IBM SPSS Statistics Editions

*Get the analytical power you need
for better decision-making*

Why use IBM SPSS Statistics?

IBM SPSS Statistics is the world's leading statistical software. It enables you to quickly dig deeper into your data, making it a much more effective tool than spreadsheets, databases or standard multi-dimensional tools for analysts. SPSS Statistics excels at making sense of complex patterns and associations — enabling end users to draw conclusions and make predictions. And it's fast — handling tasks like data manipulation and statistical procedures in a third of the time of many non-statistical programs.

IBM® SPSS® Statistics delivers a powerful set of statistical that enable your organization to make the most of the valuable information your data provides. By digging deeper into your data, you can discover information to improve decision-making — ultimately expanding markets, improving research outcomes, ensuring regulatory compliance, managing risk and maximizing ROI to name a few.

SPSS Statistics features robust and sophisticated functionality and procedures that address the entire analysis lifecycle:

- It includes procedures to account for missing data that otherwise could negatively impact the validity of your results.
- It supports all common data sources used by enterprise organizations.
- Statistical functions and procedures are kept apart from the data, reducing the risk of errors.
- Open technologies allow for the use of external programming languages, so you can add or customize additional functionalities.
- Various modular offerings support different types of analyses.

SPSS Statistics comes in three editions to meet all the analysis requirements of your organization:

- **IBM SPSS Statistics Standard** — Essential analytical tools for the most common projects
- **IBM SPSS Statistics Professional** — A comprehensive set of features and tools to address the challenges of the entire analytic lifecycle
- **IBM SPSS Statistics Premium** — Designed for enterprise businesses with extensive needs across all advanced analytics efforts

IBM SPSS Statistics Standard

Whether you are a statistician or other analytics professional or have to analyze data as part of your business responsibilities, SPSS Statistics Standard offers the essential statistical procedures you need to increase the reliability of your analysis, so you reach more dependable conclusions. If you need an analytical package that combines the most common statistical procedures and functions that most analysts use on a day-to-day basis, choose SPSS Statistics Standard.

Cover the essentials with our complement of core analytical capabilities

SPSS Statistics Standard is used in a number of fields to address fundamental business and research questions. With SPSS Statistics Standard, you can get a quick look at your data, formulate hypotheses for additional testing and then carry out a number of procedures to help clarify relationships between variables, create clusters, identify trends and make predictions.

Key capabilities include:

- **Linear models**—Make your analysis more accurate and reach more dependable conclusions.
- **Nonlinear models**—Have the ability to apply more sophisticated models to your data.
- **Simulation modeling**—Build better models and assess risk when inputs are uncertain using Monte Carlo simulation techniques.
- **Geospatial analytics**—Explore the relationship between data elements that can be tied to a specific location.
- **Customized tables**—Quickly slice and dice your data for easy analysis and reporting.

Linear models

SPSS Statistics Standard features a variety of regression and advanced statistical procedures designed to fit the inherent characteristics of data describing complex relationships, including:

- General linear models (GLM)
- Generalized linear mixed models (GLMM)
- Hierarchical linear models (HLM)
- Generalized linear models (GENLIN)
- Generalized estimating equations (GEE)

Nonlinear models

You can also apply more sophisticated models to your data using a wide range of nonlinear regression models, using these procedures:

- **Multinomial logistic regression (MLR)**—Predict categorical outcomes with more than two categories
- **Binary logistic regression**—Easily classify your data into two groups
- **Nonlinear regression (NLR) and constrained nonlinear regression (CNLR)**—Estimate parameters of nonlinear models
- **Probit analysis**—Evaluate the value of stimuli using a logit or probit transformation of the proportion responding

Simulation modeling

Simulation in SPSS Statistics Standard is designed to account for uncertainty in inputs to predictive models. Using this approach, uncertain inputs are modeled with probability distributions, and simulated values for those inputs are generated by drawing from those distributions. You can perform simulation even if you have categorical inputs in your data. Simulation features include the ability to produce heat maps and use Automatic Linear Modeling as a starting point for running simulations.

