Data mining provides organizations with a clearer view of current conditions and deeper insight into future events. IBM® SPSS® Modeler Professional is a data mining workbench for the analysis of structured numerical data to model outcomes and to make predictions that inform business decisions with predictive intelligence.

Predictive intelligence creates more effective strategies because it allows organizations not only to evaluate trends – benchmark results, plans and performance – but also to look into the future by evaluating likely outcomes and understanding how the interplay of factors affects those outcomes.

The latest release of SPSS Modeler Professional strengthens its integration with Cognos Business Intelligence and InfoSphere Warehouse solutions, allowing users to create a best-of-breath solution from a single vendor that extends from the storage and management of data to the deployment of predictive intelligence to decision makers.

Now the thousands of organizations worldwide who trust Cognos applications to monitor their vital signs will be able to incorporate predictive intelligence into their reports and dashboards for greater insight into the future and an improved ability to take advantage of evolving opportunities.

The reach of predictive intelligence will stretch even further now that SPSS Modeler Professional software can be hosted in mainframe computing environments. Read more about these enhancements on page two.
Streamline the data mining process

SPSS Modeler Professional is popular worldwide with analysts and business users alike. Its automated data preparation and modeling features enable non-analysts to produce accurate models quickly and easily without sophisticated analytical skills, while professional analysts can take advantage of the software’s advanced data preparation and predictive modeling capabilities.

Business Benefits:
Organizations of all types have found that they can benefit from using SPSS Modeler Professional:

- Businesses can attract customers, strengthen their loyalty, reduce customer attrition more cost effectively and also reduce risk.
- Public sector organizations can predict workforce capacity, evaluate program effectiveness and proactively respond to public safety issues.
- Educational institutions can manage the student lifecycle, improve classroom performance and address many other operational challenges.

The intuitive graphical interface of SPSS Modeler makes it easy for 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 in adding business knowledge to the data mining process. Because data miners can focus on knowledge discovery rather than on technical tasks like writing code, they can pursue “train-of-thought” analysis, explore the data more deeply and uncover additional hidden relationships.

From this visual interface, you can easily access and integrate data from a number of sources, including IBM SPSS Data Collection products and data in virtually any type of database, spreadsheet or flat file – including IBM SPSS Statistics, SAS and Microsoft Excel files – and, as mentioned above, you now can access data directly from Cognos Business Intelligence.

In addition, SPSS Modeler Professional offers in-database analytics for Cognos Business Intelligence, IBM InfoSphere, Microsoft SQL Server, Oracle and, with the latest release, IBM Netezza. With in-database analytics, there is no need to move data from large databases to SPSS Modeler Professional, resulting in a significant improvement in analytical performance.

No other data mining solution offers this versatility. With powerful automation tools such as automated data preparation and auto modeling, SPSS Modeler Professional makes it easy to prepare data for analysis, find the best model based on hidden patterns in data and quickly produce consistent and accurate results.

What’s new in Modeler Professional
Enhancements to the latest version of SPSS Modeler Professional bring predictive intelligence to a broader range of organizations, enabling them to be more focused and agile in their planning and daily decision-making because they will have a more nuanced understanding of their own enterprises, the environment in which they operate, and of their customers and other stakeholders. New capabilities include:

- Integration with Cognos software. Analysts now can access data from their Cognos Business Intelligence environment directly within the SPSS Modeler Professional interface. IBM Cognos software organizes and delivers a complete and consistent view of information for enterprise-wide decision making. By adding the analytic capabilities of SPSS Modeler Professional, organizations can quickly and reliably evaluate the likelihood of specific outcomes, using their familiar enterprise-wide data view. Also – since SPSS Modeler Professional can write results into Cognos Business Intelligence – they can make predictive intelligence available to business users and all information stakeholders who rely on Cognos as their informational portal into enterprise analytics.
• **IBM Netezza functionality***. The latest version of IBM SPSS Modeler Server introduces the capability to perform in-database algorithms with Netezza. IBM Netezza advanced analytics technology fuses data warehousing and analytics into a high-performance appliance that enables organizations to build and deploy analytic applications that scale to sizes only addressable by supercomputers today.

