and click anywhere on the surface of JMP result windows

Statistical Navigation Guide Yes

Indexed help Yes
Alphabetical index in online help links to documentation and in the JMP Starter that gives definitions and examples

Summary of Graphic Output

AR coefficients graph—histogram of AR coefficients, a diagnostic for time series modeling

Autocorrelation plot—histogram of autocorrelations of lags, a diagnostic for ARIMA time series modeling

Axis customization—tick mark, grid, X and Y formats, and X and Y reference lines

Bar charts—show means and can have standard error bars

Bar graphs

Bayes plot for screening designs and multiple regression

Bias report graphs in Variability Chart

Biplot

Box-Cox transformation plot

Box plot (outlier)

Box plot (quantile)

Canonical plot

Cause-and-Effect diagram

Cell Plot

Centroid plot

Cluster coloring (automatically for K-means clustering)

Cluster distance plot (Hierarchical clustering)

Color (palette of 65 colors)

Color Map

Comparison circles

Contour plots (general)

Contour plots for mixture models

Contour plots—to display equal probability areas from 2-dimensional density estimation

Contour Profile plots—overlaid contours for acceptable design regions for multiple response experimental designs

Control charts (moving average—UWMA, EWMA)

Control charts (2-sided cumulative sum (Cusum) charts)

Control charts (Shewhart—Mean, Range, S, Individual)

Control charts (Shewhart for attribute data—(p, np, c, u))

Correlation plots (histograms of pairwise correlations)	linearity graphs summarize linearity of bias in variability charts	Partition graph
Correlation plots (scatterplot matrix with density ellipses for each pair of variables)	Logistic probability plot	Periodograms for spectral analysis
Correspondence analysis plot	Lognormal exploratory plot	Pie chart
Cumulative Distribution Function (CDF) plot	Mahalanobis distance outlier plot	Polynomial regression curve fitting
Cumulative logistic probability plot	Marker (palette of 16 markers)	Power curves
Cube plots for screening designs	Means diamonds	Prediction graph (PLS platform)
Curve fitting	Means with error bars	Prediction Profiler
Customized graphs with titles, footnotes and annotate tool	Mesh plots for a 3-D view of bivariate probability densities for nonparametric density estimation, and for response surfaces	Prediction Variance Profile Plots (DOE)
Dendrogram for hierarchical clustering color coded by cluster	Mosaic plots for contingency tables	Probability plots for logistic regression
Dendrogram	Multivariate outlier detection plot (Mahalanobis distance)	Profile plots for mixture designs
Density ellipses for picturing correlations	Needle plot	Profile plots for regression factors
Desirability profiler plot for multiple responses	Normal curve	Profile plots for single and multiple responses vs. design factors
Diagram charts and plots	Normal plot for effect screening and multiple regression	Quantile plots for nonnormal distributions (Lognormal, 2 & 3 parameter Weibull, Extreme Value, Gamma, Beta, and Exponential)
Fishbone chart (Diagram platform)	Normal quantile plot	Recurrence analysis event plot
Fitting distributions—distribution and normal quantile plots for continuous one-way data	OC (Operating Characteristic Curves) for Xbar, c, u, and p charts	Recurrence analysis MCF (Mean Cumulative Function) plot
Heat Map (Cell Plot)	Overlay line plots	Regression plot of actual by predicted
Histogram	Overlay Plot platform—line and bar, double Y axes, plot y as a function of x	Regression residual plot—plots of residual by predicted, residual by row (Fit Model)
Histogram of pairwise correlations	Paired t-test plot	Regression residual plot—for Fit Line, Fit Polynomial & Fit Transformed (<i>Fit Y by X</i>)
Histogram borders—option in any <i>Fit Y by X</i> bivariate plot	Parallel Plot—Graph menu command draws connected line segments for each row in the data table	ROC (Receiver Operating Characteristic) curve—for binary logistic regression; plots true positive vs. false positive
Interaction plot—scatter matrix plot of all two-factor interactions	Parallel plot <i>Fit Y by X</i> option for matching variable analysis	Runs Chart
Ishikawa diagram (Diagram platform)	Pareto charts single and comparative	Scatterplot
Jackknife distance plot	Pareto chart of effects for screening designs	Scores plot
Layout—a facility for graphics editing (see Graph customization)	Pareto plot	Scripting language—JSL can produce custom and animated graphics scripts
Leverage plots for multiple regression	Pareto plot—Ungroup Plots option allows a group of Pareto charts to be split up into separate plots	Shewhart control charts for Xbar, range, and standard deviation
Levey-Jennings chart type in control charts	Partial autocorrelation plot—histogram of partial autocorrelations of lags; a diagnostic for ARIMA time series modeling	Smooth curve—1 dimension smoothing of histograms with kernel slider
Line plots		Spectral density plots—spectral density vs. period, spectral density vs. frequency
Line tools—tools for drawing lines, ovals, rectangles, and polygons on reports, in journals, and in layouts		

