



TARGIT BI Suite 2K11

***TARGIT***  
*User guide*

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# TARGIT

## ***A Business Intelligence (BI) System***

This software package is developed for Business Intelligence and Business Analytics.

Several key benefits of Business Intelligence software:

- Improves decision-making at all organizational levels
- A better rate of return on investment in systems, such as ERP, SCM and CRM
- Better customer retention and satisfaction
- Quicker response to sudden changes in market
- More successful and efficient products and services
- Performance monitoring
- Gives your offices consistent information and statistics
- Allows employees to use their time more efficiently

The goal of this software is both ambitious and simple: To make use of unique technology to provide the best possible conditions for making the right decisions using as few clicks as possible.

Key competitive advantages of the TARGIT:

- The best user-friendly technology on the market (designed for non-technical users)
- Dashboards, Analyses and Reports with fewer clicks than ever before
- Flexible and efficient
- Needs much less consulting and implementation support than other reporting tools
- Set up is easy and fast to deploy (typically you are up and running within five working days)
- Scalable for future growth of both data and users
- The software is affordable and the overall cost of ownership is low
- TARGIT is a complete software tool kit covering all the Business Intelligence tools you may need

This software and the context in which it is used, is unique. The program suite, called TARGIT, brings data to life making it easy to use as a strategic management tool.

## ***What is a BI System?***

Having the best and most expensive computer systems on the market is not enough when you cannot use the stored information in a fast and efficient manner to help you in your daily decisions.

Business Intelligence allows companies to centralize data for easy and fast analysis - thereby providing the opportunity to make better business decisions by intelligently using corporate information.

By means of Business Intelligence software, managers and key personnel can analyze all crucial information right at their own desktop or via the Internet without affecting the original data sources.

Business Intelligence software has become vital to the survival of each and every successful business because it is capable of fulfilling all needs in terms of

- Analyzing data
- Monitoring data
- Sharing data
- Reporting data

A computer based BI System is designed to generate information in a user-friendly way. This offers decision-makers with limited knowledge of computers the ability to specify their own analysis. Good Business Intelligence Systems offer tools to apply any imaginable delimitation to data before displaying them in comprehensible forms, thereby helping identification of possible problem areas.

With a BI System it is possible to analyze many factors, both internal and external, which may affect the corporation. The only requirement is that there is relevant data to analyze. The foundation of a Business Intelligence System is therefore the ability to periodically extract data from several sources (databases) into one analysis database usually referred to as the Data Warehouse.

It is not just a question of displaying data after extraction but also being able to apply delimitations in form of Drill downs to the data and thereafter visualize the results in comprehensible forms. Drill downs may also be used for evaluation of possible solutions to problems. One way to put focus on problem areas is by applying specific colors to data when it has a certain value. Data about a product with low sales could for instance be colored red.

The major design goal of Business Intelligence Systems is to create better foundations on which to make decisions both strategic and administrative which have to be made within a corporation. Organizations that effectively use Business Intelligence to manage and impact decision-making will have the greatest competitive advantage.

## ***What is a Data Warehouse?***

Data Warehousing is all about centralizing data from possibly different systems. Having data from different systems makes it possible to analyze data across those systems.

Data Warehouse is often defined as a collection of data in support of management and employees decision-making processes. A Data Warehouse solution should ensure consistent and cleansed information at all levels.

A Data Warehouse can be viewed upon as a periodical intelligent extract of relevant data from a corporation's enterprise wide operational databases. Before being used for analysis, data should be optimized for fast access facilitating speedy analysis. Other reasons for extracting data into a separate analysis database (Data Warehouse) is to make sure that data remains static during the analysis phase, and secure that the analysis itself does not affect data integrity at the information sources.

In other words, a Data Warehouse is a database designed specifically to meet the needs of decision-makers and their use of Business Intelligence Systems such as TARGIT.

## **Data warehousing techniques**

There are two basic ways of organizing Data Warehouse data. TARGIT supports both, and they are briefly described in the following.

### ***Relational Data Warehouse***

The relational data model represents the classic approach to database design. Most operational systems in use in businesses today are based on this principle - ERP systems included. Traditionally, this approach has therefore also been applied to Data Warehousing databases.

### ***Multidimensional Data Warehouse***

Multidimensional databases are based on the need to build databases for high performance analysis on large amounts of data. The basic principle is to sum up data in the database ensuring a higher level of readiness for the queries from the programs using the data for building analytical reports. TARGIT supports several different database platforms for implementing multidimensional Data Warehouses.

## ***Overview of this user guide***

TARGIT provides plenty of functionality, which is centered around the three main functions: analyzing, reporting and exporting. This user's guide covers all the details of these functions and gives you all the information needed to analyze and display your data in fewest clicks.

The following list sums up the contents of the individual sections in this guide. Click on a heading to navigate to the section.

- **The Basics**

This section describes how to start TARGIT and the fundamental concepts in the user interface.

- **Intelligent Analysis**

The Intelligent Analysis tool is used to create analyses fast and intuitively with few clicks. This section describes the options in this tool.

- **Designing Analyses**

Analyses consist of objects. Objects come in many types and may be created in many ways. This section explains how to create objects and the differences among object types.

- **Object functions**

This section explains the wide range of options for objects.

- **Criteria**

To gain control of which data is displayed, criteria may be applied to objects, analyses and reports. This section explains how criteria may be applied and to which objects.

- **Storyboards**

Storyboards are dynamic snapshots of data. This section explains how storyboards may be created and distributed.

- **Forecasting**

Forecasting is a way of predicting future data based on historical data. This section describes when and how forecasting may be applied.

- **Designing TARGIT Reports**

This section first describes how TARGIT Reports are created, then the different band and component types are described.

- **Preview TARGIT Reports**

This section explains the navigation options when previewing the report.

- **Printing, Exporting and Sending**

Analyses and reports may be printed or exported in various formats. This section explains how to print and export and which formats are available.

- **TARGIT Desktop**

Objects may be presented as a part of the Windows Desktop for real time data awareness. This section explains how to install, use and configure the TARGIT Desktop.

- **Keyboard shortcuts**

Helpful shortcuts to main functions are listed in this section.

- **Formula syntax**

Advanced calculations uses a special syntax for referencing elements and measures. This syntax and other operators are listed in this section.



# The Basics

## ***Working with TARGIT***

This application is designed to help analyze and visualize corporate data from the Data Warehouse. To achieve this, it offers tools to apply any imaginable delimitation to data before display in comprehensible graphical forms. This will help to identify possible problem areas, but of course also recognizing factors causing good results.

In many situations it is necessary to print out important information from a Data Warehouse system in a standard paper report. TARGIT Report, imbedded in TARGIT, provides a flexible and intuitive reporting tool that meets all needs for high quality customizable reports. In addition, all data displayed in TARGIT may be exported to folders or via e-mail in several output formats to meet all needs.

## ***User Levels***

TARGIT users can have different levels of access to the application functions. Normal users have access to the majority of functions, but some of the more advanced functions are restricted to other types of users. Functions that are available only to users of other types than Normal will be marked accordingly.

## ***Starting TARGIT***



The application is started by double clicking the TARGIT icon on the Windows desktop or selecting it from the Windows 'Start Programs' menu. This brings up the logon screen where the desired TARGIT Server may be entered or selected in a drop-list. Depending on the security system of the desired server, the user has several options to log on. If the desired TARGIT Server uses standard authentication, a valid Username and Password must be entered in the edit fields followed by a click on the key button to start the logon procedure.

If the desired TARGIT Server uses Windows authentication, the 'Use Windows Authentication' checkbox must be checked. If the user's PC is part of the same domain as the TARGIT Server, just click the key button to start logon procedures. If the TARGIT Server is on a different domain than the user, a click in the 'Specify credentials' checkbox, allows the user also to enter the name of the domain of the desired TARGIT Server and valid Windows user name and password, before clicking the key icon to start the logon procedure.

# **TARGIT Main Window**

The main window consists of five elements: 1. the Menu just beneath the program title bar, 2. the Toolbar beneath the Menu, and under this, 3. the Smartpad to the left and 4. the Work area to the right. At the bottom: 5. the Statusbar.

## **The Menu**

The menu contains buttons for easy access to all application functions and settings. The menu may be hidden to enlarge the size of the work area. This can be done either by clicking View | Menubar or pressing F10.

## **The Toolbar**

The Toolbar contains buttons for activating the primary functions of the application. The four buttons at the left of the Toolbar represent standard functions such as: New, Open, Save and Print. The remaining buttons may vary and represent functions for creating Objects and Reports and working with them. The Toolbar may be hidden to enlarge the size of the Work area. Next to some of the buttons there is a small down-arrow button which will open submenus that enable users to select other function types within the same category.

## **The Navigation Bar**

The purpose of the Navigation Bar is to give all users a dynamic and context sensitive navigation tool. It is placed between the toolbar and the criteria bar and its content may be defined by power users with both Windows and report developer user rights and may be used by users with all user rights. The Navigation bar consist of a collection of interlinked menus each of which contains a number of buttons. Each of the buttons may be used to open a document, an URL or simply display an image or some text.

### ***Using the Navigation Bar***

When a power user has defined a Navigation bar with menus and buttons, users will see a start menu in the Navigation Bar when logging in. The start menu as well as other menus contain buttons that may have three purposes: Information, opening a document and/or opening another menu in the Navigation Bar. The typical use of buttons is triggering of documents either with or without criteria of the currently opened document depending on how the button was defined or as navigational buttons to open other menus (e.g. back/forward buttons). If a button triggers a document and opens another menu, that menu is also opened if the same document is opened from Smartpad Documents or somewhere else within the client while the button is displayed in the Navigation Bar, such that the navigational context is retained no matter where the document was opened from. Right-clicking the Navigation Bar opens a menu with options to go back to the previous menu, the start menu or hide the Navigation Bar.

If there is not enough space for the buttons in a menu it is divided into several pages and an arrow is displayed on the right border to go to the next page.

**Note:** The Navigation bar may be hidden from the View menu or by pressing Alt + F6.

## ***Defining the Navigation Bar***

The Navigation Bar may be defined by opening the Navigation Bar dialog from 'Tools | Navigation Bar' or by right-clicking the Navigation Bar and select Properties. The dialog consists of a button bar in the top, a menu structure to the left and a settings area where the settings of the selected button or menu may be changed.

### **Defining menus**

The left side of the Navigation Bar dialog displays a tree structure with the Navigation Bar element at the top followed by menu items. Selecting the Navigation bar displays height and margin settings that applies to all menus and buttons in the Navigation Bar. The start menu may also be set and determines the menu to open when users log on to the client. The start menu setting may also be set by right-clicking a menu and enable the 'Use as start menu' item.

Selecting a menu in the tree structure displays a name text field and a button spacing selector. The button space is set for all buttons in the selected menu.

A new menu may be created by right-clicking an item in the tree structure and select 'New menu' or 'Duplicate menu' if an existing menu should be duplicated with all content and settings. A convenient way to create interlinked menus is to right-click a button in a menu and select 'New submenu' which adds a new menu to the navigation bar and automatically creates a submenu link from the selected button to the menu - whenever the button is clicked the submenu is opened. A menu may be removed using the right-click menu.

### **Defining buttons**

When a menu is selected in the tree structure, buttons may be added to the button bar on top of the menu and settings areas. By default new menus contain one button. New buttons are created by right-clicking the button bar and selecting 'New button' or right-clicking a button and selecting 'Duplicate button' to copy an existing button including settings. It is also possible to cut/copy/paste buttons or copy/paste button styling from the right-click menu. When styling is copied only the settings from the three tabs; Style, Hover and Selected are copied to another button. Buttons may be organized on the button bar by using drag and drop movements or by right-clicking an object and use the 'Move button left/right' options. A new button may also be added by dragging a document from Smartpad Documents to the Navigation Bar. The new button obtains the same properties as the button to the left of where the document was dropped. Note that the Navigation Bar is divided into several pages if there is not enough space for the buttons. Switching page is done by using the arrow in the right side of the menu.

Left-clicking a button selects it and the button is highlighted. The settings area contains five tabs that may be used to format the selected button:

### Button

The button may be given a title that appears on the button. The entered text may include codes that refer to document name (\$d), path (\$p) and trigger URL (\$u). The same codes may also be used in the hint text box. The codes may be displayed in the dialog by clicking the information icon. Both title and hint may be translated by clicking the globe icon and enter text in the translation dialog.

By default no icon is displayed on a button, but three icon options are available in the image selector; Document, displays a small document image as used in the Smartpad. Thumbnail, displays the thumbnail of the selected trigger analysis in the Action tab. The Custom option makes it possible to select an image from the list of available images. New images may be added by clicking the 'Add' button and select the image. For each image option the image placement and spacing between text and image inside the button may be set. The height of the image may also be set for the thumbnail and custom options - the height is limited by the height of the Navigation Bar and margins.

Note that images may be managed by right-clicking a menu or the Navigation Bar to the left and selecting 'Manage images'. The settings area changes to a list of currently added images with information about format and size. For each image a number may be displayed in parenthesis to display how many buttons the image is used in. Buttons may be added, replaced or removed using the options in the bottom in the dialog.

The button width is automatically set to fit the contents. The width may also be set to a fixed number of pixels or to fill the empty space in the Navigation Bar.

### Action

In the Action tab a trigger may be defined. The trigger is similar to the trigger that may be set for objects in an analysis. Clicking the 'Add trigger' link opens a dialog with two options; 'Document' displays the list of documents equal to the Documents tab in the Smartpad. The appropriate document must be selected and if the option 'Include criteria when triggering' is checked the activated document is assigned global criteria of the document that was open when the button was clicked in the Navigation Bar. The second option is to trigger an URL. This is done by entering an URL in the text field. Activation of the URL is done similar to activation of a document - when clicking an element in the object with the trigger, the URL is opened in a new browser window. A selected trigger may be removed again by clicking the cross next to the trigger.

The Submenu option makes it possible to open another menu in the Navigation Bar when the button is clicked. All other menus than the currently selected are available. Options to go to the previous menu or the start menu are also available in the submenu drop down.

### Style

In the Style tab the button text font may be set. Clicking the font opens a new dialog where all of the fonts installed on the system may be selected. Other options such as font size, color and style may also be selected and in the bottom of the dialog an example text box shows the formatting of the current selections. In the right side of the dialog all recently used fonts across the application are displayed. Note that checking the 'Use default font' checkbox overrides the selected font and size.

The button background is by default set to none (transparent) and may be formatted in three ways: As a solid color, as a gradient with from and to colors and a left-to-right or top-to-bottom direction or as an image with four fill options. Repeat - repeats the image across the button as many times as space allows, Stretch - stretches the image to fill the whole button without regard for dimension change, Fit - resizes the image to fit either height or width and keeps the dimensions, Actual size - inserts the image in the center with its actual size.

Button borders may have either rectangular shape or rounded rectangle shape. Both shapes have a color option and the rounded rectangle shape also has a corner radius option to specify how rounded the corners should be.

#### Hover

The Hover tab contains the same options as the Style tab, but each of the Font, Background and Border settings contain an override option that must be checked to override the values of the Style tab, when a button is hovered.

#### Selected

The Selected tab contains the same options as the Style tab, but each of the Font, Background and Border settings contain an override option that must be checked to override the values of the Style tab, when a button is selected.

**Note:** Sometimes a power user may edit a menu where a button triggers a document that the power user does not have access to (e.g because of roles). In this case the button is displayed with an orange information icon and the same icon is displayed next to the trigger document in the Action tab. In the Navigation Bar this button is hidden for users that don't have access to the document.

## The Smartpad

The Smartpad covers the left fourth of the main window. The Smartpad has seven tabs: Documents, Source data, Properties, Calculations, Criteria, Drillpad and Scheduled Jobs. These tabs are used in a wide variety of the functions and will therefore be described along with the functions in the following sections. The Smartpad may be hidden by pressing F4 to enlarge the size of the work area. The Smartpad may also be hidden by double clicking the right frame line that separates the Smartpad from the analysis objects. Note that in some situations the tabs may have several pages. When browsing these pages it is always possible to go back to the first page by clicking the Smartpad tab. The basic functionality offered by the mentioned tabs is:

### ***Documents***

The Documents tab contains four sections; Favorites, Shared, Personal, Recent.

The Favorites section contains user defined links to documents ie. a document can only be removed from the Favorites section and not deleted - Favorites may be seen as shortcuts to popular documents. Since a Favorites document is only a link, copying or cutting it will in both cases make a copy of the original document if it is pasted into another folder than the Favorites. If it is copied or cut and pasted within the Favorites folder, the links are copied and cut in the usual copy/cut manner. A

document may be added to Favorites from each of the other three sections by dragging it directly to Favorites or right-clicking a Document and selecting 'Document | Add to favorites'. This opens a new dialog where the placement of the document may be selected and new folders may be created. A third option is to add a currently open document to the Favorites root by clicking the Favorites icon in the toolbar. To remove a document from Favorites right-click it and select 'Remove from favorites'. Note that if the source document a Favorites document is linked to is deleted, the explanation icon of the Favorites document changes color to orange to indicate a broken link. The right-click menu items that require the source document are also disabled.

The shared section contains documents that are available to all users. Only users with developer rights may save documents and create folders in this section.

The Personal section contains documents that are only available to the logged in user.

The Recent section contains a chronological list of documents that have recently been opened. The list may be cleared by right-clicking and select 'List | Clear'.

Moving or copying documents may also be done by dragging them. Dragging documents between the Shared and Personal sections causes the documents to be cut and pasted while dragging to or from the Recent or Favorites sections causes documents to be copied and pasted. A document may also be copy-pasted between the Shared and Personal folders by pressing 'Ctrl' while dragging the document. When dragging a document, the cursor actively displays what action will be performed if the document is dropped in the hovered placement.

In each section a right-click menu is available with general options to Open, Cut, Copy, Paste, Delete and Rename (note that not all options are available in each section). An explanation dialog may also be opened with a thumbnail preview of the document and information on the elements and criteria in the document. The time of the last modification and the user name of the user who modified it are stamped in the bottom of the dialog. The dialog may also be opened by clicking the icon next to each document in the Smartpad. Note that the thumbnail image and user stamp is not be displayed until the document is saved if upgrading from older versions of TARGIT, where document explanations are not available. Also note that clicking the thumbnail opens the document.

When a document is right-clicked a document submenu is available with options to add the document to favorites (only other sections than Favorites), Schedule the document for export and enable the document to load on startup.

An Open submenu is also available. It contains three options; 'Open' - opens the document as it was saved. E.g. if an analysis is saved in define mode it is opened in the new 'without data' mode and if it was saved with data loaded in two out three objects it is opened in the same state. This is the same as clicking the document. 'Open with data' - opens the document with all data loaded, no matter if some objects or the whole document were in define mode when saved. 'Open without data' - opens the document without data. For reports and report collections this means a thumbnail preview with an option to load data. For analyses the objects are visualized as a shaded version of the object type and without data. This option is convenient if changes must be made before load intensive data are loaded. Note that the last two open options are not available for Storyboards.

Each section also contain a List submenu in the right-click menu with options to Refresh or Clear the list. The name of the folders and documents may be changed by selecting 'Use translations' from the List submenu. This will toggle between the file system names of the folders and analyses and the names translated in TARGIT Management Studio. The translations are shown in the language selected from the Tools menu. Each section, except the Recent list, has the options 'Folders first' and 'Sort by type'. These options are also available from the dialog opened by clicking the Properties menu item. For more information on these and other document properties see the User Preferences section.

### **Searching Documents**

In the bottom of the Documents tab a search field is available. The search field is always available no matter which section or folder the user has navigated to and the search field will always search for documents throughout the Documents tab. The search operators supported are the same as for the criteria editor with the exception that A B is searched as A & B (and) instead of A | B (or).

The search string entered is used to search through all the document properties that are used in the search algorithm. The properties are listed according to a precedence order where document filenames and descriptions are ranked highest, then data fields (e.g. measures and dimensions) and at last user generated text (e.g. custom titles and explanations) and criteria data. Search results are ranked according to this precedence. E.g. if the search string is 'Revenue', all documents with 'Revenue' in the translated filename are displayed at the top. If there are more than one document with 'Revenue' in the translated filename, these documents are listed according to how many search string occurrences they have across all the search properties. If this number is also the same, they are listed alphabetically.

Notice that it may take some time before newly created/changed documents are included in the search since the indexing of the documents takes time.

### **Source data**

This tab is used to select data from the Data Warehouse. The path at the top is used to select a cube from a data source and browse all connected cubes. The area below contains the dimensions and measures for the selected cube available to be used for creating analyses or reports. In case of designing a report, the bottom of this tab has buttons for adding text and graphical components to the report.

Right-clicking in the Source data tab brings up a menu with options to add measures and dimensions to the active analysis or dimensions to the criteria bar. Another options is 'TARGIT this'. It makes a hyperrelation based on the clicked dimension or measure.

'Show explanation' opens a small box with information about the clicked data element. This includes name, description and the location of the element, the approximate member count for dimensions (Forced/initial criteria not taken into account and all members included as this number is obtained directly from the cube), Dynamic time status for period dimensions. For cubes the explanation includes name, description and location of the cube and the number of dimensions, hierarchies, measures and KPI's contained in the cube (these numbers are only displayed when a cube has been

selected and is right-clicked from the source data path in the top of the tab). The last processing time is also stamped into the box.

'Search for documents' opens the Documents tab and displays all documents containing the clicked cube/measure/dimension. In the bottom of the right-click menu the List menu item contains three subitems for sorting the Source data content; 'Display folders first' which displays folders before any measures or dimensions in the cube, 'Sort by type' sorts folders, measures and dimensions according to type, 'Group by type' groups dimensions and measures by separating them in the Source data tab.

Note that at all times when data may be added to the work area, data elements are colored blue. E.g. when switching to a cube that has not been used in the analysis all data are colored black. The same applies for search results. When doing multi cube search only data from the same cube as the selected object are colored blue and may be added to the object.

### **Searching Source data**

In the bottom of the Source data tab a search field is available to search for data elements. When a cube is selected a search string may be entered and when clicking the search icon a list of data elements containing the search string is displayed. To search across cubes, the multi cube icon must be clicked and the search is redone across all available cubes. Note that multi cube search is default and cannot be changed when placed in the Source data root.

Single cube search results are sorted in alphabetical order and multi cube search sorted in cube order and within each cube in alphabetical order. If search results can be added to the selected object they are colored blue and may be clicked to add them to the object. The containing cube name is also displayed underneath each search result in grey and may be clicked to navigate to the cube. The right-click menu is also available for search results.

The search function in Source data supports the same operators as the search function in the Documents tab.

### **Properties**

Contain the primary functions and settings, including type specification, formatting and Intelligent Agents, for the active Object and in case of designing a report, for the active item.

### **Calculations**

Contains a 'Smart calculations' dialog for the active Object making it easy to add or edit predefined calculations. In the bottom of the tab is a button giving access to the Advanced Calculations editor. This tab is not used when working with Reports.

### **Criteria**

The Criteria tab provides options for defining Global and Local criteria as well as defining Comparisons. A criterion, whether that is Global, Local or a Comparison element, is defined by selected dimension values from one dimension. The selection of values is furthermore defined by the selection operator,



e.g. 'equal to', 'different from', 'less than' etc. Use the 'Disable/Enable immediate refresh' toggle to stop the objects from refreshing every time a criterion is added or changed – this is especially useful when working with large or complex data structures with long query response times.

## ***Drillpad***

The 'Drillpad' tab will automatically log whenever criteria, Global or 'Drill down' criteria, are changed for the active Analysis. Changes in Global criteria are logged for Reports. The log will be displayed as a list of nested criteria in a chronological sequence. Any of the logged entries in this list can be clicked to bring the user back to the exact state of the Analysis or the Report according to the selected 'Drillpad' entry. Back and Forward buttons are available to traverse the 'Drillpad' one step at a time.

## ***Scheduled Jobs***

The 'Scheduled Jobs' tab provides options to edit existing scheduled jobs i.e. reports and storyboards. When this tab is open the Work area will display a list of all active scheduled jobs and selecting one by a click will present its data in the Smartpad Scheduled Jobs ready to inspect and edit.

## **The Work area**

The Work area is the part of the window where the actual work is done. All Analyses, Reports and the Intelligent Analysis wizard are placed in the work area.

## ***Thumbnail Navigator***

The Thumbnail Navigator is an animated navigator placed below the Intelligent Analysis tool on the front page. The Navigator displays thumbnails of all documents in the Documents Favorites by default. Switching between documents is done by clicking on documents to the left or right of the centered document or by sliding the mouse wheel. Clicking on the centered document opens it. The centered document also displays an information box where the document explanation may be opened by clicking the information 'i' or the document icon. The information box also contains the name of the document and the folder it is placed in. Above the thumbnails the path of the displayed documents is shown. The Thumbnail Navigator may also display documents in the Recent section. The section to display may be changed in User Preferences.

User Preferences

**Note:** If upgrading from versions that don't have thumbnails a generic thumbnail is displayed instead of a document preview until the document is saved. Each time a document is saved the thumbnail is updated.

## **The Statusbar**

The Statusbar shows information about the current status of the tasks being performed by TARGIT. This information is shown in the left side of the bar. The Statusbar may be hidden to enlarge the size of the work area.

## ***TARGIT Report Main Window***

The TARGIT Report Main Window when manually designing Reports consists of five elements: Menu, Toolbar, Smartpad, Work area and Statusbar.

## **TARGIT Report Elements**

This section gives an overview of the different elements of a TARGIT Report. The actual use and functionality of the elements are covered elsewhere.

### ***Bands***

A TARGIT Report consists of a number of bands running across the paper. A band is a rectangular portion of the report area, covering the total width of the report (except when creating multi-column reports). When the report is processed for output each band will be repeated a certain number of times given by the context. In the bands various items can be placed to make up the actual contents of the report. The purpose of having bands is to be able to group the information and determine how often each band is repeated.

### ***Components***

TARGIT Report offers a series of components to be used in the report. The Components holds the definitions of the actual contents of reports and components are placed inside bands.

#### **Data Fields**

The most important part of TARGIT Report is of course the possibility to present (dynamic) information from the data warehouse. This is accomplished in TARGIT Report by giving access to the measures and dimensions defined in either a relational data model or the multi-dimensional cube. The list of available measures and dimensions is kept in the Smartpad and by drag/drop they can be placed on the report.

#### **Text Components**

The Text Components makes it possible to place static or semi-dynamic text on a report. Some Text Components will hold a text that will never change during or between executions of the report, while other types of components will change either during the execution (e.g. page number) or between executions (e.g. date and time).

## Graphical Components

The Graphical Components could be used to insert images or simple drawings. It also includes the possibility to place TARGIT objects or whole Analyses in the report.

## Objects

Objects are basically windows within the TARGIT Work area that display data. An Object can show data in many ways, for instance as a pie chart or a table. Within each Object window it is possible to influence which data is displayed and how it is displayed. Objects can be used on their own or more likely for composing Analyses consisting of one or more Objects.

## Object Explanation



**Menu:** Object | Object | Explanation **Keyboard:** CTRL+I

A very important concept of TARGIT is the ability to perform advanced analyses consisting of a variety of Objects, Criteria and Calculations and with large quantities of data without losing track of the individual elements and actions performed to build the analyses. In order to make sure that this is unlikely to happen, all Objects can "explain themselves" to the user. An Object Explanation contains information about the Dimensions and Measures of the Object, which Criteria and Drill downs affect the Object, which Drill downs affect other Objects and whether and how Intelligent Agents may influence the Object.

In order to improve legibility there is an option in the Smartpad Properties tab which may be used to add custom information to the automatically supplied explanation.

## Analyses and Reports



An Analysis consists of one or more Objects placed in the work area. All Objects in an Analysis are connected, allowing one Object to be used to specify or influence data shown in other Objects. Combining Objects into Analyses make automatic 'Drill down' searches possible.

Reports are used to produce dynamic printable reports from the data warehouse data based on certain parameters and selection criteria. Both Analyses and Reports may be built either by using the user friendly Intelligent Analysis tool, or by manual design.

## Save and Open Analyses and Reports

Saving Analyses and Reports is an important part of using TARGIT. It is the key function to enable sharing of information among different users. Only the object definitions are saved in an Analysis file - not the data. When the Analysis is later opened it will be refreshed to show the current data at the time of the opening.

The Toolbar contains buttons that will save and open Analyses and Reports.

|   |  |
|---|--|
|  | Use this button to save the current Analysis or Report.  |
|  | Use this button to open a saved Analysis or Report or double-click on the file in the Documents tab of the Smartpad. |

Saving and opening Analyses and Reports is implemented using dialogs. TARGIT offers the option to save Analyses and Reports as Personal or Shared in a Virtual File System (VFS). When an Analysis or a Report is saved in the VFS it is transferred to and stored in a folder on the server. This means that the Analysis or Report is immediately available to other users connected to that server both via a web and a Windows client.

When an Analysis or a Report is saved as Shared, it will be available to all users on any client. Note that the user needs to have developer rights to be able to save in the Shared section.

When an Analysis or a Report is saved as Personal it is available only to the user, who saved it. It will still be available on any client, but only when the user who originally saved the Analysis or Report logs on.

In the Save dialog the user has the option to create subfolders similar to the ordinary Windows file system. This makes it possible to organize and group Analyses and Reports, and the user has the option to rearrange saved Analyses and Reports by using drag/drop in the Documents tab in the Smartpad.

