

ORIGIN® 8

The Data Analysis and Graphing Workspace

Only KEY New Features are in RED
OriginPro features are underlined

Features List

Origin Project File (OPJ)

- Store all your data, results, notes, meta data, graphs, layouts, and attached files in one convenient file
- Child Window Types: Workbooks, graphs, matrix books, layout pages, notes windows
- Organize child windows with Project Explorer
- Use OPJ as template for graphing and data analysis operations that support recalculation
- Analysis results reported to results sheets and dockable Results History Log window. Results are saved with project.
- Attach any file to an Origin project
- Periodic backup of Origin Project files

Workbooks and Matrix Books

Workbooks and Matrix Books

- Multiple sheets (multiple matrix objects in one sheet)
- Discover trends in worksheet column data by enabling Sparklines
- Insert (link to) or embed graphs/images in any cell. Embed notes windows in any cell.
- Long name support for books, sheets, columns
- Data Size: Workbook—sheets: 121, columns per sheet: 65,535, rows: 2 billion. Matrix—90 million cells or less, depending on data type, 65,535 objects. Note: Memory limitations may prevent reaching these values.
- Insert, Add, Delete, Rename, Duplicate, Move sheets
- Drag and drop sheets between books or onto worksheets to create a new book. Drag to resize column and row width/height. Drag and drop data selection onto graphs.
- Flexible Formatting: Rich text support. Format cell/range: fonts, bold, italics, underline, colors, backgrounds, borders
- Save formatting to a theme for use later
- Data Fill: Drag fill handle to auto fill data (range extension/duplication supported)
- Reserved cells for long name, units, comments, parameters, user-defined parameters, sparklines, and sampling rate with connection to plotting
- Insert/delete rows/columns. Rename columns. Select, clear, delete, copy, paste columns/ranges/cells. Select nonadjacent columns/ranges/cells
- Worksheet Themes: copy/paste worksheet formatting, save a collection of formatting elements as a theme. Apply. Set a system theme to automatically apply to any new workbook.
- Data Formats (Worksheet Columns)—Numeric, text, numeric/text, categorical, time (including IRIG), date, month, day of week, custom date formats.
- Numeric Data Types (Worksheet Columns): Double(8), Real(4) (i.e. float), Short(2), Long(4), Char(1), Byte(1), Unsigned Short(2), Unsigned Long(4), Complex(16)
- Numeric Data Types (Matrix Sheet): Double(8), Float(4) (i.e. real), Short(2), Int(4) (long), Char(1), Complex(16)
- Workbook Organizer shows file import info including variables extracted from header metadata, manually added metadata
- Matrix Organizer shows file import info
- Workbook Properties, Column Properties dialogs
- View X/Y values in column/row headings (matrix only)
- Raster graphic image support (matrix only)

Data Manipulation

- Set Column/Matrix Values: Apply mathematical transforms on columns. Add "before formula" scripts/declare range variables to simplify formula creation. Automatically update calculations (worksheet only).
- Sort. Nested Sort (worksheet only)
- Data Extraction (worksheet only)—by condition or grouping
- Convert XYZ worksheet data to matrix using XYZ Gridding: Regular, Sparse, Random—Renka-Kline, Shepard, Thin Plate Spline, Kriging, 2D B-spline
- Convert worksheet data directly to matrix
- Convert matrix data to XYZ worksheet data
- Convert matrix data directly to worksheet
- Shrink. Expand (matrix only)
- Transpose
- Transpose Paste (worksheet only)
- Find and Replace
- Average multiple curve
- Translate curves (vertical/horizontal)
- Rotate, Flip Horizontal, Flip Vertical (matrix only—see Image Processing and Analysis for more operations)

Importing Data/Images

- ASCII/Binary Import Wizard with visual feedback
- Save import settings to import filter file for use later
- Create import themes that include post-processing scripts
- Extract file name/header variables using up to 3 methods
- Import or directly open Microsoft® Excel 97 or later