Spline fitting—fit any order spline to bivariate data and save predicted values

Stem and leaf plot

Surface Plot—Graph menu platform that draws three-dimensional surfaces, rotates, directional lighting, variable mesh, complete color selection

Survival Curve plots—three new plots for fitted distributions vs. time: survival, density, and hazard

Survival curve plots/failure curve plots (Kaplan Meier), Weibull, lognormal, and exponential exploratory plots

Ternary plot

Time series plot

Tree Map

Variogram chart—a histogram that compares variances k lags apart to the variance of lag 1

Variability charts (Gage R&R plots)

Variability std dev plot

V-Mask for Cusum charts

3-D Biplot points and principal components

3-D Spin plot of points

User Interface

Browse web pages from within JMP (Windows only).

Formulas—Formulas have a visual clue (a caret) when optional parameters can be included. Pictures of formulas appear in the Column Info dialog.

Layout and Journal—undo available for most editing operations in Layouts, optionally rerun an analysis from within a Journal.

Menu Customization—Under Windows **and Linux**, at the bottom of the Edit menu, there is a new submenu named Customize that brings up a drag-and-drop editor for customization of menus and toolbars.

Preferences Path—Under Windows, the user can designate a directory where the preferences file (JMP.pfs) should be stored.

SVG—JMP can save journals and image files as SVG, Scalable Vector Graphics.

The pointer works similarly to the brush tool. Select multiple points by dragging the pointer. Shift-drag extends the selection. Control-drag subtracts selected points.

There is a preference to specify default “save” location now on Windows.

Other Improvements

“Add All Open Files” is located on the journal right-click menu. It creates outline nodes and file/script links to reflect all open files and scripts.

Linux operating system—JMP is completely functional under Linux.

There are optional dividers for axes that automatically wrap text across several lines.

Pictures dragged or copied into JMP layout or journal reports can be resized (Use Alt-click to restore a picture to normal size).

To move columns in a statistical report, use the grabber (hand tool) and drag them left or right.

Plots display faster when drawing a large numbers of markers using the Marker Drawing Mode > Fast option found when you context-click in any plot. Plots are set to use the fast mode when the number of points is greater than n, where n is the value of the Fast Marker Threshold preference, whose default is 10,000.

Internal Optimizations

The Cluster platform is fast enough to do problems with several thousand rows.

Formulas that calculated across the rows of a data table (using subscripted variables or the Lag function) stressed the formula dispatcher and dependency system for large data tables. The formula dependency system has been rewritten completely and now performs quickly.

The help system has reduced image sizes and includes a more useful navigation structure.

The JSL Try function intercepts errors better.

ODBC is faster for importing large database tables, including Excel files.

ODBC now supports

- Unicode support for Windows and Linux
- Graphical WHERE clause editor

Formula Editor

Assignment—Assignment functions work in place. The result returned by the operation (on the right of the operator) is stored in the argument on the left of the operator and replaces its current value. Assignment statements are most often used in conjunction with other commands to build a JSL script. Functions include Assign =, Add to +=, Subtract to—=, Multiply to *=, Divide to /=, Post Increment ++, Post Decrement—.

Character—Char, Concat, Contains, Munge, Lowercase, Uppercase, Length, Num, Substr, Trim, Word, Item, Hex, Repeat

Comparison—all types of numeric and character comparisons

Conditional—If, Match, Choose, And, Or, Not, Interpolate, Step, For, While

Date Time—In Minutes, In Hours, In Days, In Weeks, In Years, Date DMY, Date MDY, Today, Day, Month, Year, Day of Week, Day of Year, Informat, Week of Year, Abbrev Date, Long Date, Short Date, Format, MDYHMS

Formula Element Browser—select from the constants (common ones like pi or e), table columns (the variables in the JMP table), table variables, parameters, and local variables for inclusion into the formula. Other constants are just typed in from the keyboard.