Analyses and Reports may be saved in any other location by selecting the text 'or save to file location' in the bottom of the dialog and then browsing to the location in the Windows save dialog.

Analyses and Reports saved as Shared and Personal are available through the Documents tab of the Smartpad. By double-clicking on the Analysis or Report, it is retrieved and displayed based on the current information in the Data Warehouse. Alternatively, Analyses and Reports may be opened with the open dialog via the File menu or the toolbar. Note that a search field is available in the open dialog to search for documents in the Documents tab. Analyses and Reports may also be opened from another file location by selecting 'or open from file location' in the bottom of the Open dialog.

The Recent section of the Documents tab will after some use present a list showing the most recently used Analyses and Reports for easy access.

## Organizing Analyses and Reports

Analyses and Reports saved in the Virtual File System (VFS) may be organized by simple drag-drop actions in the Smartpad Documents window. Drag-drop of an Analysis or Report to a different folder while holding down the CTRL-key will make a copy of that file in the target folder of the Smartpad Documents and leave the original file untouched. Analyses and Reports may be deleted from the VFS by selecting the 'Delete' option in the right-click menu.

## Tools

The Tools menu offers easy access to major tools of the application including preferences settings and logging.

### Intelligent Analysis



**Menu:** Tools | Intelligent Analysis

This menu item shows or hides the Intelligent Analysis tool, the same action which may be achieved by pressing the 'Intelligent Analysis' button in the Toolbar.

### Schedule



**Menu:** Tools | Schedule

This menu item offers a shortcut to the Intelligent Analysis '*Options to Schedule a Report*' tool.

### Notifications



**Menu:** Tools | Notifications **Smartpad:** Scheduled jobs

This menu item offers a shortcut to open the Smartpad 'Scheduled Jobs' tab and present a list of active Notification Agents in the Work area.

### Reporting Services web



**Menu:** Tools | Reporting Services web **Smartpad:** Documents

This menu item and the link in the Smartpad Documents opens the web interface to the Reporting Services Server in the Work area. The URL path to the Reporting Manager Web Interface must be defined in the TARGIT Management Studio.

The Reporting Manager Web Interface will display a list of reports that have been promoted to the Reporting Services Server, e.g. after having been designed in MS Visual Studio.

# Gauge Builder Wizard



**Menu:** Tools | Gauge Builder Wizard

This menu item opens the Gauge Builder Wizard. The Gauge Builder Wizard is a unique tool that enables the user to create customized gauges based on user defined graphics. To start the Gauge Builder Wizard go to the Tools item in the menu bar and click the `Gauge Builder Wizard` button. A new dialog box is opened with two choices; `New gauge` and `Modify gauge`.

## ***New gauge***

If `New gauge` is chosen a new screen will appear with three types of gauges to choose from: The speedometer gauge and progress bar, which are used to represent values and icon gauge used to represent value ranges. After choosing the type of gauge, one or more images (bitmap, JPEG, PNG or GIF) may be chosen to represent the gauge depending on the selected gauge type. The image size (pixels) should reflect the size of the object where it should be used. If the image is too small, scaling the object causes the image to pixelate, while using an image that is too big causes larger rendering time when scaling the image down.

After choosing the images and clicking `Next` a name for the gauge can be typed before pressing `Create` to create the gauge. When the gauge is created the gauge builder editor will be shown with the gauge in the main window and a pane with a gauge section and a properties section in the left side. The top of the pane on the left side controls the visibility of the gauge. Marking the checkboxes will include the gauge item in the final gauge. Options to change the order of the gauge items and adding or removing items can be found below the gauge items.

Clicking the name of any gauge item will enable a properties pane below the gauge items, where size, placement, title, description and other properties can be set for the individual items. Options to move the items will also appear in the main window. When satisfied with the gauge clicking the `OK` button in the bottom of the pane will add the gauge to the existing gauges in TARGIT and making it available to all users.

**Note:** It is possible to work with multiple images in multiple layers for backgrounds, scales, needles, icons etc.

## ***Modify gauge***

If `Modify gauge` is chosen from the Gauge Builder Wizard a list of gauges is shown. Some of the gauges are system gauges and can only be copied while custom made gauges can be modified. When a gauge has been selected for modification the Gauge Builder editor will appear with the gauge in the main window and the gauge items in the left pane. The modification of a gauge is done in the same way as explained above when creating a new gauge.

**Note:** Building and editing gauges requires Developer user rights.

## Launch TARGIT Desktop

**Menu:** Tools | Launch Desktop

This menu item launches TARGIT Desktop, an independent program that gives access to TARGIT information before the TARGIT client is opened. If already launched, selecting this menu item will close TARGIT Desktop.

## Report templates

**Menu:** Tools | Report templates

By clicking this menu item a new window opens, where saved report templates can be selected for further use. When selecting a template three options appear in the bottom of the dialog. The delete button deletes the template. The edit button opens the template for editing only and the Use button opens it for use when creating a new report. Templates may also be opened from the 'New Report' menu item in the toolbar.

## Criteria editor



**Menu:** Tools | Criteria editor **Keyboard:** CTRL+R

This menu item activates the Criteria editor, the same action which may be achieved by pressing the 'Criteria editor' button in the Toolbar or keying CTRL+R.

## Select language

**Menu:** Tools | Select language

Selecting this item will bring the user to the login screen, where the preferred language may be selected from a drop-list of available languages.

## User Preferences

**Menu:** Tools | User Preferences

This tool enables the user to change some of the application's default settings. The available options are described below.

### ***Appearance***

The appearance tab provides the following options for changing the visual aspect of the application:

**Small smartpad tabs**

Click 'Small smartpad tabs' to toggle the Smartpad tabs from their large, default size to small size, where they are displayed as icons in a single line at the bottom of the Smartpad. Use this function to save space in the Smartpad, which is useful for some of the space demanding functions.

**Week starts on Sunday**

Per default, the calendar settings of TARGIT is set to start weeks on Mondays. Using this function the weeks will start on Sundays.

**Scroll grid headers**

Per default, only data fields of tables are scrollable leaving column and row headers viewable when scrolling. Enabling this option will cause entire tables, including column and row headers, to be scrollable.

**Compact hierarchies**

Per default, tables with multi-level dimensions will display the dimension hierarchy with one column or one row for each level in the dimension. The 'Compact hierarchies' option will cause all levels of a multi-level dimension, to be displayed in a single column or row. Setting this option in the Preferences menu will enable this feature in all new objects. Per default, this option is disabled. The 'Object | Formatting' menu has a similar option to enable / disable this feature in individual Objects.

***Behavior***

The behavior tab provides the following behavioral options:

**Always logon to current server**

Enabling this option will cause the login screen, upon opening the application, to be automatically processed with the current server and user information. Per default, this option is disabled.

**Auto-filter criteria bar**

When this option is enabled, the Criteria bar drop-lists are filtered to show only the dimension members that would be present in a data object being influenced by the selected criteria.

**Auto-filter criteria editor**

When this option is enabled, the Criteria editor is filtered to show only the dimension values that would be present in a data object being influenced by the selected criteria.

**Member list threshold**

When this option is enabled a threshold is put on the number of members shown in criteria bar drop lists. The number of members shown may be specified in the value field. If the option is disabled all members are shown.

**Drillpad mode**

Three options are available for the drillpad mode: Always show drillpad, which makes it possible to enable the drillpad by clicking it. This splits the Smartpad in two - one part for the selected tab in the Smartpad and one for the drillpad. The drillpad may be disabled again by clicking the tab again. Show



drillpad on use is the default selection and shows the drillpad when drilling takes place. Never change to drillpad does not change to the drillpad on drilling and the drillpad tab has to be clicked in the Smartpad to show the drillpad.

#### **Expansion and chart type**

When this option is enabled and an object is auto-expanded for instance as a result of a drill action or by applying criteria, the type of chart will automatically change in accordance with the level of expansion. This option has three states: Always, auto expands an object and changes the chart type to the one most often used for the dimension according to the built in intelligent analysis. This is done when applying a criterion, when hyper relating or drilling. If for example the criterion JEANS is applied (from the criteria editor/bar, from hyper relating or from drilling) the object is auto-expanded to show all children of the JEANS hierarchy level and the chart type that is most often used for this dimension is used to display all the children. The setting When TARGITing also auto expands the object and changes the chart type, but only when hyper relating. The setting Never disables all auto expansion and changing chart type.

**Note:** Expansion and chart type is only active if the object has one dimension on the Y-axis of the data page.

#### **Print explanation on last page**

When using Print Special options: "Chart and explanation" or "Data and explanation" explanations are by default printed at the bottom of each page. This option allows the user to print the explanation on the last page only.

**Note:** If the explanation spans more than 50% of the page height, it will automatically be moved to the last page.

#### **Snap to grid**

When placing elements in a report, the placement is decided by an underlying grid. The grid size may be changed by this function and thereby change the size of the steps when moving elements with the keyboard keys. e.g. a 4 x 6 grid causes elements to be moved in steps of 4 pixels along the X-axis and 6 pixels along the Y-axis.

## ***Documents***

The documents tab provides the following options:

#### **Load document**

When right-clicking a document in the Documents tab there is an option to load the document whenever the client is started. If this option is enabled on a document, the name of the document is displayed here. Loading the document on start up may be disabled by clicking the red cross.

#### **Start in Folder**

When starting the client the Documents tab is displayed in the Smartpad. This option decides what content to initially display in the Documents tab. Favorites is default. Note that if the specified folder is empty the root of Documents is displayed.

**Show folders first**

This option is enabled by default and causes folders to be displayed first in the Documents tab. The option may also be changed from the right-click menu in the Documents tab.

**Sort by type**

This option is disabled by default and causes all content in the Documents tab to be sorted by type (default sorting is alphabetical). The option may also be changed from the right-click menu in the Documents tab.

**Folder**

This option is set to 'Auto' by default. This setting displays Favorites in the Thumbnail Navigator, but if there are no Favorites the Recent documents are displayed instead. Options to display 'Favorites' and 'Recent' are also available.

## Flush Intelligence

**Menu:** Tools | Flush Intelligence

The application does, in an intelligent way, remember and reuse the user's preferred selections. E.g. it remembers the preferred Object types for certain combinations of dimensions and measures. Clicking the 'Flush intelligence' option will cause this memory to be reset.

## Logging

**Menu:** Tools | Logging

### *Query logging*

Enabling this option will cause the application to write all MDX actions into a log file in HTML format. This may be especially helpful for advanced users that need to know the MDX syntax for specific actions.

### *View query log*

This option will only be available if 'Query logging' has previously been enabled. It will open a browser to display the present contents of the log file.

### *Log query results*

This is an extension of the 'Query logging' option that will include query results in the log file.

## Getting help



**Menu:** Help **Keyboard:** F1

TARGIT has an integrated help function. This may be activated by pressing F1, by clicking 'Help | TARGIT help' in the menu bar or by clicking the small icon showing a question mark in the right side of the toolbar. Activating the help function will open a new window with a tree structure on the left side and a view frame to the right. Different tabs are also available above the tree structure with access to an index and a search function exactly like the one with this user's guide.

Two other options are available from the help menu. The first option is a 'Contact Us' menu item. Clicking this item opens the default browser with contact information. The other option is 'About TARGIT', which opens a new window with license and user information and the license agreement.

# Intelligent Analysis

TARGIT offers two methods of designing analyses and reports. First the traditional way, where all content and formatting is specified in a number of manual steps or secondly the user friendly Intelligent Analysis tool which will create powerful analyses, dashboards and reports just with a few clicks of the mouse.



## *The Intelligent Analysis tool*

Traditionally, analysis and report generators require numerous manual steps to create perfect results, which can be tedious and time-consuming. This application is actually no different as it provides the user with all the necessary tools and features to do exactly that. But it also offers a unique way of creating analyses and reports which shields the user from having to deal with the less attractive details.

The Intelligent Analysis tool is designed to fulfill most requirements for designing analyses, dashboards and reports. For a detailed description of all components of an Analysis or a dashboard, and how to add or change components and their properties in order to manually improve the Analysis, please refer to the Designing Analyses chapter.

When more control of a TARGIT Report layout and content is required, than is available through the Intelligent Analysis tool, it is possible to enter manual define mode, which is described in the chapter Designing TARGIT Report.

The Intelligent Analysis tool can be started by clicking on the 'New...' or 'Intelligent Analysis' button on the Toolbar or by selecting the File | New... menu item.

|  |                                   |
|--|-----------------------------------|
|   | Start a new Intelligent Analysis. |
|  | Shows/hides Intelligent Analysis. |

When this feature is activated the work area changes from the standard define mode to the Intelligent Analysis interface. The Intelligent Analysis tool divides the Work area into two areas. The upper half contains first an explanation of the analysis in readable text followed by options that may be selected in order to accomplish the task. The lower half, the sample area, will display a model of how the Analysis or Report will look, based on the present selections, when executed. The lower half may be closed by clicking the divider line in order to make more room for explanation and options. A new click on the divider line at the bottom of the work area will redisplay the Sample area. The OODA circle shown to the right of the options represent the four phases a business process goes through. Hovering a phase will highlight it and clicking a phase in the OODA circle will filter the Intelligent Analysis tool to show the options relevant for the clicked phase. Clicking the 'More' button will reveal all available options. Rarely used options are hidden in the normal list, but a clicked OODA part will show all items relevant for the clicked part.

## **Explanation**

The explanation initially says '*I would like to...*' and the options section will present the major options, '*...analyze...*' to use the wizard's user friendly options to build an Analysis with one or more Objects, '*...create a dashboard showing ...*' to create a dashboard, '*...create a report...*' to create a Report, '*...be notified...*' to create a notification activity, '*...schedule*' to schedule Analyses (as a picture file), data from objects, Storyboards, Notification Agents and Reports, '*...create a storyboard...*' to create a Storyboard and display it as either a video, podcast or slideshow, '*...search...*' to search through e-mails, documents and websites for information that the selected analysis deals with. The search functionality is based upon Microsoft Windows Desktop Search technology, and finally '*...search for Sentinels...*' to search for Sentinels to keep an eye on your data.

After selecting one of these major options, the option field will present more options for the user to select from in order to accomplish the required task, and update the explanation with one or more sentences that, in clear text, will explain the complete task as defined so far. When the mouse is hovered over active elements of the explanation, the element will be highlighted to indicate that it may be altered by clicking it. When options which require further input are brought back to edit mode, a Remove button appears to remove the option from the report. Options which require no further input are simply removed by clicking the item in the explanation.

The Back button will undo the choices made in reverse order. This means that the latest action is canceled first, then the action before that, etc.

The Go button will use all the selections made in the Intelligent Analysis tool and perform the specified task.

## **Sample**

When the Intelligent Analysis tool is used to build an Analysis, Dashboard or a Report, the sample area will show which elements has been included in the Analysis, Dashboard or Report so far. The elements shown are placeholders to give an impression of what will be included in the final Analysis, Dashboard or Report and how it will look when executed.

**Note:** The Sample area may be closed to make room for more options. This is done by clicking on the dividing line. Reopening the Sample area is done in the same way.

## **Reentering Intelligent Analysis**

Analyses and Dashboards generated with the Intelligent Analysis tool may be edited using the Intelligent Analysis tool. By pressing the Toolbar 'Intelligent Analysis' button, the Intelligent Analysis tool is activated allowing edit of the selected options as described above. Some manual changes to the Analysis as for example size of objects and globe rotations may not be preserved when the Intelligent Analysis tool is used to make changes to an Analysis.

Reports generated using the Intelligent Analysis tool may be edited by entering the Intelligent Analysis interface as long as no manual editing has been done in define mode. Reports created this

way can be saved as any other report. Included in the file is information used by Intelligent Analysis when the report is opened again, meaning that a reopened report can be edited using the Intelligent Analysis tool and rerun.

## Options for creating an Analysis

After having selected the '*...analyze...*' option, the explanation field changes into '*I would like to analyze...*' and the options area changes into '*Select measure to analyze*' with all available measures in one column and another column showing the chosen measures. Right above the measure columns the drop-list '*Select cube*' makes it possible to select from which cube the measures should be fetched. Individual measures may be moved between the columns simply by clicking them. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen measures and bring up a list of further options. Instead of going through a complete new Intelligent Analysis setup, the user may instead press the Go button. This will activate the Analysis most often used to analyze the chosen measure.

### ***... grouped by...***

This option brings up the '*Select dimensions to group by*' with all available dimensions in one column and another column showing the chosen dimensions. Individual dimensions or dimension levels are moved between the columns simply by clicking them. Each selected dimension or dimension level will result in a separate Object in the final Analysis. The sequence of the chosen dimensions, which influences the place of the resulting Object, may be changed simply by individually dragging dimensions up or down in the chosen column. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen dimension data and bring up the following options:

### ***... with ... on the criteria bar***

This option brings up the '*Select dimensions for the criteria bar*' with all available dimensions in one column and another column showing the chosen dimensions. Individual dimensions or dimension levels are moved between the columns simply by clicking them. Each selected dimension or dimension level will result in a drop-list in the criteria bar. The sequence of the chosen dimensions, which influences the place of the drop-list in the criteria bar, may be changed simply by dragging dimensions up or down in the chosen column. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen dimension data and bring up the following option:

### ***... selected by the following criteria***

If no criteria are needed, pressing the Go button will generate a new Analysis in the Work area fulfilling the chosen options and activate it. If data for the Analysis should be filtered, activating this option will open the 'Criteria options' tool where criteria may be selected just like using the Criteria editor. When criteria are selected pressing the Go button will generate a new Analysis in the Work area fulfilling all the chosen options and activate it.

## Options for creating a Dashboard

After having selected the '*...create a dashboard showing ...*' option, the explanation field changes into '*I would like to create a dashboard showing...*' and the options area changes into '*Select measures*' with all available measures and KPI values in one column and a second column showing the chosen items. Right above the columns there may be a drop-list '*Select cube*' making it possible to select from which cube the measures and KPI values should be fetched. Individual values are moved between the columns simply by clicking them. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen measures and insert the text '*with the following goals*'. Following the explanation area is a list of the selected measures and their default goal of 20% above maximum. Clicking a measure will open the option to set three goal types; dynamic goal (e.g. 20% above maximum), measure goal and no goal. Clicking the Go button after setting the goals will generate a standard dashboard using the chosen measures, dimensions and goals, but further options are available by clicking next.

### ***...with the trend over ...***

This option brings up the '*Select time dimension*' and show available time dimensions and their levels. Selecting a Time dimension level brings up the following options:

### ***...visualized with ...***

This option brings up the '*Select visualization*' and displays a list of available visualization types. After selecting one, a list of further sub options regarding the selected type may be presented to choose from.

### ***... with ... on the criteria bar***

This option brings up the '*Select dimensions for the criteria bar*' with all available dimensions in one column and another column showing the chosen dimensions. Individual dimensions or dimension levels are moved between the columns simply by clicking them. Each selected dimension or dimension level will result in a drop-list in the criteria bar. The sequence of the chosen dimensions, which influences the place of the drop-list in the criteria bar, may be changed simply by dragging dimensions up or down in the chosen column. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen dimension data and bring up the following option:

### ***... selected by the following criteria:***

If no criteria are needed, pressing the Go button will generate a new Analysis in the Work area fulfilling the chosen options and activate it. If data for the Analysis should be filtered, activating this option will open the '*Criteria options*' tool where criteria may be selected just like using the Criteria editor. When criteria are selected pressing the Go button will generate a new Dashboard in the Work area fulfilling all the chosen options and activate it.

## Options for creating a TARGIT Report

After having selected the '*...create a report*' option the explanation field changes into '*I would like to create a report.*' and the options area presents a list of additional phrases that can be used to add further contents to the report. Only the most relevant options are presented at first. By clicking the More button all available options are shown. When the mouse is hovered over an option, the corresponding contents on the sample page will flash to indicate how the option will affect the final report.

### ***... showing the fields ...***

Display a list of available measures and dimensions, which can be included in the report by clicking them. The chosen fields will be used to construct the core part of the report. The sequence of the selected fields determines the order in which the fields are placed on the report. This sequence can be changed by dragging and dropping the fields to another location in the list or by using the `CTRL+Arrow` up/down keys.

### ***... with the title ...***

Presents an input field where the report title can be keyed in. The title will be placed in the header and will be presented on each page in the report.

### ***... using the template ...***

This option is used to format the report with an existing template. Available templates are shown below the '*Select template*' text.

### ***... with page numbers***

Add page numbers in the bottom right corner of each page in the report.

### ***... with the image ...***

Display a file open dialog, where a bitmap to be included in the report can be chosen. The image will be displayed in the top right corner of each page in the report.

### ***... with the header ...***

Ask for a text to be displayed in the top of every page in the report.

### ***... with the footer ...***

Ask for a text to be displayed in the bottom of every page in the report.



### **... showing the chart object ... for every ...**

This option gives the possibility to include Objects made in TARGIT or TARGIT NET in the Report.

Select the Analysis containing the desired Object by checking the name or click the More button to bring up a file dialog and select an Analysis to import from. Choose the dimension that determines how the Object will be repeated in the Report.

After clicking Next, a thumbnail version of the Analysis is presented and the object to include can be selected by clicking it. If Next is clicked without selecting an Object, the whole Analysis is inserted in the report.

### **... with ... on the criteria bar**

This option brings up the 'Select dimensions for the criteria bar' with all available dimensions in one column and another column showing the chosen dimensions. Individual dimensions or dimension levels are moved between the columns simply by clicking them. Each selected dimension or dimension level will result in a drop-list in the criteria bar. The sequence of the chosen dimensions, which influences the place of the drop-list in the criteria bar, may be changed simply by dragging dimensions up or down in the chosen column. When satisfied with the selections, pressing the Next button will update the explanation area with the chosen dimension data and bring up the following option:

### **... grouped by ...**

Bring up a list of dimensions to choose from. The chosen dimensions will be used to group information based on the values of the dimensions. If, for example, grouped by Year is chosen, the report will be divided into sections - one for each year in the data. By selecting multiple dimensions, the grouping will be nested accordingly. The nesting order can be changed by drag/drop of the fields or by using CTRL+Arrow up/down. Note, that if a dimension previously selected in ... *showing the fields* ... is selected again it will only be included once. If no dimensions were selected in ...*showing the fields* ..., the last dimension selected will be added to the ... *showing the fields* ... list to avoid unnecessary nesting of groups.

### **... showing the top ... of ...**

This option is used to filter the report and only show the data with the highest values based on some measure. Enter the number of values to include (default is 5) and choose the measure to select the highest values from.

### **... showing the bottom ... of ...**

Same as top except that it is the lowest values that are included in the report.

### **... ordered ascending by ...**

Select the dimension or measure to control the order in which the values are printed on the report. This option will sort the values with the *lowest* value first and the *highest* value last.

### **... ordered descending by ...**

Select the dimension or measure to control the order in which the values are printed on the report. This option will sort the values with the *highest* value first and the *lowest* value last.

### **... selected by the following criteria ...**

This option displays the Criteria editor and the criteria that should be applied to the whole report can be entered.

### **... with grand total**

Add a summary section that sums up the total value of the selected measures.

### **... with subtotals**

Add a footer section to every grouping holding the subtotals for the selected measures.

### **... with a new page for every ...**

This option can be used to begin on a new page at the start of a specific group, e.g. whenever the report is about to start on a new year, it should end the current page and begin on a new one. The option gives the opportunity to choose from the dimensions listed in the *... grouped by ...* option.

### **... with an explanation**

This option inserts an explanation in each of the Reports sections which will inform about the criteria which are active for the section in question.

## **Options to be notified**

After having selected the '*...be notified*' option, the explanation field changes into '*I would like to be notified...*' and the options area changes into:

### **Select measure to monitor**

'*Select measure to monitor*' presents the active cubes. A click on a cube will present its measures ready to select from. A second click on the cube will again display all available cubes.

## **Select Notification trigger**

After having selected a measure to monitor, the options area presents 'Select Notification trigger' with options for when an e-mail should be triggered based on the value of the measure at the time of the notification execution. Press 'Next' when trigger has been selected.

## **Set delivery method**

After selecting trigger, the options area presents 'Set delivery method' with the option to write the e-mail address where the notification should be sent to (Note: Html format cannot be sent by email). Recipients are entered in the 'To' field and multiple recipients are separated by semi-colon (;). A subject and message can be entered in the two text boxes below the 'To' field. Note: In order to be able to send files via e-mail, the system administrator must have specified a mail server address in the TARGIT Management Studio setup panel.

## **Schedule Notification Agent**

When the delivery method has been specified the options area allows specification of the first notification date and time and the monitoring frequency.

Pressing 'Next' after defining the schedule makes more options available in the options area. At this time, though, it is possible to press the 'Go' button in order to schedule the Notification Agent in case the remaining options are not required:

### **... for each ...**

Selecting this option makes it possible to specify a dimension level for which all members will be individually monitored using the selected trigger specifications

### **... selected by the following criteria**

If no criteria are needed, pressing the Go button will activate the notification fulfilling the chosen options. If data for the notification should be filtered, activating this option will open the 'Criteria options' tool where criteria may be selected just like using the Criteria editor. When criteria are selected pressing the Go button will activate the notification fulfilling all chosen options and open the Smartpad 'Agents and Actions' tab with data about the newly created Notification Agent with options to edit its specifications. The Work area will at the same time show a list of all Notification Agents with the newly created Notification Agent highlighted.

**Note:** When a notification is created it can be edited in the Scheduled Jobs tab in the Smartpad. For detailed explanation see the section about Administrating Scheduled Jobs.

## **Options to schedule**

After having selected the '...schedule' option you will be prompted to select the file or analysis object to schedule. The following choices change based upon the selected file or object.

## **Select filename and format**

After choosing what to schedule you will be prompted to write a filename for the schedule. Further, an image format must be chosen. This image format depends on the file or analysis object that was chosen for scheduling. If an analysis was chosen, the formats; PNG Image (.png), Jpeg Image (.jpeg), GIF Image (.gif) or BMP Image (.bmp) are available. For an analysis object, the available file formats are: MS Excel (.xls), XML file (.xml) or CSV file (.csv). For a report, the formats are: Adobe Acrobat (.pdf), MS Word (.rtf) or Internet (.html) and for a storyboard: Windows media video (.wmv) or Podcast (.wmv).

## **Set delivery method**

After selecting filename and format, the options area presents 'Set delivery method' with the option to choose the folder to save the exported file to. The available locations of saved files are configured in TARGIT Management Studio. Another option is to choose to send by email (**Note:** Html format cannot be sent by email). Recipients are entered in the 'To' field and multiple recipients are separated by semi-colon (;). A subject and message can be entered in the two text boxes below the 'To' field.

**Note:** In order to be able to send files via e-mail, the system administrator must have specified a mail server address in the TARGIT Management Studio Setup panel.

## **Set schedule**

The last option is 'Set schedule', where the start date and start time can be chosen from the drop down panels. The recurrence of the schedule is chosen by entering an integer and chose between day(s), week(s) or month(s) at the 'Repeat every' drop down panels.

## **Options to create a storyboard**

After having selected the '*...create a storyboard...*' option, the explanation field changes into '*I would like to create a storyboard*' and the options area changes into '*Select from the options to describe what you wish to do*' and the options area presents a list of additional phrases that can be used to add further contents to the storyboard.

### ***...based on drillpad analyses...***

This option brings up the '*Select the analyses to include*' with the available analyses logged in the drillpad. When satisfied with the selections, clicking the Next button will update the explanation area with the chosen option and bring up the following option:

### ***...based on document analyses...***

This option brings up the '*Select the analyses to include*' with all the available files saved in the Shared and Personal folders. When satisfied with the selections, clicking the Next button will update

the explanation area and no further options are available. Clicking the Go button, allows you to create a Video, a Podcast or a Slideshow.

## Options to search

After having selected the '*...search...*' option, the explanation field changes into '*I would like to search...*:' and all the saved analyses are displayed in the options area. Click one of the analyses and pressing the Next button will update the explanation area with the chosen analysis. Click the Go button to start the search. The search function uses the preferences setup in Windows Desktop Search.

## Options to search for Sentinels

After having selected the '*...search for Sentinels...*' option, the explanation field changes into '*I would like to search for Sentinels...*' and all the measures from a cube is displayed in the options area. Another cube may be selected by clicking the displayed cube name. Clicking any of the analyses and pressing the Next button will update the explanation area with the chosen analysis. Click the Go button to start the search for Sentinels. This opens the 'Search for Sentinels' dialog which is the same as clicking the Sentinels icon in the toolbar. For more information on the settings that may be applied in this dialog please see the section about Sentinels.

## Options to analyze uploaded data

After having selected the '*...analyze uploaded data...*' option, a dialog is displayed to register for TARGIT Cloud if unregistered. If already registered a browser window is opened with direct logged on access to analyze the data already uploaded to TARGIT Cloud.

**Note:** In order to have access to TARGIT Cloud software maintenance is required.

## Options to upload data

After having selected the '*...upload data...*' option, a dialog is displayed to register for TARGIT Cloud if unregistered. If already registered a browser window is opened with direct logged on access to upload data to TARGIT Cloud.