- Axon pCLAMP® (ABF 1.8 & 2.0, DAT), Data Translation (DCF, HPF), EarthProbe (EPA), ETAS INCA (DAT, DF), imc Mess Systeme GmbH - FAMOS (DAT, RAW), Image (BMP, GIF, JPG, PCX, PNG, TGA, PSD, TIF, XPM, XWD, WMF), Kaleidagraph® (QDA), JCAMP-DX (DX, DX1, IDX, JCM), MINITAB® (MTW, MPJ), National Instruments DAQmx and TDM, netCDF (NC), Princeton Instruments (SPE), SigmaPlot® (JNB), Sound (WAV), Thermo® (SPC)
- Reimport files
- Import data from a database using SQL. Graphically construct or type query. Save queries. Join tables.
- Images: bmp, gif, jpg, pcx, png, tga, psd, tif, xpm, xwd, wmf
- Drag-and-drop import of data and images

Application Connectivity

Microsoft Office Integration

- Import or directly open Excel 97 or later
- Drag-and-drop your Excel data into Origin graphs
- Run Excel simultaneously

OLE-2 Server

- Copy, paste/paste link Origin graphs into other applications
- OLE In-place Activation to edit graphs in other applications

COM Server

- Access Origin from other software using COM

LabVIEW®, Mathematica®, and MATLAB®

- Application-assisted LabVIEW import
- Origin VIs for LabVIEW communication
- Application-assisted Mathematica import
- Application-assisted MATLAB import (2006b and earlier)

Graphs

2D Graphs

- Line—10 types
- Scatter—8 types
- Line and Symbol—more than 6 types
- Column/Bar—8 types (also 3D)
- Area—7 types
- Bubble/Color Mapped - 3 types
- Multiple Panel—5 types or create your own
- Double-Y and Offset Axes plots
- Pie (see also 3D)
- Polar (r, theta)
- Ternary Diagram
- Smith® Chart
- High Low Close
- Vector—2 types: XYXY and X, Y, Angle, Magnitude
- Stacked Lines by Y Offsets with drag and drop curve
- Waterfall
- Function Graphs for plotting mathematical equations

Statistical Charts

- Box and/or Column Scatter—2 types
- Rectangular Box or Diamond Box
- Histogram, Stacked Histograms, and Histogram + Probabilities
- Scatter Matrix (Linear fit, R², confidence ellipse options)
- QC charts
- Optional Distribution Curves

3D Graphs

- XYZ Scatter/Trajectory. Optional drop lines/projections
- XYZ Bars, Ribbons, Walls, and Waterfall
- 3D Histogram
- Color Map Surface with optional projected contour
- Wire Frame and Wire Surface
- Surface with constant slices in X or Y direction
- Rotate above plots graphically by clicking and dragging
- Pie (see also 2D)

Contour Graphs

- Create Contour plot directly from XYZ data with triangulation
- Polar Contour
- Color Fill
- Black and White with Lines and Labels
- Gray Scale Map
- Custom level formatting using color, contour lines and labels
- Specify label prefix and/or suffix
- Set label decimal points
- Include color scale legend

Image Graphs

- Image Graph
- Image Profiles Plot
- Image Line Profiles—See Signal Processing (reverse side)
- Image Histogram
- Import raster graphic images into matrices (see Importing)
- Select region of interest. Crop, copy, and create new

General Graphing Features

- Single-click access to all built-in graph types
- Plot and organize graphs using the Graph Template Library
- Drag-and-drop data files into graph
- Plot Setup dialog with quick plotting of multiple worksheets; common columns; Plot Excel workbook data directly from Plot Setup
- Multiple instances of same data set in one layer
- Edit many data plot properties using the Style Toolbar
- Edit all data plot properties using a Plot Details dialog
- Custom color palettes and increment lists for grouped data
- Create custom multi-panel plots. Merge graphs with preview.
- Ultra-fast graph drawing
- Long name support

Graph Themes

- Copy/Paste graph formatting from one graph to another
- Save a collection of formatting elements as graph theme
- Set System Theme for all graphs yet to be created

Data Plot Color

- Separately set color for: page, axes, labels, symbols, lines, area or bar fill or patterns
- Independent custom color support for all properties
- Color-mapped or color-indexed symbol
- Color stretching for grouped data plots
- Apply built-in/user-defined color palettes
- Categorical data support for symbol color
- Color scale legends
- RGB color settings

Data Plot Control

- Offset grouped data plots by a constant, cumulative, automatically (by percentage) or individually
- Drag and drop offset

Line Connection Types for Data Plots

- Straight, B-Spline, Spline, Step (horizontal, vertical, center), Bezier, 2 Point Segment, 3 Point Segment
- Customized line style sets for groups of data plots