Function Browser—(groups the Function Editor functions by topic)

Keypad operations—Do standard arithmetic operations including addition, subtraction multiplication, division, yth root, yth power, change sign also insert, delete, switch terms, “t=” to create a local variable, and delete expression operations.

Numeric—Abs, Modulo, Ceiling, Floor, Round, Count

Probability—Beta (Density, Distribution, and Quantile), Chi-Square (Density, Distribution and Quantile), F (Density, Distribution and Quantile), Gamma (Density, Distribution and Quantile), Normal (Density, Distribution and Quantile), t (Density, Distribution and Quantile), Weibull (Density, Distribution and Quantile), Binomial (Distribution, Probability), egBinomial (Distribution, Probability), Hypergeometric (Distribution, Probability), Poisson (Distribution, Probability), Tukey HSD Quantile, F Power, F Sample Size

Random—Random Uniform, Random Normal, Random Exp, Random Gamma, Random Beta, Random Cauchy, Random Triangular, Random Integer, Random Binomial, Random Negative Binomial, Random Geometric, Random Poisson, Random Reset, Random Seed, Random SeededUniform, Random SeededNormal, Col Shuffle

Row—Lag, Dif, Subscript, Row (row number), and NRow

Row State—Row State, As Row State, Combine States, Excluded State, Hidden State, Labeled State, Color State, Marker State, Selected State, Hue State, Shade State, Excluded, Hidden, Labeled, Color Of, Marker Of, Selected

Statistical—descriptive statistics on entire columns: Col Mean, Col Std Dev, Col Number, Col NMissing, Col Sum, Col Minimum, Col Maximum, Col Quantile, Col Standardize
—statistics across columns: Mean, Std Dev, Number, Sum, Quantile, Summation, Product, Minimum, Maximum, N Missing

Transcendental—exp, Log, Log10, Squish (computation of $1/(1 + \exp(-x))$), Root, Factorial, NchooseK, Beta, Gamma, Lgamma, SheffeCubic

Trigonometric—Sine, Cosine, Tangent, ArcSine, ArcCosine, ArcTangent, SinH, CosH, TanH, ArcSinH, ArcCosH, ArcTanH

Random Number Functions

Random numbers are now generated using the Mersenne-Twister technique. This technique has a period length of 219937-1 (as opposed to 231-1 for the former generator). The new generators are verified to pass all the DIEHARD tests as documented in Marsaglia (1996).

The old routines are still available as RandomSeededUniform and RandomSeededNormal and work with the RandomSeed function call. Version 3 data tables with Random Uniform and Random Normal functions are converted to the new names.

OLE Automation

JMP 6 Automation adds dozens of new methods including a new DOE Custom Design class.

JMP® Data Table Features

A spreadsheet-like view of data at all times and multiple tables can be open.

Columns panel and Column Info dialog—column attributes and properties allow you to build intelligence into your spreadsheet, assign modeling roles (nominal, ordinal or continuous), pre-assign analysis, use the Formula Editor to create a column of computed values, check values with list or range checking, assign special properties to columns for use in control charts and DOE, extensive library of date-time formats.

Data management operations—a complete file management system for analytic needs. Concatenate (append), Join (relational and cartesian joins of two JMP tables), update option updates values, sort, subset (linked or not linked to original table, subset a random sample, transpose with optional By variable, split columns, and stack columns (complete columns or interleave values), Update command updates values in place (instead of creating a new table).

Design experiment—creates data tables that contain traditional screening, response surface, mixed level, mixture, Taguchi arrays and full factorial designs as well as custom and augmented designs.

Express or suppress a formula defined in a column with the new Formula Evaluation option.

There is a Find/Replace command for cell values.

Imported file sizes have a new limit of 10,000 columns and 128K per line per table.

Multiple data tables can be open open for analysis and data management.

The JMP table—You can drag a part of a data table and drop it into another table. Browser panels on the left for Tables, Columns, and Rows help manage your data better by making attributes visible and accessible.

There is no row limit; the column limit is 215-1 columns limit. The real limiting factor is RAM memory because the JMP table must fit in memory.

The Row Editor brings up a window for browsing the columns of a data table one row at a time.

