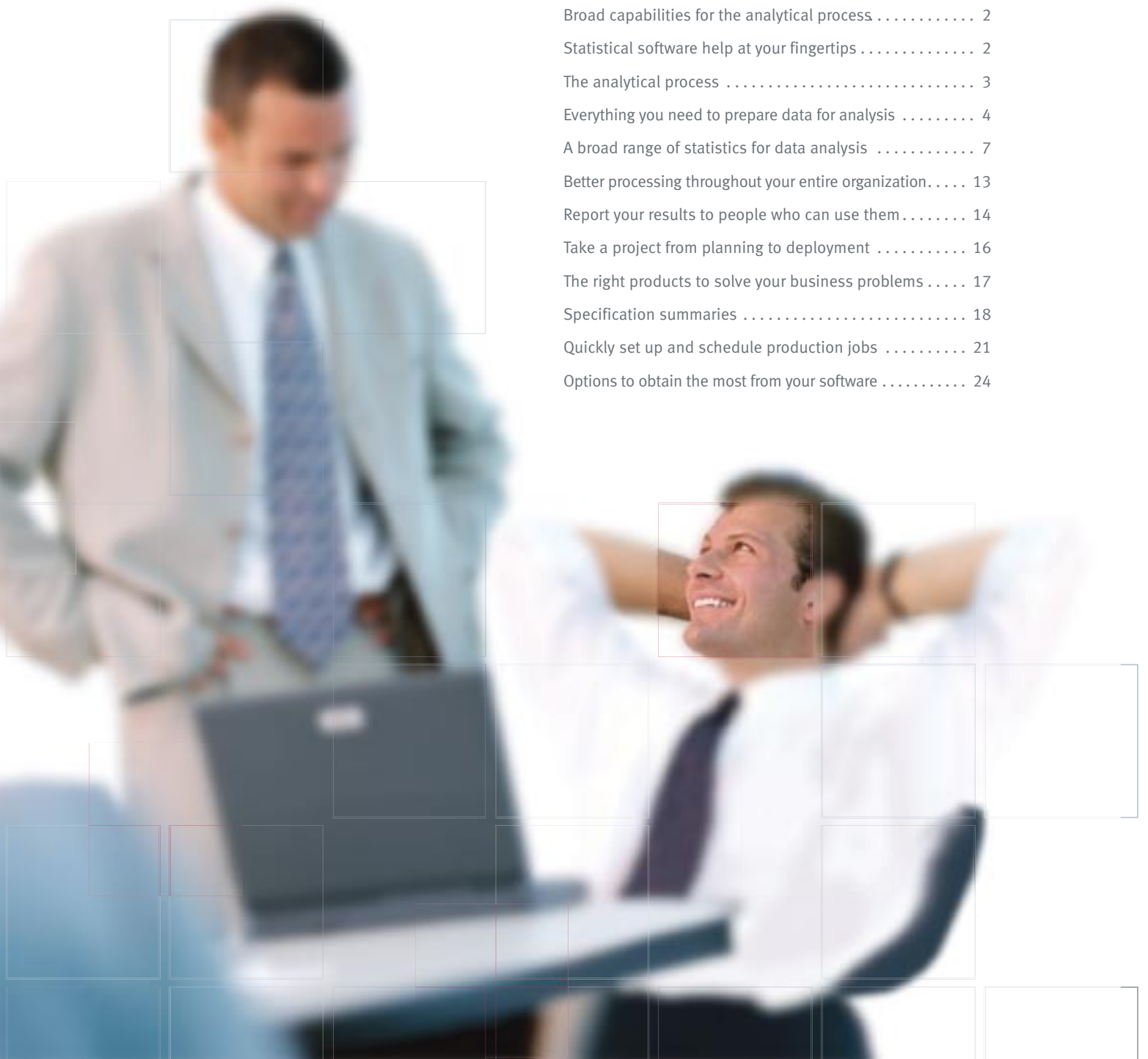


➤ End-to-End Software for Statistical Analysis

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Broad capabilities for the analytical process

Make smarter decisions more quickly by uncovering key facts, patterns, and trends

SPSS 13.0 for Windows® is a modular, tightly integrated, full-featured product line. Along with related products from SPSS Inc., it provides capabilities for all stages of the analytical process—planning, data collection, data access, data and output management, data analysis, reporting, and deployment. SPSS' intuitive user interface makes it easy to use, yet the software includes all of the data management, statistics, and reporting methods you need to perform even the toughest analysis.

Use SPSS to answer all your difficult questions

Analysts and researchers have used SPSS software for more than 35 years to uncover key facts, patterns, and trends in a variety of areas, including:

- Survey and market research and direct marketing
- Academia
- Administrative research, human resources, and resource planning
- Medical, scientific, and social science research
- Planning and forecasting
- Quality improvement
- Reporting and ad hoc decision making

In particular, apply SPSS software to gain greater insight into the actions, attributes, and attitudes of people—your customers, employees, students, or citizens.

Statistical software help at your fingertips

One thing that sets SPSS apart from its competitors is its ease of use. To ensure you get the most from the software, SPSS provides you with many types of easy-to-access online help for selected items in the software, including:

- Case studies that show you how to use selected statistics and interpret results through realistic, hands-on examples
- Tutorials with examples to guide you through the software and have you up and running quickly
- Context-sensitive help with links to tutorials for step-by-step instructions when you need them
- Statistics Coach™ to help you choose which statistical procedure or graph to use
- Chart Advisor to help you select the best chart for deeper insight into your data
- Results Coach™ that gives examples to help you interpret your results
- Statistical glossary for clarifying unfamiliar statistical terms
- “What’s This” help to explain and define terms

□ “SPSS has paid for itself many times over. It has enabled us to get and keep managed care contracts and reimbursement contracts worth hundreds of thousands of dollars.”

– Dr. Richard Shaw
Director of Research and Operations
San Francisco Heart Institute

The analytical process

Get everything you need—from one source

Important steps in the analytical process include preparing data for analysis and, once analysis is complete, putting results in a format other people can use. If you use software that has limited capabilities, you have to piece together products from a variety of vendors to get your job done. Wouldn't it be easier to get all the products for the analytical process from one source? SPSS can give you everything you need for the analytical process—all of our products work together.

Using SPSS products exclusively streamlines the entire analytical process. Because SPSS products work together, you don't have to do the duplicate work that might be required if you use products from a variety of vendors. For example, with a multi-vendor solution you would have

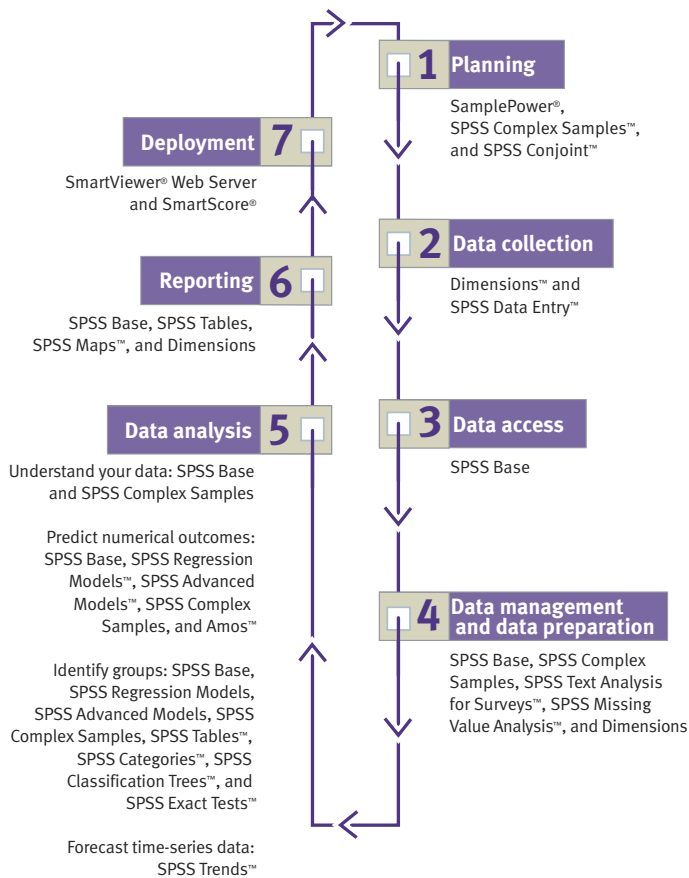
to enter variable labels (such as gender or income level) when collecting data, re-enter them when doing analysis, and enter them again when creating a report. If you collect data in Dimensions or SPSS Data Entry, however, variables established in the data collection stage are carried through to SPSS for Windows. So you can concentrate on analysis instead of data preparation and management.

Build a complete system for the analytical process

SPSS Inc. has products for each stage of the analytical process:

- Save time and money by planning your analytical project
- Collect/enter data—even on the Web—efficiently
- Reach the analysis stage faster with easy data access
- Prepare for analysis quickly with efficient data management
- Analyze data using a variety of statistics and procedures for more accurate models
- Clearly report your results to the people who can use them
- Share results with others—on the Web or in presentations or publications

The following pages of this booklet describe highlights for each stage of the analytical process and present specification summaries for all SPSS products that you can incorporate into your system. This booklet also includes a product/application chart that guides you to the appropriate products to fit your requirements.



