

What's new in IBM SPSS Statistics 27

At a glance

IBM^(R) SPSS^(R) Statistics 27 enables users to surface insights from data by means of ad hoc analysis, hypothesis testing, and predictive analytics. The solution gives users a powerful set of tools to validate assumptions, analyze past performance, and forecast trends.

SPSS Statistics 27 highlights:

- **Bootstrapping Module and Data Preparation Module** added to IBM SPSS Statistics **Base** Edition
- **Custom Tables Module** added to IBM SPSS Statistics **Standard** Edition
- New Power Analysis and Weighted Kappa procedures
- Advancements to the MATRIX procedure, effect size enhancements, and other procedural improvements
- Productivity and usability improvements

Overview

SPSS Statistics 27 offers new statistical functionality, advances existing procedures, and introduces productivity improvements.

SPSS Statistics 27 includes the following new features and capabilities:

- Functionality added to SPSS Statistics Base Edition previously present in the Bootstrapping Module and Data Preparation Module
- Functionality added to SPSS Statistics Standard Edition previously present in the Custom Tables Module
- New Power Analysis and Weighted Kappa procedures
- Enhancements to effect size, MATRIX, and Quantile regression procedures
- Usability and productivity enhancements, including the ability to auto-recover files in the event of an unexpected application shutdown, new search capabilities, and output improvements

Deprecations

Support for MicrosoftTM WindowsTM 32-bit edition

Beginning with SPSS Statistics 27, Microsoft Windows 32-bit edition will no longer be supported. IBM recommends that organizations migrate to Microsoft Windows 64-bit operating system.

Support for IBM SPSS Collaborations and Deployment Services

SPSS Statistics 27 will be the last release to support SPSS Collaboration and Deployment Services.

Support for SPSS Statistics Web Reports File format

Beginning with SPSS Statistics 27, support for SPSS Statistics Web Reports File format (*.spw) is sunset.

Description

SPSS Statistics 27 helps users extract actionable insights from their data that can be used for planning, forecasting, and trend discovery. The following new features and capabilities extend the functionality and value of SPSS Statistics 27.

SPSS Statistics Base Edition

SPSS Statistics Base Edition includes Bootstrapping Module and Data Preparation Module at no additional cost:

- Bootstrapping Module enables users to use bootstrapping techniques on parameters estimated in SPSS Statistics 27 modules.
 - This is an efficient way to ensure that models are stable and reliable.
 - With Bootstrapping Module, users can estimate the standard errors and confidence intervals of a population parameter, such as mean, median, proportion, odds ratio, correlation coefficient, regression coefficient, and numerous other parameters.
- Data Preparation Module provides several procedures that facilitate the data preparation process, enabling users to:
 - Identify suspicious and invalid cases, variables, and data values
 - View patterns of missing data
 - Summarize variable distributions to prepare data ready for analysis
 - Improve accuracy when working with algorithms designed for nominal attributes

SPSS Statistics Standard Edition

SPSS Statistics Standard Edition includes the Custom Tables Module at no additional cost:

- Custom Tables Module enables user to summarize SPSS Statistics data, and display their analyses as presentation-quality, production ready tables.

Analytical methods

Power analysis

A priori sample size and power analysis can help determine optimum sample sizes so analysts can proceed with the knowledge that they have the right foundation for their project. When data is difficult or expensive to gather, it is important to know how many observations are necessary for an acceptable probability of detecting specified effects. SPSS Statistics 27 introduces the following power analysis procedures to help determine the optimal sample size:

- One sample t-test (POWER MEANS ONESAMPLE)
- Paired sample t-test (POWER MEANS RELATED)
- Independent samples t-test (POWER MEANS INDEPENDENT)
- One-way ANOVA (POWER ONEWAY ANOVA)
- One sample binomial (POWER PROPORTIONS ONESAMPLE)
- Related sample binomial (POWER PROPORTIONS RELATED)
- Independent sample binomial (POWER PROPORTIONS INDEPENDENT)
- Pearson correlations (POWER PEARSON ONESAMPLE)
- Spearman correlations (POWER SPEARMAN ONESAMPLE)
- Partial correlations (POWER PARTIALCORR)
- Simple and multiple linear regression (POWER UNIVARIATE LINEAR)

All power analysis procedures enable calculation of power for specified sample sizes and sample sizes required to achieve desired power. The power analysis feature includes extensive graphical capabilities for displaying power as a function of effect sizes and sample sizes, including three-dimensional plots displaying power as a function of effect sizes and sample sizes.

Weighted Cohen's kappa

Also known as Cohen's kappa, this analytical method is widely used to summarize inter-rater agreement on an ordinal scale and enables the use of weighting schemes to describe the closeness of agreement between raters. SPSS Statistics 27 provides the following weighted versions of weighted Cohen's kappa, which is appropriate for ordinal rating scales:

- Linear weighting
- Quadratic weighting
- Confidence intervals for all kappa coefficients

Procedure enhancements

Enhancements to the MATRIX procedure:

- Random variable generation functions to match options available outside MATRIX
- Probability distribution functions to match options available outside MATRIX
- Noncentral probability distribution functions to match options available outside MATRIX
- Significance functions for chi-square statistic and F distributions

- Noncentral cumulative distribution function for Beta distributions

Effect size enhancements to the t-test and one-way procedures add effect size estimates and confidence intervals for the following:

- One-sample t-tests
- Independent sample t-tests
- Paired sample t-tests
- One-way analysis of variance (one-way ANOVA)
- Custom contrasts in one-way ANOVA

Usability and productivity enhancements

SPSS Statistics 27 introduces usability enhancements that simplify use, save effort, and increase productivity. Features and capabilities:

- Auto-recovery capability that periodically saves supported document types automatically, enabling the application to restore unsaved files in the event of an unexpected shutdown.
- Global search feature that simplifies access to help, syntax, and use-case content from online documentation. This new search feature also enables easy access to procedures available in menus.
- Output enhancements that include improved American Psychological Association (APA) format support, chart editor usability improvements, improvements to output formatting and exportability of output files.
- Improvements to charting, including support for bubble charts that can add a third dimension to traditional scatter plots.
- Productivity improvements with open source support, including support for Python 3.8.2, and application installation and license authorization wizard experiences.
- Access to the latest SPSS Statistics news and content from the SPSS Statistics team through an improved, internet enabled Welcome Dialog Screen.