Minitab® 17 Statistical Software

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Part 1. Introduction to Minitab 17

Welcome to Minitab 17! Our latest release offers many new features and enhancements, including:

- The Assistant now includes design of experiments (DOE) and multiple regression. Like all Assistant features, these new tools lead you through your entire analysis and help you interpret and present your results. The Assistant also offers improved Graphical Analysis.

- New regression, binary logistic regression and general linear model menus offer easier model specification, automatic model selection, response optimizer, and more.

- DOE improvements include automatic model selection for factorial and response surface designs, response optimizer for general factorial designs, and categorical variables for response surface designs.

- Stability studies to analyze the stability of a product over time and determine the shelf life.

- Equivalence testing to determine if means are similar enough to be considered equivalent.

- Poisson regression to model response variables that describe the number of times an event occurs.

- Outlier tests, including Grubbs’ and Dixon’s ratio tests, to identify an outlier in a dataset.

- Bubble plots for graphing 3 variables in a 2-dimensional space. Plot Y versus X with bubble size to represent a third variable.

- Newly styled graphics to make your presentations look even better.

Visit www.minitab17.com for more information.
Part 2. New Features in Minitab 17.2

Minitab 17.2 offers new features for exploring, visualizing, and manipulating your data, including:

- Conditional formatting to instantly identify the most frequent values, out-of-control points, out-of-spec measurements, and more.
- Enhanced subset and sort options, including the option to subset or sort your data based on conditional formats.
- Data customization options for highlighting cells, changing their font style, and adding cell comments.
- Right-click option to change a column’s format that includes the ability to easily change text columns to numeric.
- Stack worksheets to combine multiple worksheets into one.
- Code interface improvements.
- Automatic footnotes appear on graphs and control charts when the dialog box is used to subset the data or specify historical parameters.

Part 3. Problems Resolved in Minitab 17.2

Several specific issues have been resolved in Minitab 17.2, including:

Item 1

**Stat > Quality Tools > Individual Distribution Identification > Box-Cox** ignores user-specified lambda values and instead applies the optimal lambda when subgroup sizes are unequal.

(170587)

Item 2

**Nonlinear Regression** may fail to properly read user-specified functions that are very long. When this problem occurs, the following message appears above the Nonlinear Regression output:

* NOTE * Subcommand does not end in . or ; (; assumed). (168317)

Item 3

When Windows display settings are set to Medium (125%) or Large (150%), the buttons in the **Stat > Regression > Stability Study > Create Stability Study Worksheet** dialog box may be unreadable. (170399)

Item 4

The graph **Each X Regressed on All Other Terms** in the output for **Assistant > Regression > Multiple Regression** includes an incorrect subtitle. (171993)
Item 5
********
**Data > Date/Time > Extract to Numeric** produces unexpected results with negative elapsed times. (170671)

Item 6
********
A Minitab 16 project that contains an optimization plot for a fractional factorial design will not open in Minitab 17. (171947)

Item 7
********
For some regional settings, Minitab uses the incorrect decimal separator when exporting a .CSV file. (171873)

Item 8
********
In certain data import scenarios, decimal values are either truncated or set to zero under English regional settings in combination with a non-period decimal separator. (172118)

Item 9
********
Using Data Options with **Graph > Time Series Plot** to subset data while simultaneously using **Time/Scale > Calendar Month** may result in an error message. (170565)

Item 10
********
Attempting to save a graph that contains a polygon of many points as any file type other than MGF crashes the application. (171381)

Item 11
********
Several Hoops 2/2 Font errors are generated upon launch when certain fonts are installed. (171578)

Item 12
********
Including certain graphs using **Editor > Layout Tool** could cause an error and result in Minitab crashing. (171902)

Item 13
********
The Assistant menu choosers may not display correctly on high resolution laptops or tablets. (171099)

Item 14
********
Using **Send Graph to Microsoft PowerPoint** when PowerPoint is not open could cause Minitab to crash. (170345)

Item 15
********
When editing graph colors on a Windows 8 machine, Minitab does not display all of the available colors. (170567)
Item 16
*********
When using One-Way ANOVA for unstacked data, some missing value patterns in the data can cause the boxplot and individual value plot to not display all of the data. (170611)

Item 17
*********
Using General Linear Model's Factorial Plots could cause Minitab to crash if the active worksheet includes a non-hierarchical model with binary coding. (171460)

Item 18
*********
Output is provided for General Linear Model's Comparisons when a term contains or interacts with a random term. Because the algorithm does not handle this case, an error message should be displayed instead. (172592)

Item 19
*********
There is no option to display an S Chart for an I-MR-R/S Chart when the subgroup size is greater than or equal to 8. (172086)

Item 20
*********
When using Stepwise to analyze a DOE with blocks or categorical predictors with more than two levels, a Session window message says that if the term has more than one coefficient, the coefficient with the largest magnitude is shown. However, the coefficient with the largest magnitude is not always displayed. (172081)

Item 21
*********
No bars are shown on a Pareto chart that is created using both a By Variable and Frequencies when the Frequencies are less than 1. (168274)