This graphic shows the steps involved to prepare your data for analysis, analyze and report on your data, and share results. The products available for each stage are shown to the left. SPSS Inc.'s extensive product offerings mean that you can choose the software that best meets your data analysis needs.

Everything you need to prepare data for analysis

Save time and money with pre-analysis planning

By taking the time to plan your analytical project before you begin analysis, you can save time and money in the long run. If you don't already have data for your analysis, use **SamplePower** to plan your data collection.

SamplePower helps you reach accurate sample sizes quickly and easily—improving the odds that you find significant results while limiting costs. This software determines the correct sample size needed so you don't waste time and money on ineffective studies. Specify aspects of your test situation, such as effect size, Alpha level, and one- or two-tailed tests, and a simple mouseclick generates the sample size for any power level. SamplePower's unique sensitivity analysis gives you the flexibility to vary your settings and save results in scenarios for comparison.

When working with sample survey data, use the **complex samples plan** procedure. This procedure enables you to specify how to draw or analyze stratified, clustered, or multistage complex sample designs, with or without replacement. Methods for sampling with probability proportional to size are also available.

The complex samples plan procedure includes two wizards for planning through the interface—the Sampling Plan Wizard and the Analysis Preparation Wizard. Which one you use depends on your data source. When you have created plan files, you can save them and treat them as templates. This enables you to save all the decisions you made when creating the plan. And it saves time and improves accuracy for yourself and others who may want to plug your plans into the data to replicate results or pick up where you left off. Once you've created a sample or specified standard errors, you can confidently analyze your data and produce results knowing that the planning stage addressed this specific data type.

Efficiently collect data from surveys and forms

Would you like to collect and analyze survey data using a system that works seamlessly with SPSS for Windows? Dimensions and SPSS Data Entry products provide you with options for fielding surveys. You can collect data online, by

phone, in person, and on paper, and seamlessly work with the results in SPSS for Windows.

With Dimensions and SPSS Data Entry products, you can create professional surveys for almost any data type. Using their intuitive survey design interfaces, you can create new questions from scratch, start with tested sample questions from the included Question Library, reuse questions from existing surveys, or choose selections from response lists (for example, ready-made lists of brand names).



Create interactive surveys to engage survey takers. Here, respondents can drag virtual dollars to the area(s) in which they'd like to allocate funds.

With Dimensions, you have options for online surveys, computer-assisted telephone interviewing (CATI), computer-assisted personal interviewing (CAPI), and paper surveys. If you offer surveys online, Secure Socket Layer (SSL) encryption keeps your forms and surveys secure. Additionally, you can create surveys that include graphics, images, video, and sound files—to create vibrant and engaging surveys that people will want to complete. If your survey, regardless of mode, needs to be translated, you can create versions of both questions and instructions in many languages, which saves time and streamlines the translation process. Plus, results obtained in multiple languages are stored in a single, central source and are immediately available for analysis. For desktop data entry of surveys or forms, use SPSS Data Entry.

Both Dimensions and SPSS Data Entry create SPSS (.SAV) files, so your data is always ready for analysis. Once your data is in SPSS Base, no data cleaning or preparation is required.

Reach the analysis stage faster

Before you begin analysis, you have to bring data from many types of data sources into SPSS. And you often have to transform that data to prepare them for analysis. SPSS Base includes a number of wizards, tools, techniques, and features that help you prepare and manage data prior to analysis. Highlights are discussed below.

The **Database Wizard** enables you to access massive amounts of data from numerous database sources from the interface. You can access databases without writing code or syntax. The Database Wizard guides you through the data access process and generates code in the background. This Wizard has drivers for many ODBC-compliant databases, including Oracle®, Microsoft® SQL Server, Microsoft Access, IBM DB2® UDB, and Sybase™. Plus, with the right drivers, you can connect to any ODBC-compliant database. You save time because you don't have to convert data into SPSS format. SPSS also gives you easy access to SAS® software, Microsoft Excel™, and text data.

Easily set data up using an efficient data dictionary

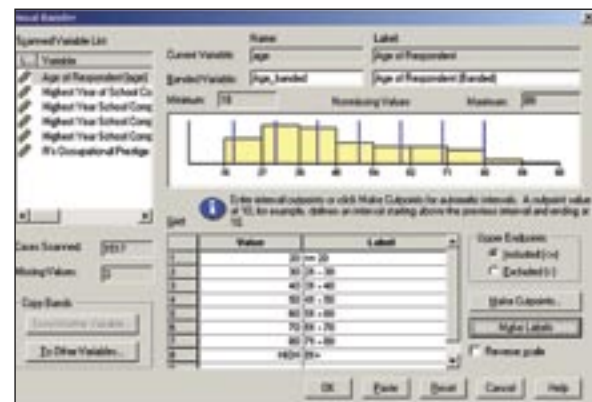
Easily set up data dictionary information (value labels, variable labels, and variable types) to organize your data and prepare them for analysis more quickly using the **Define Variable Properties** tool. A data pass made first enables SPSS to present a list of values and counts so you can add the information in a more intelligent manner. Once dictionary information is set up, you can apply it using the **Copy Data Properties** tool. The data dictionary information acts as a “template” so you can apply it to other data files and to other variables within the same file.

Prepare continuous-level data for analysis

If you have continuous-level data, such as income or age, you can easily prepare them for analysis with the **Visual Bander**. This tool provides a quick, interactive method by which you can become familiar with your dataset. A data pass provides you with a histogram that enables you to specify cutpoints in an intelligent manner. For example, break income into “bands” of \$10,000 or age into bands of 10 years. Then save time by automatically creating value labels from the specified cutpoints (for example, “21-30”).

Easily eliminate duplicate records

Are your datasets likely to have duplicate records that could compromise results if not removed? With the **Identify Duplicate Cases** tool, SPSS makes it easy for you to identify duplicate cases. Set parameters, view a list of duplicates, flag records, and remove them prior to analysis. You can sort duplicate cases, if desired, to more easily select the record you want to keep for analysis. You have the flexibility to define duplicates using various methods. For example, you can “un-duplicate” based on multiple variables.



This screenshot shows the Visual Bander in action. The user specified “Age_banded” as the new variable and set age groups for every 10 years.

Work with long variable names

With SPSS, you can more accurately describe your data using **variable names up to 64 bytes**. This enables you to work with data from databases or spreadsheets that have longer variable names. You can maintain variable names on data that you pull from and write back to databases—saving you time and frustration. In addition, you can ensure data containing **text strings of more than 256 bytes** is not truncated or lost when working with open-ended question responses, databases or data from other software that allows long data strings (up to 32,767 bytes), and other types of long text strings.

“I don’t know how we did what we did before we purchased SPSS...SPSS has made our jobs far less complicated and made us more productive. We’ve become avid users of SPSS. There isn’t a day that goes by that we aren’t deep in the software.”

– David Jedele
Owner
Marketing Dynamics

Incorporate dates and times into your analysis

How do you work with dates and times in your data? In SPSS, you can easily work with dates and times using the **Date and Time Wizard**. Make calculations with dates and times, create date/time variables from strings containing date variables (such as “12/18/02”), and bring date/time data from a variety of sources into SPSS. You can also parse individual date/time units, such as year, from date/time variables to apply filters. For example, parse start dates to examine employees who started with your organization in 1995.

Combine records without painstaking programming

Do you work with data that require lengthy programming before you can analyze them? The **Data Restructure Wizard** enables you to restructure a data file that has multiple records per subject—so that data for each subject are in a single record. No need to set up vectors or loops. This is particularly helpful if you work with transactional data. You can also do the reverse—take data from a single record and spread them across multiple cases for linear mixed models (see page 7).

Transform your data for easier analysis

Do you have surveys that ask respondents to give positively worded and negatively worded responses? “How easy is it to reach customer service?” “How difficult is it to return items?” Multiple-item indices need all questions to go in the same direction. SPSS’ **data transformations** make working with combined data more reliable by allowing you to “flip” responses—so that all of your data are in the same direction. This enables you to turn negatives into positives, creating overall, multiple-item indices.

SPSS gives you a variety of other transformation techniques that enable you to compute new variables using arithmetic, cross-case, logical, missing-value random number, statistical, or string functions. You can also use such programming structures as repeat-end repeat, loop-end loop, vectors, and much more.

Create applications using customized SPSS output

Have you ever wanted to create SPSS programs or programs in other computer languages or applications using the output from SPSS procedures? With the **output management system (OMS)** in SPSS, you can. The OMS provides you with the ability to automatically write selected categories of output

to different output files in different formats, including SPSS (.SAV) data files, XML, HTML, and text.

With the OMS, for example, you can save pivot table output to SPSS-format data files, and then use that output as input for subsequent commands that SPSS can further process. The OMS provides you with a myriad of possibilities for working with SPSS output. You can:

- Automatically generate selected output as HTML for viewing in a browser
- Process SPSS output in XML format using standard XSLT tools to extract information for use in other applications
- Eliminate selected types of automatically generated output, such as Notes tables from the Viewer, when not needed
- Generate a table of contents from XML using a supplied XSLT stylesheet and free XSLT tools from third parties

Unleash the power of SPSS

SPSS Programming and Data Management: A Guide for SPSS and SAS Users, Second Edition, a book available through SPSS Inc., reveals the wealth of functionality beneath the SPSS user interface. It features detailed examples of the:

- Command syntax
- Macro facility
- Scripting facility
- Output management system

This book also contains a chapter for those of you who are familiar with SAS, demonstrating how you can perform many common data management tasks in both SAS and SPSS.