**Note:** In order to have access to TARGIT Cloud software maintainance is required.

# Designing Analyses

The Intelligent Analysis tool is designed to fulfill most requirements for designing analyses, but after having created an analysis using this tool, all components of the analysis may be modified individually in order to improve the Analysis. It is even possible to manually create complete analyses without using the Intelligent Analysis tool.

## ***Creating a new analysis***

New analyses may be created either by using the Intelligent Analysis tool, or by selecting the 'File | New analysis' menu item to start a manual design of an analysis.







## ***Creating Objects***

An Object is a window in the Work area that displays data and has options to specify which data is displayed and how it is displayed. Within each Object window there are many options that affect the representation of the data. The procedures for creating and using Objects are explained here.

Objects can be created using either the Toolbar or the menu. When a new Object is created, the Smartpad is automatically changed into the 'Source data' tab ready for selecting data fields for the new object. Simultaneously, a new Object window appears in the Analysis Work area.

## **Creating Objects from the Toolbar**

The Toolbar contains buttons that will create new Objects.

|   |  |
|---|--|
|    | New object. This option creates a new object which type is decided by the intelligent system.  |
|   | New chart object. A chart object displays data graphically. There are many types of charts, and the chart type is defined during object definition.          |
|  | New cross tabulation. A Cross tabulation works just like a Table. It displays less data, but there are more options concerning the layout of the data sheet. |
|  | New globe. Globes are used to display data based on geographical locations.  |
|  | New gauge. Gauges are used to display data values, progress or trends relative to a fixed or dynamic scale.  |
|  | New layout object. Layout objects may be added to an analysis in order to improve its layout and readability.  |

To create a new Object, simply click the button that represents the object type you wish to create.

Next to some of these buttons, there is a small down-arrow button. Clicking these opens submenus, which will enable users to select other object types within that same category.

## Creating Objects from the menu

Creating Objects may also be done using the 'Object | New object' menu item.

## Organizing Objects

Objects in the Work area will automatically adjust their size so that they together will fill the available Work area space.

Therefore, when there are two or more Objects in the Work area, there will often be a need to organize them, both regarding placement and relative size. This application offers several tools to facilitate this, the primary one being the "Auto-arrange" feature. This feature allows individual Objects to be moved around on the Work area by dragging in the Objects title bar. When an Object is being dragged, a semi transparent image of that Object is shown together with two sets of arrows pointing up, down left and right. One set of arrows are at the borders of the work area and the other set of arrows are shown in the object where the cursor with the dragged object is placed. Whenever the cursor is over one of these arrows the semi transparent image of the dragged object changes into a larger grey area indicating where the object will be dropped if released which is either above, under or to the right or left of the object or work area depending on the arrow type. When the Object is dropped, the surrounding Objects are resized in order to make room for the dropped Object.

An Object may be resized by dragging its borders, and such an action will automatically resize the adjacent objects, such that the whole Work area space is filled with the available Objects. Note that an object cannot immediately be stretched to more than the size of itself and the adjacent object. It requires resizing of the other objects first. The Objects functions chapter describes functions, which allows control over the height and width of Objects measured as fractions of the actual height or width of the Work area. Furthermore, right-clicking an Objects border opens a menu where the horizontal or vertical distribution of the Objects may be specified.

## Object definition

Object definition is done using the Smartpad. When creating a new object the Smartpad automatically changes to the 'Source data' tab allowing selection of data for the new Object. Simultaneously, a new Object window appears in the Work area.

When the cursor is hovering over a dimension or a measure, one or more selection lines in the object definition window will flash. Only selection lines where the data type fits will flash. Data fields may now be selected for display simply by being dragged to the flashing selection line, or by clicking the field, or by selecting an item in the right-click menu. In the same way, data may be removed from the definition window simply by dragging the data field back onto the Smartpad 'Source data' tab, by clicking the field in the tab or by removing the appropriate item using the right-click menu.

## Selecting data

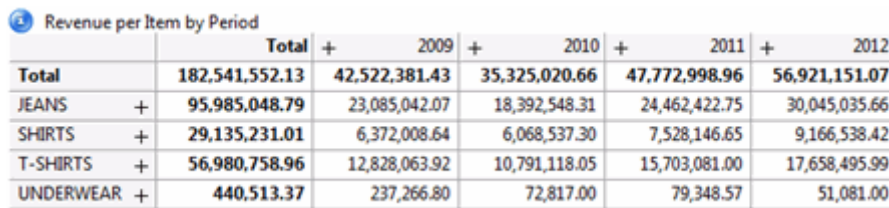
The drop-list at the top of the 'Source data' tab of the Smartpad is used to select the Cube which contains the required data to be analyzed. Below this drop-list, available dimensions and measures for the selected cube are shown. Dimensions and measures are descriptions of data, for example, Revenue contains data values for revenue and Customers contains data about the customers. Some dimensions may be hierarchical which is shown by a small plus or minus sign to the left of the dimension name and a special hierarchical icon. Clicking the plus or minus sign will either reveal or hide the next dimension level.

## Selecting data for display

Because the Object is new, no selections are made. When the cursor is hovering over an active dimension or measure in the Smartpad 'Source data' tab, it changes into a pointing hand and a selection line in the Object definition window begins flashing. Only selection lines where the data can be placed will flash. The active data field may now be selected for display simply by dragging it to the flashing selection line. In the same way data may be removed from display simply by dragging the data field back onto the Smartpad 'Source data' tab. Clicking the data field will move it back and forth between the Smartpad and the definition window, and even right-click menu items exist for selecting or deselecting data fields for display.

**Note:** It is not necessary to drag a given data field exactly onto the flashing selection line. Dropping the field in the general area of the selection line is sufficient. Unavailable areas are hatched in the definition window.

The screenshot below shows a Cross tabulation object with the dimension Item on the Y-axis and the dimension Period on the X-axis. The numbers in the grid represent the measure Revenue.



|           |   | Total          | + | 2009          | + | 2010          | + | 2011          | + | 2012          |
|-----------|---|----------------|---|---------------|---|---------------|---|---------------|---|---------------|
| Total     |   | 182,541,552.13 |   | 42,522,381.43 |   | 35,325,020.66 |   | 47,772,998.96 |   | 56,921,151.07 |
| JEANS     | + | 95,985,048.79  |   | 23,085,042.07 |   | 18,392,548.31 |   | 24,462,422.75 |   | 30,045,035.66 |
| SHIRTS    | + | 29,135,231.01  |   | 6,372,008.64  |   | 6,068,537.30  |   | 7,528,146.65  |   | 9,166,538.42  |
| T-SHIRTS  | + | 56,980,758.96  |   | 12,828,063.92 |   | 10,791,118.05 |   | 15,703,081.00 |   | 17,658,495.99 |
| UNDERWEAR | + | 440,513.37     |   | 237,266.80    |   | 72,817.00     |   | 79,348.57     |   | 51,081.00     |

*Dimensions and measures in Object*

The automatic descriptions of Objects work like this: **Measure per/by Dimension**. For example, **Revenue per Item by Period** as shown above or **Revenue per Store by Gender**.

As mentioned, dimensions and measures can be placed manually or automatically into the definition window. To place one in the window manually, drag it from the Smartpad 'Source data' tab onto a flashing selection line. To have a dimension or a measure placed automatically, simply click it in the 'Source data' tab. When clicking, the data field chosen first will be placed on the first available



selection line in the row headers. The second data field will be placed on the first available selection line in the column headers and so on.





## Replace measures in objects

It is possible to replace a measure in an object with a different measure and at the same time maintain the place and formatting of the replaced measure. This is done within the Smartpad Source data tab simply by dragging the new measure on top of the measure to be replaced in the Source data tab.

## Displaying data

When the dimensions and measures required have been selected, the Object can be processed to display actual data. This is done either by clicking the Fetch data/Define button in the Toolbar or selecting `Toggle chart or data` from the Object submenu . When the Object state is changed, the Toolbar button will change too, and another click will take the Object back to define state. Next to the Fetch/Define button is a small green button which may be used to refresh data in all objects in the open analysis.

After the Refresh or Fetch button is clicked the Refresh button switches to a red button as long as data are being updated. Pushing the red Abort button immediately stops the update process and frees up your client for you to continue working and removes the job from the TARGIT Server, freeing up memory and CPU.

|  |  |
|--|--|
|   | Fetch data. Selects display mode of the selected Object.                     |
|   | Define. Selects definition mode of the selected Object.                      |
|   | Refresh data in all objects. Updates the data in all objects in an analysis. |
|  | Abort. Stops the update process and frees up resources.                      |

## Object types

There are three main types of Objects: Graphical, Non-graphical and Layout. Examples of graphical Objects are Pie charts, and Gauges. Non-graphical Object types consist of Tables and Cross tabulations. Layout Objects are designed to improve layout and can only be changed into other types within this category.

## Object type change

**Smartpad:** Properties tab. **Menu:** Object | Object. **Keyboard:** CTRL + 0-9.

An active Object can easily be changed to another type using the menu or Smartpad Properties tab. When an Object is changed, all Dimensions and Measures defined for the Object are converted to fit

perfectly with the properties of the new Object type. Changing the type of an Object is a strong feature when having to decide how to most efficiently present data - or if the best way to present data is liable for change. Please observe that a Layout Object can only be changed to another type of Layout Object.

## ***Non-graphical Objects***

Non-graphical Object types consist of Tables and Cross tabulations.

### **Tables**



Tables are used for displaying data in a simple row form. A Table is used to display large amounts of data with many different data types.

Creating Table Objects is not like defining other Objects since there is only one selection line for Dimensions and Measures in the new Object window. Placing a Dimension or Measure is done simply by dragging it from the Smartpad 'Source data' tab onto the window and clicking it in the Smartpad or using the right-click menu.

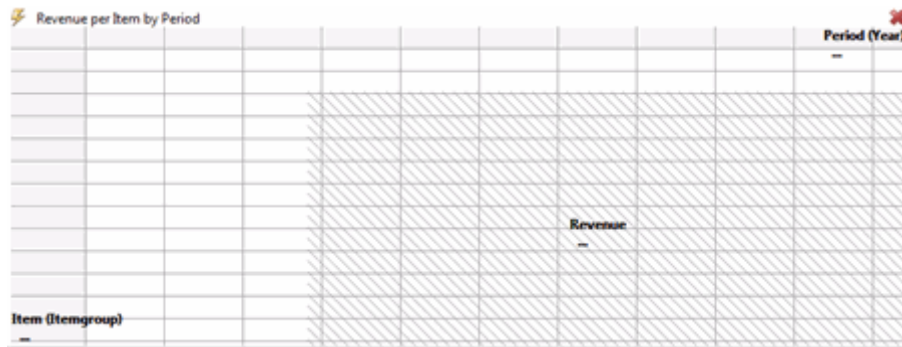
Removing a Dimension or Measure from the Table window is done by clicking it in the Smartpad, dragging it back onto the Smartpad or using the right-click menu.

The order of the Dimensions and Measures placed in the window dictates how the data is displayed in the Table.

### **Cross tabulations**



Cross tabulations or Cross tab Objects behave much like Table Objects but may offer a clearer view of the data. There are no practical limit to the number of dimensions and measures that can be displayed in Cross tabs. Grouping data by placing more than one dimension on a row or column header is one way to make complex data structures easier to comprehend. An example of this type of grouping is shown in the next figures.



The New Cross tabulation window





Here, two dimensions and one measure have been placed in the Cross tabulation Object. The result displayed is described in the title bar of the Object and shown in the screenshot below.









| Revenue per Item by Period |   | Total                 | 2009                 | 2010                 | 2011                 | 2012                 |
|----------------------------|---|-----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Total</b>               |   | <b>182,541,552.13</b> | <b>42,522,381.43</b> | <b>35,325,020.66</b> | <b>47,772,998.96</b> | <b>56,921,151.07</b> |
| JEANS                      | + | 95,985,048.79         | 23,085,042.07        | 18,392,548.31        | 24,462,422.75        | 30,045,035.66        |
| SHIRTS                     | + | 29,135,231.01         | 6,372,008.64         | 6,068,537.30         | 7,528,146.65         | 9,166,538.42         |
| T-SHIRTS                   | + | 56,980,758.96         | 12,828,063.92        | 10,791,118.05        | 15,703,081.00        | 17,658,495.99        |
| UNDERWEAR                  | + | 440,513.37            | 237,266.80           | 72,817.00            | 79,348.57            | 51,081.00            |

The Cross tabulation result

## Graphical Objects

There are many types of graphical Objects. They can all be created by selecting the 'New Object' function from the menu or Toolbar as described earlier. Once the Object is created, the type can be chosen during definition of the Object. Available types of graphical objects are:

|   |   |
|---|---|
|  | Pie chart is the default type. Mainly used for displaying percentages.                        |
|  | Bar chart. Displays data values in vertical bars.   |
|  | Horizontal bar chart. This works just like the normal bar chart, but the bars are horizontal. |
|  | Line chart. Displays data values as connected points in a system of co-ordinates.             |

|   |  |
|---|--|
|  | Area chart. Works just like the line chart except that the area under a line is filled with the color of the line. |
|  | Scatter chart. Display data as points in a system of co-ordinates.   |
|  | Bubble chart. Display data as variable size points in a system of co-ordinates.                                    |
|  | Radar chart. Display data around a chart in star-shaped figure.  |
|  | Map. A map is used for displaying relations between geographical locations and other data.                         |
|  | Globe. A globe is a three-dimensional map used for displaying data related to geographical locations               |
|  | Scalable map. A scalable map is used for displaying data related to geographical locations.                        |
|  | Gauge. Displays a data value, progress or trend relative to a fixed or dynamic scale.                              |

When viewing graphical Objects, dimensions and measures are represented by graphics only. This means that there will not be text on the graphical elements to describe the elements. In order to identify each graphical element, a legend box may be shown at the right side of the graphical Object.

Holding the cursor over a graphical element will display a label with text information about the element. The user may use the formatting options in the Smartpad Properties tab to specify which data is displayed in the label.

The colors of the small boxes in the legend box match the colors of the corresponding graphical elements.

**Note:** Graphical Objects may be rendered invisible if the legend or labels take up too much of the available space in the graph window. The problem may be solved by either resizing the Object window or removing the legend and/or labels.

## Pie charts



Pie charts are used to display data values as percentages. In order to show how total revenue is split between Stores, a Pie chart could be designed with the measure Revenue and the dimension Store. The entire Pie represents the total Revenue and each piece of Pie represents the Revenue for a single Store.

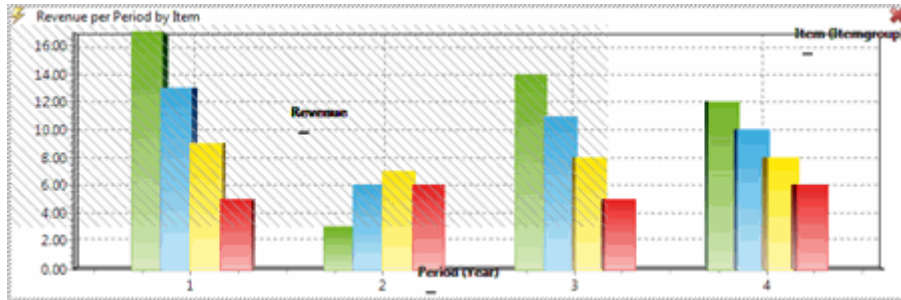
To achieve this, Store is dragged to the flashing selection line in the Pie chart definition window legend area and Revenue is dragged to the flashing selection line in the middle of the pie chart accordingly.

Using Pie charts, it is easy to illustrate how a value such as Revenue is divided into pieces based on any given grouping of data.

## Bar charts and Horizontal bar charts



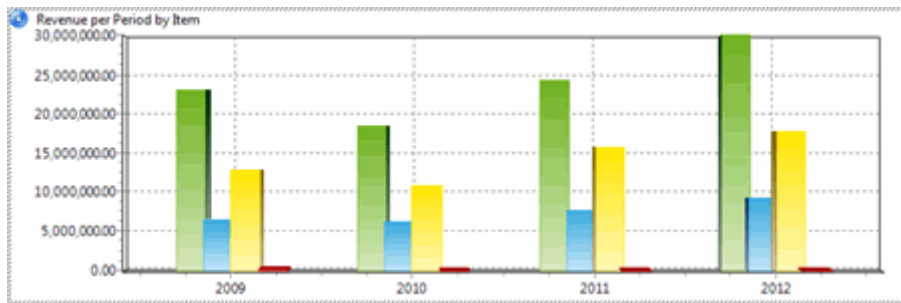
These two chart types are practically identical, the only difference being the direction of the bars. The screenshot below shows the define state of a Bar chart. In this example, a Vertical bar chart.



*New Bar chart definition window*

In this example we would like the chart to show the annual Revenue for each Product. To achieve this, we place Period on the selection line on the X-axis of the chart, Item on the legend selection line and Revenue in the center selection line. These data types can be interchanged to get a slightly different view of the data.

To specify what the bars should represent, Revenue is placed on the flashing selection line in the middle of the definition window. When viewing actual data, the bar chart could look like shown below. The order of the explanations in the legend box resembles the order of the bars of the chart.



*The Bar chart result*

By default the X-axis will meet the Y-axis at point zero (0) and the Y-axis top value will be adjusted to the highest measure value, but specific values may be set in the Smartpad Properties tab. If a chart contains more than one measure, it will also be possible to add an extra axis at the opposite end of the coordinate plane and specify properties for this axis and define which measure relates to which axis.

## Line charts



The line chart is a system of coordinates where data is represented by points connected by lines.

To illustrate how Revenue changes monthly for each Product, Time is placed on the X-axis selection line and Product on the legend selection line and Revenue is placed on the selection line in the middle of the definition window. The lines will then represent the Revenue for each Product seen over Time.

By default the X-axis will meet the Y-axis at point zero (0) and the Y-axis top value will be adjusted to the highest measure value, but specific values may be set in the Smartpad Properties tab. If a chart contains more than one measure, it will also be possible to add an extra axis at the opposite side of the coordinate plane and specify properties for this axis and define which measure relates to which axis.

## Area charts



This chart type is closely related to the line chart. The only difference between the two is that the area beneath each line is filled with the color of the line.

## Scatter charts



The scatter chart is a special kind of chart. It can display the same data as all other charts, but the chart works differently with Dimensions and Measures. The following explains the way a Scatter chart is used and the advantage of using it over using other chart types, e.g. bar charts.

If we wish to see Revenue, and the Contribution Margin percentage for each year, we could use a normal bar chart. Revenue and Contribution Margin percentage are both Measures. This means that if we want those data types to be represented on a bar chart, the values would be represented by the height of the bars. The problem is that the Y-axis will be showing Revenue values from 0 to millions. This means that the values of the Contribution Margin percentage, which are between 0 and 100, would be almost invisible. The same would apply in line charts and area charts.

The scatter chart, however, allows placing Measures on both axes of the graph. This means that the measure data, Revenue and Contribution Margin percentage, can be placed one on each of the axes of the chart, while the required dimension, for instance Time is placed on the selection line of the legend.

It is now easier to see the data values for each item as dots in the scatter graph. Using the above suggested dimensions and measures it would be desirable to have all the dots placed in the upper right corner of the chart, which means that they all show high Contribution Margin percentages and large Revenue values.

By default the X- and Y-axis will meet each other at point zero (0) and the axes top values will be adjusted to the highest measure values. Specific values for each axis may be defined in the Smartpad Properties tab.

## Bubble charts



The bubble chart is basically the same as the scatter chart the only difference being, that in the bubble chart the points may have variable sizes depending on a measure value. The bubble chart therefore uses three measures, one for point sizes and one for each of the two axes.

By default the X- and Y-axis will meet each other at point zero (0) and the axes top values will be adjusted to the highest measure values. Specific values for each axis may be defined in the Smartpad Properties tab.

## Radar charts



The radar chart is a two-dimensional chart consisting of two axes with the Y-axis displaying the value range. The chart may display data from one dimension and one or more measures. When a dimension is added to the chart, dimension members are plotted around the chart as a star-shaped figure. This also limits the number of dimensions members being displayed in the chart, as too many members makes it difficult to separate each member from each other. The placement of the members in the chart depend on the measure value as members are placed farther from the center the higher the value is. The center value depends on the member with the lowest value and the Y-axis top value is adjusted to the highest measure value.

The recommended use for radar charts is to spot differences among a limited number of members in one dimension. The differences may be spotted among several measures, but a limited number of measures should be added to improve the readability of the chart. The variance among the data shouldn't be too big, since it is difficult to spot differences from member to member if one measure consist of values in the million range and another consist of values in the small thousand range. It is also recommended to use measures with the same format (e.g. currency, percentages etc.) in the chart to maintain readability, though it is possible to add measures with different formats.

The radar chart may be formatted like any other chart from the Smartpad Properties tab.

## Maps



Maps are used to display data in relation to locations. Locations for Maps may be either geographical coordinates or coordinates related to other types of background images as for instance floor plans. Data values are represented by coloring of the locations dots.

There are three selection lines on the definition stage of a map object. The first one, placed at the top of the map is a selection line for dimensions. This selection line is designed to add dimensions to the Map objects underlying cross table, with the purpose of making a calculated column. The colors of the table entries in the rightmost (calculated) column are used for coloring the location dots. To learn more about Object calculations, see Calculations in the Object functions chapter.

### Calculations functions

The second selection line, placed in the middle of the map, is a selection line for dimensions. This selection line is normally used to place dimensions related to a location. Any dimension can be placed here, but in many cases they will not have a predefined location on the map. To learn how to set up locations on a map, see the Map locations section in the Object functions chapter.

The last selection line, placed at the bottom of the map, is for measures.

## Globes



Globes are basically three-dimensional maps, but Globes are used only to show data which are related to geographical locations.

There are three selection lines in the Globe definition window. The first one, placed at the top of the Globe is a selection line for Dimensions. This selection line is designed to add dimensions to the Globe objects underlying cross table, with the purpose of making a calculated column. The colors of the table entries in the rightmost (calculated) column are used for coloring the geographical location dots. To learn more about Object calculations, see Calculations in the Object functions chapter.

The second selection line, placed in the middle of the Globe window, is a selection line for dimensions which are used to place dimensions related to geographical locations. Any dimension can be placed here, but normally they will have a predefined geographical location. To learn how to set up locations on a Globe, see the Globe locations section of the Object functions chapter.

The last selection line, placed at the bottom of the Globe window, is for measures.



The main difference between using a Globe instead of a map is that the Globe is three-dimensional. When showing data, the Globe can be rotated by moving the mouse while holding down the right mouse button. Alternately, the cursor keys of the keyboard can be used. The second feature of the globe is the ability to zoom. This is done using the + or - keys of the numeric keypad.

## Scalable maps



Scalable maps are based on areas instead of a single dot using GIS-technology (Geographic Information Systems). The Scalable map is also used to display data in relation to locations and may contain several layers of information. The further you zoom into a scalable map, the more details will be available to you. If the necessary detail is available, you may zoom a map from the Continent level via Countries, States, Regions, Zip Codes all the way down to street names and house numbers. The level of detail is determined by the information within the GIS-maps. These maps are available, usually at a cost, from local and international GIS-providers. The mapping between GIS-information and dimension values is regarded an administrative task and is handled centrally in the TARGIT Management Studio. Apart from the scalability of these maps, scalable maps also cover the demand for representing e.g. countries as colored areas rather than just colored dots.

There are three selection lines on the definition stage of a scalable map object. The first one, placed at the top of the map is a selection line for dimensions. This selection line is designed to add dimensions to the Scalable map objects underlying cross table, with the purpose of making a calculated column. The colors of the table entries in the rightmost (calculated) column are used for coloring the location areas. To learn more about Object calculations, see Calculations in the Object functions chapter.

The second selection line, placed in the middle of the Scalable map window, is a selection line for dimensions which are used to place dimensions related to geographical locations. Any dimension can be placed here, but normally they will have a predefined geographical location.

The last selection line, placed at the bottom of the map, is for measures.

Navigation and Zoom is a little different from the other objects. Use + and - keys or the mouse scroll wheel to zoom in and out according to the current center of the map. To move the center of the map, press and hold down the right mouse button while dragging the center of the map to a new position.

To change the properties of the scalable map see the formatting options section in the Object functions chapter.

## Gauges



Gauges are used to display the value, progress or trend of a measure or a calculation relative to a fixed or dynamic scale. Gauge objects may contain one or more Gauges and are often used in Dashboard Analyses.

When a new Gauge object has been added to the Work Area, the measure or calculation to be displayed must initially be selected from the Add KPI option in Smartpad Properties. Selecting a single measure or calculation and fetching data will create a complete Gauge object with several intelligent, default settings:

- Two gauges will be included: a Speedometer gauge and a Trend gauge.
- The default Time dimension will automatically be included. The default Time dimension is either the Time dimension that was last used in a gauge object or, if none has been used so far, the Time dimension with the highest number of levels. The Time dimension will be expanded to its second level.
- The data displayed by the primary (broad) pointer in the Speedometer gauge will be from the last period of the second level of this Time dimension.
- The goal displayed by the secondary (narrow) pointer in the Speedometer gauge has been calculated from the formula:  $\text{Goal} = \text{MaxValue} + (\text{MaxValue} - \text{MinValue}) * 0.2$  where MaxValue and MinValue are the highest and lowest values, respectively, within the available periods.
- The Speedometer gauge span, the minimum and maximum values of the Speedometer gauge, has been calculated from these formulas:  $\text{MaxSpan} = \text{the highest value of either } \text{MaxValue} * 1.1 \text{ or } \text{Goal} * 1.1$  and  $\text{MinSpan} = \text{the lowest value of either } \text{MinValue} * 0.9 \text{ or } \text{Goal} * 0.9$ . The Trend gauge is a graphical presentation of the overall trend of data within the selected time span. It is based on the regression column which can be seen when shifting to the data view of the gauge object. The formula for the regression is best displayed by clicking the Explanation icon in the gauge object. A positive X multiplier will display a positive trend, while a negative X multiplier will display a negative trend.
- The Trend gauge span, the minimum and maximum values of the Trend gauge, has been calculated from these formulas:  $\text{MaxSpan} = \text{the highest absolute value of } \text{MaxValue} / 2, \text{ MinValue} / 2 \text{ or } \text{Goal} / 2$  and  $\text{MinSpan} = -\text{MaxSpan}$ . Goal is calculated as with the Speedometer gauge, and even though Goal is not displayed in the Trend gauge it may have an effect on the span of the Trend gauge.

## **SQL 2005 KPIs**

The gauge object may also be based on a KPI that has been defined in Analysis Services for Microsoft SQL Server 2005. If SQL 2005 KPIs have been defined in the Analysis Services database, they will appear together with the list of available measures and calculations for the Gauge object definition.

## **Layout Objects**



**Menu:** Object **Right-click menu:** New object **Toolbar:** Create a new layout object

Layout Objects are placeholders that may be added to an Analysis, just like any other Object in order to improve the layout and readability. The type of the Layout Object can be changed from the Smartpad Properties tab or from the Object menu, and can be either a blank box or it can contain user supplied text, an explanation or a graphical image.

**Note:** When a trigger has been specified for a layout object, it may be selected by right-clicking and clicking 'Select object'.

## **Blank area**

The default Layout Object type is a blank area. A blank area Object can be inserted in an Analysis to facilitate resizing of the other objects to a specific height or width and placement.

## **Text box**



The Text box Layout Object type can be used to apply additional textual information to the Analysis. The text to be displayed is entered in the Text field of the Smartpad Properties tab. Furthermore, dynamic text may also be added from the dynamic content section below the text field. Dynamic text is added by first selecting a cube and then a dimension. The dimension is inserted at the location of the cursor in the text field in the format {reference:postfix}, where the postfix may be first, last or all depending on which values should be included in the caption:

| <b>Postfix</b> | <b>Description</b>  |
|----------------|---|
| First          | The first value of the chosen dimension is inserted in the caption.                 |
| Last           | The last value of the chosen dimension is inserted in the caption.                  |
| All            | All values of the chosen dimension are inserted in the caption separated by colons. |

The default reference for a caption is cellvalue without a postfix.

The content of a Text box Layout Object may be formatted by using the Align and Formatting options from the Smartpad Properties tab. Alignment of the text can be defined horizontally and vertically, and options are available to change Background color, Border and Font in the same way as when formatting the data page.

## **Explanation box**



The Explanation box Object type will dynamically display the Global criteria that apply to the Analysis.

The content of an Explanation box Layout Object can be formatted by using the Align and Formatting options from the Smartpad Properties tab. Alignment of the explanation can be defined horizontally

and vertically, and options are available to change Background color, Border and Font in the same way as when formatting the data page.

## **Image**



The Image Layout Object type can be used to display any image, e.g. a company logo. The image to be displayed is chosen from the Background field of the Smartpad Properties tab.

## **Search Object**



Microsoft Desktop Search may be integrated with TARGIT. This means that analysis data may be used as search index on the user's local machine. If the user performs a drill down in an analysis, on a specific customer, to see his sales revenue, files related to the customer, like emails and such, will appear together with other documents related to this customer. When using TARGIT the search icon in the toolbar may be clicked to add an object with the Windows Desktop Search functionality. The search includes metadata from the analysis as search criteria if 'Intelligent Search' is checked. These metadata include measures and global criteria. Additional search terms may also be specified in the text field 'Additional terms'. Several search objects may be added to an analysis if it contains data objects (e.g. a crosstab).

