



Highlights

- Helps you identify hidden patterns and trends in your data to predict and improve outcomes
 - Enables you to more easily access, prepare and model structured data from your desktop with an intuitive, visual data mining workbench
 - Provides advanced statistical and machine learning techniques so you can rapidly build and validate models
 - Offers geospatial analysis that enables you to generate mapping output through and in support of ESRI shape files
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IBM SPSS Modeler Personal

*Make better decisions with predictive intelligence—
from the desktop*

Overview

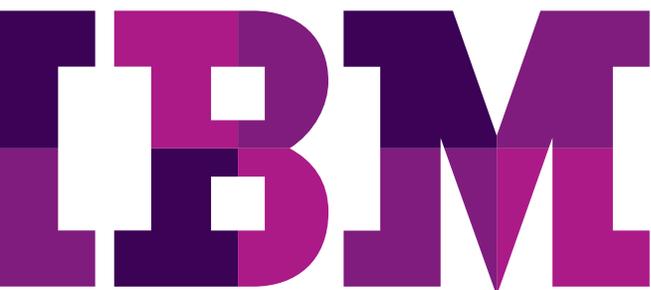
Data mining provides organizations with a clearer view of current conditions and deeper insight into future events by analyzing historical data. IBM® SPSS® Modeler is a data mining workbench used to analyze data to create predictive intelligence. With this intelligence, business decisions can be made based on data, rather than “gut feel.”

Businesses of all types have found that they can use the predictive intelligence of SPSS Modeler to attract customers, strengthen their loyalty, reduce customer attrition or “churn” more cost effectively, decrease fraud and minimize risk. Public sector organizations have benefited from using SPSS Modeler to predict workforce capacity, proactively respond to public safety issues, manage the student lifecycle, improve classroom performance and address many other operational challenges.

And now, SPSS Modeler, which has been helping businesses confidently predict outcomes and gain an understanding about the relationships hidden in their data for years, is available in a personal edition.

Introducing predictive analytics from the desktop

IBM SPSS Modeler Personal enables you to design and build predictive models so you can discover patterns and trends hidden in your data— from your desktop. You can solve business problems faster with powerful, proven analytical techniques that deliver deeper insight into your customers, students or constituents—right where you work. In addition, SPSS Modeler Personal automatically prepares, cleanses and transforms data so you can rest assured that you are analyzing quality data.



With SPSS Modeler Personal, analysts and non-analysts alike can:

- Gain data-driven insights into your business so they can make improvements.
- Work with a variety of file formats for input and output.
- Connect to data in organizational databases.
- Create models with structured data.
- Fine-tune selected models based on statistical confidence levels.
- Manage the entire data mining cycle effectively in a single workbench.

Streamlining the data mining process for the desktop

The intuitive graphical interface of SPSS Modeler Personal enables users to visualize every step of the data mining process as part of a “stream.” By interacting with these streams, analysts and business users can collaborate, thereby adding business knowledge and domain expertise to the data mining process. They can focus on discovering insights rather than on technical tasks such as writing code. They can also pursue “train-of-thought” analysis, explore the data more deeply and uncover additional relationships that make sense to your organization.

Automated data preparation and modeling features enable those who are not analysts to produce accurate models quickly and easily without specialized skills. And, professional analysts can take advantage of the software’s advanced data preparation and predictive modeling capabilities to create the most sophisticated of streams.

From the SPSS Modeler Personal visual interface, you can more easily access data in virtually any type of database, spreadsheet or flat file, including IBM SPSS Statistics, IBM SPSS Data Collection, IBM Cognos® Business Intelligence, SAS and Microsoft Excel files. Integrated help and tutorials are available to assist users at any point in the data mining process.

Features and benefits

- **Intuitive interface that enables users of most levels of sophistication to create and build predictive models**
 - **Automated data preparation capabilities to help clean your data quickly**
 - **Multiple data-cleaning options for removing or replacing invalid data, automatically inputting missing values and mitigating outliers and extremes**
 - **Automated modeling to improve the accuracy of your analysis**
 - **Highly customizable experience with R syntax integration**
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Choosing from a range of techniques

SPSS Modeler Personal offers an array of advanced data mining techniques that are designed to meet the needs of every data mining application, including all of the following algorithms:

- *Classification algorithms.* Make predictions or forecasts based on historical data with techniques such as Decision Trees, Neural Networks, Logistic Regression, Support Vector Machines, Cox Regression, Generalized Linear Mixed Models (GLMM) and more. Use automatic classification modeling for both binary and numeric outcomes to streamline model creation.
- *Segmentation algorithms.* Group people or detect unusual patterns with automatic clustering, anomaly detection and clustering neural network techniques. Use automatic classification to apply multiple algorithms with a single step and take the guesswork out of selecting the right technique.
- *Association algorithms.* Discover associations, links or sequences by means of Apriori, CARMA and sequential association.
- *Time series and forecasting.* Use statistical modeling techniques to generate forecasts for one or more series over time.