Unlock the value in text responses

Do you include open-ended questions in your surveys? How often have you bypassed analysis of open-ended responses because it takes too much time and money to classify and categorize this kind of data? What valuable information remains hidden in these responses? **SPSS Text Analysis for Surveys** uses a combination of linguistic technologies and manual techniques that enable you to create code frames and code open-ended survey responses more quickly and reliably than manual-only approaches. Then, you can export data as categories or dichotomies for further analysis in SPSS or Excel.

A broad range of statistics for data analysis

SPSS 13.0 helps you better analyze data because it gives you the statistical breadth and depth you need to solve a variety of business and research problems—not just the problem for which you initially purchased the software. SPSS provides you with a wide range of statistics so you can get the most accurate response for specific data types. Add-on modules give you even more analytical power and flexibility—and they easily plug into SPSS Base. You can add as much analytical capability to your system as you need and work confidently, moving seamlessly from one product to the next.

SPSS' statistics include a wide variety of procedures for descriptive analysis, numerical prediction, group identification, and forecasting. Statistical highlights are described on the following pages.

Understand your data

Before you run your data through models or create reports and summaries, you want to understand your data. You might ask such questions as “What’s the distribution?” or “What does the average person score?” SPSS Base gives you a variety of ways to summarize your data and accurately describe variables of interest, including data displays, such as **frequency distributions**, **boxplots**, and **histograms**; **measures of central tendency**; and **estimates of variability**.

More confidently reach sample survey results

When you work with complex samples, such as those that use stratified, clustered, or multistage sampling, you need specialized statistical techniques to account for the sample design and its associated standard errors.

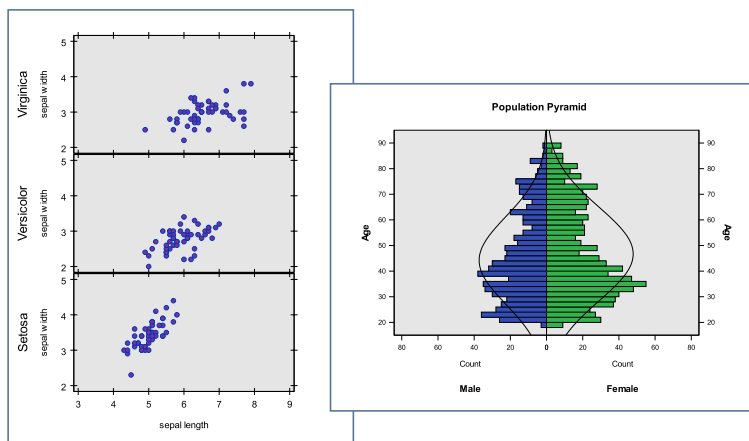
SPSS Complex Samples provides you with **complex samples descriptives** and **complex sample tabulate** to use with data resulting from complex sampling methods. Use complex samples descriptives to analyze measures of continuous data, including ratios, and complex sample tabulate to analyze measures of categorical types, including **cross-tabulations**. These procedures enable you to achieve more statistically valid inferences for populations measured in your complex sample data. Because they incorporate the sample design into survey analysis, you can more confidently state your results.

Predict numerical outcomes

Sometimes what you want to predict is numerical, such as income, customer lifetime value, standardized test scores, or patient length of stay. You might want answers to such questions as “How well can an outcome be predicted by a set of predictors?” or “What are the best predictors of an outcome?” SPSS has a variety of statistics, from linear regression to non-linear techniques, which enable you to answer these questions and more.

More accurately work with nested-structure data

Do you have data that display correlation and non-constant variability, such as data that represent students nested within classrooms or consumers nested within families? Use the **linear mixed models** procedure (in SPSS Advanced Models) to model means, variances, and covariances in your data. For example, educators can discover how different teaching methods affect student test scores across classrooms. The procedure’s flexibility means that you can formulate dozens of models, including split-plot designs, multi-level models, randomized complete blocks designs,



Show differences among groups and visualize effects of conditioning variables using the paneled chart feature (left). Create graphs that clearly show the distribution between two groups using population pyramids (right).

and random coefficient models. You have more accurate predictive models because the linear mixed models procedure takes the hierarchical structure of your data into account.

You can also use the linear mixed models procedure if you're working with repeated measures data, including situations in which there are different numbers of repeated measurements or different intervals for different cases, or both. For example, a healthcare organization testing patients recovering from illness might not have uniformly collected data. The organization would ideally test individuals at regularly scheduled intervals (for example, every 90 days). But people often miss appointments or are tested earlier or later than the optimal time. More standard procedures discard data that do not meet test conditions. The linear mixed models procedure, however, uses all of your data—for a more accurate picture of patient recovery.

Handle related multiple dependent variables

Do you need a flexible procedure that provides simultaneous analysis with related multiple dependent variables? The **general linear models (GLM) multivariate** procedure (in SPSS Advanced Models) provides flexible design and contrast options to estimate means and variances and to test and predict means. For example, a financial services company might want to know what predicts account balances for various account types. You can also mix and match categorical and continuous predictors to build models. You're not limited to one type of predictor variable. Instead, you have options that give you a wealth of model-building possibilities.

A manufacturer examining the deal sizes between products and customer type can test two types of effects using the GLM multivariate:

- Main effects: do public and private sector customers differ, on average, in terms of deal size, regardless of whether a customer purchases product A or product B?
- Interaction: does the difference between deal sizes for product A and product B differ by customer type? For example, the private sector deal size may be greater for product A than for product B; in the public sector, deal size may be greater for B than for A.

Compare measures from the same people over time

Do you need to measure the same people over time to, for example, measure how perceived quality of healthcare increases or decreases? Using the **GLM repeated measures**

procedure (in SPSS Advanced Models), you can take the same measurement a fixed number of times on individual subjects or cases, and have the flexibility to mix and match categorical and continuous-level predictors, including interactions.

You can also test three types of effects using the GLM repeated measures procedure. For example, a hospital can explore these relationships:

- Between subjects: does perceived quality of care vary by hospital department?
- Within subjects: is perceived quality of care increasing or decreasing over time?
- Interaction: is perceived quality of care increasing or decreasing at different rates for different hospital departments?

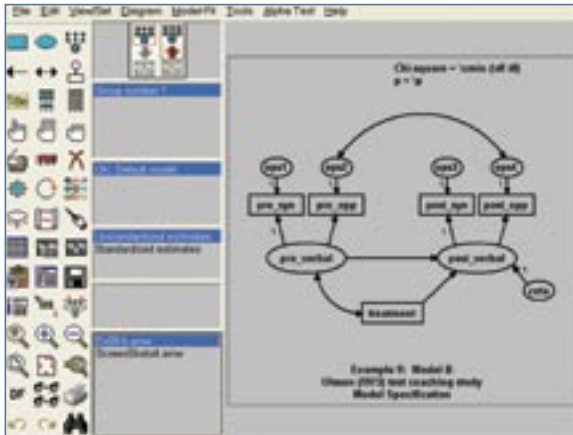
Make more accurate numerical predictions when using complex samples

Do you use complex sampling methods to survey your customers or citizens? For example, in a customer satisfaction survey, you might survey 1,000 customers, of which 500 people are categorized as “big-ticket customers” and 500 people are identified as “smaller-value customers.” With the **complex samples general linear model (CSGLM)** (in SPSS Complex Samples), you can build linear regression and models for analysis of variance (ANOVA) and analysis of covariance (ANCOVA) to accurately analyze and predict numerical outcomes from your complex sample design.

Estimate nonlinear equations

Do you work with models that have nonlinear relationships? For example, do you want to predict coupon redemption as a function of time and number of coupons distributed? Estimate nonlinear equations using one of two SPSS procedures: **nonlinear regression (NLR)** for unconstrained problems or **constrained nonlinear regression (CNLR)** (in SPSS Regression Models) for constrained and unconstrained problems. NLR enables you to estimate models that have arbitrary relationships between independent and dependent variables using iterative estimation algorithms. CNLR enables you to:

- Use linear and nonlinear constraints on any combination of parameters
- Estimate parameters by minimizing any smooth loss function (objective function)
- Compute bootstrap estimates of parameter standard errors and correlations



Amos' interactive interface enables you to quickly create models to test relationships among observed and latent (hidden) numeric variables. With the models you create, you can test hypotheses and confirm relationships.

Fit structural equation models

How do you test and confirm observed or latent (hidden) variables in your data? Using Amos **structural equation modeling (SEM)** software enables you to create more realistic models than if you used standard multivariate methods or regression alone. Build attitudinal and behavioral models in Amos that more realistically reflect complex relationships because you can use observed or latent numeric variables to predict any other numeric variable. For example, confirm that motivation is more important than intelligence in predicting job performance. You can increase the reliability of your analysis because Amos enables you to include multiple indicators.

Amos' interactive, visual approach to SEM makes it easy for you to learn and use. Build models using configurable toolbars and drag-and-drop functionality. With Amos' interface, you can create path diagrams of your analysis using drawing tools, rather than writing equations or typing commands. Or you can write code using Amos Basic. Once you complete a model, you can assess its fit with a mouseclick. Amos can even suggest how the model may be improved, for example, by adding an arrow to connect two variables. Graphs and statistics help you find an optimum trade-off between model simplicity and goodness of fit. And, when you're done, you can print presentation-quality output.