TARGIT may also be connected to a Microsoft Search Server 2008 from TARGIT Management Studio to extend the local search functionality to include corporate data details instead. When connected to a Microsoft Search Server 2008, the search object in TARGIT appear as the Microsoft Desktop Search, but the underlying search features, indexing methods etc. are controlled from the administration site of the search server. For further information about these issues, please see the Microsoft Search Server 2008 documentation.

**Note:** Windows operating systems include Windows Desktop Search except Windows XP where the program must be downloaded from Microsoft's web site.

## **What-If**



**Menu:** Object | Data **Right-click menu:** Data **Toolbar:** Add/remove What-If object

This unique feature gives the possibility to explore the hidden potential in the data warehouse. With one single click a What-If object may be added and the effect of changes in figures may be predicted based on information already available in the data warehouse. E.g. what if the sales revenue was 5% higher? What would the numbers look like? This question may now be answered by adding a What-If object to the analysis.

Adding a What-If object is easily done from the toolbar. When an analysis is open, click on the What-If icon (pictured above) in the toolbar and the object is added. The object is represented as a cube with a list of all the measures in the analysis. Each of the measures may be changed with the small plus or minus icons. Each click on these icons will change the value one percent. It is also possible to double click on the value to enable editing of the clicked value. Editing a value may also be done from the Smartpad Properties tab or by right-clicking the measure or dimension and choose increase or decrease. Note that totals are not changed since they are obtained from the cube and not recalculated. To get a recalculated total a custom calculation must be inserted.

A What-If object may also be added by marking an object and selecting Object | Data | What-If from the menu bar or by right-clicking the object and selecting Data | What-If. These options adds a What-If object with all measures of the analysis and the last clicked hierarchy member or the first hierarchy member if none was clicked. Further members may be added by right-clicking each of them in the objects and select Data | What-If or use the corresponding selection in the menu bar. Another easy way to add members to the What-If object is to use the properties tab in the Smartpad. Clicking on the name of any of the dimensions changes the properties tab and dimension members may be added by marking the check boxes and selecting for which measures the members must be added, that is, for which measures should the dimension members be available in the What-If object.

The What-If object affects the appearance of the other objects in the analysis. Whenever a What-If object is added to an analysis, the other objects in the analysis show the What-If modified values and bar charts show both the original values and the What-If modified values.

To remove the What-If object from the analysis, click the blue cross in the upper right corner of the object or click the What-If icon in the toolbar.

## ***Multi-cube Analyses***

When connecting to a Microsoft cube server (OLAP Services or Analysis Services) and the database contains multiple cubes it is possible to generate Analyses with Objects simultaneously displaying data from different cubes. This is accomplished by selecting a different cube in the Smartpad 'Source data' tab. If there are any existing Objects from other cubes in the Analysis, a dialog is presented asking whether these Objects should be removed or not. By answering no, new Objects can be added based on data from other cubes.

Every Object in a Multi-cube Analysis will have a cube icon next to the explanation icon. Icons which are not colored means that the Object belongs to a different cube than the selected Object. By hovering the cursor over the icon, a description is displayed telling which cube the Object belongs to.

Multi-cube analyses imposes some limitations. When applying criteria either by using the criteria editor or by drilling, only Objects connected to the same cube will be affected.

## ***Biggest Opportunities and Problems***

**Menu:** File | Document properties **Toolbar:** User preferences | Document properties

Biggest Opportunities and Biggest Problems are intelligent ways to browse through objects to highlight remarkable good or bad trends. By default all analyses are included in the search for Biggest Opportunities and Problems. When clicking any of the two options a search for candidate objects among all analyses is initiated. The biggest options only consider gauge objects with a goal and a trend and KPIs defined in the database. When the search is done the results are presented in gauges. Objects from a Biggest Opportunities and Problems search is also presented automatically and kept up to date in the TARGIT Desktop notification section.

To exclude an analysis from the search for Biggest Opportunities and problems check the option 'Exclude this analysis from biggest opportunities/problems' in the document properties menu.

## ***Biggest Opportunities***

**Menu:** Tools | Biggest Opportunities

When clicking the Biggest Opportunities option, all analyses (except anyone marked as excluded) and all KPIs are immediately analyzed for Biggest Opportunities. To be considered an opportunity, the current trend of the measured value must first of all be good (positive or negative depending on the smiley settings). Furthermore, if the current value is on the good side of the goal, it will be prioritized higher than those where the current value is on the bad side of the goal.

## ***Biggest Problems***

**Menu:** Tools | Biggest Problems.

When clicking the Biggest Problems option, all analyses (except anyone marked as excluded) and all KPIs are immediately analyzed for biggest problems. To be considered a problem, the current trend of the measured value must first of all be bad (negative or positive depending on the smiley settings). Furthermore, if the current value is on the bad side of the goal, it will be prioritized higher than those where the current value is on the good side of the goal.

# Object functions

## *Activating functions*

The most important functions for objects are available in the Smartpad Properties tab, the Calculations tab and the Criteria tab. Most functions may also be activated from the menu, a right-click menu or by keyboard shortcuts.

**Note:** In order to conserve space right-click menus may only show menu items relevant to the position of the cursor when the right-click was initiated. If the right-click menu has been truncated, a menu item 'More' at the bottom will reveal all items when selected.

## *General functions*

### Locking Objects



**Menu:** Object | Object **Right-click menu:** Object

When an Object is locked it is no longer possible to change the appearance or behavior of the Object. In other words, removing Dimensions and Measures or applying functions is disabled when the Object is locked.

**Note:** Locking an Object does *not* affect the applying of Criteria or Drill downs to the Object. The Lock function only affects the definition part of the Object properties, not the data part. To learn more about Criteria and drilling, see the Criteria chapter of this guide. Locking and unlocking Objects is available to Developer users only.

### *Locking all Objects*



**Menu:** View.

As locking Objects is often used by Developer users to prevent Normal users from changing the definition of shared Analyses, locking or unlocking all Objects in the Work area can be achieved using the 'Lock all / Unlock all' function. This function is available to Developer users only.

### Trigger Analysis

**Smartpad:** Properties tab

Trigger Analysis is a function where one Analysis can be linked to another Analysis or Report in such a way that a click on an object in the first Analysis will trigger the other Analysis or Report to be activated. The Analysis or Report to be activated can be selected from a dialog that is opened from the 'Add trigger' link in the Smartpad Properties tab. Two options are available; 'Document' displays the list of documents equal to the Documents tab in the Smartpad. The appropriate document must be selected and if the option 'Include criteria when triggering' is checked the activated document is assigned global criteria according to the dimension values of the element that was clicked in the object.

The second option is to trigger an URL. This is done by entering an URL in the text field. Activation of the URL is done similar to activation of a document - when clicking an element in the object with the trigger, the URL is opened in a new browser window.

A selected trigger may be removed again by clicking the cross next to the trigger in the Smartpad.

**Note:** The trigger option is not only limited to data objects, but may also be applied to text boxes and images to extend the flexibility.

## Cut, Copy and Paste



**Menu:** Edit **Keyboard:** CTRL+X/C/V **Right-click menu:** Object | Cut/Copy/Paste

These functions are used to cut, copy and paste an active object for use in TARGIT or in other external applications e.g. word processors. It is possible to cut, copy and paste both graphical and non-graphical Objects (except What-if and Search objects). The function may also be used to copy selections as comparisons to other objects.

Copying an object in TARGIT creates an exact copy of the object with all formatting (excluding any criteria or what-if values) for insertion in the same analysis or another. All data objects may be copied and also cross tables in reports may be copied from the cross table define mode to an analysis. Note that locked objects are unlocked when copied.

Copied objects may also be pasted into any program which is able to handle images such as, but not limited to, image editors and word processors. Copying Table and Cross table objects and also the data page of graphical objects, will copy the characters (letters/numbers) of the Object to the clipboard in a format, which is designed to be pasted into a spreadsheet application, e.g. Microsoft Excel. This is achieved using tabulations - just like indenting text lines which also means, that the clipboard data may be pasted into word processors and other applications with a sensible result.

## Duplicate





**Menu:** Object | New object **Right-click menu:** New object | Duplicate

The function is used to create a new object in the work area which is an exact copy of the active Object. The new Object is created in define mode ready to be edited. It is possible to duplicate both graphical, non-graphical and layout Objects.

## Actions



**Menu:** Object | Hyperrelate **Right-click menu:** Hyperrelate

Actions enable users to act upon the outcomes of their analyses. By using actions, end users can go beyond traditional analysis and seek more information on discovered problems and deficiencies. The two types of actions supported is HTML which transfer HTML to an Internet browser for direct display, and URL which transfer an Internet URL address to the Internet browser in order to display its content.

Actions are activated by right-clicking a graphical element or table/cross tabulation element for which predefined actions should be executed. This brings up an Object menu where the Actions menu item may be selected. After selection, the lower part of the object area will first show the selected delimitations followed by a list of available actions. Clicking an action will execute it by opening the default Internet browser and display HTML or an URL page. Clicking the 'Back to data page' button will return the object to normal display mode.

When there is only one Action for the selected item, the 'list of available actions' is not presented and the Action is executed directly.

**Note:** In order to have access to actions, the system manager must have implemented Analysis Services Actions at proper places in the active cube.

## Export table data

**Menu:** Object | Data **Right-click menu:** Data

Table data or Cross tabulation data from Objects may be exported either directly to Microsoft Excel, to a CSV (Comma separated) file or to an XML file. When the submenu items 'Export to CSV' or 'Export to XML' is selected, a file save dialog opens for proper placement of the file. If the submenu item 'Export to Excel' is chosen, the Table or Cross tabulation data is copied to a new Microsoft Excel spreadsheet.

## Hyper Relations

**Menu:** Object | Hyperrelate **Right-click menu:** Hyperrelate

A Hyper Relation is a relation from a measure value in an Object or in a report to an analysis that provides more detailed information about that particular measure. TARGIT uses its built-in Intelligence to determine which analysis will be the most suitable for providing additional information about the measure.

Hyper Relations are activated from an analysis object by right-clicking an element in the Object, e.g. a Revenue value in a cell in a cross table and selecting 'TARGIT this' from the right-click menu or from Object | Hyperrelate in the menu. A suitable Revenue analysis will then be opened, and the dimension values that related to the particular element in the source will be transferred as criteria to the target analysis.

From a Report, in preview mode, Hyper Relations are activated by *left*-clicking an element in the report, e.g. a Revenue value. A suitable Revenue analysis will then be opened, and the dimension values that related to the particular element in the report will be transferred as criteria to the opened analysis.

## Scheduling

Scheduling may be applied to any output option from the TARGIT client. Reports, Analyses, Dashboards, Storyboards, Notification Agents and even data export from individual objects may be scheduled. Apart from using the Intelligent Analysis tool to schedule (see the section about Intelligent Analysis), the Smartpad Documents tab and the right-click menu can also be used to schedule outputs from TARGIT.

To schedule any of the output options mentioned above, right-click one of the saved documents in the Smartpad Documents tab and select 'Document | Schedule for export'. Data from a single object may also be scheduled for export by right-clicking an object and selecting Data | Export table data | Schedule for export. Selecting the menu item will bring up the Job Properties dialogue box where the properties; Source, Scheduling, Format, Delivery and Batch may be defined:

### Source

The Source page only needs to be edited if you want to schedule another source for the output (e.g. Analysis, Report). This is done by selecting the appropriate file or file element in the file hierarchy. Only files of the same type as the file originally chosen for export are available e.g. if an analysis was chosen for export only other analyses in the file system are available. In the bottom of the page a search field is available that may be used to find the relevant document to schedule. Also note that only documents of the same file type are shown. The search operators supported in the search field are the same as for the Documents tab.

If, for some reason, you want to schedule another type of source for export, the job properties dialog box must be closed and another file must be chosen.

### Schedule

On the top of the schedule page scheduling is enabled by clicking the checkbox. Furthermore, a name for the scheduling may be typed. A default name of the element (analysis, report etc.), that was chosen for export, is placed in the text box. The schedule page also contains the important definition

of frequency and the time of day for the scheduled job. The start date and time may be specified and if the scheduling must be limited to a specific time interval, an end date may be enabled and entered as well. Repetition may be specified both for the day the export takes place and for the overall scheduling.

### **Format**

On the format page the output filename, output format and output language may be changed. The format options depend on the source used. If an analysis is scheduled, object titles may be hidden in the output by checking the checkbox. Also the image size for a scheduled analysis may be selected among the predefined resolutions or a custom resolution may be entered. When scheduling table data for export, the three file formats; CSV, XML and Excel may be selected and formatted in the same way as for ordinary table data export. Storyboards may be exported in three available formats; 1024x768, 800x600 and 640x480.

### **Delivery**

On the delivery page two outputs may be selected, either to a folder specified in the TARGIT Management Studio or by e-mail to one or more recipients. Multiple e-mail addresses are separated by a semicolon. A subject and a message may be attached to the e-mail by writing in the text boxes. Global criteria for the analysis/report may be included in the e-mail by checking the check mark "Include criteria information".

### **Batch**

Several outputs of the type chosen on the delivery page may be sent by using batch processing. This feature makes it possible to use a chosen dimension and its members as criteria for export of several analyses or reports. For example, if the dimension 'Salesperson' and two members 'John Rogers' and 'Susan Clarke' are chosen, two outputs are generated. One with the criterion 'Salesperson must be John Rogers' and one with the criterion 'Salesperson must be Susan Clarke'. To enable this feature mark the 'Enable batch processing' checkbox on the batch page. The cube must be the same as the source cube. Choosing a cube will show all dimensions for the cube and selecting a dimension presents a list of members of the selected dimension. In this list the members may be marked in the following ways:



A member with this check mark has inherited its inclusion from its parent. For example, if a unique pair of jeans with model number 123 is marked this way, then the higher level in the hierarchy (e.g. Jeans) is either included in the scheduled export or inherits inclusion from an even higher level and so on.



A member with this check mark has inherited its exclusion from its parent, that is, either the parent is excluded from the scheduled export or inherits exclusion from a higher level and so on.



A member with this check mark is included in the scheduled export independent of the parent properties.



A member with this check mark is excluded from a scheduled export independent of the parent properties.

For each of the members included for scheduled export an output will be generated. For example if three members have been marked as included, three files will be exported according to the properties defined on the Delivery page. It should be noted, that for hierarchies an output is exported for each marked lower-level member.

If the chosen dimension has member properties that includes e-mail addresses, the 'Email member property' may be selected. This option will ensure that scheduled exports will be sent to the appropriate persons e.g. each salesperson will receive an e-mail with an export of their revenue. In addition a blind carbon copy (bcc) will be sent to the e-mail address specified on the Delivery page.

**Note:** To be able to use Batch processing the Corporate Communication Server edition license is required and the user must have Developer rights. Also note that several e-mail addresses for each dimension member is supported by separating the e-mail addresses by semicolon in the database.

## ***Administrating Scheduled Jobs***

**Smartpad:** Scheduled Jobs

If you want an overview of Scheduled Jobs select the 'Tools | Scheduled Jobs' menu item or the 'Scheduled Jobs' tab in the Smartpad and the work area will change into displaying a list of all active Scheduled Jobs, which may be sorted on any of its properties by a click in its column header. The size of the column headers may also be changed by dragging the borders lines. A right-click menu is available for each job in the list allowing 'Run now', 'Open associated file', 'Delete' or 'Properties' options to be chosen. Selecting a scheduled job in the work area displays the most used job properties in the Smartpad and the job properties dialogue box will open when one of the small dialogue buttons (🔍) or the 'Schedule Job' text is clicked. Selecting any other Smartpad tab will immediately return the Work area to display the active analysis or report. A logging function is also integrated into the schedule function and may be opened by highlighting a scheduled job and clicking the 'Browse log' text in the Job Properties tab in the Smartpad. A new window will pop up and display results, start time, end time and possibly Last value for the jobs that have been processed.

## **Sentinels**

Sentinels are digital watch dogs that may be scheduled to keep an eye on your data. Technically Sentinels are rules that predict how data evolve based on how data have previously evolved.

To search for Sentinels in your data click on the Sentinels icon in the toolbar or right-click an analysis and select 'Data | Search for Sentinels'. This opens the 'Search for Sentinels' dialog with the following tabs:

### **Search Now!**

This tab gives an overview of the search and shows the measure to base the prediction on and the time level used for the Sentinels.

### **Prediction Measure**

The prediction measure is the measure that you want to be warned about. It is typically of great importance e.g. a KPI.

### **Time**

On the time tab the lowest time dimension level may be defined. E.g. if you set it to month you will be warned at least one month in advance of predicted changes. Criteria may also be applied to the time dimension, but it is not recommended unless data are significantly different or faulty since Sentinels are better, when they are based on as much data as possible.

**Note:** Dynamic time must be enabled in the cube for the period dimension. Otherwise the search cannot be completed.

### **Source Cubes**

The scope of the search for Sentinels may be limited to one or more cubes. Including several cubes may cause more Sentinels to be found and a greater diversity especially if cubes from different areas of the organization are selected. Only cubes with a shared period dimension are shown in the source cubes list.

### **Criteria**

This tab provides the option to setup criteria on the dimensions in the selected cubes. As with the time dimension, setting criteria are not recommended unless data are unsuitable to include in the Sentinel search. Criteria may also cause the search scope to be too narrow.

When the search has been defined click the 'OK' button and the search for Sentinels starts. The time the search takes is highly dependent on the amount of data to be searched. When the search has completed a list of all discovered Sentinels is shown. The Sentinels are sorted according to two things; First, the confidence percentage, which is an indication of how reliable the Sentinel is based on the data patterns in the prediction measure and the measures in the Sentinel. Second, a support level that depends on how much data the Sentinel is based on. I.e. if measures cost and contribution have similar patterns in 4 out of 5 situations it could be coincidence, but if similar patterns occur in 400 out of 500 situations the risk that it is a coincidence is lower. The support level is not visible in the listed Sentinels. The Sentinels with the highest quality (highest confidence and support level) are listed first and since the Sentinels are based on two parameters the Sentinels are not necessarily listed according to confidence. Already scheduled Sentinels are not visible in the list, but may be shown by enabling the check box 'Show already scheduled Sentinel Agents' found in the bottom of the dialog. To select all Sentinels for scheduling check the 'Select all' option also found below the list of Sentinels.

In the list of Sentinels small red and green arrows are shown next to the measures. For the prediction measure this indicates that based on prior use of this measure a trend direction is calculated. E.g. if increasing cost is always used as a negative result, then the arrow pointing upwards is red and the other green. For the listed Sentinels the arrows indicate how the measures relate to the prediction

measure e.g. if a contribution measure in a Sentinel has a green arrow pointing upwards and a red downwards, then the previously mentioned prediction measure cost increases a certain percentage if contribution decreases a certain percentage. The colored arrows may be seen as an indication of the nature of a measure e.g. cost is mostly seen as negative while contribution is mostly positive.

## ***Visualize Sentinels***

The list of Sentinels found in a search does not give an overview of the similarities found in the data. To get a better view of this, the chart icon next to each Sentinel may be clicked. This opens a chart where the Sentinel may be visualized. The chart actually includes several charts; one for each of the source measures (the measures a prediction is based on) and one for the target measure (the measure with a predicted change). An explanation object is also visible in the right side of the work area explaining the Sentinel rule and the coloring of the charts. Notice that these Sentinel charts always show an area chart with a measure and the Period dimension.

The coloring of a chart follow the trend of the measure in it e.g. if the measure cost decreases the color of a period that adheres to the Sentinel rule is colored green and vice versa for e.g. revenue. The trend of a measure may be reversed by clicking the smiley icon in the toolbar and select 'Configure'. In each of the charts 3 colors may be seen; a green color if it is a period where all measures adhere to the Sentinel rule and the trend of the measure is good e.g. cost decreases. A red color if it is a period where all measures adhere to the Sentinel rule and the trend of the measure is bad e.g. cost increases. And at last yellow if the target measure does not adhere to the rule, but the source measures do. When periods are colored yellow they are candidates for uncertainty as the data patterns seen in the source measures are not seen in the target measure. Therefore, a lot of yellow areas causes the uncertainty of the Sentinel rule to increase, which is indicated by a decrease in the rule's confidence. All the grey areas are not colored because no patterns are seen in these periods across the measures.

All the charts may be drilled like normal objects in an analysis and the object type may also be changed. By default the criteria 'Period is less than or equal to this month' is set, but other criteria may be applied from the criteria editor or the criteria bar. At any time when working with Sentinel rules, the Sentinel icon in the toolbar may be clicked to see the list of Sentinels found in the last search.

**Note:** Already scheduled Sentinels may also be visualized from the scheduled jobs list by right-clicking the job and select 'Visualize Sentinel'.

## ***Scheduling Sentinels***

To schedule the Sentinels select them by checking the check box next to each of them. Then go to the Schedule tab and enter one or more e-mail addresses along with the start time for the schedule. Multiple e-mail addresses are separated by a semicolon. The schedule runs on the first day of the period chosen in the Time tab e.g. first day of each month. When clicking 'Schedule' the schedule is added to the Scheduled Job list, where additional settings may be applied by double-clicking the job and then setting more detailed schedule and delivery settings.

**Note:** Detailed information about administrating scheduled jobs can be found in the section about Scheduling and detailed information on the Schedule and Delivery options can be found in the section about Notification Agents.

## TARGIT Cloud

**Toolbar:** TARGIT Cloud icon **Menu:** Tools **User Preferences menu**

TARGIT Cloud is an add-on to TARGIT only available to customers with software maintenance. TARGIT Cloud is a web portal (cloud.targit.com) where users may upload and analyze data ad-hoc as well as share data with others. For more information on TARGIT Cloud please see the website.

The website may be opened from the menu, Intelligent Analysis tool and toolbar. The first time a TARGIT Cloud reference is clicked a dialog appears where e-mail and password must be entered for registration. After registering an e-mail is sent with an activation link and once activated TARGIT Cloud is ready for use. For more information on uploading and analyzing data please see the website.

## Notification Agents

**Right-click menu:** 'Notify me when...'

Notification Agents are useful when you need to monitor the development of key measures. Notification Agents are scheduled to regularly check the current state of the measure. The current value is then compared to the previous value, and if the pre-defined condition has been met the Notification Agent will automatically send out an e-mail.

An easy way to create a new, scheduled Notification Agent is to base it on an element in an object in an existing analysis. Simply right-click the element – a bar in a bar chart, or a cell in a cross table – and select one of the three menu items 'Notify me when...' to create a new, context based notification agent. Notification Agents may also be generated using Intelligent Analysis.

If any of the options above are used to apply a notification agent, the Job Properties dialogue box will pop up and four properties may be changed; Condition, Criteria, Schedule and Delivery:

### Condition

On the Condition page the measure to monitor and a corresponding member may be selected as the source data. The value that triggers the notification may also be selected on the Condition page by making an expression combined by values from the selection and input boxes. If a goal measure exists this is set by clicking the 'Select goal measure' text and selecting a measure. If a time dimension exist in the cube, this may be used to monitor the trend of the chosen measure. To set the trend monitor, click the text 'Monitor the trend of *Measure*' and select the trend period. When the trend is monitored the notification is based on changes in the trend value instead of changes in actual data for the period where the notification agent is run. The trend value is based on a regression line for the given measure over the time period.

## Criteria

The Criteria page holds a list of the criteria that have been added to the notification. Criteria are handled in the same way as described in the section about the Criteria editor.

## Schedule

The notification is enabled on the Schedule page if the check box `Enabled` is marked. Furthermore, a name for the notification scheduling may be typed. As a default the name of the element (analysis, report etc.), that was chosen for export, is placed in the text box. The schedule page also contain the important definition of frequency and the time of day for the scheduled job. The start date and time may be specified and if the scheduling must be limited to a specific time interval, an end date and time may be enabled and entered as well. Repetition may be specified both for the day the export takes place and for the overall scheduling.

## Delivery

On the Delivery page an e-mail address must be supplied. Multiple e-mail addresses must be separated by a semicolon. The notification e-mail by default includes a standard subject. This may be exchanged with a custom text by selecting the button next to the empty text field and entering a text. A longer text may be supplied in the Message field. This text will be the first text in the notification e-mail. Default explanation and link to the context and properties for the notification are selected by default and may be disabled by removing their respective checkmarks. The notification context is the analysis where the source measure was selected from and the link to this analysis is automatically inserted, but may be removed or another analysis may be selected. In the bottom of the dialog there is an option to 'Prevent automatic notifications in Desktop clients'. Checking this option disables any automatic notifications based on this notification that may appear in the Desktop client.

**Note:** Notification agents requires normal user rights. Detailed information about administrating scheduled notification agents can be found in the section about Scheduling.

## ***Add object Notification Agent***

**Right-click menu:** Object

Object notifications are useful for defining exact notifications on data elements in an object. When creating an object notification the condition and scheduling settings are specified in the job properties dialog when applying the agent. Notification Agents may be inspected and edited in the Smartpad 'Scheduled Jobs' tab.

## ***Smiley***





In the right side of the toolbar a smiley icon visualizes the overall trend for an analysis' data. Every analysis is automatically rated based on a trend calculation given the most used measure and a time dimension. The result is visualized by the smiley icon which has three states; happy, neutral and sad.

Hovering the mouse over the icon will show a popup box that explains the reason for the state. E.g. if the measure is revenue and the dimension is period three different states could be: 'I am happy because revenue pr. period is increasing', 'I am sad because revenue pr. period is decreasing' or 'I am inconclusive because revenue pr. period is unchanged'. If, for some reason, the trend calculation cannot be calculated, the following text will be shown instead: 'I am unable to determine the result of revenue pr. period'.

Clicking the smiley icon opens a smiley settings dialog with two options: Show Me... and Configure. Selecting Show Me... creates a bar chart in the current analysis with details about the smiley data. The Configure option makes it possible to enable/disable the smiley function and change the default measure and dimension upon which the trend is calculated. The changes must be within the same cube. The trend direction may also be changed. This may be applicable because of the different nature of the measures e.g. increasing revenue is positive while increasing cost is negative.

**Note:** The smiley is based on completed periods only e.g. if period criteria is less than or equal to this month, only months less than this month are considered in the smiley state.

## Height

**Menu:** Object | Arrange **Right-click menu:** Arrange

This function allows control over the height of the Object measured as a fraction of the actual height of the Work area. Changing the height of an Object also changes the height of adjacent Objects. When the available parameters are not fulfilling requirements, the mouse may be used to drag Object borders to the required positions. Furthermore right-clicking a horizontal Object border opens a menu where Vertical distribution of Objects may be specified.

## Width

**Menu:** Object | Arrange **Right-click menu:** Arrange

This function allows control over the width of the Object measured as a fraction of the actual width of the Work area. Changing the width of an Object also changes the width of adjacent Objects. When the available parameters are not fulfilling requirements, the mouse may be used to drag Object borders to the required positions. Furthermore, right-clicking a vertical Object border opens a menu where Horizontal distribution of Objects may be specified.

## Maximize / Restore

**Menu:** Object | Arrange **Right-click menu:** Arrange

Working with an Analysis with multiple objects it may sometimes be difficult to see the details of a single object. Double-click the header of any Object to maximize this Object to the size of the Work Area. Double-click the header again to restore the Object to its original size.

## Map locations



**Menu:** Object | Map | Edit locations

Maps are used to display data in relation to geographical locations. Data such as Store or Country would be a good choice of dimension when working with Maps. Map objects with unassigned locations will show a 'Map locations' button in the title bar of the Object window. This button activates the locations editor for defining the locations of unassigned dimension values and for changing the coordinates of already assigned locations.

On the editor's Map image there may be small dots, each of which corresponds to a location of a record of the Country dimension. To reassign a location, simply drag the dot to a new location using the mouse.

On the right hand side of the editor is a Locations column contains the values of the dimension used for map locations. Dimension values in bold has already been assigned a location, whereas dimension values in regular print has not yet been assigned a location on the map. To assign these values to locations on the map, simply drag the values from the column to the location wanted. It is also possible to assign position coordinates to a selected location by entering the X/Y coordinates in the edit fields just below the locations column. The bottom left corner of the map has coordinates (0,0) and the top right corner has coordinates (999,999).

If the map is a geographical map, it may be mapped to the globe simply by entering the globe coordinates for the maps top left and bottom right corner in the appropriate edit fields and pressing the 'Apply globe mapping' button just below.

In the Map object definition window, the selection line in the middle is used for the dimension used as locations for the map. Records from other dimensions such as Time or Product would normally have no defined locations on the map, but by adding custom images any dimension could be used with the Map object.

## Globe locations



**Menu:** Object | Globe | Edit locations

Globes are used to display data in relation to geographical locations. Data such as Store or Country would be a good choice of dimension when working with Globes. Globe objects with unassigned locations will show a 'Globe locations' button in the title bar of the Object window. This button

activates the locations editor for defining the locations of unassigned dimension values and for changing the coordinates of already assigned locations. Defining Globe locations is performed in the same way as defining Map locations, with a few exceptions. The process is described in the Map locations section.