Line Styles

- Solid, dashed, dotted—8 types
- Customize dash and dot definitions (point values for widths)

Symbols

- Symbol Gallery with over 100 built-in symbols
- Create custom symbols from bitmaps
- Categorical data support
- Color-mapped, as well as indexed symbol color/shape/size—up to 8 dimensions
- Custom symbol lists for grouped data plots
- Individual symbol edit control, with display in legend

Error Bars

- Display as % of data, standard deviation, or from a dataset
- Asymmetric support
- Specify X and/or Y direction
- Control color, line width and cap width
- Error bars can go up to or through symbols
- Set as absolute or relative

Data Plot Labels

- From dataset: Associate with data plot points, X, or Y axis
- Graphically attach text labels to individual data points
- Control color, font type, style, size, rotation, offset, background, and justification

Text Labels and Legends

- All: In-place edit with Character Map access, TrueType fonts, bold, underline, italic, Greek, super/subscript or both, increase/decrease size, rotate, date/time stamp. Easily include header information from your data file.
- Legends: Automatically (uses long name information from worksheet) or manually created. Automatically updates when data changes. Show data plots from one/all layers. Double-click symbol to edit data plot. Show custom individual data points.
- Add symbol shapes with the Origin TrueType font

Axes

- Technical Types: Linear, Log10, Probability, Probit, Reciprocal, Offset Reciprocal, Logit, Ln, Log2, Polar, Smith®
- Special Tick Mark Types: Draw from a column of values
- Scale Options: Set rescale mode to normal, auto, or fixed from/to. Specify increment, # of major ticks, # of minor ticks, first tick. Reverse axis scales
- Control color, line style, and thickness
- Axis titles use long name and units from worksheet
- Offset Axes—Multiple based on percent or axis position
- Grid Lines: Control color, line style, thickness, and density of major and minor grid lines for X, Y, and Z axes

- Axis Break: Define break region, break position along axis, scale type and increment before/after break
- Frame Options: 2D or 3D Axis Graph Page.
- Display layer icons on visible axes for each layer
- Add axis scrollbar

Managing Multiple Axes (Layers)

- Up to 121 XY axes (Layers) per page
- Named layer support
- Merge multiple graph pages; select graphs using Graph Browser
- Arrange multiple layers
- Create inset layers
- Link axes; specify formula for relationship
- Layer Management tool to configure the graph

Tick Labels

- Basic Types: Numeric, Text from Dataset, Time (includes IRIG), Date, Month, Day of Week, Column Headings, Indexed from Dataset, Categorical (binned text data)
- Special Types: Specify a user-defined formula or draw from a column of values
- Control the direction (In, Out, Both, None) and length of major and minor tick marks for X, Y, and Z axes
- Control color, font, size, number of decimal places, rotation, offset, display of first, last, and custom tick labels
- Align, rotate, offset, show/hide
- Include minor tick labels
- Apply a divide by factor
- Include a prefix and suffix
- Include plus and minus signs

Table Annotations for Analysis Results

- Copy/paste table from worksheet/results sheet to graph
- Insert new table into graph
- Paste link table cell values to source results sheet to automatically update values upon recalculation
- Control formatting, styles.

Drawing Tools

- Lines: straight, polyline, freehand. Solid, dashed, dot. Begin/end arrow control.
- Shapes: rectangles, ellipses, polygons, regions. Hollow, fill color, fill pattern
- Resize/Rotate/Skew all lines/shapes

Object Edit Tools (including text labels)

- Select, edit, cut, copy/paste, delete
- Move, resize, rotate, skew, point-by-point edit
- Align, send to front/back
- Group/ungroup objects

X-Functions

- Framework to create custom programs/tools that perform specific data processing tasks
- Create/edit in the X-Functions dialog
- Dialog is automatically created when making any X-Function
- Integration with Code Builder for advanced edit/debug
- Associate X-Functions with: menu items, OPIs
- Execute X-Functions from LabTalk™ Script
- Intelligence (auto-complete) support in Command Window
- Share X-Functions using our File Exchange