Use more techniques for numerical prediction

Other techniques you can use to predict numerical outcomes include:

- **Linear regression** (in SPSS Base): explore the relationships between predictors and what you want to predict. For example, predict sales using price and customer type.
- **Weighted least squares regression for weight estimation** (in SPSS Regression Models): appropriate when the variance in the dependent variable isn't constant within the population under study
- **Two-stage least squares** (in SPSS Regression Models): appropriate when the predictor and outcome have reciprocal effects
- **Survival analysis procedures** (in SPSS Advanced Models): examine the time to an event when a second event isn't recorded (for example, customers who are still loyal, employees who are still working)
 - **Cox regression with time-dependent covariates**
 - **Kaplan-Meier**
 - **Life tables**

Identify groups with specialized techniques

Sometimes you want to predict which group people and objects belong in. For example, you might want to group people into similar buying groups (buy frequently, buy for special occasions only, or buy once a year) to target promotions. You might want to group cars by perceived similarity based on a characteristic such as perceived performance (high-performance, moderate-performance, or low-performance) to market a moderate-performance car to the right people. SPSS procedures for identifying groups fall under two types: segmentation/dimension reduction and classification.

When you use segmentation techniques, the algorithm divides subjects, objects, or variables into a number of relatively homogeneous groups. Your classes aren't predefined; the segmentation procedure that you select defines the groups for you. This means you're more likely to discover groups you might not have considered or groups you didn't know existed.

When using classification techniques, you know the outcome you want to predict. You use predictor fields to predict such categorical target fields as:

- Who is likely to respond to your offer?
- Who is likely to graduate?
- Who is likely to vote?

Apply techniques for segmentation/ dimension reduction

Group people or objects regardless of data size

SPSS includes several techniques for segmentation and clustering. The technique you select depends on your dataset—small, moderate, or large—and whether you want to work with mixed datasets. This kind of flexibility enables you to select the technique that will provide the most accurate segmentation for your particular data.

Do you need to find and cluster mixed datasets that include continuous-level (such as income) and categorical-level (such as job type) data? Are the datasets you want to cluster very large? Use **TwoStep cluster analysis** (in SPSS Base), a scalable cluster analysis technique that, unlike other clustering techniques, works with mixed datasets. In the first step, the algorithm pre-clusters the records into many sub-clusters. You then cluster the sub-clusters into the desired number of clusters. If the desired cluster number is unknown, TwoStep cluster analysis automatically finds the proper number.

For example, a market researcher can use TwoStep cluster analysis to group people, using mixed datasets (such as women ages 18 to 34 with “moderate” incomes or men ages 25 to 54 in rural locations). Decision makers can then use this information to target TV shows to the right audience and increase viewership.

Do you work with moderate-sized datasets, such as customer lists? **K-means cluster analysis** (in SPSS Base) may be the right clustering technique for your data. This procedure assumes that data fall into a known number of clusters. Given this number, the procedure assigns cases to clusters and then iteratively improves cluster centers.

For example, a market researcher might want to cluster cities into homogeneous groups using K-means cluster analysis to find comparable cities in which to test marketing strategies.

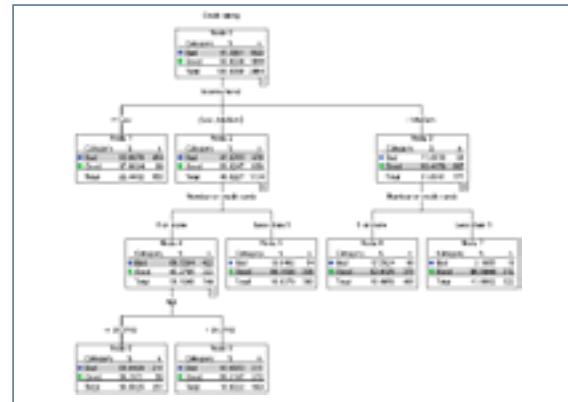
Using **hierarchical cluster analysis** (in SPSS Base), clusters are taken from a single record and groups are formed until all clusters are merged. Choose from over 40 measures of similarity or dissimilarity, and standardize data using several methods and clusters or variables. This statistic is recommended for datasets that are smaller in number, such as focus group lists.

A market researcher can use hierarchical cluster analysis to identify types of TV shows that attract similar audiences for each show type. The organization can cluster TV shows into homogeneous groups based on viewer characteristics to identify segments for advertising.

Apply techniques for classification

Easily identify groups and predict outcomes

Use the SPSS Classification Trees add-on module to create classification and decision trees to help you better identify groups, discover relationships between groups, and predict future events—entirely within the SPSS environment.



Highly visual results in SPSS Classification Trees make it easy to identify groups. In this tree, you can clearly see the subgroups within the category of credit rating.

Highly visual trees enable you to present categorical results in an intuitive manner—so you can more clearly explain categorical results to non-technical audiences. These trees enable you to explore your results and visually determine how your model flows. Visual results can help you find specific subgroups and relationships that you might not uncover using more traditional statistics. Because classification trees break the data down into branches and nodes, you can easily see where a group splits and terminates.

Choose from four established tree-growing algorithms, **CHAID**, **exhaustive CHAID**, **classification & regression trees (C&RT)**, and **QUEST**, to find the best fit for your models. Or let SPSS Classification Trees suggest the algorithm that will produce the best results for your data.

Since you use SPSS Classification Trees within the SPSS interface, you can create classification trees directly in

SPSS and conveniently use the results to segment and group cases directly within the data. There is no need to go back and forth between SPSS and other software. Additionally, you can generate selection or classification/prediction rules in the form of SPSS syntax, SQL statements, or simple text (through syntax). You can display these rules in the Viewer and save them to an external file for later use to make predictions about individual and new cases. If you'd like to use your results to score other data files, you can write information from the tree model directly to your data or create XML models for later use in SPSS Server 13.0.

Group people according to their predicted action

Do you need to build models in which the dependent variable is dichotomous (buy or not buy, pay or default, graduate or not graduate)? Maybe you want to predict the probability of such events as solicitation responses or program participation. For example, a utility company wants to know which predictors correlate with failure to pay bills so it can create special bill payment plans for customers who need assistance. The **binary logistic regression** procedure (in SPSS Regression Models) enables you to select the predictive model for dichotomous dependent variables. Binary logistic regression gives you the depth and flexibility to specify models and to choose predictor order inclusion. Use six types of forward- or backward-stepwise methods to select variables. This enables you to tell the procedure to find the best variables. You have the flexibility to work forward (the procedure selects the strongest variables until there are no more significant predictors in the dataset). You can also set inclusion or exclusion criteria. The procedure produces a report that tells you which action it took at each step to determine your variables.

Classify people into two or more groups

Do you need to classify individuals into two or more groups? When a dependent variable includes two or more categories, the **multinomial logistic regression** procedure (in SPSS Regression Models) gives you what you need to accurately predict membership in key groups. For example, a telecommunications company can build a model to predict if a customer is more likely to order caller ID, voice mail, three-way calling, or multiple options. If the model predicts that the customer is likely to order caller ID, the company can send direct mail emphasizing caller ID to that customer. This means the company won't waste resources promoting products or services that aren't likely to interest its customers. To find the best predictor from dozens of possible predictors,

use one of four types of stepwise functionality—forward entry, backward elimination, forward stepwise, or backward stepwise.

More accurately identify groups using complex samples

How do you more accurately identify groups from your complex sample design? **Complex samples logistic regression (CSLOGISTIC)** (in SPSS Complex Samples) performs binary logistic regression analysis, as well as multiple logistic regression analysis, for samples drawn by complex sampling methods. The procedure estimates variances by taking into account the sample design used to select the sample. For example, more accurately include rare groups when evaluating usage of a social service program. Optionally, CSLOGISTIC performs analyses for subpopulations.

Make predictions with ordinal responses

Do you want to predict ordinal outcomes? For example, you might want to determine customer satisfaction level (very dissatisfied, somewhat dissatisfied, somewhat satisfied, very satisfied) in order to understand customer loyalty. When you need to predict ordinal-dependent variables, the **polytomous universal models (PLUM)** procedure (in SPSS Advanced Models), gives you a versatile method for model building. When you choose different link functions, you have the flexibility to fit ordinal logistic regression, ordinal probit models, and ordinal Cauchy models. You can also model the location and scale of the underlying distribution.

Use a variety of techniques to identify groups

Other techniques you can use to identify groups include:

Segmentation/dimension reduction

- **Factor analysis** and **principal components analysis** (in SPSS Base): identify underlying variables or factors that explain correlations within a set of observed variables. For example, use these procedures in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. These procedures have a high degree of flexibility, giving you a number of methods for factor extraction, rotation, and factor score computation.
- **Correspondence analysis** (in SPSS Categories): uses both optimal scaling and dimension reduction techniques to graphically reveal underlying relationships between categories and variables in a perceptual two-dimensional map. For example, identify dimensions that describe consumers' perceptions of cars, using similarity ratings between different makes and models.