One difference from the Map locations editor is the location coordinates edit fields, as the Globe needs the geographical coordinates with Longitude and Latitude instead of the X/Y coordinates used in the Map editor. The coordinates must be entered in degrees, arc minutes and arc seconds East/West and North/South. The coordinates for Hjørring, Denmark are shown as an example above the text box where you can enter the coordinates for the selected dimension value, for instance: 10 degrees, 1 minute and 48 seconds East and 57 degrees, 26 minutes and 24 seconds North is written like this: **10o1'48"E; 57o26'24"N**

Another difference is that the globe may be rotated and zoomed just like in the data object. Rotation is achieved by dragging the mouse while the right mouse button is pressed, or with the keyboard you can use Alt+Arrow keys to rotate the globe. You may zoom in or out with the + or - keys in the numeric keypad.

**Note:** Editing Globe locations requires Developer user rights.

## Gauge configuration



**Smartpad:** Properties tab | Gauge

Gauges are used to display the value, progress or trend of a measure or a calculation relative to a fixed or dynamic scale. Configuring the look and span of a Gauge object is done from the Smartpad Properties tab. Clicking Gauge in the Smartpad Properties tab changes the Smartpad to display properties for the currently selected gauge object. The list of active gauges is displayed like a hierarchical structure. Each gauge object may contain one or more gauges, and each gauge may contain one or more values, which are the measures or calculations that are to be displayed in the gauge.

### ***Object property – Adding and removing gauges***

When the top node, the 'Gauge' line, in the Active gauges list has been selected, use the '+ Add gauge' option to add a new gauge to the current gauge object. Likewise, when a specific gauge has been selected, use the '-' option to remove the gauge from the current gauge object.

### ***Object property – Arranging gauges***

The gauge arrangement property is only available when two or more gauges have been added to the gauge object. By default the gauges are arranged automatically. The Auto arrange option may be overridden by selecting Horizontal or Vertical arrangement.

It is also possible to move a selected gauge up and down in the hierarchical structure by using the 'Move gauge up/down' buttons. Such an action will change the position of the gauge in relation to the other gauges in the gauge object.

### ***Object property – Hyperrelate***

This property contains a check box to enable/disable automatic hyperrelate when the object is clicked. By default a hyperrelate is performed when a gauge object is clicked. Disabling this property selects the object instead when it is clicked.

### ***Gauge property – Title***

Add a title for the selected gauge or change the existing title. The gauge title will be displayed above or below the gauge in the gauge object according to the user's choice. Furthermore the title may be formatted with regard to font, font size, style and color.

### ***Gauge property – Small gauge***

The Small gauge property is only available when two or more gauges have been added to the gauge object. Use this option to shrink the selected gauge to 50 % of its original size. Other gauges in the object will use the freed space and may as a consequence grow in size.

### ***Gauge property – Visualizations***

When a gauge is highlighted in the 'active gauges' area in the Smartpad, use this option to select the type of gauge. Each type is useful in different contexts and for different purposes. Also, as will be described later, each type is defined via different properties:

- **Speedometer:** The Speedometer gauge is the classical gauge where the measured value is displayed as a needle on a speedometer type background. The Speedometer gauge is a single, static image where only the location of the needles will change according to data. The user may add multiple values to be measured or to be set up as a goal. Each of the added values will result in an extra needle in the Speedometer gauge.
- **Icon:** The Icon gauge is an alternative gauge where the gauge image itself will reflect the value of the measured data. The Icon gauge is typically based on multiple images where each image has been related to a certain relative data range. Typical Icon gauge images may be Smileys or Traffic lights. The user may add another measure to be set up as a goal, but the Icon gauge is only capable of displaying information about one measure value.
- **Progress bar:** The Progress bar gauge displays the progress of the measured value. The progress bar has been defined by a minimum and a maximum value and the relative progress is displayed as a colored bar between these two boundaries. The Progress bar gauge is a single, static image where only the displayed progress will change according to data. The user may add another measure to be set up as a goal, but the Progress bar gauge is only capable of displaying information about one measure value.

## **Gauge property – Scale**

Many gauges may initially not have a scale present. E.g. a gauge without a scale might be a Speedometer without numbers along the perimeter. The Scale property makes it possible to add a scale to the gauge perimeter. The scale is automatically derived from the minimum and maximum values of the gauge span, and formatting, such as number format, font size, prefix and postfix may furthermore be changed.

## **Gauge property – Value**

The Value property makes it possible to display the current value of one of the measures or calculations that have been added to the gauge. The value will be displayed somewhere inside the gauge.

## **Gauge property – Minimum and Maximum span**

Click the *More properties* option to go to the second level of gauge properties. In this level of the gauge properties the user may define the gauge span by defining the minimum and maximum values of this span which may be defined either automatically, manually or dynamically:

- **Automatic:** This is the default option defined by these formulas: "MaxSpan = the highest value of either MaxValue\*1.1 or Goal\*1.1" and "MinSpan = the lowest value of either MinValue\*0.9 or Goal\*0.9" where MaxValue and MinValue are the highest and lowest values, respectively, among the available values.
- **Manual:** This option allows the user to enter a user defined gauge span, using fixed minimum and maximum values.
- **Dynamic:** This option allows the user to select different measures as minimum or maximum values of the gauge span. For example, if Revenue is measured, then it might be desirable to set up Budget as the maximum gauge span. Not only other measures, but also calculations, may be defined as Dynamic minimum or maximum. Furthermore, if a dimension has been added to the object, e.g. Time, the user may define if this maximum value should be derived from the last element, a specific element or from a range of elements in this dimension.

## **Gauge property – Visualization and Rotation**

Click the *More properties* option to go to the third and last level of the gauge properties. From the Visualizations options the user may choose the preferred graphical presentation of the gauge. A number of predefined visualizations are available for Speedometer gauges, Icon gauges and Progress bar gauges. Each gauge type has its own set of visualizations. Other rotations may be selected in case the default rotation is not suitable.

## **Gauge property – Adding and removing values**

When one of the gauges in the Active gauges list has been selected, use the '+ Add value' option to add a new value to the current gauge. Likewise, when a specific value has been selected, use the '-' option to remove the value from the current gauge.

## **Value property – Selecting source data**

The value to be displayed in the gauge may be selected from the list of available source data. The way to display the selected value may be chosen from several options:

- **The selected value below:** This option selects the value to be displayed as the measurable value in the gauge. As a needle in a Speedometer gauge, as the value that determines the proper image in the Icon gauge or as the progress of the bar in the Progress bar gauge.
- **A static value as goal:** This option allows the user to enter a static goal for the selected measure. This goal will be taken into consideration when determining Biggest Opportunities or Biggest Problems.
- **Auto adjusted goal for the selected value:** This option will calculate an automatic goal for the selected measure. This goal will be taken into consideration when determining Biggest Opportunities or Biggest Problems. The formula to calculate this goal is  $Goal = Max\ Value + (MaxValue - MinValue) * 0.2$ .
- **The selected value below as goal:** This option allows the user to select a different measure or a calculation to become the goal for the selected measure. For example, if Revenue is the selected measure, then it might be desirable to set up Budget as the goal.
- **The trend for the selected measure:** This option is relevant only when the gauge should work as a Trend gauge. When this option is selected, a regression calculation is automatically added to the gauge object. This regression is the basis of the trend direction. Depending on the measure upon which a trend is displayed, it may be necessary to change the direction of the trend. E.g. Positive trend is good is normally true for Revenue and Contribution Margin, while Negative trend is good is normally true for Costs and Complaints.

## **Value property – Use default gauge span**

When working with just one value in a gauge, this value will be displayed relative to the default gauge span, i.e. the gauge span as defined by the gauge properties. When working with multiple values in one gauge, the user has an option to disable the default gauge span for the individual values. Once the default gauge span has been disabled for a value, it can be defined, for this value only, in a manner similar to the gauge span definition.

## **Value property – Value Visualization (for Speedometer gauge type only)**

For Speedometer gauges the needles may have two different appearances: A thick needle and a thin needle – selected as *Default* and *Alternative 1* respectively.

## ***Value property –Gauge Intervals (for Icon gauge type only)***

Icon gauges work in intervals, with one image associated to each interval. When a value has been selected for an Icon gauge a number, equal to the number of images in the Icon gauge, of evenly distributed intervals will be created.

Use the *Add interval* option to add intervals to the Icon gauge. The added interval will split the currently selected Gauge Interval into two equally sized intervals. It is most often only relevant to add as many intervals as the number of different images in the Icon gauge.

Use the *Edit Interval* select the image for the interval and to redefine the range or the image of the selected interval. The upper and lower values of the intervals are relative values on a 0 % to 100 % scale. The actual span of the Icon gauge is determined by the minimum and maximum values of the Icon gauge span definition. The Threshold value is always the lower value of the interval. When editing an interval, expanding the icon image will display all available images for this Icon gauge. The *Inclusive* option determines whether the Threshold value should be included in the current interval or not.

## ***Formatting functions***

### **Auto Agent**



**Smartpad:** Properties tab **Menu:** Object | Object **Keyboard:** CTRL+A **Right-click menu:** Object

Auto Agent is a variation of a Color Agent. As opposed to the user defined Color Agent, the Auto Agent processes the Object automatically and adds coloring to the Object elements based on the average, minimum and maximum values of the Measure.

There are three states of this function, the first time the Agent is activated for the Object, the coloring scheme is red for the smallest value, green for the largest value and shades of these colors for the intermediate values. The second time the Agent is activated for the Object the coloring scheme is the opposite, green for the smallest values, red for the largest value and shades of these colors for the intermediate values. The third time the Agent is activated all Auto Agent coloring is removed.

### **Show criteria**



**Menu:** Object | Criteria **Right-click menu:** Object | Criteria

When this function is activated, the bottom part of the Object will be used to display the criteria which influences the data presented by the Object. In order to preserve space for the actual data

presentation, the criteria are displayed as one long text string. A Show or Hide criteria in all Objects is available in the View menu.

## Regression



**Smartpad:** Properties tab **Menu:** Object | Data | Regression **Right-click menu:** Data | Regression

This function adds a regression column to the data page. The function is a toggle. If clicked once a linear regression is added to the object and if clicked once more the regression is changed to a best fit polynomial regression. The best fit regression is added as a 1. to 4. degree polynomial depending on what describes the data best. If the best fit is actually a 1. degree polynomial (linear regression) for the displayed data the regression function only toggles between the best fit linear regression and none. The object explanation displays the type of regression added and also the regression formula and variation among the time periods.

Regressions may also be added for several measures. In this case the regression line is colored in the same color as the corresponding measure.

**Note:** The Time dimension must be on the X-axis in order to activate the Regression menu item.

## Linear correlation



**Smartpad:** Properties tab

This function adds a linear correlation to a scatter or bubble chart. The linear correlation is a line calculated from the values in the chart and expresses their relation. The object explanation shows the line formula and a percentage of how well the line explains the value relationship (higher is better).

## Show legend



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This function toggles the hide/show status of the legend box at the right side of graphical Objects. The legend may also be placed in different spots in the object by changing position in the chart properties dialog.

## Vertical axis labels



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right click menu:** Chart



This function changes the angle of the text on the X-axis of graphs. The option may be used when the explaining text lines on the X-axis of a chart are too long or if there are too many of them. Either one of these cases will affect the text lines making some of them hidden due to lack of space. Pressing the 'X-axis text angle' button will turn the text lines 90 degrees counterclockwise to make room for all the text lines. The trade-off is that there will be less room for the graphical elements of the chart.

## Show labels



**Smartpad:** Properties tab **Menu:** Object | Chart **Keyboard:** CTRL+L **Right-click menu:** Chart

Labels are used to display data values on graphical Objects. When the 'Show labels' option is enabled, there will be yellow labels on all the active graph elements. Labels are also shown as hints when hovering the mouse over an active element of a graphical Object.

There is a wide range of available formats of labels and hints. The format may be edited using the Smartpad Properties Labels and hints editor, see below.

## Show axis titles



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This option may be used to add a title to the axes. The titles shown will be the name(s) of the measure(s) that belongs to the axis.

## 3D chart



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This function may be used on pie, bar, line and area charts. The '3D effect' function is used to switch between three different views of the graphical Object: 2D, 3D and static 3D. The difference between 3D and static 3D is that turn and tilt functionality is available for 3D Objects using the mouse or arrow keys.

The function may be used on an Object both during definition of the Object and when displaying actual data.

## Cylindrical



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This function may be used to toggle cylindrical shape of a bar chart on or off. The default shape of a bar chart is rectangular.

**Note:** For the cylindrical function to take effect, the bar chart must be viewed in 3D mode.

## Gradient rendering



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This function may be used on graphical objects to make the colors of an object gradient. This will give the objects a shaded look.

## Multi series



**Smartpad:** Properties tab (in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

The 'Multi series' function is available to some of the graphical Objects. It will rearrange the graphical elements on a chart making the values of the data more visible. The rearrangement of the graphical Object will have no effect on which data the axes represent. However, the value range of the axes may be changed to fit the new arrangement of the Object.

The effect of this function will vary depending on 2D or 3D view as well as the number of dimensions selected. There will be a number of different ways to arrange data depending on the chart type. The available multi series settings are Side by Side, Back-to-Back, Stacked and Stacked percentage.

## Globe projection



**Smartpad:** Properties tab **Menu:** Object | Map

The 'Globe projection' function offers multiple ways of graphically presenting Globes. Beside the classic Globe, a Globe Object can be shown in two different kinds of map-style layouts. Changing the projection of a Globe will not affect the locations selected for the Object.

## Average crosshair



**Smartpad:** Properties tab (also in chart dialog) **Menu:** Object | Chart **Right-click menu:** Chart

This function adds two lines to a Scatter chart object, a vertical and a horizontal (crosshair) in order to show the average values for the X- and Y-axis.

## Align

**Smartpad:** Properties tab **Menu:** Object | Align **Right-click menu:** Align

This function may be used to align text in Layout Objects. There are options for Left, Right and Horizontal center alignment plus for Top, Bottom and Vertical Center. The individual options may be selected as submenu items or by clicking buttons in the Smartpad Properties tab.

In Layout Objects of type Image, the selected background image may also be specified to align as described above. In case the background image should cover the whole Object area independent of Object proportions, selecting the 'Ignore proportions' option will stretch the image to fill the whole Object area both vertically and horizontally.

## Formatting options

**Smartpad:** Properties tab.

Formatting options on the Smartpad Properties tab consist of a series of links that opens a dialog or changes the Smartpad to display more options. 'Title and Explanation', 'Chart properties', 'Cross tabulation', 'Visibility', 'Labels and hints', 'Numbers', 'Dynamic captions' and 'Element colors'.

### ***Title and explanation***



This dialog may be opened for all graphical or table object types and is used to set titles and explanations on objects. By default an automatic title is generated from the data in the object. A Custom title may be entered in the text field and translated to all supported languages by clicking the globe. The last option is to hide any titles from being displayed in the object.

A custom explanation may be entered in the large text field and translated in the same way as the title by clicking the globe and entering a translation. It is displayed in the object explanation.

### ***Chart properties***



The content of the chart properties dialog may change depending on the selected chart type, but the three tabs; Chart, Axes and Background are always present.

#### **Chart**

The chart tab includes options to enable/disable the legend and select the legend position in the object. 3D effect, cylindrical bars and gradient may also be enabled/disabled for some charts.

The 'Multi series' function is available to some of the charts. It will rearrange the graphical elements on a chart making the values of the data more visible. The rearrangement of the graphical object will have no effect on which data the axes represent. However, the value range of the axes may be changed to fit the new arrangement of the object. The effect of this function varies depending on 2D or 3D view as well as the number of dimensions selected. There is a number of different ways to arrange data depending on the chart type. The available multi series settings are Side by Side, Back-to-Back, Stacked and Stacked percentage.

### **Axes**

In the axes tab dimension grid lines may be enabled/disabled. Options to display axis titles and vertical axis labels are also available. For more information on these options, please refer to the 'Show axis titles' and 'Vertical axis labels' sections in this chapter.

Show axis titles

Vertical axis labels

Measures and calculations are placed on the same axis by default. In the list of measures and calculations the axis may be specified for each. This makes it easier to view data where the span in data values across measures/calculations is large.

Charts contain a coordinate plane with X- and Y-axes. The properties of these axes are set automatically based on the span of data values and the type of graph. Some of these properties, such as show/hide grid lines, number format, upper and lower limit and minimum step size may be formatted by clicking the links below the measures/calculations list to improve the graphical visualization.

### **Background**

In the background tab any of the backgrounds added through TARGIT Management Studio may be inserted as object background.

## **Map**



The map dialog provides an option to select one of the maps added in TARGIT Management Studio.

## **Scalable map**



Connections to several scalable maps may exist. In the scalable maps dialog one of the connected maps may be selected for the object. Automatic zoom is enabled by default on a map and causes the scalable map to zoom according to the data in it. For example, if criteria is set on a map, such that only data for Denmark and Germany is represented, then the map is automatically zoomed to a point that exactly contains Denmark and Germany.

Below is a list of layers with visibility properties. Each layer may be set to one of the properties 'Show', 'Only data' (only elements in layer if data are available) or 'Hide'. If a group layer is available in the GIS-map, settings may be applied for the entire group layer instead of applying the same settings to all individual layers.

## **Cross tabulation**



This feature allows individual rows or ranges of rows in a Table object, Cross tabulation object or the data page of a graphical object to be formatted. When a data object has been selected for formatting the following options are available; Background color, Border and Font. Selecting the Background color option opens a small color selector with options to enter HSV, RGB or HTML color values or select a color from the spectrum or the predefined colors. Selecting Border provides options to change the border width and color it with the same color picker as for background color. The Font option opens a new dialog where all of the fonts installed on the system may be selected. Other options such as font size, color and style may also be selected and in the bottom of the dialog an example text box shows the formatting of the current selections. In the right side of the dialog all recently used fonts are shown not just in this analysis but across the application. Note that checking the 'Use default font' checkbox overrides the selected font and size. For each data object the formatting may be copied and inserted in other data objects. These options are available below the three aforementioned formatting options.

## **Visibility**



Measures in the object may be hidden either completely or for a specified range of dimension values. In case of hierarchical dimensions, there will be options to hide / show individual dimension levels, and even calculated columns or rows may be hidden. Results of the selections may immediately be observed in the selected Object in the Analysis Work area.

## **Labels and hints**



The editor opened by this link allows specifications of the content of labels and hints. Hints are labels which will be shown when the mouse is hovered over an active element of a graphical Object. Labels are hints which may be permanently visible in the Object. The editor's first element is a button to Show / Hide labels. The format section of the editor shows the 'All' radio button followed by a list of measures and calculated fields in the object, each preceded by a checkbox and a radio button. The checkbox controls if the label is shown or not, and an active radio button indicates that the Formatting options in the section below are relevant for this measure or calculated field, or all if that radio button is active. The Formatting options section shows a checklist of available options. Checked items are made visible in the label and the hint for the selected measure(s) and / or calculation(s) or all.

## Numbers

### #

This link opens a dialog where a measure or calculation may be selected if there are several measures or calculations (numbers) in the selected object. After selecting a number to format, the dialog changes and formatting of the number shown in the top of the dialog may be performed or another number may be selected by clicking the number.

Three formatting options exist for measures; Database default, Numeric and Time. The database default keeps the formatting set in the database. Numeric formatting enables advanced formatting of numeric values (see the subsection below for description) and for time formatting the source time unit in the database may be selected and a display unit to be displayed in the object may also be selected. For each number the cell alignment may be set and if the object is of the type Bar, Line or Area chart the object type may be interchanged between these three types.

To the right of the formatting area two fields are shown. The upper field 'Copy from...' makes it possible to copy the formatting from other formatted numbers in the object. If the object has chart axes it is also possible to copy the formatting of the left and right chart axes to the current number formatting. The lower field 'Recently used' displays the five most recently used format strings for the user.

### Numeric formatting

When the numeric formatting is selected a frame with a format string is available. By default the database default is selected. The 'Format string' option provides a text field and a drop box. The drop box contains several predefined formatting options. The text field shows the selection from the drop box. A custom format may also be entered according to the numeric value string format for MDX or the custom format in Microsoft Excel. Some of the formatting characters are shown in the following table and for further information please refer to the MDX or Excel documentation.

A user-defined format expression for numbers can have anywhere from one to four sections separated by semicolons. If the expression contains one section the format expression applies to all values, for two sections the first section applies to positive values and zeros, the second to negative values, for three sections the first section applies to positive values, the second to negative values, and the third to zeros and for four sections the first section applies to positive values, the second to negative values, the third to zeros, and the fourth to null values. If the 'Advanced format' text is clicked in the numeric formatting frame, each section may be specified individually and the result is displayed in the 'Format string' drop box.

| Character | Description   |
|-----------|---|
| 0         | Represents a digit placeholder that displays a digit or a zero (0). If the number has a digit in the position where the zero appears in the format string, the formatted value displays the digit. Otherwise, the formatted value displays a zero in that position. E.g. 0.0 represents a number followed by one decimal (1234.5) |

|      |   |
|------|---|
| #    | Represents a digit placeholder that displays a digit or nothing. If the expression has a digit in the position where the number sign (#) appears in the format string, the formatted value displays the digit. Otherwise, the formatted value displays nothing in that position E.g. #.# represents a number followed by one decimal (1234.5) or no decimals if there are no decimals in the original number (1234).  |
| .    | Represents a decimal placeholder that determines how many digits are displayed to the left and right of the decimal separator e.g. #.## (1234.56). If the format expression contains only number sign (#) characters to the left of the period (.), numbers smaller than 1 start with a decimal separator. To display a leading zero displayed with fractional numbers, use zero (0) as the first digit placeholder to the left of the decimal separator. Notice that on some languages a comma is used as a decimal separator. |
| ,    | Represents a thousand separator that separates thousands from hundreds within a number that has four or more places to the left of the decimal separator e.g. #,#.## (1,234.5). Standard use of the thousand separator is specified if the format contains a thousand separator enclosed in digit placeholders (0 or #). Note that the thousand separator may also be used to round thousands e.g. the number format 0, rounds the number 1234567890 to 1234568 and 0,, rounds it to 1235 and so on.                            |
| %    | Represents a percentage placeholder. The expression is multiplied by 100. The percent character (%) is inserted in the position where the percentage appears in the format string e.g. #.00 % (0.12 is formatted as 12.00 %).   |
| "AB" | Displays the string inside the double quotation marks ("Percentage" #.00 % is formatted as Percentage 12.00 %).   |

When selecting one of the predefined strings or creating a custom string, the example below the drop box shows how the format takes effect (note that the General Number string displays numbers without thousand separator and with the number of decimals available from the data source, which is not necessarily the 2 decimals shown in the example). The decimal and thousand separators are formatted according to the client regional settings and the currency format string is formatted according to the currency language set in TARGIT Management Studio. The format may also be reversed by selecting the 'Reverse sign' check box. This reverses all numbers, e.g. 1234,56 is displayed as -1234,56, except for the English (Worldwide) currency where the number is enclosed in parentheses instead.

In the advanced format the format string may be customized in the same way as in the basic format, but each of the four aforementioned sections may be specified individually. Clicking the 'Specify' text changes the dialog to show additional settings for the selected section. The settings include: Leading text - adds the specified text in front of the number, Group thousands - groups thousands by adding

thousand separators, Min. number of digits - specifies the minimum number of digits missing digits are replaced by zeroes, Min. number of decimals - specifies the minimum number of decimals, Trailing text - appends the specified text after the number, Percentage (multiply by 100) - multiplies the number by 100 and adds the percentage character to the end of the number, Unit size - divides the number by the selected unit size.

**Note:** To be able to format all numbers on the client side the setting 'Client-side number formatting' must be enabled in TARGIT Management Studio. If this option is not enabled the formatting is based on the system language of the server running the TARGIT Server. Of course this formatting may be changed in the client, but only for individual objects or reports. By enabling 'Client-side number formatting' the number formatting is done on the client according to the regional settings language thereby enabling the formatting to be effective in all existing objects and reports without any changes to them. It should be noted that scheduled analyses and reports are formatted according to the language selected in the scheduled job and the default language is the client language.

## ***Dynamic captions***



This feature can be used to create manually defined dynamic captions. There are 2 ways to set Dynamic captions. You can right click your crosstable on the heading that you wish to make dynamic or when your object is active you can find "Format dynamic captions" under Properties in the Smartpad. If you use the last option, the Properties tab in the Smartpad will change and show captions for the elements of the highlighted object e.g. measures or calculations. Clicking one of the elements changes the Smartpad again such that the caption for the chosen element can be configured. Using the first option to set dynamic captions provides two options; setting dynamic captions for a single member or all members on a level. After making an appropriate choice the Smartpad changes and the dynamic captions may be configured.

Editing captions is done in the text box in the top of the Smartpad. Captions may be entered manually or chosen from the list of references placed below the text box. Captions are entered in the format {reference:postfix}, where the postfix may be first, last or all depending on which values should be included in the caption:

| <b>Postfix</b> | <b>Description</b>  |
|----------------|---|
| First          | The first value of the chosen dimension is inserted in the caption.                 |
| Last           | The last value of the chosen dimension is inserted in the caption.                  |
| All            | All values of the chosen dimension are inserted in the caption separated by colons. |

The default reference for a caption is cellvalue without a postfix.

**Note:** Dynamic captions for a member may be reset to the original caption by clicking on the caption in the Smartpad and clicking 'Reset to original caption' under the caption text box.



## Element colors



**Menu:** Object | Chart **Right-click menu:** Chart | Format element colors

A dialog opens with options to set the object color or shared color for each dimension member. Clicking the assigned color or the 'Assign color' text opens the color picker, where a color may be chosen by moving the color slider and selecting a color from the color square. Standard or recent colors may also be selected and HSV, RGB or HTML color codes may be entered to set a specific color.

**Note:** The difference between using the visibility and color formatting options and their corresponding Visibility and Color Agents is as follows: the formatting options are used for promptly, unconditional formatting of measures, dimension values or calculated values. Intelligent Agents are designed to automatically apply the formatting according to certain conditions, as defined by the user.

Any color agents or auto agents override the manually formatted colors. Editing shared colors is limited to users with Developer rights.

## Intelligent Agents

**Smartpad:** Properties tab

Intelligent Agents are designed to implement actions which are based on certain conditions in actual data in the Data Warehouse. Standard conditions such as above or below average and positive or negative values are predefined and easily selectable. If more elaborate conditions are required, options are supplied for user designed conditions using the same formula syntax as in the Advanced Calculations Editor.

There are two types of Intelligent Agents, Color and Gauge Agents and Visibility Agents, both accessible on the Smartpad Properties tab. One or more Intelligent Agents may be specified for each measure, dimension value or calculated value, and in case two or more Agents exist for the same value, there will be an option for rearranging them in order to control the sequence in which they are applied.

## Color and Gauge Agents



Color and gauge agents are used on cross tables and may be represented in many forms e.g. as small gauges, icons or colored text in individual cross table cells. Color and gauge agents may be applied to all objects, but the visual effects e.g. gauges or colors are only applied to the underlying cross table.

When the 'Color and Gauge Agents' link is clicked a new properties area is opened in the Smartpad. If the list with color and gauge agents is empty a new agent is created by clicking any of the Smart Agents listed. After clicking a Smart Agent a variant of that specific Smart Agent must be chosen and the measure or calculation to apply the agent on must be chosen. Either a color or a gauge agent has

now been created depending on the choice of Smart Agent. The color or gauge agent is now listed in the color and gauge agent list. The purpose of the Smart Agents is to be able to create agents with ease and in very few clicks. If the need arise to add more details to an agent simply click its condition in the list of agents and the agent properties dialog opens.

The agent properties dialog consist of four tabs on the left side. each of the tabs are described below:

**Condition**

The agent condition specifies when an agent should be triggered. The syntax is the same as used when creating calculations and can be seen in the chapter 'Formula syntax'. For easy reference some standard and recently used conditions are listed to the right of the condition editor. Simply click any of these to insert the corresponding expression in the editor.

**Action**

The action tab specifies the action to be taken by the agent once the condition is fulfilled. For each action one or more options are available.

**Gauge**

If choosing an action where an icon is displayed in a cell, the gauge tab contains several icon series e.g. thumbs, arrows and traffic lights. When the appropriate icon series has been chosen, the size of each of the icons in the series may be set. If choosing a speedometer or progress bar several gauges are available and when selecting a gauge different sizes are also available.

**Color**

The color tab gives access to defining colors or color ranges for use in the cross table cells either as standalone colors or coloring of progress bars, gauge needles etc. When creating a Smart Agent one or more colors are present in the list of colors. If the color agent must change over a color scale e.g. from red to yellow to green more colors may be added by duplicating the existing color. This is done by clicking the '+' icon. Standard color series and recently used series are available to the right of the color list. Several colors may be added and the preview color bar shows the color scale based on the selected colors. The value range where the colors are applied is by default set to automatic, but a custom range may be defined by adding a manual minimum and/or maximum value.