Data Analysis

Data Exploration

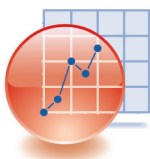
- Analyze multiple ranges of data
- Interactively select multiple data ranges for analysis
- Mask single points or ranges of data from analysis
- Data/Mask selection can be restricted to active plot or expanded to all plots within selection window
- Read data point coordinates, screen coordinates
- Inspect data point values/distances on/between curves using dockable Data Information window and Cursor tool
- Graphically attach data labels with pinned connecting lines to individual data points
- Zoom in on any graph region. Zoom graph template. Launch separate graph with movable zoomed in region
- Set a region of interest (ROI) on a matrix. Cut, copy, create new matrix.
- Move individual data points graphically

Analysis Themes

- Save the settings for an analysis routine to a theme for use later
- Create multiple analysis themes per analysis routine
- Access saved analysis themes from fly-out menus/script

On-Demand Update of Results

- Quickly update the results of any previously run analysis operation if the parameters or source data change. Update them manually or automatically.



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Analysis Results

- Add Results Sheets to same workbook as the source data. Embedded graphs combine to create Consolidated Report
- Create separate reports per dataset for same analysis routine, or combine in one results sheet
- Project Browser to select source workbook/worksheet in which to store results
- Output custom report tables to results sheets from nearly every analysis routine (see Table Annotations for more)
- Results reported to Results Log to establish analysis history
- Customize results sheet table formatting and save as theme
- Residual Analysis (Linear, Polynomial, Multiple Regression, Nonlinear Fitting)- 4 residual types (Regular, Standardized, Studentized, Studentized deleted) and 5 plot types
- Find X/Find Y/Find Z and out put with results

Fitting Function Organizer

- Organize all fitting functions in an intuitive dialog, Equation preview. Sample curve preview.
- Create and edit category names
- Create and edit user-created fitting functions
- Perform simulations

Mathematics

- Simple math between datasets: =, +, -, x, ÷
- 1D Interpolation/Extrapolation - Linear, Cubic Spline, B-Spline
- 2D Interpolation - Nearest, Bilinear, Bicubic, Spline, Biquadratic
- Trace Interpolation
- 3D Interpolation
- Subtract reference data or straight line
- Calculus: Differentiation, integration, differentiation using Savitzky-Golay smoothing
- Inverse (matrix only)
- 2D Volume Integration (matrix only)
- Normalize

Linear and Polynomial Regression

- Analyze Input Data independently (consolidated or separate reports) or concatenated
- Weighted Fit
- Linear Fit: Fix Intercept or slope for Linear.
- Polynomial Fit: Order > 9
- Generate result using same X values as the original data, uniform linear, or uniform log X values
- Apparent Fit
- Fit Parameters: Value, Standard Errors, LCL/UCI, t-Value, Prob>|t|, CI Half-Width
- Fit Statistics: Number of points, DOF, R value, Residual Sum of Squares, R-Square (COD), Adjusted R-Square, Root-MSE (SD), Norm of Residuals, ANOVA Table
- Confidence Ellipse. Confidence bands. Prediction bands.

Multiple Linear Regression

- Analyze Input Data: Independently (consolidated or separate reports), concatenated, or by taking the mean with standard error or mean with standard deviation
- Fix intercept
- Apparent Fit
- Fit Parameters: Value, SE, Upper and Lower Confidence Levels for Parameters, t-Value, Prob>|t|, CI Half-Width
- Fit Statistics: Number of Points, Degrees of Freedom, R Value, Residual Sum of Squares, R-Square (COD), Adjusted R-Square, Root-MSE (SD), Norm of Residuals, ANOVA table
- Partial Leverage Plots in Multiple Regression

Nonlinear Curve Fitting

- 2D Fitting
- 3D Surface (XYZ or matrix) fitting
- Replicate Data Fitting - Fits all data, not an average - then offers average curve with SE or SD for visual representation
- Multiple Peak Fitting
- Global Fitting
- Perform simulations
- Fit Comparison: Two datasets to the same model or one dataset to multiple models. AIC and/or F test
- Nearly 200 built-in fitting functions. Create. Save. Share.
- Fit using the Levenberg-Marquardt method