- **Multiple correspondence analysis** (in SPSS Categories): analyze multivariate categorical data where all the variables are analyzed at the nominal level (unordered categories). This procedure is similar to correspondence analysis; however, it enables you to use more than two variables. For example, you can graphically display the relationship among favorite television shows, age group, and gender. Then, find the age and gender demographics that gravitate to each show while simultaneously revealing which shows are more similar and dissimilar to each other.

Classification

- **Loglinear/logit models** and **general loglinear analysis** (in SPSS Advanced Models): analyze the frequency counts of observations that fall into each cell in a crosstab or a contingency table. For example, a market researcher can use data from a product preference report to determine the relationship between exposure to an advertisement and product placement.
- **Model selection loglinear analysis** (in SPSS Advanced Models): appropriate when you want to find out which categorical variables have an association. You can use forced-entry and backward-elimination methods to build models; if you build saturated models, you can request parameter estimates and tests of partial association.
- **Logit loglinear analysis** (in SPSS Advanced Models): analyze the relationship between categorical-dependent (response) and independent (explanatory) variables
- **Probit models** (in SPSS Regression Models): fits binary or dichotomous dose-response models, using probit or logit models, including modeling natural response rates and producing fiducially confidence intervals for estimates of effective dose levels

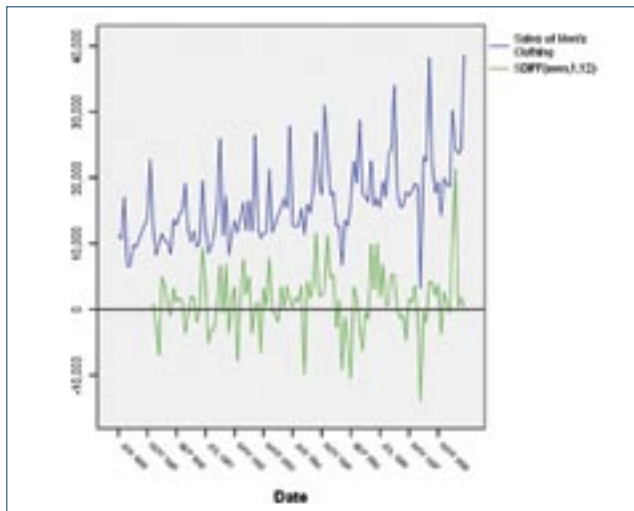
- **Categorical regression** (in SPSS Categories): optimally assigns numerical values resulting in a linear regression equation for transformed variables. Use categorical regression to describe how customer satisfaction depends on job category, industry, and geographic region. Use the resulting equation to predict customer satisfaction for any combination of the three independent variables.
- **SPSS Exact Tests**: analyze small datasets and reach correct results. Use the SPSS Exact Tests add-on module to determine whether a relationship exists between variables when you have a small number of case variables with a high percentage of responses in one category or when you subset your data into fine breakdowns. You can also use SPSS Exact Tests to search for rare occurrences, such as sales above \$1 million, within large datasets.

Improve your forecasts

SPSS Trends is a powerful tool for analyzing historical time-series information, building models, and predicting future events.

Select from SPSS Trends' estimation procedures to:

- Work with seasonal or nonseasonal time-series data using **ARIMA** models
- Access procedures to perform **seasonal decompositions**
- Specify up to four parameters in 12 different models for **exponential smoothing**
- Use different regression methods: **trend regressions** or **regression models with first-order autoregressive errors**
- Decompose a time series into its harmonic components



This chart from SPSS Trends illustrates men's clothing sales, raw and seasonally differenced, over a 10-year period.

Better processing throughout your entire organization

Sometimes you need more processing power than your desktop computer provides—especially if you work with large datasets. Working on your desktop computer may slow processing. Or your datasets may be too large for your desktop to handle. If you need faster processing or if your dataset has outgrown your desktop computer, run SPSS on a server.

SPSS Server enables any SPSS user in your organization to work with large, centralized data sources more efficiently—and enables you to leverage your IT investment. This client/server version reduces network traffic because data stay on the server. If your users have very large datasets or share datasets, they can analyze data on the server rather than on their individual machines. In addition, SPSS Server supports open Secure Sockets Layer (SSL). This enables your IT staff to ensure data in the SPSS client/server framework are secure, as defined by your enterprise's SSL protocol.

SPSS Server works with a variety of popular server platforms, including Microsoft Windows® 2000 Server, Windows Server™ 2003, Sun™ Solaris™, IBM® AIX®, and Red Hat Linux®. This gives your IT staff the flexibility to use resources and expertise they may already have. Visit www.spss.com/spss_server to learn more.

Report your results to people who can use them

Summarize, display, and explore results

Once your analysis is complete, you usually need to summarize results so your audience can understand them. SPSS includes a number of graph types that enable you to provide the right visual to describe your results. Graph types include:

- **Categorical charts** (including several types of bar, line, area, pie, and boxplot charts)
- **Quality control charts** (including Pareto, X-Bar, and Sigma charts)
- **Scatterplots** (including simple, grouped, scatterplot matrix, and 3-D)
- **Density charts** (including population pyramids, dot charts, and histograms)
- **Diagnostic and exploratory plots** (including caseplots, time-series plots, probability plots, and receiver-operating characteristics, or ROC)

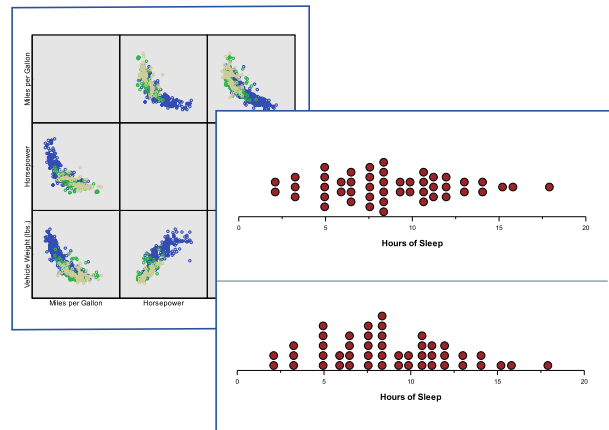
SPSS Base includes a **presentation graphics system** that enables you to easily create the type of chart you need to describe your results, and select from a variety of editing features so you can easily customize them.

The presentation graphics system also provides ease of use when working in a production setting. You can create a chart or graph once and then use your specifications to create hundreds more just like it.

For detailed information on the chart features, visit the reporting section at www.spss.com/spss.

See key findings and explore details in interactive output

Interact with your results using award-winning report OLAP cubes that give you maximum insight. Report cubes are interactive tables that enable you to slice, dice, and drill down into your data for exploration. SPSS Inc.'s report OLAP cubes are easier to use than OLAP cubes found in other software. You can set up SPSS OLAP cubes yourself—unlike other OLAP software, it's not necessary to involve your IT staff. SPSS report OLAP cubes work right from your SPSS data files to include value and variable labels. SPSS can also aggregate millions of rows in an OLAP cube to make them meaningful in seconds—enabling you to easily examine all kinds of data.



Use features and specific chart types in the presentation graphics system to better highlight your results. Dot charts (shown in the front graphic) show distribution. The scatterplot matrix (shown in the rear graphic) enables you to compare relationships among several variables.

Create custom tables in no time

If you need to present and display results in a tabular format, use SPSS Tables. With it, you can summarize your data in columns and rows for different audiences. SPSS Tables' preview builder interface updates in real time, so you always know what your tables will look like.

Display information the way you want to by using the category management features in SPSS Tables. You can exclude specific categories, display missing value cells, and add subtotals to your table. Combine several categories into a single category, for example, for frequent top- and bottom-box analyses. You can also sort categories within your table without affecting the subtotal calculation. Make your tables more precise, as you create them, by changing variable types or excluding categories. You can display or exclude categories with no counts for clearer and more concise output. Or sort and rank categories based on cell values for a neater, more informative table.

You can use SPSS Tables as an analytical tool to better understand your data and create tables that best present results. Highlight opportunities or problem areas in your results when you include inferential statistics. Choose from test independence (**Chi-square**), compare means (**t test**), or compare proportions (**z test**). These statistics enable you to compare means or proportions for demographic groups,

The image displays three examples of SPSS table types:

- Top: Two-dimensional crosstabulation table** showing 'Age category' on the x-axis and 'Male' and 'Female' counts on the y-axis.
- Middle: Multiple response set table** showing 'News sources' on the x-axis and 'Responses' and '%' on the y-axis.
- Bottom: Shared response categories (comperimeter) table** showing confidence levels for 'Confidence in banks', 'Confidence in major companies', 'Confidence in medicine', and 'Confidence in education' across three categories: 'A great deal', 'Only some', and 'Hardly any'.

Shown here are examples of three common table types—two-dimensional crosstabulation (top), multiple response set (middle), and shared response categories, or comperimeter table (bottom)—that you may want to use when analyzing and describing your data in SPSS Tables.

customer segments, time periods, or other categorical variables. You can also identify trends, changes, or major differences in your data.

Once you have results, you can export them to Word, Excel, PowerPoint®, or as HTML, so that others can easily access the information. You can also save time and effort by automating frequent reports, such as the compliance reports required for grant funding.

Chart a course for better decision making

If you work with geographic data, turn them into visual, easy-to-read output with **SPSS Maps**. Powerful mapping capabilities enable you to automatically attach SPSS data to maps and generate customized geographic analyses. A variety of editing techniques help you clearly present information. Export maps as standard graphic files for distribution almost anywhere, including the Web.