Rows panel—The row panel shows how many rows are selected, hidden, excluded, or labeled. Use Row Properties to color (color palette of 65 colors), mark (choice of 16 markers), hide, exclude or label selected rows; add, delete, or select rows, etc.

Save Formula and Suppress Formula Evaluation commands have been added to JMP.

Short integer option saves storage by allowing “n” byte storage as a field width specification for each column where “n” can be a positive integer ≥ 1 .

The Summary command dialog allows the user to specify the name of summary statistics columns. The Summary command allows the inclusion of marginal statistics.

Tables panel—Table variables store important information about the data such as source, time, location, name or ID of the engineer or research investigator, etc. Table properties allow you to store scripts associated with that table. Activating the Run Script command can quickly regenerate the analysis.

JMP® tools

There are two kinds of tools, those that apply only for graphs, and those that apply everywhere else; Use the appropriate tool to interact with the JMP table or JMP analysis windows.

Graphics Tools

The Brush tool—When you click a rectangular selection window appears; drag to resize the selection. The tool selects the points in area enclosed by the window.

The Crosshair tool—This is a movable set of axes. For example, use the crosshair on a fitted line or curve to identify the response value for any predicted value. When you press the mouse, the values where the crosshair intersects the vertical and horizontal axes appear and track as you move the mouse. On a ternary plot this tool displays triangular crosshair lines and values.

Drawing tools—In addition to JMP's traditional annotation tool, JMP 5 has tools for drawing lines, ovals, rectangles, and polygons. These graphics can appear on reports, in journals, and in layouts.

The Hand tool—The hand (or grabber) tool is for direct manipulation or grabbing in plots and charts. In histograms from Distribution of Y, use the hand to change the number of histogram bars or to shift the boundaries of the bars; in spinning plots the hand gives fine control of the spin. Grab the plot with the hand by holding down the mouse button and move the hand about. The rotation of the spin axes tracks the movement of the hand; in a scatterplot matrix the hand tool drags the position of a column of scatterplots to a new position in the matrix; in a Cusum control chart the hand tool relocates the origin of the V-mask. For any x-y plot use the hand to scroll either axis.

The Lasso tool—The lasso lets you enclose and select an irregular set of points in plots very easily. Use Shift-lasso to extend the selection to multiple sets of points.

The “Line Width Scale” is located in the graph right-click menu, under “Marker Drawing Mode.” It has a numeric setting which acts as a multiplier for almost all lines in that graph.

The Magnifying Glass (Magnifier) tool—allows you to zoom in or out on any area of a plot, drag the magnifier to zoom in on any smaller triangular region in a ternary plot, drag for close-up view of hierarchical cluster dendrogram portions.

All Purpose Tools

The Annotate shown as the ‘A’ tool—The Annotate tool creates a text box wherever you click in a JMP window. You can key in notes and draw lines from the box to highlight points, curves, or reported values.

The Arrow or Pointer tool—When the arrow reveals or conceals text reports in an analysis window, accesses pop-up menus, selects and highlights points in a plot, highlights histograms, and points to selections in dialogs. When in the spreadsheet the arrow accesses pop-up menus at the top of each column, selects rows and columns, and selects text for editing.

Custom toolbars—All commands in JMP can be displayed on a toolbar. You can show or hide any toolbar, customize a toolbar, and create your own toolbar. You can have up to four user-created toolbars with eight buttons each.

Line tools—tools for drawing lines, ovals, rectangles, and polygons. These graphics can appear on reports, in journals, and in layouts.

In addition to the usual mouse support, JMP pays attention to the context click. With the right mouse button (or control-click on the Mac) JMP displays a context menu of commands appropriate for where you clicked.

The Question Mark tool—This tool accesses help. Select this tool and click on graphs, plots, or tables to get help for that object.

The Scissors tool—shows as a plus cursor and selects territory according to the hierarchy of the report. The plus cursor must not only know how to make a picture, but also a journalable hierarchical representation of the display data, and this means that the selection must correspond to underlying display elements.

The Scroller tool—allows you to grab a report and scroll by dragging. This is a simple tool, but is good for showing how the stick-to-top surface behaves. The scrolling has inertia and friction, so you can push the surface and it keeps scrolling at a slower rate after you release the button.

Need an Answer

Our phone number in the US is 919-677-8000. Ask for JMP Sales or email us your questions at jmpsales@jmp.com

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