Geospatial analytics

SPSS Statistics can help you explore the relationship between data elements that are tied to a specific location. By fitting linear models for measurements taken over time at locations in 2D/3D space, you can predict "hot" areas and how those areas may change over time. Some of the business applications for this feature include building management and branch performance analysis.

Similarly, the Generalized Spatial Association Rule (GSAR) helps you discover associations between spatial and non-spatial attributes, so you can find hidden patterns and obtain richer insights than with traditional analysis methods alone. GSAR enables you to use historical data such as location, type of event and the time the event occurred to describe the occurrences of events, which can be useful in areas such as crime pattern analysis and epidemic surveillance.

Customized tables

SPSS Statistics Standard enables you to quickly "slice and dice" your data. Then you can create customized tables to help you better understand your data and easily report your results.

SPSS Statistics Professional edition capabilities

- Linear models
- Nonlinear models
- Simulation modeling
- Geospatial analytics
- Custom tables
- Data preparation
- Missing values and data validity
- Decision trees
- Forecasting

IBM SPSS Statistics Professional

Like SPSS Statistics Standard, SPSS Statistics Professional includes advanced statistical procedures to ensure the accuracy of your analyses and table features to help you better understand your data and easily report results. But SPSS Statistics Professional goes much further—helping you with issues of data quality and data complexity, and providing automation and forecasting capabilities to name a few.

Tools to address the challenges of the entire analytic lifecycle

If you routinely perform many types of in-depth and non-standard analyses and need to save time by automating data preparation tasks, SPSS Statistics Professional would be a good fit. SPSS Statistics Professional helps both professional analysts and business users easily accomplish tasks at every phase of the analytical process. Fully integrated SPSS Statistics capabilities enable you to step seamlessly from one task to the next.

SPSS Statistics Professional includes these capabilities:

- **Linear models**—Make your analysis more accurate and reach more dependable conclusions to drive decision-making.
- **Nonlinear models**—Have the ability to apply more sophisticated models to your data.
- **Simulation modeling**—Build better models and assess risk when inputs are uncertain using Monte Carlo simulation techniques.
- **Geospatial analytics**—Explore the relationship between data elements that can be tied to a specific location.
- **Customized tables**—Quickly slice and dice your data for easy analysis and reporting.
- **Data preparation**—Save time and improve the accuracy of your analysis.
- **Missing values and data validity**—Use a scientific approach to handling missing data.
- **Decision trees**—Better identify groups, discover relationships between groups and predict future events.
- **Forecasting**—Analyze time-series data to support decision-making.

See page 2 for a description of linear models, nonlinear models and simulation modeling.

Data preparation

SPSS Statistics Professional helps you streamline the data preparation stage of the analytical process—saving time and ensuring greater accuracy. Perform data checks based on each variable's measure level, quickly find multivariate outliers by searching for unusual cases based upon deviations from similar cases and preprocess data prior to model building with an optimal binning procedure.

Missing values and data validity

SPSS Statistics Professional includes critical tools for addressing data validity and missing values:

- Uncover missing data patterns by examining data from several different angles, using one of six diagnostic tests, and quickly generate a report highlighting serious missing data problems.
- Use the multiple imputation procedure to replace missing data values to better understand patterns of "missingness" in your dataset and enable you to replace missing values with scientific estimates.

Categorical and numerical data

Obtain clear insight into complex categorical and numeric data, as well as high-dimensional data. SPSS Statistics Professional includes procedures to visually interpret datasets and see how rows and columns relate in large tables of scores, counts, ratings, rankings or similarities. It includes a variety of advanced statistical operations on categorical data to turn qualitative variable into quantitative ones. You can also use perceptual maps and biplots to graphically display underlying relationships using dimension reduction techniques to clarify complex relationships in your data for better decision making.

Decision trees

Create classification and decision trees to help you better identify groups, discover relationships between groups and predict future events. Decision trees present categorical results in an intuitive manner, allowing you to explore results and visually determine how your model flows, and then clearly explain categorical results to non-technical audiences. You can also find specific subgroups and relationships that you might not uncover using more traditional statistics.

Forecasting

Predict trends and develop forecasts quickly and easily with advanced statistical techniques to work with time-series data. Regardless of your level of experience, you can analyze historical data, predict trends faster and deliver information in ways that your organization's decision makers can understand and use.