- Built-in fitting routines for Exponential Growth and Decay, single/multiple peak Gaussian/Lorentzian, and Dose Response (Boltzmann, Logistic, Hill)
- Analyze Input Data independently (consolidated or separate reports) or concatenated
- Apply Weighting—13 different methods including several iteratively reweighted least squares methods
- Set lower/upper bounds for fitting parameters
- Apply custom linear constraints
- Control total iterations, tolerance, derivative delta
- Automatic parameter initialization
- Ability to define derived parameters that use fitting function variables in calculations
- Parameter Results: Parameter value estimation, standard errors, LCL/UCI, CI Half-Width
- Fit Statistics: Number of points, DOF, reduced Chi-square, R, RSS, R² (COD), Adjusted R², Root-MSE (SD)
- Generate fit curves using same X/Y values as the original data, uniform linear, or uniform log X/Y values
- Confidence/prediction bands

Signal Processing

- FFT/IFFT
- SIFT
- Hilbert Transform
- Correlation
- Coherence
- Convolution and deconvolution
- FFT Filter: Low Pass, High Pass, Band Pass, Band Block, Noise Threshold
- Smoothing: Savitzky-Golay smoothing. Large asymmetric windowing, Adjacent Averaging (running average), FFT filter smoothing, Median Filter
- 2D FFT/2D IFFT
- 2D Correlation
- Image Profiling: Simple Line Profiling: Horizontal, Vertical, Straight Line.

Spectroscopy

- Find positive and negative peaks
- Fit positive and negative peaks
- Automatic baseline detection define your own baseline using a formula or existing dataset
- Peak labels, center and base markers
- Integration from baseline (entire curve or by peak)
- Peak Fitting: Advanced peak fitting. Automatic peak detection. Fit multiple peak datasets using different functions for each peak.

Wavelet Analysis

- Decompose (Discrete Wavelet Transform—DWT): 1 and 2D
- Reconstruct (Inverse DWT - IDWT): 1 and 2D
- Smooth
- Denoise
- Continuous Transform

Statistics

Descriptive Statistics

- Column and row statistics
- Analyze input data independently (consolidated or separate reports) or combined
- Support for grouping and weighting with row/column statistics and many other statistical analyses
- Moments: N total, N missing, Sum, Mean, Mode, Geometric Mean, Geometric SD, Lower CL of the Mean, Upper CL of the Mean, Standard Deviation (SD), SD*2, SD*3, Standard Error of Mean, Variance, Coefficient of Variation, Skewness, Kurtosis, Mean Absolute Deviation, Uncorrected Sum of Squares, Corrected Sum of Squares, Sum of Weights
- Quantiles: Minimum, Index of Minimum, 1st Quantile (Q1), Median, 3rd Quantile (Q3), Maximum, Index of Maximum, Interquartiles Range (IQR = Q3 - Q1), Range (Maximum - Minimum), Custom Percentile(s)
- Extreme Values
- Variance Divisor of Moment: DF, N, WDF, WS, WVR
- Interpolation of Quantiles: Weighted Average Left, Weighted Average Right, Nearest Neighbor, Empirical Distribution (None), Empirical Distribution with Average, Tukey Hinges

- Frequency Count
- Discrete Frequency
- 2D Binning
- Normality Tests: Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors
- Correlation: Pearson R, Spearman R, and Kendall Coefficients

Parametric Hypothesis Tests

- One and Two Sample t-Tests
- Paired Sample t-Test
- Welch Corrected t-Test
- One Sample Chi-Square Test for Variance
- Two Sample F Test for Variance
- Confidence Levels for One Sample Chi-Square Variance
- Confidence Levels for Two Sample F Variance

ANOVA

- One-way and Two-way ANOVA
- One-way and Two-way Repeated Measures ANOVA
- Indexed or raw data
- Means Comparison Tests: Bonferroni, Scheffe, Tukey, Dunn-Sidak, Dunnnett, Fisher LSD, Holm-Bonferroni, Holm-Sidak
- Tests for Equal Variance: Levene, Levene Square, Brown Forsythe
- Power Analysis

Nonparametric Hypothesis Tests

- Wilcoxon Sign Rank Test
- Mann-Whitney Test
- Wilcoxon Matched Pair Test
- Kruskal-Wallis ANOVA
- Friedman ANOVA
- Sign Test
- Kolmogorov-Smirnov Two-Sample Test
- Mood's Median Test

Survival Analysis

- Kaplan-Meier Analysis
- Cox Proportional Hazards Model
- Survival Function Comparison: Log-rank, Breslow, Tarone Ware
- Weibull Fit

ROC Curves

Power and Sample Size

- One Sample t-Test for PROspective Power Tool
- Two Sample t-Test for PROspective Power Tool
- Paired-Sample t-Test for PROspective Power Tool
- One Way ANOVA for PROspective Power Tool

