

**StatSoft®**  
**Business White Paper**

**The *STATISTICA* Enterprise-wide  
SPC System (SEWSS):  
The Analysis Platform for Data Collection  
and Storage Systems  
(Part 3 of 3: Applying Specifications)**

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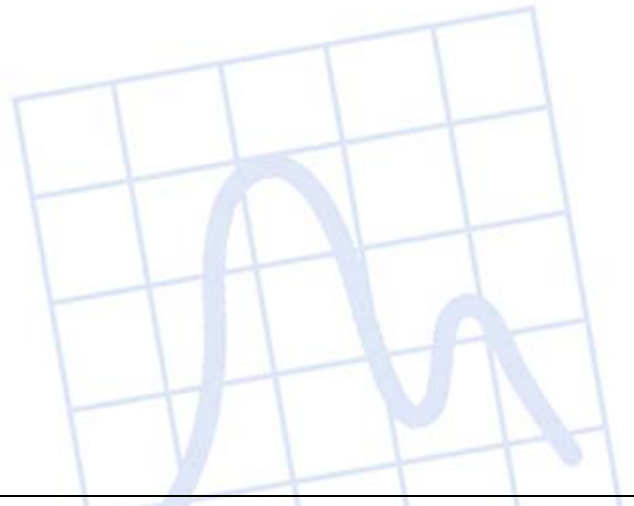
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## Executive Summary



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StatSoft, provider of the **STATISTICA** product suite, is committed to partnering with our customers in meeting our mutual goal of the design and production of products of the highest quality and reliability. The **STATISTICA Enterprise-wide SPC System (SEWSS)** is the ultimate analytics platform for research and development (R&D) and quality control. In collaboration with our customers, we learned that the major barriers to the use of analytics are:

- **Ease of use:** Regardless of the power of an analytics platform, if it is not intuitive, the vast majority of users within an organization will not adopt it.
- **Integration with Data Repositories:** Access to data often involves a time-consuming collaboration between the individuals who know the definition of the data they need and those individuals who understand the data repository and the approach to extracting the required data set.
- **Collaboration:** Research and Quality Control activities within an organization are rarely a single individual operating in isolation. Instead, these activities are programs that require collaboration among many individuals.

With this in mind, StatSoft has developed and refined **SEWSS**, first released in 1997, over many years and iterations.

**SEWSS** provides a comprehensive suite of data mining, analysis and visualization tools all within a single software platform. This platform provides role-based user interfaces, analysis templates for the automation of standard analyses and reports, and collaboration through data and results-sharing within a secure environment. Every worker, technician, analyst needs access to data and analytical tools. **SEWSS** provides the platform to service those needs.

This paper is the first in a series of three papers that provide an introduction to the major features of **SEWSS**, specifically focusing on its capabilities for integrating with your existing data repositories. The benefits of these features are that your organization is now provided with the necessary tools to make full and continual use of the valuable data you are collecting.

## Purpose of SEWSS

StatSoft understands that for many organizations the status quo is not good enough in terms of taking best advantage of the wealth of data being collected and stored. There is an acknowledgement that greater integration of analytical techniques is needed, but there is a fear that it would be expensive to develop and implement such

a system and its intended users may lack the necessary training to be able to make the most use of it.

Many organizations have a wealth of existing data. Personnel within these organizations would benefit by utilizing these data, but the barriers and time commitment to do so prevent it. What is needed is an integrated system of data querying, data mining, data analysis and data visualization techniques all within a secure, multi-user, collaborative environment.

Imagine a software system where an individual simply a) has the requisite permissions and b) clicks on an analysis listed in a folder structure to be presented with the results based on the latest data. She doesn't need to know where the data are stored. She doesn't need to know that the data are being aggregated from two repositories. She doesn't need to know that the product specifications were queried separately once she selected the product and test of interest. All that she needed to know was the name of the analysis that she wanted to conduct.

*That is exactly how SEWSS works!*

## Conceptual Introduction

**SEWSS** is a multi-user software application that provides a rich palette of features for use within your organization. At the highest level, the following are the major functional pieces of the **SEWSS** system:

- **Connections to Data Repositories:** **SEWSS** is configured within your organization to recognize the relevant data repositories that store the data of interest for mining, analysis and visualization.
- **Analysis Templates:** **SEWSS** stores definitions of analysis templates that can be manually or automatically initiated. These templates are either “hardcoded” with all of the analysis parameters specified in the template, or can be “parameterized” to allow the user of the template to select which data and specific analyses are of interest.
- **Interactive Filtering:** **SEWSS** provides a robust set of filtering capabilities, to hide the user from the complexities of the data structures and Structured Query Language (SQL). Instead, the user is presented with an easy-to-use menu of values (e.g., product name, Date/time range) from which she may select to determine the data of immediate interest.
- **Reports:** **SEWSS** provides customizable report templates to define the page layout and format for reports to be produced on a regular basis. **SEWSS**

includes a scheduling application to manage the automation of the production of these reports at specified time intervals.