Item 22
*********
Best Subsets for regression displays misleading results when at least one predictor is included in all models. (171138)

Item 23
*********
A run-time exception may occur when regression on all categorical predictors is performed and Tools > Options is set to standardize continuous predictors to the range -1 to 1. (172811)

Item 24
*********
If you attempt to set the x-axis minimum on the Probability Plot during Weibayes Analysis, an assertion failure and numerical error occur. (168234)

Item 25
*********
Graphs for Warranty Prediction are improperly displayed when using a Macbook Pro with Parallels and Windows 7. (172268)
Item 26

Cross Tabulation and Chi-Square can produce incorrect results when Value Order is set to Worksheet Order. (170984)

Part 4. New Features in Minitab 17.3

Minitab 17.3 provides direct access to your subscription to Quality Trainer, an e-learning course that teaches statistics and how to analyze your data using Minitab, and offers new features for cleaning and formatting your data, including:

- Data cleaning options available at the time of import to identify and properly represent missing values, correct case mismatches, remove extra characters or spaces, and fix unequal column lengths.
- A copy/paste warning that safeguards against improperly formatted columns when pasting data into Minitab from an Excel or similar file type.
- Change Data Type dialog interface and functionality improvements to match Format Column.
- New Recode, formerly named Code, options to code based on least or most frequent values or percentages.
- New option to merge worksheets side-by-side.

Part 5. Problems Resolved in Minitab 17.3

Several specific issues have been resolved in Minitab 17.3, including:

Item 1

Repeatedly changing profiles using Tools > Manage Profiles in a short period of time may cause menus and toolbars to disappear from the interface. Restore them by running RMD.exe, located in the folder in which Minitab was installed. (170186)

Item 2

Due to problems parsing long command strings, Graph > Bar Chart and Graph > Line Plot can fail to execute and display an error message when you enter a large number of columns in the Graph variables field. (6741)

Item 3

With very unbalanced designs, Gage R&R Study (Expanded) will yield an assertion failure error message if all graphs are requested in the output. (172537)

Item 4

On rare occasions, Minitab crashes when you click a graph and choose Editor > Layout Tool. (172791)
Item 5
********
A project may become corrupt the second time it is saved, if it contains one of the following control charts: Tsquared, Tsquared-Generalized Variance, Multivariate EWMA, or Generalized Variance. (173257)

Item 6
********
A change to the Method for Calculating Plot Points in Tools > Options > Individual Graphs > Probability Plots fails to take effect until Minitab is restarted. (164181)

Item 7
********
When subgroup size > 1, the plotted point values are incorrect for Multivariate EWMA. (173312)

Item 8
********
Gage R&R Expanded may yield an assertion failure error for data that are extremely unbalanced. (172537)

Item 9
********
When an upper and a lower limit are provided in a Stability Study, Minitab erroneously uses a confidence level of 100*(1-alpha) instead of the correct value of 100*(1-alpha/2). (172421)

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Part 6. Known Problems and Workarounds
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Item 3
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The decimal key on a numeric keypad may not respond in other applications when Minitab is open. (167360)

WORKAROUND: Give Minitab enough time to launch completely before opening another application.

Item 5
********
In rare cases, a Minitab project may open and appear to be empty. (007128)

WORKAROUND: Search the computer for a recovery file named TMP*mpj. Use the asterisk because the file may be named TMP0.mpj, TMP1.mpj, etc.

Item 7
********
When you use Data > Subset Worksheet to include or exclude data based on a condition statement that requires the # symbol, Minitab ignores conditions that follow a condition that contains the # symbol. For example, Minitab uses the first condition (for C1) and ignores the second (for C2) in the following subset syntax: C1 = "Item#5" or C2 = "A". (163243)
WORKAROUND: Either move the condition that contains the # symbol to the end of the condition statement (i.e. C2 = "A" or C1 = "Item#5") or use Data > Subset Worksheet multiple times, each time using a single condition.

Item 9
******

When you create a histogram, probability plot, or empirical CDF through the Graph menu, Minitab may erroneously display an error message that the specified distribution cannot be used even if Data Options is used to exclude the portion of data that causes the error. For example, an error message might display when you exclude 0 and use the lognormal distribution, a distribution which is only valid for data greater than 0. (143049)

WORKAROUND: Use Data > Subset Worksheet to create a new worksheet that excludes the offending values prior to creating the graph.

WORKAROUND: Create the graph using the normal distribution, and then double-click the distribution displayed on the graph to specify a different distribution.