Share results on the Web

What if you had an easy way to securely provide analytical results to decision makers—even customers or citizens—on the Web? **SmartViewer Web Server** gives you an analytical content portal for SPSS. Using SmartViewer Web Server, analysts publish output from SPSS to a secure Web-based system, and information consumers view and interact with reports using a standard Web browser. SmartViewer Web Server centrally stores all of your organization’s analysis,

including pivot tables, graphs and charts, report OLAP cubes, and output from third-party products—and organizes it all within a convenient home page for each user.

Information consumers easily find what they need—on their own. SmartViewer Web Server eliminates the frustrating “back-and-forth” of traditional static reports. You don’t have to create new reports whenever managers want to see analysis in a different way. Recipients can pivot and explore reports online to find answers—rather than coming to you. And you can keep critical information secure. With SmartViewer Web Server, you decide who receives reports and how much they see.

“With SPSS, we turn our data into usable information that helps us improve the quality of care and address better mechanisms for creating cost efficiencies.”

– Susan McBride
 Director of Outcomes Management
 Texas Health Resources East

Seamlessly take a project from planning to deployment

1. Planning/survey design

Develop surveys and forms in Dimensions or SPSS

Data Entry. Create a survey or form with Dimensions to automatically capture results from online, telephone, in-person, or paper survey responses. Use SPSS Data Entry for desktop data entry from surveys or forms. Both have an intuitive interface to make survey and form creation quick and easy—greatly reducing your data preparation time prior to analysis.

2. Data collection/data entry

Centrally collect data from any source. You may want to collect data online (from the Internet or your intranet), by phone, through text messaging, using portable devices (for example, at a tradeshow), by scanning responses to paper surveys, or through manual data entry. You can use all of these data collection methods with Dimensions or use manual data entry with SPSS Data Entry, and ensure that results are centrally collected and ready for analysis in SPSS.

3. Data analysis

Analyze data in SPSS. In SPSS, simply open your survey results file. No data preparation is needed, so you can more easily reach the analysis stage faster.

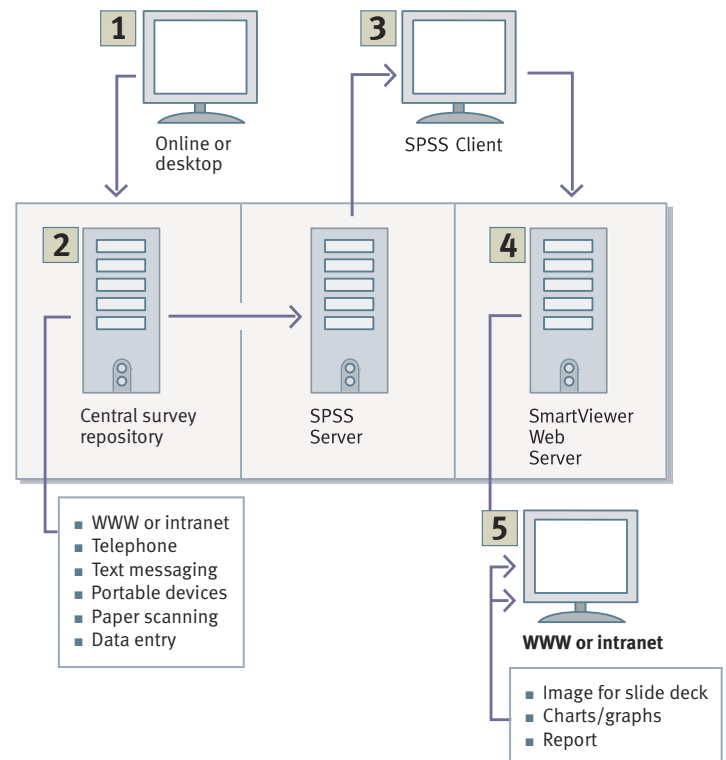
4. Deployment

Post results to SmartViewer Web Server. Simply choose “Publish to Web” from the SPSS File menu to deploy output to SmartViewer Web Server.

5. Interactive results

View and interact with results. Interactive tables published on the Web enable decision makers to explore results.

■ From Survey to Report



SPSS survey research products

Dimensions is a full-service technology platform that supports the entire survey research process, from questionnaire design to multimodal data collection and analysis to Web reporting. The Dimensions product line represents an integrated suite of survey research products, including mrInterview™, mrInterview CATI™, mrTables™, mrStudio™, mrPaper™, mrScan™, and mrTranslate™. See www.spss.com/dimensions for more information.

SPSS Data Entry enables you to create effective surveys and forms, accurately enter data on the desktop, and automatically route and store data in centralized files upon entry, for analysis with SPSS for Windows. See www.spss.com/data_entry for more information.

Solve your business and research problems using the right products

Need help deciding which products from SPSS Inc. you can use for specific applications? This diagram, which is organized by application and product (in the order used in the analytical process), will guide you to the right products. Specification highlights for each product are on the following pages.

	Products																		
	SPSS Base	SamplePower	SPSS Complex Samples	SPSS Conjoint	Dimensions	SPSS Data Entry	SPSS Missing Value Analysis	SPSS Text Analysis for Surveys	SPSS Regression Models	SPSS Advanced Models	Amos	SPSS Classification Trees	SPSS Categories	SPSS Exact Tests	SPSS Trends	SPSS Tables	SPSS Maps	SmartViewer Web Server	SmartScore
Survey research, market research, and direct marketing																			
Customer satisfaction surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Product attribute testing	✓			✓	✓			✓	✓			✓	✓					✓	✓
Pricing and promotion analysis	✓			✓				✓	✓			✓	✓					✓	✓
Market segmentation studies	✓	✓						✓	✓			✓	✓	✓				✓	✓
Demographic studies and opinion polling	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Database and direct marketing	✓		✓		✓	✓	✓	✓	✓	✓		✓	✓	✓				✓	✓
Academia																			
Teaching	✓		✓				✓	✓	✓	✓	✓								
Administration	✓		✓				✓	✓	✓	✓	✓	✓		✓	✓		✓		
Administrative research, human resources, and resource planning																			
Program effectiveness	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓						✓	✓
Employee attitude and satisfaction surveys	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Applicant selection and testing	✓			✓	✓		✓	✓	✓	✓	✓	✓		✓				✓	✓
Compensation and employment analysis	✓				✓		✓	✓	✓	✓					✓			✓	✓
Medical, scientific, and social science research																			
Treatment outcome analysis	✓	✓	✓						✓	✓	✓			✓				✓	✓
Behavioral and biomedical research	✓	✓	✓				✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Environmental impact studies	✓		✓					✓	✓	✓				✓	✓		✓	✓	✓
Criminal justice studies	✓	✓	✓				✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Outcomes management	✓	✓	✓					✓	✓	✓	✓							✓	✓
Project management	✓		✓					✓								✓		✓	
Research and development engineering	✓	✓					✓	✓	✓	✓									✓
Planning and forecasting																			
Sales and marketing forecasting and budgeting	✓						✓		✓						✓			✓	✓
Resource requirements and forecasting	✓						✓	✓	✓						✓			✓	✓
New product forecasting	✓	✓		✓				✓										✓	✓
Econometrics	✓						✓		✓						✓			✓	✓
Enrollment and admissions forecasting	✓						✓		✓						✓			✓	✓
Financial account balance	✓						✓		✓						✓			✓	✓
Quality improvement																			
Productivity and service quality	✓	✓							✓					✓	✓	✓		✓	✓
Manufacturing and productivity analysis	✓	✓							✓					✓	✓	✓		✓	✓
Predictive maintenance planning	✓	✓							✓									✓	✓
Utilization studies	✓	✓							✓						✓			✓	✓
Performance measurement					✓														
Reporting and ad hoc decision making																			
Fraud, waste, and abuse	✓								✓	✓						✓		✓	✓
Risk and credit management	✓		✓					✓	✓	✓						✓		✓	✓
Reports to or from governmental agencies	✓		✓					✓							✓	✓	✓	✓	✓
Industry trend analysis	✓				✓		✓	✓	✓	✓					✓			✓	✓
Program evaluation and funding decisions	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Institutional research	✓		✓		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Property and tax assessment	✓						✓		✓						✓			✓	✓

Specification summaries

Discover which powerful statistics and procedures are included in each SPSS product. SPSS Base is listed first. The other products are listed in the order in which they are used in the analytical process.

SPSS Base 13.0

Access, manage, prepare, and analyze data, and report results.