Geospatial analysis

With SPSS Modeler Personal spatial analysis capabilities, you can explore the relationship of data elements that can be tied to a location. This geographic spatial analysis of your data can reveal insights that would not be visible in charts or tables. With SPSS Modeler, you can mine geospatial data by means of ESRI shape files. Analyzing both non-spatial and spatial data can improve your overall model accuracy and provide much deeper insights.

You can also add a new dimension to your analysis by discovering association rules between spatial and non-spatial attributes. And, with spatial temporal prediction, you can fit linear models for measurements taken over locations in two-dimensional space, which enables you to predict “hot” areas and how they might change over time. Some of the business applications of geospatial mining are crime pattern analysis, epidemic surveillance, building management and branch performance analysis.

R integration

Using SPSS Modeler Personal and R programming language together makes the most of both worlds. With SPSS Modeler Personal, you can run R syntax from your SPSS interface. You can augment the powerful data manipulation, statistical analysis and predictive algorithms already in SPSS software with custom R code for additional power and flexibility. You can conduct custom analysis, create and work with output and integrate new insights into your analysis plans. In addition, with the SPSS Custom Dialog Builder, you can share and reuse R code with those who would benefit from the new analysis options but choose not to use programming for analysis. Developers can focus on writing code while users can focus on analysis and use R-based functionality without learning R.

AnalyticsZone predictive analytics community

Using SPSS Modeler Personal does not mean you are on your own. Become a part of AnalyticsZone, a resource where SPSS Modeler users can access new content, interact, learn and take advantage of tutorials, usage examples, events and other downloads. A growing catalog of Predictive Extensions adds enhanced functionality to the SPSS Modeler environment. As a member of the community, you simply download the existing extension nodes or you can create your own and add them to the community.

Additional features

Data preparation

- Access operational data from Cognos Business Intelligence, Cognos TM1®, IBM DB2®, Oracle, Microsoft SQL Server, IBM Informix®, IBM Netezza®, MySQL (Oracle) and Teradata data sources.
- Import delimited and fixed-width text files, SPSS Statistics files, SPSS Data Collection data sources, Microsoft Excel, SAS or XML.
- Access SPSS Statistics data management and transformations directly.
- Use field filtering, naming, derivation, binning, re-categorization, value replacement and field reordering.
- Apply record selection, sampling (including clustered and stratified sampling), merging (including inner joins, full outer joins, partial outer joins and anti-joins), sorting, aggregation and balancing.
- Choose from options for data restructuring, partitioning and transposition.
- Select from extensive string functions: string creation, substitution, search and matching, whitespace removal and truncation.
- Apply RFM (Recency, Frequency and Monetary) scoring by aggregating customer transactions to provide RFM value scores and combine these to produce a complete RFM analysis.
- Export data to databases, Cognos Business Intelligence packages, SPSS Statistics, SPSS Data Collection, delimited text files, Excel, SAS or XML.

Modeling algorithms

- Anomaly Detection: Detection of unusual records
- Apriori: Popular association discovery with advanced evaluation functions
- Apriori Association Rules: Association discovery configured for big data
- Bayesian Networks: Graphical probabilistic models
- C&RT, C5.0, CHAID and QUEST: Decision tree and interactive tree building

- CARMA: Association that supports multiple consequents
- Cox regression: Calculation of the likely time to an event
- Decision List: Interactive rule-building
- Factor/PCA, Feature Selection: Data reduction
- K-Means, Kohonen, Two Step, Discriminant, Support Vector Machine (SVM): Clustering and segmentation
- KNN: Nearest neighbor modeling and scoring
- Logistic Regression: For binary outcomes
- Neural Networks: Multi-layer perceptrons with back-propagation learning and radial basis function networks
- Regression, Linear, GenLin (GLM), Generalized Linear Mixed Models (GLMM): Linear equation modeling
- Self-learning response model (SLRM): Bayesian model with incremental learning
- Sequence: Sequential association for order-sensitive analysis
- Spatio-temporal prediction: Make predictions for problems with both time and space elements
- Support Vector Machine: Advanced algorithm with accurate performance for wide datasets
- Temporal Causal Modeling: Identifying cause and effect relationships configured for big data
- Time-series: Generation and automatic selection of time-series forecasting models

Modeling and evaluation

- Use automatic classification (binary and numeric) and clustering in place of selecting individual algorithms.
- Use interactive model and equation browsers and view advanced statistical output.
- Show relative impact of data attributes on predicted outcomes with variable importance graphs.
- Combine multiple models (ensemble modeling) or use one model to analyze a second model.
- Use the SPSS Modeler Component-Level Extension Framework (CLEF) to integrate custom algorithms.
- Use the R statistical programming language to extend analysis options.

Conclusion

SPSS Modeler Personal enables you to design and build predictive models on your desktop so you can discover patterns and trends hidden in your structured data and predict outcomes and future events with confidence. Whether you are a professional data analyst or someone without sophisticated analytics training who needs to make data-driven decisions, you can use advanced predictive analytics techniques to drive better business outcomes.

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 more information about Business Analytics software, see:

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