- **Security and Permissions:** In a multi-user software application, treating everyone the same is not appropriate. Roles and responsibilities within an organization differ from individual to individual. **SEWSS** stores account information about what the user should be able to view, modify and perform while utilizing the system. One major contributor to the system's ease-of-use is that users do not see features and reports that are irrelevant to them.

The **SEWSS** system provides the analysis companion to your data repositories, utilizing the above categories of capabilities. As an off-the-shelf software system, **SEWSS** provides general objects that are configured through its administration user interfaces. The major **SEWSS** objects are introduced immediately below. An understanding of the terminology used in **SEWSS** is an important foundation for the example that follows in the next section.

- **Connections:** Connections store the definition of a particular data repository and the method by which data are accessed.
- **Profiles:** Profiles are collections of one or more queries that define the data to be analyzed. Profiles also contain metadata for storing the necessary properties of the data to allow **SEWSS** to treat them appropriately for analytic purposes (e.g., that a particular column contains data, another contains the Product Name to be used for filtering, etc.)
- **Monitors:** Monitors are analysis templates that define the parameters of the analyses to be performed, including which analytical techniques to run and their respective settings.
- **STATISTICA Visual Basic:** **SEWSS** is implemented as an object-oriented application with an Application Programming Interface (API) provided in Visual Basic for Applications (VBA). **SEWSS** customizations are available through the 11,000+ functions in the **STATISTICA** object model.

## Example: Applying Specifications

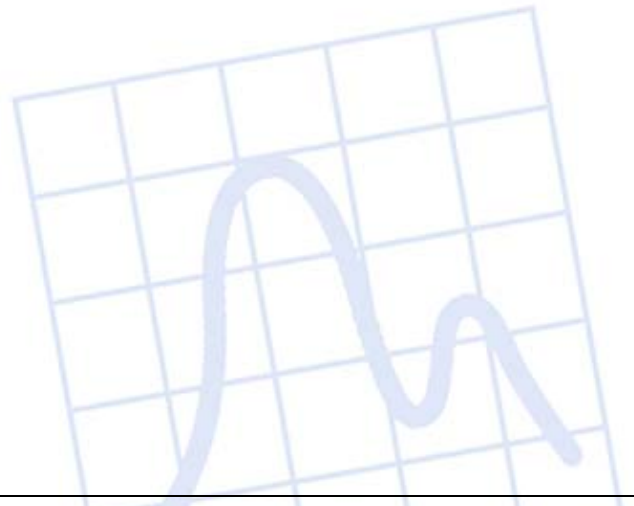
This section provides an example of the use of **SEWSS** as an analysis platform connecting with your organization's data repositories. This example builds upon the one presented in first paper in this series entitled "Part 1: Database Integration." You should consult that example for additional details not discussed in this focus on applying specifications.

It is a common scenario that the specifications for a product characteristic or a process parameter are defined and stored in the data repository along with the data

of interest. These specifications may change over time, either infrequently or frequently. The important goal is that your organization would want to manage the specifications in one location, the existing data repository, rather than having to ensure that the **SEWSS** system is updated each time the specifications are changed. **SEWSS** simplifies the administration of specifications by allowing them to be queried from the data repository and applied within an analysis template.

Once a Query is defined as part of a Profile (i.e., a collection of queries), **SEWSS** provides the system administrator with options to define its metadata. These metadata are properties that inform **SEWSS** about the use of each column of data, for analysis and filtering purposes.

A column's "Target Properties" indicate how the column should be used for analytic purposes. It also provides options to indicate where the specifications for the column are located, if that column contains the values for a product characteristic or a process parameter.



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**Edit Target Properties**

Name:

Type:

Target name:

Target type:

Auto update:

Crosstab:

Options:

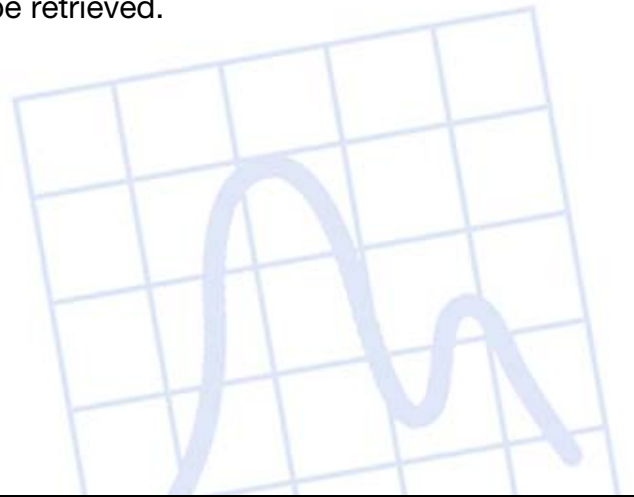
Chart type:

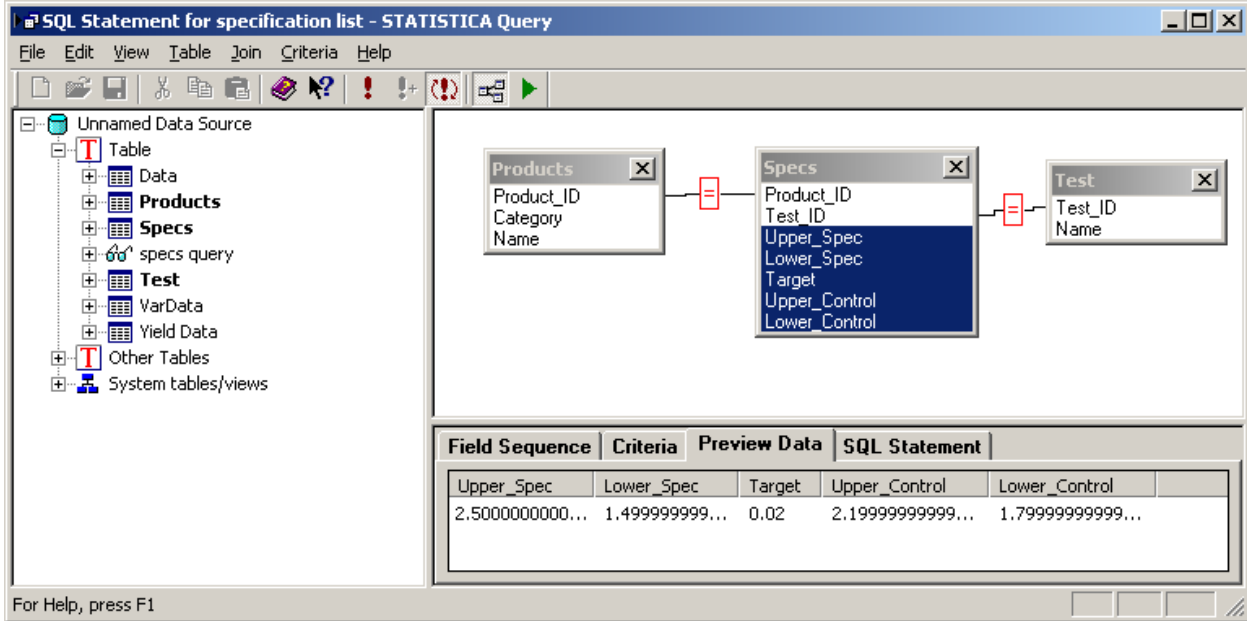
SQL statement to get IQC specifications:

```
SELECT Specs.`Upper_Spec`,
Specs.`Lower_Spec`, Specs.`Target`,
Specs.`Upper_Control`,
Specs.`Lower_Control` FROM `Products`
Products, `Specs` Specs, `Test` Test
```

Include specifications in data file

The system administrator selects the role for the particular column by selecting from the available “Target types” in the above user interface. If relevant, based upon the selected Target type, the bottom of the user interface (shown above) provides options to select where the specifications are to be retrieved.





Inputting the location of the specifications utilizes the graphical query-building interface provided in **SEWSS**. Above, the system administrator has indicated the location of the Upper Specification, Lower Specification, Target Value, Upper Control Limit, and Lower Control Limit for this characteristic.

Based upon this configuration, the specifications will be applied appropriately when the analysis template is run.

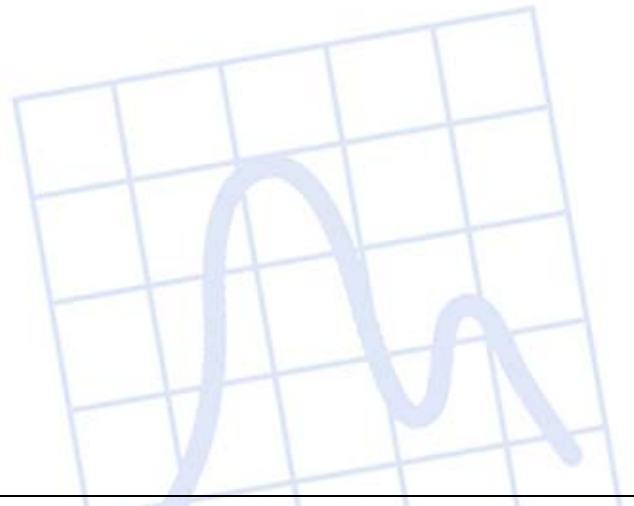
## Conclusions

**SEWSS** provides a powerful, flexible and easy-to-use software platform for the data mining, analytics and visualization needs of your organization. This paper provided an introduction to the major features and benefits of **SEWSS** along with an example of its database integration capabilities specific to applying the appropriate specifications to a characteristic or parameter. **SEWSS** dynamically applies the appropriate specifications by storing the configuration of where the current specifications are located in the data repository.

For more details about **SEWSS** capabilities and for a customized demonstration of the system for your needs, please contact StatSoft at 918-749-1119.

This paper, “Part 3: Applying Specifications”, is the third in a series that address the database integration capabilities of **SEWSS**. Please refer to the other two

companion papers, entitled “Part 1: Database Integration” and “Part 2: Interactive Filtering”.



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