Data access, data preparation, and data and output management

- Database Wizard
- “GET SAS” command (to import SAS data)
- Text Wizard
- Excel interface
- Data editor
- Define Variables Properties tool
- Identify Duplicate Cases tool
- Copy Data Properties tool
- Visual Bander
- Long variable names (up to 64 bytes)
- Very long text strings (up to 32,767 bytes)
- Reliability analysis
- Output management system (OMS) for creating custom programs with SPSS output
- Transformations
 - Compute new variables using arithmetic, cross-case, date and time, logical, missing-value, random-number, and statistical or string functions
 - Recode string or numeric values
 - Recode values into consecutive integers
 - Create conditional transformations using do if, else if, else, and end if statements
 - Use programming structures such as do repeat-end repeat, loop-end loop, and vectors
 - Count occurrences of values across variables
 - Make transformations permanent or temporary
 - Execute transformations immediately, in batch mode, or on demand
 - Use cumulative distributions, inverse cumulative distributions, and random number generator functions
 - Work with cumulative distributions and random number generators for discrete distribution functions

- Use cumulative distributions for non-central distributions
- Use density/probability functions for continuous and discrete distributions
- Work with non-central density/probability functions
- Select from two-tail probabilities: Chi-square and F
- Use auxiliary function: logarithm of the complete Gamma function

Descriptive statistics

- Crosstabulations
- Frequencies
- Descriptives
- Explore

Bivariate statistics

- Means
- *t* tests

Correlation

- Bivariate
- Partial
- Distances

Nonparametric tests

- Tests for one sample
- Tests for two-related samples
- Tests for k-related samples
- Tests for two-independent samples
- Tests for k-independent samples

Prediction for numerical outcomes and identifying groups

- Factor analysis
- K-means cluster analysis
- Hierarchical cluster analysis
- TwoStep cluster analysis
- Discriminant
- Linear regression
- Analysis of variance (ANOVA)
- Principal components of analysis

Reporting

- Reports
- OLAP cubes
- Case summaries
- Report summaries
- Graphic capabilities—communicate your results clearly with the presentation graphics system. Included features make

it easier to create the graph you want and produce more readable graph output in a production setting.

- Categorical charts
 - Bar: simple, cluster, and stacked
 - Line: simple, multiple, and drop-line
 - Area: simple and stacked
 - Pie: simple and exploding
 - High-low and high-low-close
 - Boxplot: simple and clustered
 - Error bar: simple and clustered
- Scatterplots
 - Simple, grouped, scatterplot matrix, and 3-D
 - Fit lines: linear, quadratic or cubic regression, and Lowess smoother; confidence interval control for total or subgroups; and display spikes to line
 - Bin points by color or marker size to prevent overlap
- Density charts
 - Population pyramids: mirrored axis to compare distributions; with or without normal curve
 - Dot charts: stacked dots show distribution; symmetric, stacked, and linear
 - Histograms: with or without normal curve; custom binning options
- Quality control charts
 - Pareto
 - X-Bar
 - Range
 - Sigma
 - Individual chart
 - Moving range chart
- Receiver-operating characteristics (ROC)
- Export to Word
- Export to Excel

System requirements

- Operating system: Windows® XP, 2000, and Me are the preferred platforms. Windows 98 is also supported.
- Hardware: Intel® Pentium®-compatible processor
- Memory: 128MB RAM; 512MB RAM or more recommended
- Minimum free drive space: 220MB

SamplePower

(Developed by Michael Borenstein, Hannah Rothstein, and Jacob Cohen)

Reach accurate sample sizes quickly and easily.

- Show power and precision (availability depends on test) with varied sample sizes; power only or power with varied effect sizes and Alphas
- Create pivot tables
- Print and export tables; optionally, export data to Excel or other spreadsheet programs
- Save graphs to a number of formats, including WMF, EMF, and BMP; easily export to programs such as Word or PowerPoint
- Use statistical tests for means, proportions, correlations, ANOVA, regression, logistic regression, survival analysis, and equivalences tests

System requirements

- Operating system: Windows 2000, 98, or Windows NT® 4.0
- Hardware: Pentium-compatible processor
- Memory: 16MB RAM
- Minimum free drive space: 10MB

SPSS Complex Samples

Incorporate complex sample designs into data analysis for more accurate analysis of this special data type.

- Complex samples plan (CSPLAN) procedure
 - Sampling Plan Wizard for use when collecting data
 - Analysis Preparation Wizard for use when working with public-use datasets
- Complex samples selection (CSSELECT) procedure for selecting complex, probability-based samples from a population
- Complex samples descriptives (CSDESCRIPTIVES) to estimate means, sums, and ratios and compute their associated standard errors, design effects, confidence intervals, and hypothesis tests for samples drawn by complex sample methods
- Complex samples tabulate (CSTABULATE) to display one-way frequency tables or two-way crosstabulations and associated standard errors, design effects, confidence intervals, and hypothesis tests for samples drawn by complex samples methods

- Complex samples general linear models (CSGLM) to build linear regression, analysis of variance (ANOVA), and analysis of covariance (ANCOVA) models for samples drawn by complex sampling methods
- Complex samples logistic regression (CSLOGISTIC) to perform binary logistic regression analysis, as well as multiple logistic regression (MLR) analysis, for samples drawn by complex sampling methods

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

SPSS Conjoint

Discover consumer preferences in order to help improve products and price them effectively.

- Orthogonal main effects fractional designs
- Plancards to produce printed cards for conjoint experiments
- Conjoint to perform an ordinary least squares analysis of preference

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

Dimensions

Support the entire survey research process, from questionnaire design to multimodal data collection and analysis to Web reporting, using an integrated suite of products for survey research.

- Create surveys in any language, for any format
- Collect data through any medium (online, phone, text messages, portable devices, and paper) and store surveys in a centralized location for easy access
- Make the most of your existing technology infrastructure; deploy in virtually any network configuration
- Avoid duplication of effort in creating, fielding, and analyzing surveys
- Increase staff efficiency by using a standardized programming language and method of data management
- Enjoy unlimited creativity in designing survey projects, increasing the quality of results and the satisfaction of internal and external clients

- Deliver useful results to more people faster and at lower cost
 - Provide real-time results to colleagues and clients
- Perform data analysis using SPSS for Windows, SPSS Text Analysis for Surveys, or Clementine®
- Export results directly to Word, Excel, or PowerPoint

System requirements

System requirements vary depending on the product(s) you choose. Refer to www.spss.com or your sales representative for more details.

SPSS Data Entry

Build better customer profiles with accurate, desktop data entry from surveys or forms.

- Drag-and-drop form design
- Toolbox with many response options
- Ability to define data file and SPSS dictionary as you build forms
- Copy and paste variable properties
- Drag variables to automatically create questions
- Question library of sample questions and responses
- Flexible formatting capabilities
- Powerful data cleaning rules
 - Validation rules
 - Checking rules
 - Skip-and-fill rules
- Open multiple surveys at once
- Up to 4,000 characters in open-ended survey responses
- Ability to create SPSS (.SAV) files

System Requirements

System requirements vary depending on the product(s) you choose. Refer to www.spss.com or your sales representative for more details.

SPSS Missing Value Analysis

Create higher-value data and build better models when you estimate missing data.

- Analyze patterns of missing data
- Impute missing values
- Expectation maximization (EM) algorithm
- Regression algorithm
- Univariate: compute count, mean, standard deviation, and standard error of mean for all cases, excluding those containing missing values for all variables
- Listwise: compute mean, covariance matrix, and correlation matrix for all quantitative variables for cases, excluding missing values
- Pairwise: compute frequency, mean, variance, covariance matrix, and correlation matrix

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

SPSS Text Analysis for Surveys

Reliably categorize your open-ended survey responses by combining manual techniques with advanced linguistic processing technologies.

- View data and categorize responses from the Text Analysis windows
- View and customize linguistic resources from the Dictionary Editor window
- Import data from ODBC-compliant databases, SPSS (.SAV), and Excel (.XLS)
- Export data as dichotomies or categories to SPSS or Excel
- Create categories by:
 - Automatically extracting terms, types, and patterns
 - Using LexiQuest™ natural language processing (NLP) technologies and a semantic network
- Customize select dictionaries included in the product to improve performance and provide greater consistency in coding

System requirements

- Operating system: Windows XP (Service Pack 1a), 2000 (Service Pack 3), or Me
- Hardware: Pentium-class processor
- Memory: 256MB RAM minimum; 512MB recommended
- Minimum free drive space: 300MB minimum; more recommended for larger datasets
- CD-ROM drive for installation
- Web browser: Internet Explorer 6.0 or later

SPSS Regression Models

Make better predictions with powerful regression procedures.

- Multinomial logistic regression
- Binary logistic regression
- Unconstrained nonlinear regression (NLR)
- Constrained nonlinear regression (CNLR)
- Two-stage least squares
- Probit analysis

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

SPSS Advanced Models

Analyze complex relationships using a high-end modeler's toolkit.

- Linear mixed models
- General linear models (GLM)
 - Fixed effect ANOVA, analysis of covariance (ANCOVA), multivariate analysis of variance (MANOVA), and multivariate analysis of covariance (MANCOVA)
 - Random or mixed ANOVA and ANCOVA
 - Repeated measures ANOVA and MANOVA
- Variance component estimation (VARCOMP)
- Polytomous universal model (PLUM)
- General models of multiway contingency tables (LOGLINEAR)
- Hierarchical loglinear models for multiway contingency tables (HILOGLINEAR)

- Loglinear and logit models to count data by means of a generalized linear models approach (GENLOG)
- Survival analysis procedures
 - Cox regression with time-dependent covariates
 - Kaplan-Meier
 - Life tables

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 2MB

Amos

(Developed by James Arbuckle)

Confirm relationships in attitudinal and behavioral models.