Key features enable you to:

- Save models (e.g., XML) to a central file so that forecasts can be updated when data changes, without having to re-set parameters or re-estimate the model.
- Write scripts so that models can be updated with new data automatically.

In addition, Temporal Causal Modeling (TCM) enables you to feed a large amount of time series data into SPSS Statistics to find out which series are causally related. For example, you may want to use this procedure to analyze stock price data, which is temporal in nature and dependent on the values of sets of variables at various points over time.

IBM SPSS Statistics Premium

No matter the focus of your analysis, IBM SPSS Statistics Premium will significantly improve productivity and help achieve superior results for specific projects and business goals.

Be ready for any analytical project throughout your enterprise

SPSS Statistics Premium includes all the feature functionalities of the SPSS Standard and SPSS Professional editions… and much more. It adds advanced analytical techniques such as structural equation modeling (SEM), in-depth sampling assessment and testing, as well as procedures specifically geared for direct marketing. If you want to be prepared to perform any type of analysis with the most sophisticated procedures available, SPSS Statistics Premium is the right choice.

SPSS Statistics Premium edition capabilities

- Linear models
- Nonlinear models
- Simulation modeling
- Geospatial analytics
- Custom tables
- Data preparation
- Missing values and data validity
- Categorical and numeric data
- Decision trees
- Forecasting
- Structural equation modeling
- Bootstrapping
- Advanced sampling assessment and testing
- Direct marketing and product decision-making procedures
- High-end charts and graphs

SPSS Statistics Premium includes these features and functionality:

- **Linear models** – Make your analysis more accurate and reach more dependable conclusions to drive decision-making.
- **Nonlinear models** – Have the ability to apply more sophisticated models to your data.
- **Simulation modeling** – Build better models and assess risk when inputs are uncertain using Monte Carlo simulation techniques.
- **Geospatial analytics** – Explore the relationship between data elements that can be tied to a specific location.
- **Customized tables** – Quickly slice and dice your data for easy analysis and reporting.
- **Data preparation** – Save time and improve the accuracy of your analysis.
- **Missing values and data validity** – Use a scientific approach to handling missing data.
- **Decision trees** – Better identify groups, discover relationships between groups and predict future events.
- **Forecasting** – Analyze time-series data to support decision-making.
- **Structural equation modeling** – Gain additional insight into causal models.
- **Bootstrapping** – Ensure your models are stable and reliable
- **Advanced sampling assessment and testing** – Find the right sample size and determine the exact test for small samples.
- **Direct marketing and product decision-making procedures** – Quickly perform RFM analysis and better understand consumer preferences.
- **High-end charts and graphs** – Gain new ways to portray and communicate analytics to others.

See page 2 for descriptions of linear models, nonlinear models and simulation modeling; page 3 for an overview of geospatial analytics and customized tables; and page 4 for information on data preparation, missing values and data validity, categorical and numeric data, decision trees and forecasting.

Structural equation modeling

Structural equation modeling (SEM) can help you gain additional insight into causal models and explore the interaction effects and pathways between variables. SEM lets you more rigorously test whether your data supports your hypothesis. You create more precise models than if you used standard multivariate statistics or multiple regression models alone.

Bootstrapping

Bootstrapping provides an efficient way to ensure that your models are stable and reliable. It estimates the sampling distribution of an estimator by re-sampling with replacement from the original sample. With bootstrapping, you can reliably estimate the standard errors and confidence intervals of a population parameter, including the mean, median, proportion, odds ratio, correlation coefficient, regression coefficient and numerous others.

Who uses SPSS Statistics?

Businesses use it for…
- Sales and marketing forecasting and budgeting
- Database and direct marketing
- Product attribute testing

Higher education uses it for…
- Enrollment management
- Alumni development
- Research

School districts use it for…
- Student assessment
- Program assessment
- Planning and budgeting

Government agencies use it for…
- Fighting crime and protecting public safety
- Promoting public health
- Fighting fraud, waste and abuse
- Human capital management

Medical facilities use it for…
- Evidence-based medicine
- Treatment outcome analysisr
- Behavioral and biomedical research

Advanced sampling assessment and testing

Find the right sample size for your research in minutes and test the possible results before you begin your study. Compare the effects of different study parameters and determine the exact test needed to more accurately work with small samples and analyze rare occurrences in large databases.