Image Processing and Analysis

- Select region of interest: cut, copy, create new matrix
- Color Adjustments: Intensity (Brightness, Contrast, Gamma), Color (Hue, Invert, Saturation, Color Balance)
- Equalizer: Histogram Equalize, Histogram Contrast, Auto Level
- Lookup Table: Function LUT, User Define
- Channels: RGB Split, RGB Merge
- Arithmetic Transforms: Pixel Logic, Math Function, Image Combine, Alpha Blend, Entropy, Background Subtract Extract to XYZ, Morphological Filter, Replace Background, Subtract Interpolated Background.
- Color Resolution Conversions: Color to Gray, Gray to Color, Color to B/W (Binary, Dynamic Binary), Thresholding, Gray Colorize
- Color Detect: Detect, Segment, Replace
- Geometric Transforms: Rotate, Flip (H/V), Shear, Auto Trim, Crop, Resize, Offset
- Spatial Filters: Blur (Average, Gaussian), Noise (Add Noise, Median), Sharpen (Sharpen, Unsharp Mask), Edge Detect, User Filter

Exporting and Publishing

Exporting and Printing Graphs/Layout Pages

- Layout page to show multiple graphs, worksheets, matrices
- Export dialog with theme support and precise width/height measurement control
- Export graphs/layout pages as AI, BMP, CGM, DXF, EMF, EPS, JPG, PCT, PCX, PDF, PNG, PowerPoint[®] (PPT), PSD, TGA, TIF, WMF, XPM, XWD
- Control export size, resolution and more by file format
- Copy graphs/layout pages to clipboard; paste into other applications
- Exchange information between Origin and other applications

- Paste link using Origin as OLE 2 server
- Printing: Print Preview. Print active graph, selected graphs, all open graphs, all graphs in the project. Print to PostScript file. Print Preview. Batch printing. Large dimension printing

Export and Printing Data

- Export Worksheet/Matrix: To ASCII file. Selected region. Include headers (worksheet)/XY coordinates (matrix). Choose separator. To PDF: (worksheets and results). Export Matrix: To Image.
- Printing: Print entire worksheet/matrix sheet or a selected range. Print to PostScript file. Print preview. Batch printing.
- Layout page to show multiple graphs, worksheets, matrices

Sharing Files with Colleagues

- Pack selected files into one compressed file for sharing. Automatic installation/uninstallation of files.
- Export your toolbar and floating window configuration to a file

Scripting

LabTalk[™]

- Continued LabTalk support with Access to all basic math functions, built-in analysis routines, x-functions, and more.
- LabTalk Variable Viewer
- Execute script files easier with DOS-like working directory concept. Ability to predefine working directory paths
- Define variables under three classes/levels: Project, Session, & Local variables
- Variable types: Integer, Double, Constant, Range, String, Dataset, Function, Tree
- Range notation improvements for flexible data access: Easy increment and repeat: New ":" operator and "end" keyword.

Command Window

- Execute LabTalk commands.
- Build custom routines line by line. Save to script (O6S) file.
- History Log. Execute previously executed commands.
- Roll back support to utilize previously executed commands
- Intellisense (auto complete) for X-Functions, and commands for searching and listing X-Functions, as well as viewing XFunction Help

- Launch attached to any workbook/matrix book

Development Environment

Origin C Programming

- C compiler with nearly complete ANSI C language syntax
- Supports a subset of C++ features including user-defined, internal and DLL-extended classes
- Includes entire NAG[®] Mark VII function libraries
- Integrated development environment with color-coded editing and debugging
- Automation Server support
- COM Server

Custom Interfaces

General

- Use commands to create dialog boxes, open new windows
- Create toolbar buttons to carry out your own operations
- Modify menus and define new menu commands

Modules

- Check the File Exchange at www.OriginLab.com

System Requirements

- Microsoft[®] Windows NT[®] 4.0 or later, Windows[®] 2000 or Windows[®] XP or later, Microsoft[®] Vista[®]
- 1 GHz or higher Pentium-compatible processor
- 512 Megabytes (MB) of RAM (1024 MB recommended)
- 350 MB of free hard disk space
- CD-ROM drive
- To use HTML Help, Internet Explorer 4.01 or later required

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