Item 10
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If a column used to create a graph shifts position because another column is inserted, deleted, or moved, the graph link to the worksheet breaks. Updating and brushing the graph becomes impossible. (6470)

Item 11
******

When multiple graphs are created simultaneously using a single dialog box, closing any one of the graphs will cause the other graphs to lose their link to the worksheet. Updating and brushing the graph becomes impossible. (8957)

Item 12
******

Clicking a menu or icon in a toolbar produces a run-time exception, which often points to a Global Declarations line. (7481, 41577)

WORKAROUND: The problem may be caused by an outdated or corrupt version of VBSCRIPT.DLL. Window XP users can download an updated version from the Microsoft Download Center: http://www.microsoft.com/en-us/download/details.aspx?id=8247

Item 13
******

If you analyze a mixture design with process variables and stepwise regression, and one or more process variables is dropped by the stepwise procedure, the dropped process variables appear in the Session window output with coefficients of zero. As a result, graphs of the model, including contour, surface, and optimization plots, show that the dropped process variables have no effect on the response, even though these variables were not included in the model. (9047)

WORKAROUND: Run the analysis again without the dropped process variables.

Item 14
******

If you make a 3D graph, the computer may lock up during graph production if ALL of the following are true:

- Your PC has a certain graphics chipset, most likely the Intel828xx chipset.
You are using OpenGL under Minitab's **Tools > Options > Graphics > Other Graphics Options** settings (this is the default).

You are using Full Hardware Acceleration under Control Panel's **Display Properties > Settings > Advanced > Troubleshoot** (this is the default). (6501)

WORKAROUND: Upgrading to the latest video driver for your particular video card may fix this problem.

WORKAROUND: Choose **Tools > Options > Graphics > Other Graphics Options** and check **Use GDI for 3D graphs**, or turn off hardware acceleration for the video card.

Item 15

In rare circumstances, Minitab project files (*.MPJ) can become corrupt, and Minitab will be unable to open these files. (124217)

WORKAROUND: Locate the project's backup file (*.BAK file with the same name as the corrupt project located in the same folder). Launch a new instance of Minitab, then drag-and-drop the *.BAK file into Minitab. In most cases, this will recover the project. If the project recovers successfully, immediately save the project using a new file name. If this backup fails, contact Minitab Technical Support (http://www.minitab.com/contacts).

Item 16

In rare cases, customers have received the following error message when opening a project file: “An error has occurred while reading project file: MYFILENAME.MPJ.” (8548, 8610, 8908)

WORKAROUND: Locate the project's backup file (*.BAK file with the same name as the corrupt project located in the same folder). Launch a new instance of Minitab, then drag-and-drop the *.BAK file into Minitab. In most cases, this will recover the project. If the project recovers successfully, immediately save the project using a new file name. If this backup fails, contact Minitab Technical Support (http://www.minitab.com/contacts).

Item 17

If a graph with annotations is exported to the ReportPad or to another application, the annotations will change position if they were added while the graph's Zoomed Size within Minitab was not set at 100%. (172123)

WORKAROUND: Set the graph's Zoomed Size to 100% before adding annotations to a graph that you plan to export. Change the Zoomed Size setting by clicking the graph, and then choose **Editor > Select Item > Figure Region**. Then choose **Editor > Edit Figure Region** and choose the **Graph Size** tab.

Item 18

If you use Paste Special to export a Minitab graph to a Microsoft Office Application, and select the Bitmap format, the color of the graph's Figure Region will change. (172256)

WORKAROUND: Export the graph as an Enhanced Metafile or Windows Metafile instead.

Item 21

The model indicator at the top of a response column fails to indicate an out-of-date model if the model included Weights. (172888)
Item 22
**********
Minitab will crash on a Microsoft Surface device if you use the keyboard combination
CTRL+Break. (173392)

Item 23
*******
Text in the Assistant Choosers may appear truncated with certain screen resolution settings.
(174380)

Item 24
*******
Subset Worksheet does not correctly recognize Value Order of Date/Time columns. (175121)

Item 25
*******
The Preview window of the Open command may appear empty when you open a Text file in
which the first 100 rows or more are empty or when you type a value of 100 or greater in "First
row to import". (175474)

Item 26
*******
When you copy and paste a graph that contains Asian characters into the Minitab ReportPad, the
Asian characters are replaced with question marks. (174254)
WORKAROUND: Instead of copying and pasting the graph, right-click the graph and choose
Append Graph to Report.

Item 27
*******
Printing a graph may cause Minitab to crash and shut down when an element in the graph is set
to appear with transparency. (174791)
WORKAROUND: Right-click the graph and choose Append Graph to Report, then print the
ReportPad instead.

Item 28
*******
If you change the Standardize settings in Tools > Options > Linear Models > Coding of
Predictors, Minitab may not honor different standardizing settings you specify with the Coding
button in the analysis itself. (175218)
WORKAROUND: If you change the settings for Standardization using Tools > Options > Linear
Models > Coding of Predictors, then you must exclusively use the same method to set
Standardization preferences and avoid the Coding button within the analysis itself. If you have
never changed the preferences for Standardization under Tools > Options > Linear Models >
Coding of Predictors, then you can use the Coding button, within the given analysis, without
error.

Item 29
*******
A single factor may appear multiple times in the Response Optimizer graph. (174667)
WORKAROUND: Fit the same model again, then re-run the Response Optimizer with the same
settings.
Item 30

Brushing a graph that contains panels may cause the disappearance of gridlines and reference lines that you have chosen to display. (175544)