



## Viscovery<sup>®</sup> Software Suite 6.0 — What's New

---

### New features

#### Group comparison

With this new feature, any group of data records in the SOM model can be compared with an arbitrary group defined as the *reference group*. The variable significances for the corresponding *Group Profile* are derived using a two-sided T-test for a generalized comparison of means — a so-called contrast — which is also suited for comparison of overlapping groups.

#### Cluster characteristics

The new *Cluster Characteristics* window provides an automatic analysis of all active clusters in a segmentation. The sorted overview of cluster descriptions gives an immediate understanding of the properties of each cluster. Each cluster is described by the variables that exhibit the strongest contribution to distinguish it from the entire data set. The new *median of absolute profile values* key figure helps to identify interesting clusters.

#### Mining of high-dimensional data

A multiple testing correction can now be applied to find interesting attributes in clusters of very high-dimensional data. For example, text corpus and gene expression data often comprise thousands of attributes. This feature helps avoid false positives, particularly when the data being analyzed also contain a small number of samples.

#### Process state monitoring

The temporal development of a (usually technical) process can be visualized by replaying the sequence of corresponding data records. The states that occurred in a system or in a process are thereby displayed in a video-like manner to build a chronological path over the SOM model.

#### Links to external files and URLs

A Viscovery Data Mart can now embed links to external documents and web pages. These objects can then be directly accessed from the model, and thumbnails can be automatically displayed as pop-ups.

#### Handling of multi-valued nominal attributes

Nominal attributes can now also contain multiple values. Candidates for multi-valued nominal attributes are detected automatically and processed in the same convenient manner as single-valued nominal attributes.

### Functional enhancements

#### Extended measures for regression models

Viscovery Predictor now computes the *attribute influences* for linear regression models. This figure provides a correlation-invariant measure for the influence of individual attributes on the target attribute. For (local) regression models, the mean-square error chart now annotates the vertical axis with percent values to facilitate the comparison of prediction models.

#### Enhanced scatter plots

The appearance of scatter plots has been significantly extended and improved. In addition to color coding according to frequency values, data points can now optionally be color coded according to cluster membership and attribute values. In the scatter plot of two attributes, points representing the nodes of a SOM model can be displayed, which allows analysis of how the SOM unfolded in the data distribution.

### **Preprocessing improvements**

Among other preprocessing enhancements, the default value of the offset of the logarithmic transformation has been changed to provide a useful result without manual intervention in many more cases than previously. Text attributes containing a date or time can now be converted to a metric value using a newly introduced function.

### **Data import and export**

Import of text files with international characters has been improved. In particular, text files in UTF-8 and UTF-16 encodings are imported smoothly. Annotated descriptions of data attributes can now be imported from external documents. The *Export Data Mart* function can now optionally write nominal variables to the output file in a format that expands nominal variables to their corresponding dichotomous values.

## **Usability improvements**

### **Re-designed user interface**

Viscovery 6 comes with a new graphical design. The menu structure and dialogs have been reorganized to improve handling and clarity of function. User interface elements, such as the project pane and the function icons, have been trimmed for intuitive use.

### **Workflow management support**

To help the user to keep track of workflow variants, distinct titles of workflow steps are now generated automatically. To facilitate navigation through the tree of workflow steps, differences between workflow-step settings are summarized in the workflow-step descriptions. Workflow-step titles and descriptions can be edited while steps are being processed, which is particularly useful when many models are computed in parallel.

### **Creating segmentations**

The user interface to generate segmentations has been streamlined and is now even more convenient and easier to use. Application of built-in cluster methods results in unique segmentations which can be subsequently adjusted manually.

### **Arranging attribute pictures by similarity**

Attribute pictures in the map window can be sorted according to their visual similarity, which allows quick assessment of redundancies and dissimilarities among variables in the model data.

### **Search and extraction of data**

Capabilities to extract and export data and screen-shots from tables or map windows to third-party documents have been streamlined. Searching for attribute names in various lists is now possible simply by typing the initial characters of the name.

## **Technical changes**

### **64-bit software versions**

All Viscovery software products are now available as 64-bit versions to take advantage of the large amount of memory available with modern hardware.

### **Project and model files compression**

Project and model files are now stored in a compressed format to reduce file size and to shorten loading times when large amounts of data are analyzed.

### **Named user licenses**

For software licenses assigned to individual users, the name of the user owning the license is recorded in the project and model file. Now the origin of a project or an analytical model is more tightly linked to the author, whose name must be specified during the installation of the software.