• **Enhanced InfoSphere and DB2 integration***. Organizations with an InfoSphere data warehouse can now use the full range of its data mining algorithms from within SPSS Modeler Professional. This gives users the advantage of an intuitive, graphical interface without compromising data mining performance. Supported algorithms now include logistic regression, Naïve Bayes, time-series and radial basis function (RBF). Additional DB2 access options, such as compression and partitioning, ensure that organizations can fully leverage large-scale data sources easily.

• **Mining against mainframe data***. Mainframe computers typically hold a wealth of data about an organization’s operational history. With support for zDB2 and IBM Classic Federation server, these organizations can see what effect past events will have on the future. This will help them understand current activity more clearly, evaluate changing business realities and base their planning on reliable predictive intelligence.

• **Support for Linux on System z***. Running Linux on System z offers many advantages to organizations seeking to simplify complex information systems while meeting today's requirements for security, transparency and cost-control. SPSS Modeler Professional Server is now supported in these environments.

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**Include more types of data for better results**

Our customers have found that incorporating all available types of data increases the “lift” or accuracy of predictive models, leading to more useful recommendations and improved outcomes.

If your organization collects large amounts of text data, the interactive text mining workbench available in SPSS Modeler Premium will enable you to extract concepts and opinions from any type of text – such as the text captured in operational sources, call center notes, customer emails, media or journal articles, blogs, RSS feeds and more. Direct access to survey data in SPSS Data Collection products makes it easy to include demographic, attitudinal and behavioral information in your models – rounding out your understanding of the people or organizations you serve.

**Choose from an unparalleled breadth of techniques**

SPSS Modeler Professional 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 using techniques such as Decision Tree, Neural Networks, Logistic Regression, Time-Series, Support Vector Machines, Cox regression and more. Leverage 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 using Apriori, CARMA and sequential association.
Optimize your current information technologies
With its open and scalable architecture, SPSS Modeler Professional makes the best use of your existing IT infrastructure. It integrates with your existing systems, both when accessing data and when deploying results, so you don’t need to move data into and out of a proprietary format. And techniques such as in-database mining, multi-threading, server clustering and SQL pushback help you conserve resources, deliver results faster and reduce overall IT costs.

Follow a proven, repeatable process
During every phase of the data mining process, SPSS Modeler supports the de facto industry standard, the CRoss-Industry Standard Process for Data Mining (CRISP-DM). This means your company can focus on solving business problems through data mining, rather than on reinventing a new process for every project. Individual Modeler projects can be efficiently organized using the CRISP-DM project manager.

Deploy predictive modeling across the enterprise
SPSS Modeler Professional can efficiently analyze the amounts of data typically generated by small to mid-sized organizations. Organizations with high-volume or complex data mining requirements leverage SPSS Modeler Server. Using client/server architecture, SPSS Modeler Professional Server allows many data analysts to work simultaneously without straining computing resources. You can take advantage of in-database mining on leading information platforms and efficiently process large amounts of data. SPSS Modeler Professional Server also offers additional deployment options to help you extend the benefits of data mining across geographic or functional lines and put results in the hands of decision makers quickly.

The CRISP-DM process, as shown in this diagram, enables data miners to implement efficient data mining projects that yield measurable business results.
## IBM SPSS Modeler 14.2 Professional – features

### Data understanding
- Create a wide range of interactive graphs with automatic assistance
- Use visual link analysis to see the associations in your data
- Interact with data by selecting regions or items on a graph and viewing the selected information; or select key data for use in analysis
- Access SPSS Statistics graphs and reporting tools directly from the SPSS Modeler Professional interface

### Data preparation
- Access operational data from Cognos Business Intelligence, IBM DB2, Oracle, Microsoft SQL Server, Informix®, Neoview, Netezza, mySQL (Sun) and Teradata data sources, as well as mainframe data through zDB2 and IBM Classic Federation Server support
- Import delimited and fixed-width text files, SPSS Statistics files, SAS, SPSS Data Collection data sources or XML
- Use multiple data-cleaning options to remove or replace invalid data, automatically impute missing values and mitigate for outliers and extremes
- Apply automatic data preparation to interrogate and condition data for analysis in a single step
- Export data to delimited text files, Excel, SPSS Statistics, SAS, Cognos Business Intelligence packages and operational databases
- Export data to delimited text files, Excel, SPSS Statistics, SAS and operational databases
- Field filtering, naming, derivation, binning, re-categorization, value replacement and field reordering
- Record selection, sampling, merging and concatenation; sorting, aggregation and balancing
- Data restructuring, partitioning and transposition
- Extensive string functions: string creation, substitution, search and matching, whitespace removal and truncation
- Access data management and transformations performed in SPSS Statistics directly from SPSS Modeler Professional
- RFM scoring: aggregate customer transactions to provide Recency, Frequency, and Monetary value scores and combine these to produce a complete RFM analysis