To get an overview of the properties of each agent refer to the table below.

| <b>Smart Agent</b> | <b>Description</b>   |
|--------------------|--|
| Default            | Clicking this agent opens the agent properties dialog. By default the agent condition is set to 1 (all values), the action is set to 'Color an element' and the color is set to green.   |
| Color element      | The color element agent puts a colored square into cross table cells similar to the auto agent. The agent has four options; Default - opens the agent properties dialog as mentioned above, Color element (2 states) - adds two agents, a green for positive values and a red for negative values, Color element (3 states) - adds three agents, a green for values significantly above average, a yellow for values within an average range |

|            |  |
|------------|--|
|            | (average +/- standard deviation), a red for values significantly below average, Color element automatically - Colors all values automatically according to a red/yellow/green scale.   |
| Icon       | The icon agent puts an icon into cross table cells. Several icon based Smart Agents exist: Classic LED, Classic Arrow and Classic Smiley with 2, 3 or 5 states, Thumbs (1 or 2 states), Colored LED and Colored arrow. The only differences among these agents are the number of states and the icon used.   |
| Gauge      | The gauge agent puts a gauge into cross table cells. Three gauge based Smart Agents exist: Progress bar - a progress bar with rounded frame and a red/yellow/green color range, Default Speedometer - Default Speedometer with a red/yellow/green color range, Classic Speedometer - Classic Speedometer with a red/yellow/green color range. For all gauge types the color range is shown in the gauge depending on the cell value. |
| Background | The Background Smart Agent colors the background of the cross table cell. The coloring may be done with either 2 or 3 states. Another option is to color the cell as a progress bar i.e. a part of the cell is colored according to the value in the cell.<br><br><b>Note:</b> Coloring as a progress bar does not apply in TARGIT NET. Instead the whole cell is colored according to the chosen colors.                            |
| Text       | The Text Smart Agent colors the text in the cross table cells. The agent has 2 and 3 state variants and a variant that colors the text automatically with a red/yellow/green color scale.  |

**Note:** Several Smart Agents may be added to the same cells, but combining icons with a background progress bar causes the background of the icons to become white if the cross table is exported as a report in pdf.

## Visibility Agents



Visibility Agents are used to control visibility of measures, dimension values or calculated values when the visibility is dependant on user specified conditions based on actual data values.

## Format table functions

Format table functions is accessed via the 'Object | Table' menu for the active object. These functions can also be accessed by right-clicking the object, and selecting 'Format table' from the right-click menu. And finally, as a handy shortcut, hold down the CTRL key while right-clicking the object to open the 'Format table' menu directly.

## Sorting and ordering

The sequence of rows in Table Objects, Cross tabulation Objects or graphical Objects data page may be changed by right-clicking a column header. There are three basic collating sequences, the source data order, ascending order and descending order. An arrow up indicator in the column header means that the column is sorted ascending, an arrow down indicator means the column is sorted descending, and the source data order. Consecutive shift + right-clicks in the column header will toggle between the three basic collating sequences.

If several columns must be sorted, sort one of the columns and for other columns that need to be sorted right-click their column header and select 'Add to sort list'. When more than one column is added to the sort order, the column headers show a number. This number represents the order of the sort list. All members are sorted according to the column header with the number '1' first. If some members have the same value in this column they are sorted according to the values in the column with the number '2' in the header and so on. The collating sequence of a column may be changed by right-clicking the column header and selecting 'Add to sort list'.

**Note:** Calculations may depend on the sorting order.

### **Custom order**

The sequence of rows and columns may also be arranged by dragging individual elements to the desired position. The same may also be achieved by keyboard commands, first use the `Insert` key to select the element to be moved, then use up / down arrows to move the element to the desired position and press `Enter` to do the actual insertion.

If such custom ordering has been applied to an Object, this custom order replaces the source data order in above three sorting orders. Activating the Remove custom order function will reset this collation to source data order.

**Note:** Custom ordering of columns and rows is not available if there is more than one dimension on the X- or Y-axis respectively.

## Format row style



**Menu:** Object | Table | Format this member **Right-click menu:** Table | Format this member

Font, Font Style, Borders and Background properties may be specified for individual rows or ranges of rows in a Table object, Cross tabulation object or the data page of a graphical object. Activating this menu item will open the Properties tab 'Format data page' editor making it possible to edit these properties.

Use right-click, or CTRL + right-click, on any row to edit row style properties for that particular row or for that particular dimension level.

## Measures Down



**Smartpad:** Properties tab **Menu:** Object | Table **Right-click menu:** Table

The 'Measures down' function offers the possibility of changing the way Dimensions and Measures are presented in non-graphical Objects and in the Data view of Graphical Objects. The most noticeable effect of using the 'Measures down' function is obtained when an Object consists of many Measures and one or more Dimensions with relatively few values. By having Measures listed vertically instead of horizontally, having to scroll the Object to see all Measures for a given Dimension value may be avoided.

## Word wrap

**Menu:** Object | Table

If column or row headers are too long to fit in a cell in the cross table, this function will enable automatic word wrap such that text is fitted on successive lines.

## Hierarchical collation



**Menu:** Object | Table | Sorting **Right-click menu:** Table | Sorting

If a Table Object, Cross tabulation Object or a graphical Objects data page containing a hierarchical dimension has been sorted, this option becomes available and set by default. This means that the rows will be sorted, but the original hierarchy will be maintained. If this option is turned off the hierarchy will be broken, and the order of rows will be decided by the values in the sorted column alone.

**Note:** Turning off hierarchical collation will hide totals and subtotals.

## Compact hierarchies



**Smartpad:** Properties tab **Menu:** Object | Table **Right-click menu:** Object | Table

By default, tables with hierarchical (multi-level) dimensions display the dimension hierarchy with one column for each level of dimension values. The 'Compact hierarchies' option will cause all levels of a hierarchical dimension to be displayed in a single column using indentation to illustrate the dimension

levels. This option may also be set in the User Preferences menu, in this case the feature will be activated for all new objects.

## Indent hierarchies

**Menu:** Object | Table **Right-click menu:** Table

The 'Compact hierarchies' option will cause all levels of a hierarchical dimension to be displayed in a single column using indentation to illustrate the dimension levels. The indentation may be toggled on / off by using this function.

## Grand totals



**Smartpad:** Properties tab **Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether the grand totals are shown or not. This only affects cross tabulation objects or graphical objects when they are viewed in data mode.

## Subtotals



**Smartpad:** Properties tab **Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether the subtotals are shown or not. This only affects cross tabulation objects or graphical objects when they are viewed in data mode.

## Remove custom order

**Menu:** Object | Table | Sorting **Right-click menu:** Table | Sorting

Columns and rows in Cross tabulation Objects or graphical Objects when in data mode may be rearranged by dragging individual elements to the desired position. This option removes all such custom ordering and reset the Object to default ordering.

**Note:** Custom ordering of columns and rows is not available if there is more than one dimension on the X- or Y-axis respectively.

## Ignore custom order

**Menu:** Object | Table | Sorting **Right-click menu:** Table | Sorting

Columns and rows in Cross tabulation Objects or graphical Objects when in data mode may be rearranged by dragging individual elements to the desired position. This option toggles such custom ordering on/off.

**Note:** Custom ordering of columns and rows is not available if there is more than one dimension on the X- or Y-axis respectively.

## Row totals after members

**Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether totals and subtotals should be shown before or after the members. This only affects Cross tabulation Objects or graphical Objects when they are viewed in data mode.

**Note:** This option is not available if there is more than one dimension on the X-axis.

## Text row

**Menu:** Object | Data **Right-click menu:** Data

This function may be used to add extra rows to a crosstable with customized text. The text may be entered in the Smartpad in the same format as dynamic captions or as regular text.

## Column totals after members

**Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether totals and subtotals should be shown above or below the elements. This only affects cross tabulation objects or graphical objects when they are viewed in data mode.

**Note:** This option is not available if there is more than one dimension on the Y-axis.

## Multidimensional subtotal columns

**Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether subtotals columns should be shown for secondary dimensions on the X-axis. This only affects cross tabulation objects or graphical objects when they are viewed in data mode.

**Note:** This option is only relevant if there is more than one dimension on the X-axis.

## Multidimensional subtotal rows

**Menu:** Object | Table | Totals and Subtotals **Right-click menu:** Table | Totals and Subtotals

This option toggles whether subtotal rows should be shown for secondary dimensions on the Y-axis. This only affects cross tabulation objects or graphical objects when they are viewed in data mode.

**Note:** This option is only relevant if there is more than one dimension on the Y-axis.

## Calculations functions

The Calculations tab offers two major function types, 'Smart calculations' and 'Top list' plus a button to open the Advanced Calculations Editor. Before working with any of these, it is necessary to select the Object to which the chosen functions should apply.

### Smart calculations

**Smartpad:** Calculations tab

The 'Smart calculations' window on the Calculations tab first lists all existing Smart calculations for the active object. To add/modify an existing calculation, click it and add/modify it as described below.

#### Add calculation

There are several predefined calculations listed under Add calculation. When a predefined calculation is chosen, it must be determined first under which conditions the calculation should be added. This is done via a number of logical steps, which are common for all predefined calculations. The number of steps will vary, depending on the number of measures and dimensions in the selected object. This process is made as self explanatory as possible, and if the object for instance is built with one measure and one dimension only, the chosen predefined calculation will be automatically applied in the correct place simply by clicking it.

Here is a list of available Smart calculations:

- **Total:** This function will calculate the sum of the chosen measure(s) across the X- or Y-axes according to the choice of dimension.
- **Average:** This function will calculate the average of the chosen measure(s) across the X- or Y-axes according to the choice of dimension.
- **Standard deviation:** This function will calculate the standard deviation of the chosen measure(s) across the X- or Y-axis according to the choice of dimension.
- **Accumulated sum:** This function will calculate the accumulated sum, from top to bottom or from left to right, of the chosen measure(s) of the last column or last row according to the choice of dimension.



- **Accumulated average:** This function will calculate the accumulated average, from top to bottom or from left to right, of the chosen measure(s) of the last column or last row according to the choice of dimension.
- **Difference:** This function will calculate the difference of the chosen measure(s) in the last two columns or the last two rows according to the choice of dimension.
- **Growth percent:** This function will calculate the 'Growth percent' of the chosen measure(s) in the last two columns or the last two rows according to the choice of dimension.
- **Measure difference:** This function will calculate the difference of two chosen measures in the last column or the last row according to the choice of dimension. Note that you will be requested to choose an A-measure and subsequently a B-measure. The calculation will be A-B.
- **Index percent:** This function will calculate the index percent of the chosen measure in the last column or the last row according to the choice of dimension. Each measure value will be calculated as a percentage of the topmost or leftmost measure value.
- **Percentage:** This function will calculate the index percent of the chosen measure in the last column or the last row according to the choice of dimension. Each measure value will be calculated as a percentage of the total of all measure values.
- **Index of average:** This function will calculate the index of average of the chosen measure in the last column or the last row according to the choice of dimension. Each measure value will be calculated as a percentage of the average of all measure values.
- **Custom calculation:** This function makes it possible to add ones own customized calculation. In the 'Enter calculation' box the desired formula may be entered.

### **Modify a calculation**

Once a calculation has been added to an object, it will appear at the top of the 'Smart calculations' pad. If an added calculation is clicked, the following properties may be changed:

- **Calculation title:** Change the title of this calculation.
- **Range:** Define the range, e.g. from first column to last column, to which this calculation must apply.
- **Source:** Define the referenced column/row for the calculation, either 'current' or another relatively referenced column/row.
- **Source (Measure):** Change the measure for the calculation.
- **Move Calculation to the other axis:** A calculated column will become a calculated row, and vice-versa.
- **Swap X and Y references:** If the formula has a defined range, e.g. calculation of average of all measures from first column to last column of last row, you can swap X and Y references to calculate the average of all measures from first row to last row of last column instead. This property is only available for calculations that are added as a new measure.

## **Advanced Calculations Editor**

$$\frac{1+2}{3}$$

**Smartpad:** Calculations tab.

It is possible to add calculated columns and rows to all objects. This may be done either by using the predefined Smart calculations in the Smartpad or by using Advanced Calculations Editor to manually add columns or rows to a cross tabulation object and design formulas to define the contents of the data fields of the added columns and / or rows. This feature also applies to the grid of the 'Data page' of graphical objects.

Before working with the Advanced Calculations Editor, it is necessary to understand the basic structure of the cross tabulations and how to reference rows, columns and specific data fields within the cross table.

## ***Syntax description***

The general syntax for referencing cells in a cross table is: **cells(x coordinate, y coordinate, measure#)**. The x coordinate refer to columns, while the y coordinate refer to rows. The measure reference is necessary as there may be more than one measure in a cross table.

The current column or row can be referenced by replacing the x coordinate or y coordinate respectively with '0'. If e.g. a calculated column has been added, the current row can be referenced as **cells(x coordinate, 0, measure#)**, and if a calculated row has been added, the current column can be referenced as **cells(0, y coordinate, measure#)**. As shorthand, column cells in the current row may also be referenced as: **cols(x coordinate, measure#)**, and row cells in the current column may likewise be referenced as: **rows(y coordinate, measure#)**.

## ***Referencing columns, rows and data***

When designing a formula with a reference to a specific cell, the syntax must be **cells(d#, d#, m#)**. Note that column and row references have been prefixed with a 'd', for "dimension reference", while 'm' is for "measure reference".

The dimension reference 'd' must be followed by either a positive or a negative integer which defines the referenced column's or row's position in the table. Positive integers indicate that the table columns and rows are referenced from left to right and from top to bottom respectively. E.g. **cells(d1,d1,m1)** refers to the upper left cell in the table. Negative integers indicate that the table columns and rows are referenced from right to left and from bottom to top respectively. E.g. **cells(d-1,d-1,m1)** refers to the lower right cell in the table. Please observe that calculated columns and rows are not counted when using 'd-1'.

The measure reference 'm' must be followed by a positive or negative integer which defines the measure's position in the table. Positive integers indicate that the measures are referenced from left to right or from top to bottom. Negative integers indicate that the measures are referenced from right to left or from bottom to top. E.g. 'm1' refers the leftmost or topmost measure and likewise 'm-1' refers the rightmost or bottommost measure, independent of type, calculated or not.

The calculation reference 'c' can be used to refer to a previously inserted, calculated column or row, and follow the same referencing rules as measure references. E.g. **cells(c1,d1,m1)** refers to the first calculated column, while **cells(d1,c1,m1)** refers to the first calculated row.

### Relative references

Cell references may also be used without the 'd' prefixes, thereby being a positive or negative integer (incl. zero). This means that the referenced cells are relative to the cells into which the result of the actual calculation is placed. As mentioned above '0' means current row or column; negative integers means previous rows or columns; and positive integers means next rows or columns.

E.g. **cells(d1,-1,m1)** refers to the cell containing measure 'm1' in the previous row of the first column.

### Cell range references

It is also possible to refer to ranges of cells in cross tabulations. Cell ranges consist of a start and an end cell reference separated by colon.

E.g. **cells(d-1,d1:d3,m1)** refers to cells containing measure 'm1' in the first three rows of the last column.

Often you would like to define a range of all cells from top to bottom or from left to right. This can be done by defining the range as d1:d-1 (from first to last column or row). Alternatively the keyword 'all' can be used.

E.g. **cells(d2,all,m2)** refers to cells containing measure 'm2' in all rows of the second column.

### Scope

The method used for referencing cells, as described above, enables calculations to always work within the current "scope". For instance in a cross table with one or more hierarchical dimensions, it is possible to expand a dimension to its next level, for example a Time dimension can be expanded from the Quarter level to the Month level. Thus the scope has changed from 'Quarter' to 'Month'. A formula will in this expanded level only reference dimension values concerning the new scope, 'Month', and not dimension values in the "upper" scope: 'Quarter'.

Even though the expanded scope may now contain more rows or more columns than the original scope, the formulas, if properly designed, will automatically adapt to the new scope. E.g. an 'all' reference will now simply address all months rather than all quarters, a 'd-1' reference will still refer to the last row or last column, which now contains month values rather than quarter values etc.

Grand totals are considered to be in a scope level separate from the dimension values.

## Top list

**Smartpad:** Calculations tab

The Top list function offers an easy-to-use approach to isolating either negative or positive values in a result set. As indicated by the terminology, a Top list consists of the best or worst part of values of an Object. For instance, if it is desirable to focus on the revenue for the 5 best months of the year, a

positive Top list can be build for the Revenue pr. Time Analysis. The column to be used for Top list can be selected in the drop-list just below the Top list edit field.

**Note:** Top lists are based on the present sorting of the Object. This means that if the Object is sorted on the Time column, a 5 item Top list will show Months 1-5. If the object is "unsorted", i.e. no explicit sorting has been chosen then activating the Top list function will cause the object to be sorted automatically according to the right-most column. Also consider that setting Top list to 5 and sort the object ascending on the right-most column will actually result in a Bottom list (and vice versa).

### ***Top percentage (Pareto analysis)***

The 'Top percentage' function is a variant of the Top list function. For instance, it can be used to perform a Pareto analysis on the Revenue of all products. The classic thesis is that 80% of the Revenue is based on only 20% of the products. To try this, using the 'Top percentage' function, enter 80 in the Top list edit field and click the percentage button. The result will be a Top list of those products contributing with at least 80% of the total revenue.

**Note:** Clicking the percentage button repeatedly will cause the functionality to toggle between 'Top percentage' and Top list.

# Criteria

Criteria, Drill down and Comparisons are mechanisms used to control which data is displayed by the Objects, Analyses and Reports in the Work area.

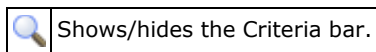
## *Global criteria*

Global criteria are available as basic criteria represented by a Criteria bar or as Advanced criteria specified in the Criteria editor. The fact that the criteria are global means that selected values influence all unlocked Objects in the Work area. All global criteria may be removed by clicking 'Remove all global criteria' in the Criteria tab in the Smartpad.

## **Basic Global criteria**

**Menu:** View | Criteria bar

The Criteria bar may be shown or hidden by selecting the Criteria bar item in the View menu or by pressing the magnifying glass button in the Toolbar.



When the Criteria bar is visible it appears beneath the Toolbar or the Menu bar if the Toolbar is hidden. The Criteria bar consists of drop-down boxes with different content. The most central drop downs contain dimension values available for criteria selection. When selecting one or more values the objects in the analysis are immediately reflected. For example if an analysis consists of two objects e.g. Revenue per Item and Revenue Per Period and in the Customer Country drop-list a criteria has been set to Denmark, then the two objects in the analysis only show data for Denmark.

Multiple values may be selected at the same time by check marking each of the desired values and then close the drop-down list by clicking the down arrow to the right of the drop-list. A click on one of the item names in the list selects this one value as criteria and closes the list box. For some dimensions it may be convenient to only allow a single selection. This is done by right-clicking the dimension in the criteria bar and selecting 'Single selection'. Note that in the criteria editor this dimension still appears with multiple selections. To get a quick overview of the criteria in a dimension click the icon to the left of the dimension name, which opens a yellow information box. Sometimes a small orange information icon is shown to the right of the dimension name. This icon is shown when other criteria, that cannot be displayed in the criteria bar, apply e.g. dynamic periods. More information on the criteria that apply may be obtained by clicking the icon.

The 'disable immediate refresh' button at the right end of the Criteria bar may be used to suppress fetching of data each time criteria are selected. When all required criteria has been selected in the Criteria bar drop-lists, a new click on this button, now called Automatic refresh, will start fetching data

according to the specified delimitations. The refresh button may also be found in the menu opened by right-clicking the criteria bar.

The dimensions available as drop-lists in the Criteria bar can be changed using the Smartpad. This is done simply by dragging dimensions between the Smartpad 'Source data' tab and the Criteria bar in the same way as when defining Objects or by right-clicking a dimension in the criteria bar or Smartpad and selecting the appropriate menu item. Drop downs in the criteria bar may be rearranged by dragging them to an appropriate place or use the right-click menu in the source data tab in the Smartpad. Global criteria may be removed by right-clicking in an empty area of the criteria bar and selecting 'Remove all global criteria' to remove all global criteria in the analysis or report or 'Remove bar criteria' to remove only the criteria in the criteria bar. Note that the dimensions are not removed from the criteria bar.

**Note:** The Criteria bar dimension drop-lists cannot display criteria of types "Greater than" or "Less than", or any combinations thereof, use the Criteria editor for this type of action. Also note that criteria drop downs are populated at the time of drop down. For large dimensions this may take some time.

### ***Free text filtering***

In order to make it easier to find and select dimension values in a drop-list with many entries, a free-text filtering of dimension values using wildcards (\*) is available just by typing a selection string in the drop-list. The operators available are equal to the ones used in the criteria editor and for easier access to the criteria editor a search field using the same operators is also available in the bottom of the drop down. Searches in this field may be transferred to the criteria editor for advanced criteria handling by clicking the 'Editor' text.

### ***Auto-filter Criteria bar***

In order to make it even easier to select criteria in the Criteria bar, the Criteria bar drop-lists may be filtered to contain only the dimension values that would be present in a data object influenced by already selected criteria. This may be activated by selecting the 'Auto-filter Criteria bar' option in the Tools | User Preferences submenu. This setting enables auto-filtering in the criteria bar for the user until it is disabled again. Another option to auto filter the criteria bar is to right-click the bar and select 'Auto-filter'. This setting keeps auto-filtering during the session (until log out) or until it is disabled again.

### ***Stored criteria selector***

A stored criteria selector may be added to the criteria bar by right-clicking the bar and select 'Add stored criteria selector'. This adds a drop down to the criteria bar automatically including any stored document criteria. The criteria displayed in the stored criteria selector may be changed by right-clicking the selector and select 'Properties'. This opens a dialog with a list of Shared and Document criteria. Clicking a stored criteria adds it to the left box containing criteria displayed in the selector. The order of the stored criteria may be changed by selecting a stored criteria and clicking the arrows.

## ***Measure selector***

For an easy way of changing measure in an analysis, a measure selector may be added to the criteria bar by right-clicking the criteria bar and selecting 'Add measure selector'. Opening the drop down shows a list of all the measures in the cube and a measure to substitute on top. If several measures are available in the analysis the measure to substitute may be clicked and another measure may be selected. The measure displayed in the measure selector may also be substituted by another measure, by dragging the measure from the Source data tab in the Smartpad onto the measure selector.

If only a few measures should be available for selection in the measure selector, a properties dialog may be opened by right-clicking the selector and click 'Properties'. This opens a dialog with all measures in the cube placed in the right side and all of the measures in the selector on the left side. Measures are added by clicking them and the order of the measures in the selector may be changed by highlighting a measure and moving it with the blue arrows. The name of the selector may also be changed by editing the text field and translations for any of the available languages may be added by clicking the globe and entering appropriate translations.

## ***Dynamic periods***

When a period dimension has been added to the criteria bar, dynamic periods may be used by right-clicking the dimension drop down and select 'Use dynamic periods'. This enables the drop down to show predefined dynamic periods available for easy selection. To further edit the listed dynamic periods or add other dynamic period criteria to the analysis click the 'Editor' link in the bottom of the drop down. This opens the criteria editor where more advanced criteria may be specified.

To further improve the usability of 'Dynamic Periods' it is possible to set its origin. A dynamic date origin selector may be added to the criteria bar by right-clicking the bar and select 'Add dynamic date origin'. The selected date only takes effect when dynamic periods are used. To set the 'Dynamic date origin' click the arrow in the drop down box and select a date in the calendar. Month and year may be selected by clicking each respectively. The 'Dynamic date origin' is active for the whole analysis or report but is not saved with it. To save the Dynamic date origin for the whole session click the clock icon next to the drop down.

**Note:** Use of dynamic periods is only available if it has been set up in the cube.

## ***Ignore initial criteria***

**Menu:** File | Document properties **Toolbar:** User preferences | Document properties

In the Roles management in TARGIT Management Studio initial criteria may be set on dimensions of each cube. Initial criteria are applied as global criteria on all analyses and reports based on data from the cube where the initial criteria have been applied. The initial criteria may be removed from the analysis or report, but will be re-added once the analysis or report is opened again. This setting may be used for analyses or reports to ignore any initial criteria set. After changing the setting the analysis/report must be saved and if the applied initial criteria shouldn't be shown when opening the

analysis/report they must be removed before saving it. When creating a new analysis the initial criteria are also applied, but the cube with the initial criteria must be selected in the Source data tab before creating the analysis i.e. adding an object to a new analysis and then changing cube does not apply the initial criteria.

**Note:** When hyper relating or trigger from an analysis or report with initial criteria, the initial criteria are included in the opened analysis despite that the ignore initial criteria setting is enabled in this analysis. This is also the case when performing magic drops.

## Criteria tab

**Smartpad:** Criteria

The Criteria tab in the Smartpad is used to gain an overview of existing criteria and add or edit new advanced criteria. When no object is highlighted only global criteria are shown and when highlighting an object global and local criteria and comparisons for that specific object are shown. If dynamic period criteria are applied to the object 'Dynamic date origin' may also be set in the Smartpad Criteria tab. For more information on how to apply criteria, see the section 'Criteria editor'.

## Criteria editor



**Menu:** Tools | Criteria editor **Keyboard:** CTRL+R

The Criteria editor is the main dialog to work with criteria. It may be used to add and edit global or local criteria. To add or edit global criteria open the criteria editor either by selecting its menu item in the Tools menu, by clicking the small down-arrow button next to the Criteria bar magnifying glass in the Toolbar or by clicking an existing global criterion or adding a new one in the Criteria tab in the Smartpad.

Either of the above opens a dialog with a list of existing criteria or a view where criteria may be selected. In the list of existing criteria a criterion may be edited by clicking a dimension member or it may be deleted by clicking the garbage can. In the bottom of the dialog three icons provide options to store criteria for later use (they appear in the Stored criteria list to the left - see subsection below), to copy criteria to another editor (e.g. local criteria editor, notification editor or comparison editor) or paste copied criteria into this editor.

**Note:** Criteria in the list of selected criteria are intersected e.g. if a criterion is Period = 2009 and another is Period >= 2008 the analysis shows empty results for all objects, since these two criteria cannot be fulfilled at the same time. Instead use the 'equal to' criteria type and select all the periods manually.



## Adding criteria

To add criteria click the 'Add criteria' text in the bottom of the dialog. This changes the list of criteria to a list of dimensions and hierarchies for the database used in the analysis. Selecting any dimension or hierarchy changes the dialog to display a list of criteria types and a list of dimension members. When working with advanced criteria it is a user responsibility to make sensible criteria. For instance a criteria could be 'Month must be less than 06', which would make sense. Another example is 'Product must be less than shirts', which would make no sense.

When criteria type has been selected, one or more dimension members may be ticked off in the list depending on the selected criteria type. All selected members are shown above the member list and if clicked the member name is highlighted in the list. For the types 'between...' and 'not between...' a range must be provided as from and to members, which may be included in the range by checking the 'Include' boxes. The dimension member list may also be shown according to the members available in the analysis e.g. if criteria have been applied such that data is only shown for Period members in 2007 it is not necessary to show all Period members from 2006-2009. By checking the 'Auto-filter member list' box only members included in the data set are shown. If members are selected, but should be filtered by the auto-filter they are still shown but highlighted with a grey background and parentheses around their names.

In hierarchies selected members may not be easy to spot. Therefore an option, 'Show selected', is available. If the link is clicked only selected members and their upper levels are shown. 'Show all' returns to the full view of all members. If a dimension level contains more than 50 members only the first 50 are shown. To see the rest click the 'Show all xx members' in the bottom of the list.

### Adding criteria on member properties

If a dimension includes member properties, criteria may also be applied to these. When 'Add criteria' has been selected, the check box 'Add criteria on a member property' must be checked. Dimensions with member properties are then shown and a member property must be selected. The criteria are entered in the text field according to the following operators and separated by comma:

| Operator | Description    |
|----------|----------------|
| <        | Less than      |
| >        | More than      |
| <>       | Different from |
| =        | Equal to       |
| !        | Negation       |

So if the criteria, first 6 months in 2009, must be applied it may be written; =2009, <July.

### Searching dimension members

Below the list of dimension members a small search field is available. The following search terms may be used to find members:

| Operator                       | Description   |
|--------------------------------|---|
| *                              | This operator represents all possible strings e.g. if you search for *A*, then all strings with the substring A are shown. In the same way a search for A* shows all strings starting with A and vice versa for *A.   |
| A & B                          | Shows strings that contain both A and B.  |
| A B<br>A   B<br>A , B<br>A ; B | These four operators are interpreted as 'or', so either A is found in the result or B. If the operators are part of the string you want to search for, enclose the strings in quotes.   |
| "A B"                          | Putting two strings in quotes shows all results with the string A followed by a space and then string B.  |
| !A                             | Shows strings that doesn't contain the string A   |
| =A                             | Shows strings that have exact match. If A is a substring the string is not included in the search. The equal sign has effect on all search strings without asterisks and the equal sign can only be at the beginning of the search string. If it is encountered later it is assumed as part of the search string. |

More refined searches may be created by using parentheses e.g. (A | B) & C meaning members with either A or B but must contain C. The precedence rules follow the standard boolean rules:

| Precedence level | Operator       |
|------------------|----------------|
| 1                | Parentheses () |
| 2                | Boolean NOT !  |
| 3                | Boolean AND &  |
| 4                | Boolean OR     |

Clicking the magnifying glass with a red cross removes any search criteria and shows all members.

## **Stored criteria**

**Menu:** Tools | Stored criteria

If criteria tend to be reused they may be stored in the list to the right of the criteria list. When criteria have been applied and appear in the criteria list, they may be added to the list of stored criteria by clicking the disk icon in the bottom of the dialog. This opens a new page where a name for the stored criteria may be specified. Clicking the globe next to the name field opens a new dialog where

translations for each of the supported languages may be entered, thereby making it possible to provide understandable names across the whole organization for all stored criteria.