- Present your models in an intuitive path diagram to show hypothesized relationships among variables
- Create structural equation models (SEM), such as path analyses, causal models, and longitudinal data models, with observed and latent variables
 - Specify each individual candidate model as a set of equality constraints on model parameters
 - Use exploratory SEM to select a model from a large number of candidate models
- Perform confirmatory factor analysis: variance components, errors in variable, measurement models, and latent variables
- Analyze mean structures and multiple-group datasets
 - Use automated specification for quick specification and testing
- Analyze multiple models simultaneously

System requirements

- Operating system: Windows XP, 2000, Me, 98, or NT 4.0 with Service Pack 6 (SP6)
- Memory: 256MB RAM minimum for XP, 2000, and NT 4.0; 128MB RAM minimum for Windows Me and 98
- Minimum free drive space: 18MB
- Web browser: Internet Explorer 6.0

Quickly set up and schedule production jobs

SPSS' user interface generates syntax for all outcomes, so you can save time by automating repetitive procedures in production mode. For example, if you need to generate a report on a monthly basis, use the Windows-based production facility to create the first report. Then paste the syntax into a syntax window to set up a report that runs on a regular basis. The production facility runs your system jobs, using filters to pull only the data needed from the data warehouse. It runs unattended and terminates after executing the last command so you can still be productive on your PC. Schedule recurring production jobs using scheduling software, such as Windows NT® Scheduler. This allows you to run a large job overnight and have the results waiting for you in the morning.

SPSS Categories

(Developed in partnership with the Data Theory Group at Leiden University)

Understand groupings using perceptual maps and predict categorical outcomes.

- Multidimensional scaling of proximity data
- Principal components analysis
- Correspondence analysis
- Categorical regression analysis via optimal scaling
- Multiple correspondence analysis
- Canonical correlation analysis of two or more sets of variables via alternating least squares

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

SPSS Exact Tests

(Developed in partnership with Cytel Software)

Reach correct conclusions and make better decisions—even with small samples or fine subsets.

- More than 30 exact tests to cover the entire spectrum of nonparametric and categorical data problems for small or large datasets. Tests include:
 - One-sample, two-sample, and K-sample tests on independent or related samples
 - Goodness-of-fit tests
 - Tests of independence in RxC contingency tables
 - Tests on measures of association

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 3.3MB

SPSS Classification Trees

Better identify groups, discover relationships between groups, and predict future events using classification and decision trees directly within SPSS.

- Display tree diagrams, tree maps, bar graphs, and data tables

- Easily build trees using the comprehensive interface
- View nodes using one of several methods
- Collapse and expand branches, and change other cosmetic properties, such as fonts and colors
- View and print trees
- Specify the exact zoom percentage for viewing visual tree models in the interface
- Automate tree building using the production mode
- Force one predictor into the model
- Specify prior probabilities, misclassification costs, revenues, expenses, and scale scores
- Perform analysis using one of four powerful tree-growing algorithms
 - CHAID by Kass (1980)
 - Exhaustive CHAID by Biggs, de Ville, and Suen (1991)
 - Classification & regression trees (C&RT) by Breiman, Friedman, Olshen, and Stone (1984)
 - QUEST by Loh and Shih (1997)
- Generate risk and classification tables
- Summarize node performance with evaluation graphs and tables to help identify the best segments
- Partition data between training and test data to verify accuracy
- Display summary graphs or classification rules for selected nodes using the node summary window
- Export
 - Tree diagrams and charts. Export formats include Windows metafile (WMF), Windows bitmap (BMP), encapsulated PostScript® (EPS), JPEG, TIFF, PNG, and Macintosh® PICT
 - Summary tables as HTML, text, Microsoft Word/RTF, and Microsoft Excel files
- Save information from the model as variables in the working data file
- Export decision rules that define selected segments in SQL to score databases, SPSS syntax to score SPSS files, or as simple text (through syntax)

- Export trees as XML models for use with SPSS Server and SmartScore to score new cases or data files
- Publish trees as images and tables as static or interactive tables to SmartViewer Web Server
- Select interesting segments in the working data file via tree nodes, and run more analyses for additional insight

System requirements

- Software: SPSS Base 13.0

SPSS Trends

Improve your forecasts with powerful tools for time-series data.

- Produce maximum likelihood estimates for seasonal and non-seasonal univariate models (ARIMA)
- Use exponential smoothing methods to estimate up to four parameters for your choice of twelve available models (EXSMOOTH)
- Estimate multiplicative or additive seasonal factors for periodic time series (SEASON)
- Decompose a time series into a harmonic component or a set of regular periodic functions at different wavelengths or periods (SPECTRA)
- Estimate a regression model when the error from the regression is correlated between one time point and the next (AREG)

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 1MB

SPSS Tables

Easily, quickly, and clearly report results in a tabular format to the people who can use them.

- Drag-and-drop table builder interface to preview tables as you select variables and options
- Inferential statistics that you can include with tables to highlight opportunities or problem areas
 - Chi-square tests
 - Column proportion tests
 - Pairwise comparison of means
- A variety of summary statistics for even deeper insight into data
- Control contents to gain more control over output
- Formatting controls for more customized tables
- Easy-to-understand syntax to create reports in a production setting

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 3.3MB

SPSS Maps

Chart a course for better decision making using powerful mapping capabilities and demographic information.

- Six thematic map options
- Multiple thematic layers display more than one thematic on a single geometric map
- Several sample maps and geosets
- Import additional maps for specialized requirements
- Sample datasets, including more than 40 MapInfo® demographic data files for quick

demographic analysis without laborious data collection

- SPSS syntax programming to produce maps with standard SPSS syntax
- Automatic labeling

System requirements

- Software: SPSS Base 13.0
- Minimum free drive space: 20MB

SmartViewer Web Server

Put valuable reports into the right hands, quickly and securely.

- Produce results instantly with Web-based analytical reports
- Easily share information with customers, partners, and the public
- Quickly distribute SPSS analysis and other reports
- Enable applications to publish and update content in the repository for greater flexibility
- Keep critical information secure even if you have large security domains
- Manage security with a centralized system
- Give decision makers the ability to find what they need

System requirements

- Web server: The framework requires at least one server computer that meets the minimum requirements below. Additional processors, faster processors, and more RAM will improve performance.
 - Operating System: Windows Advanced Server, Sun™ Solaris™ 2.8 or later, Windows 2000 Server, or Windows NT 4.0 Server with Service Pack 5 (cannot be installed on Windows NT Terminal Server)

- Hardware: 500MHz processor or faster; recommend dual CPU server
- Memory: 512MB RAM minimum
- Minimum free drive space: 700MB (for software install only)
- A network adapter running TCP/IP

SmartScore

Develop applications that generate scores (predictions) for individual cases and deliver accurate profiles using this software development kit (SDK).

- Deploy scoring models enterprise wide for more efficient and effective decision support
- Use Java-class files, which offer an application programming interface (API)
- Score various models created in SPSS for Windows, AnswerTree®, and Clementine
- Score your own models created using an XML-based Predictive Model Markup Language (PMML)
- Develop applications using C++, C, Java™, or Visual Basic (OCX)

System requirements

- Windows 2000, 98, or NT 4.0
- Java runtime environment (JRE) v1.3 or higher

You can download full specifications for SPSS Base, all add-on modules, and related stand-alone products at www.tech4t.com/spss

Options to obtain the most from your software

It's not just SPSS Inc. analytical software that has depth and flexibility. Our pricing, services, support, and training plans give you a variety of flexible programs to meet your needs.

Pricing and licensing

Select the license that's right for your organization—and your budget. Choose one of SPSS Inc.'s flexible pricing and licensing plans. Contact your local office to discuss the plans available in your area. Or visit www.tech4t.com to order products directly from the SPSS Inc. Web store.

SPSS software for teaching

If you teach statistics or classes involving research methods, SPSS has a number of options for your courses. Options vary by country but can include full copies of SPSS software for student purchase and licensing for on-campus computer labs. Visit www.spss.com/vertical_markets/education or contact your local office to discuss your options.

SPSS Worldwide Services

Do you want help starting a data analysis project? Looking for a customized solution for your organization? SPSS Worldwide Services can help. This group can save you time and money by helping you automate your SPSS procedures. It can also help you with script writing. For example, consultants can help you write a script that automatically edits SPSS output to highlight findings and change the look and feel of the output. Visit Technologies4Targeting Ltd - www.tech4t.co.uk/spss

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- Create new support requests directly on the Web
- Update and review support cases you have previously submitted
- View cases submitted by your organization
- Customize your visits to the SPSS Technical Support Web site

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- **On-site training:** group training at your site
- **Public courses:** more than 30 courses, from introductory to advanced, covering the most popular SPSS products
- **One-to-one training:** customized training, especially for you
- **Web-Based Training (WBT):** use your browser and Internet connection for expert SPSS for Windows training without leaving your office or home. WBT courses use streaming video and audio so you can experience the course just as it's presented in the classroom.

Visit www.tech4t.com/training to discover more about SPSS Training, including locations and schedules, course descriptions, and preregistration forms.



About SPSS Inc.

SPSS Inc. (NASDAQ: SPSS) is the world's leading provider of predictive analytics software and solutions. The company's predictive analytics technology connects data to effective action by drawing reliable conclusions about current conditions and future events. More than 250,000

commercial, academic, and public sector organizations rely on SPSS technology to help increase revenue, reduce costs, improve processes, and detect and prevent fraud. Founded in 1968, SPSS is headquartered in Chicago, Illinois.

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