### Modeling and evaluation
- Employ advanced data mining algorithms to get the best results from your data
- 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 models) or use one model to analyze a second model
- Use automatic (binary and numeric) classification and automatic clustering in place of individual algorithms
- Use Modeler's Component-Level Extension Framework (CLEF) to integrate custom algorithms
- Through the integration of SPSS Statistics, use R to extend analysis options
### Modeling algorithms included
- C&RT, C5.0, CHAID & QUEST – Decision tree algorithms including interactive tree building
- Decision List – Interactive rule-building algorithm
- K-Means, Kohonen, Two Step, Discriminant, Support Vector Machine (SVM) – Clustering and segmentation algorithms
- Factor/PCA, Feature Selection – Data reduction algorithms
- Regression, Linear, GenLin (GLM) – Linear equation modeling
- Self-learning response model (SLRM) – Bayesian model with incremental learning
- Time-series – Generate and automatically select time-series forecasting models
- Neural Networks – Multi-layer perceptrons with back-propagation learning, and radial basis function networks
- Support Vector Machine – Advanced algorithm for wide datasets
- Bayesian Networks – Graphical probabilistic models
- Cox regression – Calculate likely time to an event
- Anomaly Detection – Cluster-based algorithm for detecting unusual results
- KNN – Nearest neighbor modeling and scoring algorithm
- Apriori – Popular association discovery algorithm with advanced evaluation functions
- CARMA – Association algorithm which supports multiple consequents
- Sequence – Sequential association algorithm for order-sensitive analyses
- IBM InfoSphere in-database mining algorithms supported: Decision Tree, Association, Sequence, Regression, Logistic Regression, Clustering, Naive Bayes, Time-Series and Radial Basis Function (RBF)
- In-database algorithms for Netezza: Netezza Decision Tree, Netezza K-Means Clustering
- Microsoft SQL Server in-database mining algorithms supported: Decision Tree, Association Rules, Linear Regression, Clustering, Sequence Clustering, Naive Bayes, Time-Series and Neural Network
- Oracle in-database mining algorithms supported: Decision Tree, General Linear Model (GLM), O-Cluster (Orthogonal Partitioning Clustering), KMeans, Apriori, Minimum Description Length (MDL), Support Vector Machine, Naive Bayes, Adaptive Bayes, Non-Negative Matrix Factorization and Artificial Intelligence (AI)

### Deployment
- Export models using SQL or PMML (the XML-based standard format for predictive models)
- Leverage IBM SPSS Collaboration and Deployment Services for innovative analytics management, process automation and deployment capabilities

### Modeler Server (optional)
- Use in-database mining to build models in the database using leading database technologies and leverage high-performance database implementations
- Use SQL-pushback to push data transformations and select modeling algorithms directly into your operational databases
- Leverage high-performance hardware, including IBM System z machines, to experience quicker time-to-solution, and achieve greater ROI through parallel execution of streams and multiple models
- Transmit sensitive data securely between SPSS Modeler Professional Client and SPSS Modeler Professional Server through secure sockets layer (SSL) encryption
About IBM Business Analytics
IBM Business Analytics software delivers actionable insights decision-makers need to achieve better business performance. IBM offers a comprehensive, unified portfolio of business intelligence, predictive and advanced analytics, financial performance and strategy management, governance, risk and compliance and analytic applications.

With IBM software, companies can spot trends, patterns and anomalies, compare “what if” scenarios, predict potential threats and opportunities, identify and manage key business risks and plan, budget and forecast resources. With these deep analytic capabilities our customers around the world can better understand, anticipate and shape business outcomes.

For more information
For further information or to reach a representative please visit ibm.com/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.

*Available with IBM SPSS Modeler Premium Server