Three options are available for saving the stored criteria: Store in shared repository - stores the criteria so it is available for everyone (only available for users with Developer rights), Store in personal repository - stores the criteria so it is only available for the user who created it, Store in the document - stores the criteria so it is only available for the analysis or report it was created in. To add the criteria to the criteria list click the name in the list of stored criteria or right-click the name and select 'Merge'. 'Assign' may also be selected but all existing criteria in the criteria list are then removed before adding the stored criteria. For more information about the stored criteria click the information icon next to each of them. Stored criteria may also be reached from the Tools menu.

Stored criteria may also be administered from the criteria drop down in the toolbar or from the stored criteria menu item in the Tools menu. The dialog that opens displays the tabs; Personal - for storing criteria just for this user, Document - for storing criteria in this document and if the user has Developer rights the Shared tab is also shown for adding criteria shared among all users. Criteria added from the Stored criteria dialog may be added in the same way as from the Smartpad.

## ***Dynamic Periods***

When working with Analyses or Reports it is a common request to be able to display e.g. 'Revenue this year to date'. With Dynamic Periods this is now possible. The only requirement is that the Time dimension(s) in the Database has been prepared for Dynamic Periods by the system administrator. In the following the term 'Time dimension' will be used as a general term for any date/time related dimension.

If Dynamic Periods is available for the Time dimension a 'Use dynamic periods' check box is available in the criteria editor when selecting criteria type and dimension members for the Time dimension. If the box is checked the member selection changes to show options for each of the time levels (year, quarter, month etc.). Each level may be set to Dynamic time e.g. This year or fixed time e.g. Fixed year. For the dynamic setting an option to add to or subtract from the dynamic time level is also available, which provides the option to create e.g. a dynamic last year (This year - 1). When a fixed time level is selected, the specific year may be selected from this selection box. All selections are merged in the text field above the selection boxes to provide an overview. Note that the text field also visualizes the selected dynamic period (e.g. 2011 Q1 January) to ease the reading of dynamic period texts. This visualization is available whenever dynamic period criteria are present.

To further improve the usability of 'Dynamic Periods' it is possible to set its origin. The 'Dynamic date origin' section on Smartpad Criteria tab is visible only if dynamic periods are used in global or local criteria or comparisons for the current analysis or report. To set the 'Dynamic date origin' click the arrow in the drop down box and select a date in the calendar. Month and year may be selected by clicking each respectively. The 'Dynamic date origin' is active for the whole analysis or report but is not saved with it. To save the Dynamic date origin for the whole session put a mark in the check box 'Keep throughout this session'. The dynamic date origin is included when using Hyper Relations and 'Drill through'.

### Example on use of Dynamic Periods

Suppose a cross table is displaying the Revenue for Stock Items. For each Stock Item it should be able to compare a 'This year to date Revenue' to a 'Last year to date Revenue'. 'This year to date Revenue' and 'Last year to date Revenue' is created as two Comparison Elements and displayed in two columns next to each other.

A Comparison Element is in fact just a definition of a criteria, similar to definition of Global and Local criteria. Supposing the Period dimension with 'Dynamic periods' properties is called Time, the two elements are defined as described below:

The first element, 'This year to date Revenue', must be defined as two criteria: 'Time = This year' and 'Time <= This year Today'. This will limit the data of this element to this year only and only counting days from 1st January to today.

The second element, 'Last year to date Revenue', must also be defined as two criteria: 'Time = Previous year' and 'Time <= Previous year Today'. This will limit the data of this element to last year only and only counting days from 1st January to today's date last year.

An easier way to apply dynamic periods is to use the predefined criteria located below the stored criteria, and if they do not fulfill your needs your own dynamic periods criteria may be saved as stored criteria for later use.

## Timeslider object



**Menu:** Object | New object | New timeslider.

The Timeslider is an intuitive way to work with criteria for a time dimension. Timeslider objects may be added to any analysis either from the Object menu or by clicking the small down-arrow button next to the Criteria bar button in the Toolbar.

Once a Timeslider object has been added to an analysis, it must be defined by a time dimension from the Smartpad Source data. After fetching data, all available dimension values for the added time dimension appear on the slider, and the object may be used like any other object for drill down criteria. For more information about drill down criteria please refer to the Drilling chapter.

If the added time dimension is a hierarchical dimension, then clicking the + and – signs will change the focus of the Timeslider to a lower or higher level respectively in the time dimension hierarchy.

Individual time dimension values may be selected simply by clicking the appropriate value. Multiple, sequential dimension values may be selected by holding down the left mouse button while dragging the cursor across multiple dimension values.

## ***Play***

If a time interval has been selected, whether that is a single Month or multiple Quarters, a Play button will show up to the right of the Timeslider. Clicking this button will cause the Timeslider object to automatically select this interval from the beginning of the Timeslider period, and, with a fixed frequency, move this selection step-by-step from left to right on the Timeslider. The other objects in the analysis will be affected by this changing drill down criteria and display data according to it. In this way the user will be able to review the period's development of data. While in Play mode, the Play button will change to a Pause button which may be clicked to pause the Timeslider in its current selection of dimension values.

**Note:** The Timeslider object is automatically included when creating a new Intelligent Dashboard.

## **Global criteria via Trigger Analyses**

When opening an Analysis or a Report via a Trigger Analysis, Global criteria will apply to the triggered Analysis or Report according to the dimension values of the element that was clicked in the Trigger Analysis.

## **Global criteria via Magic Drops**

Analyses or Reports from the Documents Smartpad tab can be dragged and dropped on any active elements in an Object in the Work area. This is called a "Magic Drop".

The dropped Analysis or Report will be opened in the Work area and Global criteria will apply to the opened Analysis or Report according to the dimension values of the element that it was dropped upon in the initial Object.

## **Global criteria via Hyper Relations**

When an Analysis is opened via a Hyper Relation, either from another Analysis or from a Report, Global criteria will apply to the target Analysis. The Global criteria are defined by the dimension values that applied to the source element.

## ***Local criteria***

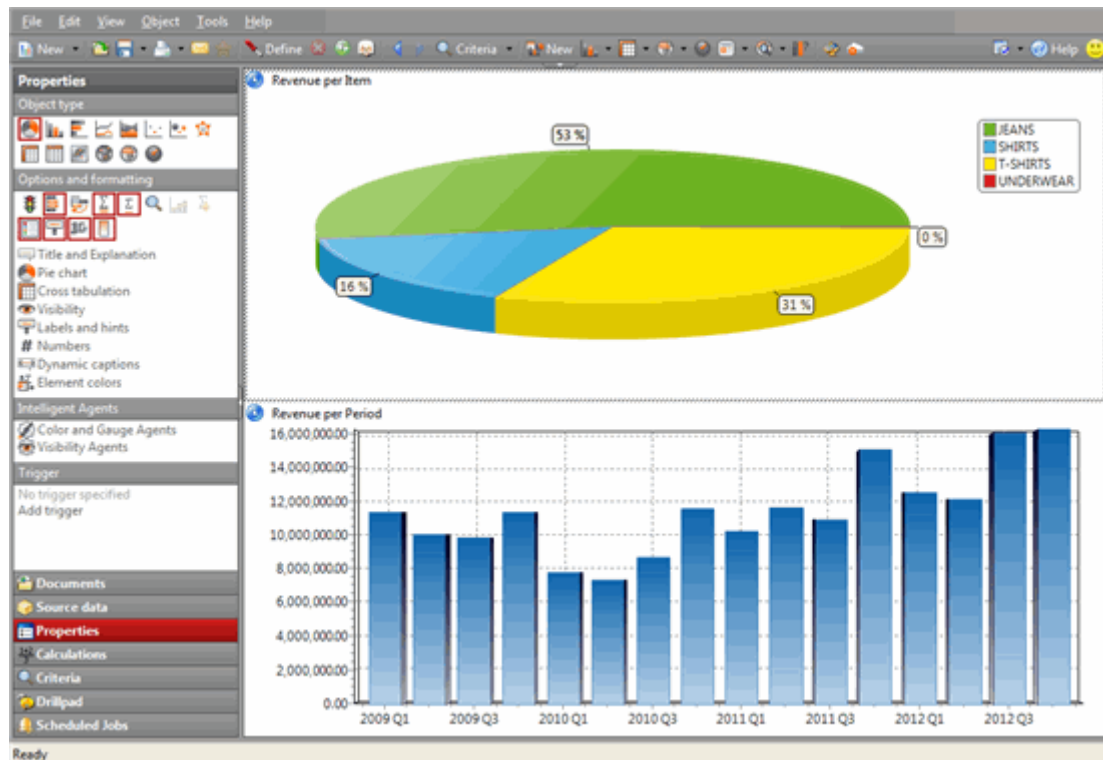


**Smartpad:** Criteria tab. **Menu:** Object | Criteria.

As an alternative to applying criteria to all Objects it is possible to select local criteria - or Object specific criteria. Local criteria are applied using the Criteria editor, similar to the description for Global criteria. The only difference is that selected criteria only affect the active Object.

## Drilling

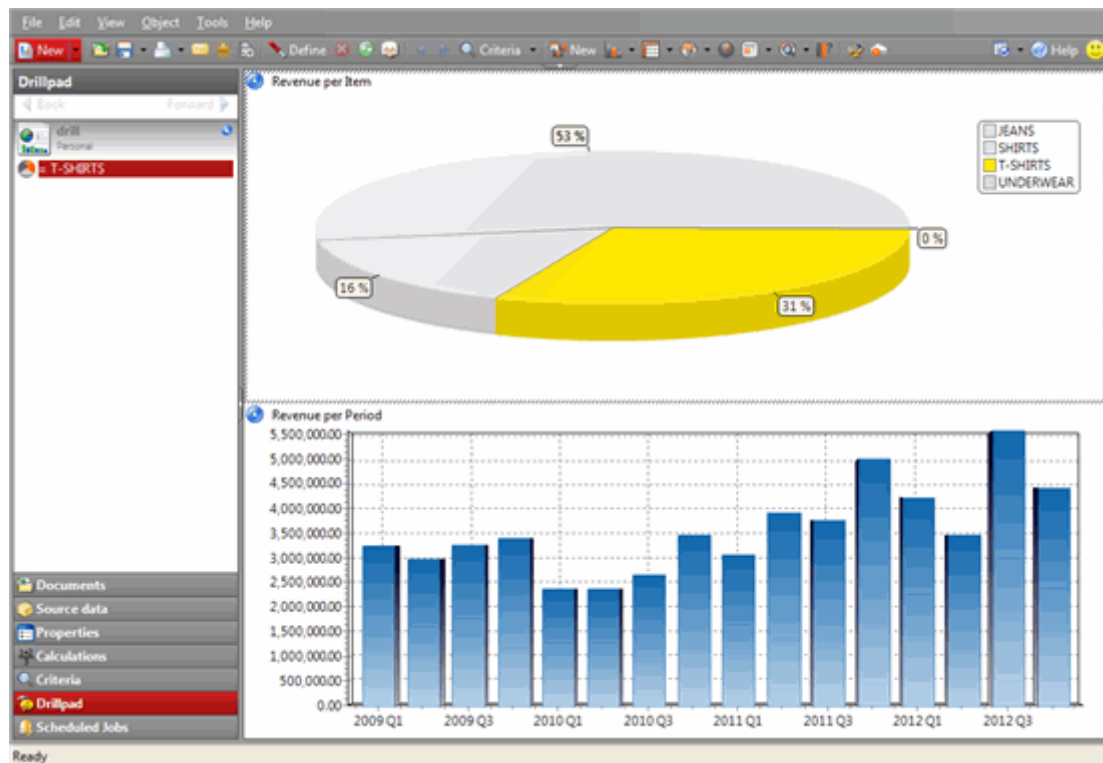
Using an Object for selecting criteria for the other Objects in the Work area is one of the most powerful elements of TARGIT. This process is called 'Drill down'. The next example illustrates how Drill down is used.



*Objects before Drill down*

The above screenshot shows two Objects in the Work area. The top Object shows total Revenue per Item while the bottom Object shows total Revenue per Period.

Initially, the two Objects are unaffected by each other. This changes when one of the Objects is clicked. Clicking an element of an Object basically has the same effect as selecting a basic global criteria from the Criteria bar. All other objects are affected by the selection.



*Objects after Drill down*

In this case, the Pie chart representing the total Revenue per Item has been selected. The selected piece of pie representing Product 'T\_SHIRTS' is emphasized by changing the rest of the pie to a neutral gray color. The important thing, though, is that the other Object in the Work area has changed and is now showing the Revenue per Time for 'T\_SHIRTS' only. The Drill down is removed by clicking the Object where there are no elements representing measure values or by clicking the 'Drill out' button in the Criteria menu item in the Object title bar.

All Object types except Gauges can be used for drilling, both graphical and non-graphical. If desired, multiple elements of an Object can be selected by holding down the **SHIFT** or **CTRL** key when clicking an element.

Making criteria using an Object affects all other Objects in the Analysis work area. However, if one Object is already used for selecting criteria it will not be affected by criteria selected with other

Objects. This means that drilling with multiple Objects can be used for making advanced 'Drill down' searches and powerful data analysis.

## Hierarchies




**Menu:** Object | Data

A special way of drilling in Objects is using Hierarchies. A Hierarchy is an organization of a Dimension into levels. For example, the Year dimension can be divided into four quarters, each again divided into 3 months. Dimension levels that can be expanded are shown with a + sign in the Object while non-expandable hierarchy members are shown by a - sign. Clicking the + or - signs expands or collapses the hierarchy. Holding the cursor over the + or - sign will show a hint giving the name of the next level.

Objects with a hierarchical dimension on the X-axis will have 'Expand level' and 'Collapse level' buttons in the Object title bar. They work the same way as the corresponding menu items, and has effect on all hierarchical X-axis dimension values. This screenshot shows a hierarchical Cross tabulation Object.



 Revenue per Period

| Year         | Quarter | Month        | Revenue               |
|--------------|---------|--------------|-----------------------|
| <b>Total</b> |         |              | <b>182,541,552.13</b> |
| 2009         | +       |              | 42,522,381.43         |
| <b>2010</b>  | -       | <b>Total</b> | <b>35,325,020.66</b>  |
|              |         | <b>Q1</b>    | <b>7,781,443.44</b>   |
|              |         | January      | 1,831,209.79          |
|              |         | February     | 2,729,414.83          |
|              |         | March        | 3,220,818.82          |
|              |         | <b>Q2</b>    | <b>7,312,531.39</b>   |
|              |         | April        | 2,101,719.17          |
|              |         | May          | 2,310,850.41          |
|              |         | June         | 2,899,961.80          |
|              |         | Q3           | 8,660,833.75          |
|              |         | Q4           | 11,570,212.08         |
| 2011         | +       |              | 47,772,998.96         |
| 2012         | +       |              | 56,921,151.07         |

*Hierarchical Cross tabulation*

The Object shows Revenue per Period. In a non-hierarchical Object, the selected Year Dimension would be the highest level of detail available for drilling. Using hierarchies, it is possible to Drill down even further. As shown, Drill down has been made expanding the year 2009 into quarters and months.

## Stopping drills



**Menu:** Object | Criteria **Right-click menu:** Criteria

Normally, all Objects in the Work area will be affected by the selected criteria, but it is possible to stop an Object from being affected. The Stop function in the object menu can be selected for an Object. When this is done a Stop icon will appear in the title bar of the chosen Object meaning that the Object will not be affected by further criteria. The Object may still be used for making criteria for other Objects by clicking its elements - the Stop icon only prohibits criteria from being applied by other Objects. The Stop function stops all global and local criteria as well as drills.

To allow the Object to again be affected by criteria, simply click the Stop menu item in the object menu again.

## Drill through



Drill through is an operation which is based on criteria settings and retrieves a result set from the source data in order to give more detailed information. It is a prerequisite that Drill through has been enabled for the cube and that the system manager has defined which columns should be presented when Drill through is requested.

Drill through is activated by right-clicking the required dimension, dimension level or dimension value and selecting Drill through. The result set will be presented as a table in the work area. Each column in the table may be sorted and the table may be exported.

## Drillpad

Both Global and 'Drill down' criteria for the last five Analyses and Reports are automatically logged in the 'Drillpad' tab in the Smartpad. Any of the logged entries in this list, consisting of a criteria string and/or a chart type icon, may subsequently be clicked to bring the user back to the exact state of the Analysis or Report according to the listed criteria. Each opened document may also be reopened by clicking the title and document explanations are also available directly from the Drillpad by clicking the information icon. Furthermore, Back and Forward buttons are available on the Drillpad and on the toolbar to traverse the Drillpad one step at a time.

**Note:** The drillpad may be cleared by right-clicking it and select 'Clear drillpad' or clicking 'View | Drillpad | Clear drillpad' in the menu bar.

## Criteria priority

Working with three levels of criteria (Local criteria, global criteria and 'Drill down' criteria) constitutes a potential problem when applied to Analyses: If two sets of criteria conflict, which criteria will be applied? The solution has been to prioritize criteria making Drill downs override local criteria which overrides global criteria.

## Comparisons

A substantial element of analyzing data is to compare the values of different data sets to each other. In its most basic sense this might be to compare the revenues of the twelve months in a Bar chart. Taken a small step further, but still within the limits of basic analysis, another dimension could be added to the Bar chart, e.g. a Country dimension. The Bar chart would now display Revenue per Month by Country in a multi series setup, providing even more comparison options to the Analysis.

With Comparisons this step is taken even further. Data sets are no longer restricted to the inherent structures of the dimensions, but may be defined as any combination of dimension values, even from different dimensions. Data sets to be compared no longer have to be based on one dimension, but may be based on multiple dimensions. And last, but not least, Comparisons may be applied in very intuitive and user-friendly ways.

**Example:**

Suppose a Sales person dimension contain 10 names in a flat structure, and there is a requirement to create a Bar chart displaying the monthly performance of 5 sales persons compared to the other 5 sales persons. In a traditional Analysis this would produce a Bar chart with the 12 months' values on one axis and 10 Sales Person bars for each of the months. It would be hard to compare the two groups of Sales Persons to each other. With Comparisons however, each Sales Person can be selected to belong to one of the two comparison elements, e.g. to Sales Team A or to Sales Team B. The Bar chart would now display the 12 months on one axis and the two Sales Teams as two easily comparable bars for each month.

**Note:** Working with Comparisons requires Developer user rights.

## Add Comparisons

**Smartpad:** Criteria tab

Activate an Object to which the Comparison should be added. Comparisons are added from the Criteria tab in the Smartpad using the 'Add comparison' link in the Comparison section. This opens a Comparison dialog much like the one used for editing criteria. If comparisons have been stored they may be selected, otherwise choose to create a new comparison. If no stored comparisons exist the dialog for creating a new comparison opens. In the top of the dialog the default comparison name may be changed in the title field. Clicking the globe next to the title field opens a new dialog where translations for each of the supported languages may be entered, thereby making it possible to provide understandable names across the whole organization for all comparisons.

By default the check box 'Use list of element titles as comparison title' is checked. This causes the element titles in the comparison to be shown in the object title. If the box is unchecked the title of the comparison is shown instead. The default axis is set to Horizontal for alignment across columns. To align across rows select Vertical.

### ***Comparison Elements***

When the Comparison properties above have been set, one or more Comparison Elements must be added. A Comparison Element is a set of dimension values from one or more dimensions that will act as criteria to the Comparison Element.

A Comparison may consist of just one Comparison Element, in which case the Comparison Element will act as Local Criteria with identical dimension values. More often a Comparison will consist of two or more Comparison Elements. Click 'Add element' to add a new Comparison Element to the

Comparison, name the element and select the dimension where the criteria must be applied. If no name is provided, the element is named after the criteria it contains.

After selecting criteria type, one or more dimension members may be ticked off in the list depending on the selected criteria type. All selected members are shown above the member list and if clicked the member name is highlighted in the list. For the types 'between...' and 'not between...' a range must be provided as from and to members, which may be included in the range by checking the 'Include' boxes. The dimension member list may also be shown according to the members available in the analysis e.g. if criteria have been applied such that data is only shown for Period members in 2007 it is not necessary to show all Period members from 2006-2009. By checking the 'Auto-filter member list' box only members included in the data set are shown. If members are selected, but should be filtered by the auto-filter they are still shown but highlighted with a grey background and parentheses around their names.

In hierarchies selected members may not be easy to spot. Therefore an option, 'Show selected', is available. If the link is clicked only selected members and their upper levels are shown. 'Show all' returns to the full view of all members. If a dimension level contains more than 50 members only the first 50 are shown. To see the rest click the 'Show all xx members' in the bottom of the list.

Several criteria may be applied to each comparison element and criteria may be stored in the list of stored criteria like it is done in the criteria editor. Also predefined dynamic periods may be added to comparison elements like in the criteria editor.

In the list of comparison elements each element may be moved up or down in the list by using the arrows in the bottom of the dialog or right-click an element and select 'Move up' or 'Move down'. The right-click menu on each element may also be used to remove or edit an element, copy criteria from an element to any other criteria dialog or paste criteria from any other dialog as a new comparison element into the list. To gain more information about the criteria in the comparison element the information icon may be clicked.

## ***Storing a comparison***

**Menu:** Tools | Stored comparisons

Comparisons may be stored in the same way as criteria by clicking the save icon in the bottom of the dialog with listed comparison elements. The comparison is then available in a list of stored comparisons whenever 'Add comparison' is clicked in the Smartpad. Stored comparisons may be administered in the 'Stored comparisons' editor available from the criteria drop down in the toolbar or from the Tools menu. In the 'Stored comparisons' editor comparisons may be added in the same manner as when adding comparisons from the Smartpad. More information about each stored comparison may be gained by clicking the information icon next to the comparison.

**Note:** Comparisons may only be saved by users with Developer rights. The 'Stored comparisons' editor is also restricted to users with Developer rights.

## Drag-Drop Comparisons

In a coherent Analysis, with multiple Objects, there is a very intuitive way to create Comparisons: Simply by dragging dimension values from one Object to another.

Individual dimension values, e.g. dots from a Map, may be dragged from the source Object and dropped on a target Object. In the target Object these dimension values will be created as Comparison Elements, in a similar fashion to the above description of Comparison Elements.

Comparison elements with multiple dimension values are created by first selecting multiple values from the source Objects (hold down SHIFT or CTRL to select multiple values), and select 'Copy' from the Object menu. Next, activate the target Object and select 'Paste as new comparison element' from the Comparison section in the Criteria menu. Subsequent dimension sets may be pasted as another Comparison Element or it may be pasted into an existing Comparison Element or it may be pasted as a completely new Comparison.

# Storyboards

## ***What are Storyboards?***

Using the Storyboard functionality, you can create dynamic snapshots of analyses and criteria. The idea behind Storyboards is to make it easy to build and distribute dynamic analysis content to e.g. colleagues and business partners. The content can then be used on televisions, projectors, videos or used as a podcast on a portable device. Storyboards can be displayed as Slideshow, video or podcast.

Every time the Storyboard is opened inside TARGIT all objects will be updated automatically by remembering the reference to the saved analysis with the criteria that were active at the time a snapshot was taken. If a Storyboard is rendered as video or podcast the content is saved in static format. Storyboards can for example be used to visualize:

- Production Quality and capacity on a monitor in the production facility.
- The development in sales, market share visible for everybody in Sales.
- KPI's and updated figures can be delivered to key persons inside the organization wishing to keep up on the latest information throughout the company.

The possibilities are endless. Information can be pushed out where it can improve focus on corporate goals and aid in taking the crucial business decision on the best foundation.

## ***Designing Storyboards***

New storyboards may be created either by using the Intelligent Analysis tool, or by selecting the 'File | New Storyboard' menu item to start a manual design of a storyboard. When selecting the 'File | New Storyboard' option TARGIT opens a dialog box, prompting the user to choose between three methods for designing the storyboard: Use Intelligent Analysis, Import from the Drillpad and Add snapshots to the clipboard.

## **Use Intelligent Analysis**

A storyboard can be initialized via the Intelligent Analysis tool (This process is explained in the chapter about Intelligent Analysis). After the Intelligent Analysis tool has been used to specify the content of the Storyboard, the top of the Work Area will show four options; Create a Video, Podcast or Microsoft Powerpoint presentation are the three output options, where several output options may be specified. The fourth option is to view the Storyboard as a slideshow without saving it to the hard drive.

## **Import from the Drillpad**

The Drillpad can also be used to create storyboards. To do so, right click on an analysis or on a drill state in the Drillpad, then select 'Add snapshot to clipboard' to add a single snapshot or 'Add


snapshot tree to clipboard' if drilling has been performed and snapshots of all steps of the drilling needs to be added to the clipboard. A single snapshot can also be added from the menu item 'Edit' by clicking 'Grab snapshot for storyboard'. After data have been added to the clipboard, the data must be added to the storyboard (see the section Edit storyboard). Finally, in the top of the Work Area four options are available; Create a Video, Podcast or Microsoft PowerPoint presentation are the three output options, where several output options may be specified. The fourth option is to view the storyboard as a slideshow, without saving it to the hard drive.

## Add snapshots to the clipboard

Another way to add snapshots to the clipboard is by opening the analysis that you want to add and click the 'Add snapshot to clipboard' button in the toolbar. Snapshots can be removed again by clicking 'Clear the snapshot clipboard' from the 'Edit' menu item. After data have been added to the clipboard, the data must be added to the storyboard (see the section Edit storyboard). Finally, in the top of the Work Area three output options are available; Create a Video, Create a Podcast and Create a Microsoft PowerPoint presentation. Name, resolution and output folder may be set for the two video output options. For the PowerPoint presentation name, resolution and destination folder may be set, along with options to include the title of the analysis snapshot in the top of each slide, include the timings specified in the 'Edit Storyboard' dialogue and to run the slideshow on export. The last of the output options is to view the Storyboard as a slideshow, without saving it to the hard drive.

**Note:** The Microsoft PowerPoint presentation option is only selectable if Microsoft PowerPoint is installed on the client running TARGIT. View the storyboard as a slideshow and export of storyboards is only possible with Developer rights and a Corporate Communication Server license. Also note that to be able to create videos from a Storyboard Windows Media Player must be installed.

## Edit Storyboard

When Analyses have been added to the Storyboard, the Storyboard properties can be opened by clicking the Properties tab in the Smartpad and selecting the small icon (  ) next to each of the properties; Storyboard, Video, Audio and Podcast. This will open a new window with three main properties of the Storyboard to the left.

### Storyboard

If Storyboard is highlighted to the left, the clipboard is placed to the right and the center represents the Storyboard. Snapshots can be moved from the clipboard to the Storyboard using the 'Add to storyboard' button placed in the bottom of the clipboard. Properties of each snapshot can be configured by clicking the snapshot and changing the properties presented in the bottom of the window. Simple options such as copying and deleting snapshots are available from the right-click menu. Check boxes are also available for each snapshot to display explanations and small title boxes in the exported output. Note that if explanations are enabled on a snapshot the PowerPoint export makes two slides with that snapshot, one with the explanation and one without to simulate an animation where the explanation disappears when the slideshow is run.

### Audio

If audio is highlighted in the left part of the window, the center of the window will show one option to add a soundtrack to the Storyboard. The supported audio formats include .mp3 and .wma.

**Output**

If output is highlighted the following options are available: transparency of user defined text in the output, the video resolution and name of the output. Video output provides 3 resolutions (640x480, 800x600 and 1024x768) to present entire analyses while Podcast provides one resolution (320x240) to present analysis objects. The Microsoft PowerPoint presentation output includes the output name option, resolution settings and options to include the title of the analysis, where the snapshot was taken from, in the top of each slide, include the timings specified when adding the snapshots and to run the slideshow on export.



# Forecasting

## ***What is Forecasting?***

Forecasting is a process where historical data is processed using predefined mathematical expressions in order to give some intelligent suggestion as to how similar data may look in the future.

## ***Using Forecasting***

When an Object is generated, the system will automatically detect whether the dimension used on the first X-axis is a time-series, and therefore may be used for forecasting. If the dimension can be used for forecasting, the period intervals in that time-series are determined.

Once the system has detected that the forecasting ability should be available, two buttons, 'Step Forward' and 'Fast Forward' in the object title bar will allow the user to easily forecast using a single click of a button.

Both buttons have the same functionality in terms of forecasting method; the only difference is the number of forecasted periods that one click initiates: Step does one period at the time, and Fast performs the same number of periods as the number of actual periods.

Once the user click the Step or Fast buttons, the system automatically performs the forecasting through the following steps: 1. A linear regression line is added to the chart. 2. The average percentage deviation for each actual period is calculated. 3. The forecasted periods are added to the chart in slightly lighter colors than the actual data and with the same percentage deviation from the regression line as similar periods in the actual data. If a polynomial regression is already added to the object the polynomial line continues in the forecasted periods and each forecasted period will also have the same percentage deviation from the regression line as similar periods in the actual data. Note that the forecast is not limited by the time limit in the actual data, so there is no need to add extra period dimension members with no data to the data source.

The explanation box in the object will allow the user to assess the precision of the regression as well as the coefficients of the regression line.

The traditional 'Drill down' features may be applied which adds to the pluralism of using forecasting.

# Designing TARGIT Reports

The Intelligent Analysis tool is designed to fulfill most requirements for designing reports, but after having created a report using this tool, all components of the report may be modified individually in order to improve the layout and content. It is even possible to manually create complete reports without using the Intelligent Analysis tool. Please observe that once a report has been modified manually the Intelligent Analysis tool may not be used for further modifications.