Direct marketing and product decision-making procedures

Quickly perform various kinds of analyses, including recency, frequency and monetary value (RFM) analysis, cluster analysis and prospect profiling. Increase your understanding of consumer preferences to more effectively design, price and market successful products — maximizing campaign effectiveness and return on investment.

High-end charts and graphs

Develop and create new visualizations — from basic, simple charts to advanced, highly compelling graphics — that enable new ways to portray and communicate analytics to others. View analytical output on multiple smart devices simultaneously for better decision-making anytime, anywhere.

Capabilities for "deep dive" analyses — no matter your focus

SPSS Statistics Premium helps data analysts, planners, forecasters, survey researchers, program evaluators and database markets — among others — to easily accomplish tasks at every phase of the analytical process. No matter what type of analysis you do, you'll have a broad array of fully integrated Statistics capabilities for specialized analytical tasks across your enterprise.

Data analysts have the statistical and analytical capabilities to maximize productivity at every point of the analytic process.

- Quickly detect anomalies and identify unusual cases that tend to skew overall results.
- Address dirty data, and complete datasets by replacing missing values with imputed estimates.
- Perform Monte Carlo simulation to assess risk and uncertainty in your data.
- Test and ensure analytical procedures by quickly estimating the sampling distribution of an estimator.
- Discover if random effects introduce correlations.
- Summarize and clearly communicate your findings.

Planners and forecasters can plan and implement more successful strategies—analyzing time series data efficiently and accurately.

- Support data-driven decision-making with sophisticated analytics.
- Easily identify the right sample size.
- Make better predictions using powerful regression procedures.
- Build expert time-series forecasts in a flash.

Survey researchers have the tools to learn more about survey data, faster and more accurately.

- Go further than simple row-and-column math and summaries.
- Find patterns and associations.
- Present results as "decision trees" or crosstab tables.
- Create custom tabular reports for a variety of audiences — including those without a statistical background.

In **program evaluation**, needs assessment, process analysis, impact analysis and cost/benefit analysis involve the analysis of diverse and quantitative datasets that can obscure the effectiveness of programs. SPSS Statistics Premium gives researchers and analytic professionals the tools for the many phases of program evaluation.

- Easily access, manipulate and analyze a multitude of data types, including numerical and categorical.
- Capture a more accurate understanding of data when working with large-scale surveys.
- Employ specialized statistical techniques to account for the errors associated with sampling and sample design.
- Accurately model linear and non-linear relationships with or without categorical data.
- Discover if random effects introduce correlations within program data.
- Quickly summarize research and report findings with frequencies, crosstabs, and other descriptive statistics.

Database marketers have many responsibilities. Maximizing marketing programs and campaigns for efficiency and impact, understanding prospects and customers and removing unique cases to produce statistically significant response rates—the list is extensive. SPSS Statistics Premium lightens the load for the database marketer, as well as that of the supporting analysts.

- Streamline the process of validating sales and marketing data before analyzing it.
- Classify prospects and customers based on identifying characteristics, including RFM analysis.
- Test the results of existing campaigns against new campaigns and analyze control package tests.
- Detect anomalies and identify unusual cases and responses that can skew overall results.
- Create responder profiles and generate propensity to purchase scores.
- Model relationships that likely contains categorical data.
- Summarize findings with frequencies, crosstabs and other descriptive statistics.

About IBM Business Analytics

IBM Business Analytics software delivers data-driven insights that help organizations work smarter and outperform their peers. This comprehensive portfolio includes solutions for business intelligence, predictive analytics and decision management, performance management, and risk management.

Business Analytics solutions enable companies to identify and visualize trends and patterns in areas, such as customer analytics, that can have a profound effect on business performance. They can compare scenarios, anticipate potential threats and opportunities, better plan, budget and forecast resources, balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organizations can align tactical and strategic decision-making to achieve business goals. For further information, visit: **ibm.com**/business-analytics.

Request a call

To request a call or to ask a question, go to **ibm.com**/business-analytics/contactus. An IBM representative will respond to your inquiry within two business days.