## Creating a new report

A new manually designed report is created by selecting the 'File | New Report' menu. An existing Report may be modified in manual design mode by clicking the Define button, available in the Toolbar when a Report is previewed.

It may be a good idea to use the Intelligent Analysis tool for the initial design of a new Report, and then enter manual define mode, to make final adjustments to the Report. But one has to remember that once a Report has been modified in manual define mode, it is not possible to reenter the Intelligent Analysis tool to edit that Report again.

When a TARGIT Report has been created it is possible to save the report as a template by selecting 'Save as template' from the File menu and selecting a name and location for the template. Doing so removes all data specific information and preserves all other information like fonts, colors, borders, logos etc. When creating a new report (whether it is by Intelligent Analysis, hyper-relating or from scratch) the template can optionally be applied resulting in a consistent look of reports throughout the organization. This is done by selecting either File | New Report | Report templates... or Tools | Report templates from the menu bar and selecting an appropriate template.

## Bands

By default a new report is created with the Page Header, Title, Detail, Summary and Page Footer bands. All of these bands, except the Detail band, are optional and can be deleted. Furthermore, any number of Group Header/Footer pairs can be inserted around the detail band.

## Band Types

The following table gives a short description of the available band types:

| <b>Band</b>        | <b>Use</b> | <b>Repeat</b>                                    |
|--------------------|------------|--|
| <i>Page Header</i> | Optional   | Every page. Can be suppressed on the first page. |
| <i>Title</i>       | Optional   | First page.                                      |

|                        |  |   |
|------------------------|--|---|
| <i>Column Header</i>   | Optional   | Before the first Group Header and on top of the following pages.              |
| <i>Group Header</i>    | Optional   | Depending on the context. There can be more than one Group Header per report. |
| <i>Detail</i>          | Optional*  | Depending on the context.   |
| <i>Crosstab</i>        | Optional*  | Depending on the context.   |
| <i>Crosstab Header</i> | Optional, but requires a Crosstab band.              | For each Crosstab instance.   |
| <i>Crosstab Footer</i> | Optional, but requires a Crosstab band.              | For each Crosstab instance.   |
| <i>Group Footer</i>    | Optional, but requires a corresponding Group Header. | Depending on the context.   |
| <i>Summary</i>         | Optional   | Last page.  |
| <i>Page Footer</i>     | Optional   | Every page. Can be suppressed on the first page.                              |

\* A report must have either a Detail band, a Crosstab band or both.

## ***Page Header***

The Page Header is repeated on every page and is designed - together with the Page Footer - to hold information that is independent of the actual contents of the given page. This could be a repetition of the report title, a company logo or page numbering. Data fields cannot be placed on this band. The Page Header is printed on the top of each page.

## ***Title***

The Title band is printed on the first page only and besides the obvious use - to give the title of the report - the band can be used as a summary band, i.e. measures can be placed on this band.

## ***Column Header***

The Column Header is an optional band that can be used as a header band after the Title band. The Column Header is printed after the Title band and on top of every new column/page. The main purpose of the Column Header is to provide headings for reports with a columnar layout. The Column Header cannot contain Data Fields.

## ***Group Header***

The Group Header marks the beginning of the dynamic contents of a report. One or more Group Header/Footer pair may surround the Detail band to structure the layout. By combining several Group

Header/Footer pairs it is possible to create complex reports with subtotals for every level of the nesting. Each Group Header band is repeated according to the number of different values of fields in the band containing the field and the previous Group Header bands. If several Group Headers are included in a report they may be rearranged by dragging them or by right-clicking the band and selecting 'move up/down'.

### ***Detail***

The Detail band is together with the Crosstab band the lowest level in the nesting of bands and a report must contain at least one of these bands.

### ***Crosstab***

The Crosstab band is together with the Detail band the lowest level in the nesting of bands and a report must contain at least one of these bands. If several Crosstabs are included in the report, they may be rearranged by dragging them or by right-clicking the band and selecting 'move up/down'.

### ***Crosstab Header***

The Crosstab Header may be used for attaching relevant data, text or graphical components to the Crosstab. The Crosstab Header is optional but requires a Crosstab band and cannot be moved from the Crosstab band it is attached to.

### ***Crosstab Footer***

The Crosstab Footer may be used for attaching relevant data, text or graphical components to the Crosstab. The Crosstab Footer is optional but requires a Crosstab band and cannot be moved from the Crosstab band it is attached to.

### ***Group Footer***

Is the equivalent of a Group Header with the same pattern of repetition. Group Footers are optional, but if used, a corresponding Group Header must be present.

### ***Summary***

The equivalent of the Title band but printed only on the last page.

### ***Page Footer***

The equivalent of the Page Header but printed at the bottom of every page.

## Insert Band

**Menu:** Edit | New band **Smartpad:** Drag/drop dimensions and measures **Right-click menu:** New band

The bands that can occur only once on a report (Page Header, Title, Column Header, Detail, Summary and Page Footer) can only be inserted if they are not already on the report. They are inserted by choosing the relevant item on the menu.

A new Group Header/Footer band can be inserted in several ways.

By using the menu the place of insertion is dependent on which band is active when the menu item is selected:

- If a Group Header is selected the new Group Header is inserted *before* the selected band. The Group Footer is inserted *after* the corresponding Group Footer of the selected Group Header.
- If a Group Footer is selected the new Group Header is inserted *before* the corresponding Group Header of the selected Group Footer. The Group Footer is inserted *after* the selected band.
- In any other case the Group Header is inserted *before* the Detail band and the Group Footer is inserted *after* the Detail band.

By dragging a data field (measure or dimension) from the 'Source data' tab of the Smartpad onto the report area, a number of arrow symbols are shown. These symbols indicate the positions where the dragged field can be dropped to insert a Group Header or Footer band. If the field is dropped inserting a new Group Header, the field will be created in the new band and a corresponding empty Group Footer will be inserted. Similarly, if the field is dropped to insert a Group Footer, the field is created and a corresponding empty Group Header is inserted.

When bands are inserted, the existing bands are pushed down to make room for the new bands.

## Select Band

A band is selected by clicking somewhere in the band area outside any component. The selected band is then highlighted by showing two small red squares at the center of the top and bottom edge of the band. The Properties tab in the Smartpad will change to show the properties of the selected band. Note that some functions are dependent on which band type is selected.

## Resize Band

When a band is selected the red squares can be dragged to resize the height of the band. Either square can be dragged to expand or decrease the size of the band.

## Delete Band

**Menu:** Edit | Delete. **Keyboard:** DEL **Right-click menu:** Delete

The selected band is deleted and all data fields and components in the band are discarded. If a Group Header band is deleted the corresponding Group Footer is deleted also. If a Crosstab band is deleted any attached header or footer is also deleted.

## Band Properties

All properties of a band can be reached using the Properties tab of the Smartpad. Some properties can also be changed by using the menu. Note that the properties are only visible in the Smartpad when a band is selected.

### ***Background color***



**Smartpad:** Properties tab

Choose the background color of the selected band. The default is white.

### ***Align to bottom of page***



**Smartpad:** Properties tab

This property aligns the selected band to the bottom of the page (only on pages where there is room). Any subsequent bands will be "pushed" towards the bottom of the page also. This property is only available on the Title, Group Footer and Summary bands. This property is by default not selected.

### ***Force new page***



**Smartpad:** Properties tab

When selected the Force new page property will begin printing the selected band on a new page. This does not apply to the Page Header and Page Footer bands because they mark the beginning and end of a page by nature. This property is by default not selected.

### ***Force new column***



**Smartpad:** Properties tab

This property only applies to reports consisting of two or more columns (see Page Setup). Furthermore it can only be applied to bands divided into columns, i.e. Column Header, Group Header, Detail and Group Footer. When selected, it will force the start of a new column whenever the selected band is printed. This property is by default not selected.

## ***Reprint on new page***



**Smartpad:** Properties tab

When selected this property causes the band to be repeated on every new page. This only applies to the Group Header. This property is by default not selected.

## ***Prevent orphans***



**Smartpad:** Properties tab

In this context an orphan is when a band below the detail band is printed as the first band of a page (e.g. summary at the top of a page) or when a band above the detail band is printed last on a page (e.g. a group header at the bottom of a page). Selecting this property will prevent these situations by moving text from the previous page to the next. This property only applies to the Title, Group Header/Footer and Summary bands and it is by default not selected.

## ***Page break before***

**Smartpad:** Properties tab

This property allows for different page breaks and is limited to the following bands: Group header, Detail, Crosstab header, Crosstab, Crosstab footer, Group footer and Summary. Each band has individual page break options.

## ***Font***



**Smartpad:** Properties tab

The font is selected by clicking the 'Select font' text. This opens a new dialog where all of the fonts installed on the system are available for selection. Other options such as font size, color and style may also be selected and in the bottom of the dialog an example text box shows the formatting of the current selections. In the right side of the dialog all recently used fonts are shown not only in this report but across the application. Setting a font for a component overrides the parent font used if no specific font is selected for the component ('Use parent font' is greyed). Setting a font for an object

also enables the selection of the 'Use parent font' property. Clicking the 'Use parent font' text changes back to the font of the higher level component.

## ***Use parent font***



**Smartpad:** Properties tab

When this property is selected, the font, size, style (bold, italic, underline) and text color properties are taken from the global report settings (Page Setup). By deselecting this property, the specified font is used instead. This property is by default selected.

## ***Style***



**Smartpad:** Properties tab

When selected, the text will be bold, italic, underlined or their combinations. All properties are by default not selected.

## ***Text color***



**Smartpad:** Properties tab

This property is used to change the color of the text. The default text color is black.

## ***Borders***



**Smartpad:** Properties tab

A band can have borders on all four sides or any combination of selected sides. The All button will put border on all sides and deselect the other buttons. The None button will delete all borders and deselect the other buttons. The Top, Bottom, Left and Right buttons can be selected and deselected individually and the All and None buttons are deselected. If all the individual buttons are selected together the All button will automatically be selected instead. The default is no borders.

The width field determines the width of the border. The default is 1.

## ***Order by***

**Smartpad:** Properties tab



The Order by properties is used to determine how the output is sorted. These properties are only available to the Group Headers and Detail bands. In the drop-down list either a measure of the band or the value Dimensions can be selected. If Dimensions is selected, the sorting can be refined using the Dimension order list. The default order is by Dimensions.

## **Sorting**



**Smartpad:** Properties tab

Determines how the fields are sorted. Either the band is sorted based on one of the measures or it is sorted based on the combined set of dimensions. The sorting can be ascending (alphabetical/cube order for dimensions - increasing numerical order for measures) or descending (reverse alphabetical/cube order for dimensions - decreasing numerical order for measures). The default sorting is ascending.

## **Dimension order**



**Smartpad:** Properties tab

This list determines the order in which the dimensions will be calculated. This produces a kind of nesting inside a single band. Note, that when using cubes the list contains the names of the hierarchy as opposed to the individual names of the levels. This is due to the fact that the output cannot be divided across levels of the hierarchy. This property is only available when the Order by drop-down is set to Dimensions.

## **Top list / Bottom list**

**Smartpad:** Properties tab

This property can be used to make a filter that only includes the first X repetitions of a field. The list is based on the selections made in the Order by drop-down list. If a measure is selected the filter will be based on that measure. The sorting determines if the output will be a Top list (descending) or Bottom list (ascending). If Dimensions are selected in the Order by drop-down list, the filter will be based on the combined set of dimensions. Again, the sorting determines the type of list and the order of the dimensions will also influence the result.

## **Components**

In the following, the Components and their properties are explained. The properties of a Component are only visible when the Component is selected.

## ***Insert Component***

Components are available from the 'Source data' tab of the Smartpad. By dragging from the Smartpad and dropping inside a band, a new Component is created.

## ***Select Component***

A Component is selected by clicking on it. When one Component is selected it is shown by eight blue squares on the edges and corners. The Smartpad will change to show the Properties tab holding the properties of the Component.

Two or more Components can be selected at the same time. This is done either by selecting Components while pressing **CTRL** or by dragging the mouse while pressing **CTRL**. Components in different bands can even be selected at the same time. When a multi-selection is active the blue squares are replaced by red squares in the corners of the Components. Multi-selection makes it easy to change common properties or to move several Components in one step.

## ***Resize Component***

When one Component is selected the blue squares can be dragged to resize the component. Manual resizing might be disabled if the Component supports some kind of automatic sizing.

## ***Delete Component***

**Menu:** Edit | Delete. **Keyboard:** **DEL**.

This function deletes the selected Components from the Work area.

## **Data Fields**

A data field is a dynamic component linking to the measures and dimensions in the data warehouse. Data fields have a special meaning because the number of repetitions is determined by the actual values in the database when the report is executed.

Measures and dimensions can be inserted by dragging the measure or dimension name from the Smartpad Source data tab and onto the desired band. Dropping on an existing data field will change that field to the new measure or dimension while maintaining the field properties.

The name of a data field may also be inserted in the report by **CTRL** dragging the measure or dimension name from the Smartpad Source data tab and onto the desired band. This will have the effect that data field names will be shown in the user's selected language if translated in the data warehouse.

Measures can be inserted in Title, Group Header, Detail, Group Footer and Summary bands, while dimensions can be inserted in Group Header, Detail and Group Footer bands.

See also Common Properties and Text Properties.

## **Format numbers**

**Smartpad:** Properties tab.

This property applies only to measures and determines the number format used to present the actual values. Some predefined formats are available from the 'Number format' drop down. The expression format consists of a series of placeholders, which are explained in the following table.

| <b>Placeholder</b> | <b>Description</b>  | <b>Example</b>  |
|--------------------|---|---|
| 0                  | Prints the digit or 0 if there is no digit present.   | 000 will cause leading zeros to be added to values with 2 or 1 digits. Values with 3 or more digits will not be affected.                                     |
| #                  | Prints the digit if present.  | This placeholder only has an effect in combination with the other placeholders.   |
| .                  | Determines the position of the decimal point in the output. The actual character used as the decimal point is based on the Windows setting.   | 0.#0 will cause the output to have exactly 2 digits after the decimal point and at least 1 before. The number is rounded to the number of decimals specified. |
| ,                  | Determines if thousand separators should be included in the output. The actual character used as the separator is based on the Windows settings. This placeholder can be put anywhere in the format expression. | ,0.#0 is the same as above, but with thousand separators.   |
| "x"                | Includes the character or characters in quotes as-is.   | "\$",0.#0 will cause the output to have a leading \$ symbol.  |

Multiple format expressions can be combined separated by semicolon to provide distinct formats for positive, negative and zero values. Thus the expression ,0.#0;"(,0.#0)";"" will render positive values with a general number format, negative values in parenthesis and zero values as empty.

## **Text**

This Component is used to insert a static text in the report. It can be used to give the report a title, as column headings, etc. The Text Component can be inserted in any band.

See also Common Properties and Text Properties.

## ***Text***

**Smartpad:** Properties tab.

The text field is used to input the actual text to be printed.

## **System Variable**

The System Variable Component offers different types of variables to be inserted in the report. It includes variables like current date and time and page numbering. The System Variable can be inserted in any band, but is most likely to be used in the Page Header/Footer.

See also Common Properties and Text Properties.

## ***Variable***

**Smartpad:** Properties tab.

Select the type of variable, like Page Number or Date. Some variables changes during the calculation of the report (e.g. Page Number, Detail Number), while others are static (e.g. Date, Time).

## ***Leading Text***

**Smartpad:** Properties tab.

The content of this edit field is printed in front of the actual variable. For example, this can be used to print "Page" in front of the page number.

## **Memo**

This component is used to include larger blocks of text into a report. In contrast to the Text component the Memo component can handle multiple paragraphs of text in one piece.

See also Common Properties and Text Properties.

## ***Edit Text***



**Smartpad:** Properties tab.

Brings up an editor, where the text can be changed. To save the text click the OK button and to discard all changes click the Cancel button.

## Criteria Box

The Criteria Box contains the selected criteria for the report or the actual occurrence of the containing band. The Criteria Box can be placed in any band and it will take into account which band it is placed in and only present the relevant criteria, which will be a combination of any global criteria set via the criteria editor and the level of grouping.

See also Common Properties and Text Properties.

## Shape

A Shape Component is a drawing of different shapes like box, circle, etc. The line style, fill style and colors can be changed and by combining more than one shape more complex figures can be made. The Shape Component can be used in any band.

See also Common Properties.

### *Shape type*

**Smartpad:** Properties tab.

This drop-down list selects the kind of shape. Some shapes have a border and a fill area (e.g. Circle), while others only consist of the border (e.g. Horizontal Line).

### *Line*

**Smartpad:** Properties tab.

The drop-down list chooses the type of line, which is used to draw the border of the shape. The Width field determines the border thickness.

### *Line Color*



**Smartpad:** Properties tab.

Changes the line color used to draw the border by bringing up the standard Windows color selection dialog.

### *Fill*

**Smartpad:** Properties tab.

The drop-down list selects the fill pattern. None means transparent. This property is only available for shape types with a fill area.

## ***Fill Color***



**Smartpad:** Properties tab.

Change the fill color by bringing up the standard Windows color selection dialog. This property is only available for shape types with a fill area.

## **Image**

Insert any bitmap image. Supported formats are Bitmaps (BMP), JPEG (JPG), Icons (ICO), Metafiles (WMF) and Enhanced Metafiles (EMF). The Image Component can be used in any band. When inserted the 'Load image' function is initiated and an image can be loaded.

See also Common Properties.

## ***Load Image***



**Smartpad:** Properties tab.

This property brings up an Open dialog where the image to load can be selected.

## ***Zoom to actual size***



**Smartpad:** Properties tab.

This property will cause the box to resize to precisely fit the image without stretching.

## ***Zoom to fit***



**Smartpad:** Properties tab.

The Zoom to fit property will cause the image to be stretched to fit in the specified box.

## **Analysis Object**

This component allows Objects generated by either TARGIT or TARGIT NET, to be imported into the report. Note that no further formatting is possible, and any changes made to the inserted Analysis after the import, will not be reflected in the Report. When inserted the 'Load object' function is initiated.

See also Common Properties.

## ***Load object***



**Smartpad:** Properties tab.

Brings up a dialog with the Documents folder structure where an Analysis may be selected. After the Analysis is selected, the objects in that analysis are displayed. Selecting an object displays a preview of the object on the object explanation to the right. Note that objects from another cube, than the one the report is based on, are greyed. Once the object selection is done click 'OK' to import the object to the report.

## ***Background color***



**Smartpad:** Properties tab.

Change the background color of the object. The default is white.

## ***Analysis Crosstab***

A Crosstab band can contain one TARGIT cross table. Selecting the Smartpad Properties 'Crosstab definition' button or double-clicking the cross table object in the Crosstab band will open a cross table in design mode and Smartpad will switch to the Source data tab ready for adding data fields to and formatting the cross table in the same way as performed in TARGIT.

If a suitable cross table object already exists in any of the available analyses, pressing the Import button in the lower right corner will start an open dialog to select the analysis and after load, a click on the required objects will import its data page to be used for the Crosstab band including its formatting data.

After completing adding data fields and formatting the cross table clicking the 'OK' button in the lower right corner of the work area will return to report design mode where further formatting such as cross table margins and possible repetition of cross table column- and row headers on the following pages may be added.

A Crosstab Header and Crosstab Footer may also be attached to the Crosstab. For more information about this see the section "Band Types".

## ***Common Properties***

The following properties and functions are common to all Components of a report.

## Position and size

### ***Position***

**Smartpad:** Properties tab

The position of a component in a band is measured from the upper left corner of the containing band. The component can be positioned by dragging it with the mouse and release it in the new position. The position can also be typed in using the Left and Top fields of the Properties tab in the Smartpad. When a field is repeated in the band the Top value of every repetition is automatically calculated using the height of the band.

### ***Size***

**Smartpad:** Properties tab

The Width and Height properties of a component can be set either by dragging the blue squares when it is selected or by changing the Width or Height values in the Properties tab of the Smartpad. Some components allow automatic horizontally and vertically sizing and when enabled the Width or Height field will be disabled respectively.

## Cut, Copy and Paste

**Menu:** Edit | Cut/Copy/ Paste **Right-click menu:** Cut/Copy/ Paste

Any band or component may be cut copied or pasted, but notice that restrictions may apply to where bands or components may be placed. Shortcut keys may also be used, see the chapter 'Keyboard shortcuts'.

## Border



**Smartpad:** Properties tab

A component can have borders on all four sides or any combination of selected sides. The All button will put border on all sides and deselect the other buttons. The None button will delete all borders and deselect the other buttons. The Top, Bottom, Left and Right buttons can be selected and deselected individually and the All and None buttons are deselected. If all the individual buttons are selected together the All button will automatically be selected instead. The default is no borders.

The width field determines the width of the border. The default is 1.

The Shape Component does not have this property.



## ***Format dynamic captions***



**Smartpad:** Properties tab

Manually defined dynamic captions are also supported in TARGIT Reports. The captions may be set for any component in a report by marking a component and click the 'Dynamic captions' link in the Properties tab in the Smartpad. The dynamic captions are set in the same way as for crosstables.

## **Align**

When two or more components are selected simultaneously it is possible to align the selected components according to the first component selected. This means that the first component selected will never move, but all other selected components will (if necessary). When three or more components are selected they can be positioned with equal amount of space between the components.

### ***Align Left/Top/Bottom/Right***



**Smartpad:** Properties tab **Right-click menu:** Align

Align the selected components to the left, top, bottom or right edge of the first selected component. It is possible to select components in different bands, but the 'Align top' and 'Align bottom' functions will then not be available.

### ***Align Vertical Center***



**Smartpad:** Properties tab **Right-click menu:** Align

Align the selected components to the vertical or horizontal center of the first selected component. If components are selected from more than one band the 'Align horizontal center' function is not available.

## **Align in band**

### ***Align Left/Top/Bottom/Right in band***



**Smartpad:** Properties tab **Right-click menu:** Align in band

Align the selected components to the left, top, bottom or right edge of the containing band. It is possible to select components in different bands, but they will not move across band boundaries.

## ***Align Vertical/Horizontal Center in band***



**Smartpad:** Properties tab **Right-click menu:** Align in band

Align the selected components to the vertical or horizontal center of the band. If components are selected from different bands, they will only move within the containing band.

## ***Space Equally Vertical/Horizontal***



**Smartpad:** Properties tab **Right-click menu:** Align in band

When three or more components are selected this function will cause the components to be positioned with an equal amount of space vertically or horizontally. Vertically, the top-most and bottom-most components will keep their positions while the components in between will be repositioned. Horizontally, the left-most and right-most components will keep their positions while the components in between will be repositioned. If components are selected from different bands, the Space Equally Vertical is not available.

## ***Send to back***



**Smartpad:** Properties tab **Right-click menu:** Align in band

This function will cause the component to be printed as the first component in the band. This is useful when two or more components are overlapping. The function can also be used to guarantee that two or more components should be printed on the same page. For example, if a band contains a Text followed by an Image and it is desirable to avoid the Text to be printed on the bottom of a page and the Image on the top of the next page then by sending the Image to the back it will force a page break before the Text is printed even though the Text could fit on the previous page.

## ***Bring to front***



**Smartpad:** Properties tab **Right-click menu:** Align in band

This function will cause the component to be printed as the last component in the band. This is useful when two or more components are overlapping. This property is default for newly created components.

## Text Properties

The following properties are common to all text-based components, i.e. Data Field, Text and System Variable. The properties are only available when at least one of these components is selected.

### Background color



**Smartpad:** Properties tab.

Change the background color of the component. This property is not available if the Transparent property is selected. The default is white.

### Text alignment



**Smartpad:** Properties tab.

The text alignment functions align the text left, center or right *within* the field boundaries. The default is left aligned.

### Transparent



**Smartpad:** Properties tab.

When selected, this property will cause the background of the component not to be printed, even if a background color has been chosen. By default this property is not selected.

### Automatic Sizing



**Smartpad:** Properties tab.

These properties determine how much space the component will occupy when the component is printed. Because Data Fields can repeat two occurrences of the same component might have contents of different size. If Auto Height is selected the component will - if necessary - grow vertically to fit the whole contents. If Auto Width is selected the component will adjust the width to cover the entire contents. Fixed Size means that the field will keep the size specified on design-time and the contents will be truncated if necessary. The default is Auto Width.

## Font



**Smartpad:** Properties tab.

The font is selected by clicking the 'Select font' text. This opens a new dialog where all of the fonts installed on the system are available for selection. Other options such as font size, color and style may also be selected and in the bottom of the dialog an example text box shows the formatting of the current selections. In the right side of the dialog all recently used fonts are shown not only in this report but across the application. Setting a font for a component overrides the parent font used if no specific font is selected for the component ('Use parent font' is greyed). Setting a font for an object also enables the selection of the 'Use parent font' property. Clicking the 'Use parent font' text changes back to the font of the higher level component.

## Style



**Smartpad:** Properties tab.

When selected, the text will be in bold, italic, underline or their combinations. These properties only apply to components that are set not to use parent font. These properties are by default not selected.

## Text color



**Smartpad:** Properties tab.

This property is used to change the color of the text. This property only applies to components that are set not to use parent font. The default text color is black.

## Page Setup

**Smartpad:** Properties tab

Page Setup is used to control the overall properties of a report, like definition of the paper size and default font. The properties appear in the Smartpad Properties tab by clicking on the Work area outside any component.

## Ruler



**Smartpad:** Properties tab

When in design mode this property selects if rulers and grid lines should be shown. By default this property is selected.

## **Title**

**Smartpad:** Properties tab

This property is linked to the "System Variable" component. One of the possible variables that can be chosen is report title. The actual content of that variable is taken from this property.

## **Border**

**Smartpad:** Properties tab

The border properties work in a similar way as described in the Common Properties section, the only difference is that the page border is drawn outside all other contents of the page.

## **Paper size**

The paper size properties determine the size of the available space on each page of the report.

### ***Format***

**Smartpad:** Properties tab

The paper format property can be used to select between the predefined paper formats built into the application. The last one in the list is called Custom Size and can be used to enter a user-defined size in the Width and Height properties.

### ***Orientation***

**Smartpad:** Properties tab

Determines how the output is oriented on the paper. Portrait prints the output vertically while Landscape prints the output horizontally.

### ***Size***

**Smartpad:** Properties tab

The Width and Length properties are used to specify a custom size of the paper. These properties are only available for editing when the Custom Size paper format is chosen. The units of the values are determined by the Units property.

## ***Units***

**Smartpad:** Properties tab

This property specifies the unit of all distances present in the application environment, e.g. rulers, grid, width, height, top, bottom and column space properties.

## **Margins**

**Smartpad:** Properties tab

These properties specify the non-printable area along the edges of the paper. Most other distances are relative to the margin and not to the edge of the paper.

## **Columns**

**Smartpad:** Properties tab

A report can be divided into multiple columns. The Columns property determines the number of columns across the paper. This only affects the Detail, Column Header and Group bands. The Space field specifies the empty space between columns.

## **Character set**

**Smartpad:** Properties tab

This option chooses the character set to be used in the reports. This gives the possibility to construct reports in various fonts and languages. If the default character set is chosen, it will look up the default character set in Windows.

## **Font**



**Smartpad:** Properties tab

The font properties are the same as the font properties described in the Text Properties section. These settings are only applied to bands where the 'Use parent font' is selected.

## ***Defining a Report Collection***



**Toolbar:** New | New Report Collection

When individual reports have been created, they may be gathered in a Report Collection. A Report Collection consist of links to one or more individual reports, so when opening a Report Collection, the included reports are opened in the same order as defined when the collection was created. It is important to notice that a Report Collection does not include the reports themselves, only links to them - if you update a report, it is also updated in any Report Collection it is included in.

A Report Collection is a new document type. However, many of the functionalities applied to reports may also be applied to Report Collections. Criteria may for example be applied to Report Collections, but notice that the criteria only applies to reports including the dimensions for which the criteria has been set. Report Collection may also be scheduled and exported like individual reports.

### ***Adding Reports to a Collection***

To start defining the content of a new Report Collection, go to the toolbar, unfold the 'New' button and click on 'New Report Collection'. This opens the definition section of a Report Collection. The content of the Report Collection is shown in the center of the screen and on the right available reports are shown from both the shared and the personal folder. To add a report to the collection, drag it from the list of available reports to the content list of the Report Collection. A report may also be added by right-clicking it and selecting 'Add report'. When several reports have been added to the collection, the order may be changed by dragging the added reports or by right-clicking a report and selecting 'Move up' or 'Move down'. A report may be removed from a Report Collection by dragging it back to the available reports list or right-clicking the report and selecting 'Remove report'. When the Report Collection has been defined, click the 'Fetch data' button in the toolbar to view the Report Collection.

**Note:** The Report Collection feature is available with a standard license, but scheduling of a Report Collection requires a Corporate Communication Server license.



# Preview TARGIT Reports

A calculated TARGIT Report may be previewed on the screen in order to see how the report will look when it is eventually printed or exported to various formats.

## *Preview the report*

**Keyboard:** CTRL + Enter

When the report has been defined it can be calculated and the result is previewed on screen exactly as it would be printed. This is done by clicking the 'Fetch Data' button in the Toolbar. When the report mode is changed, the Toolbar button will change too, and another click will take the report back to definition mode.

|   |  |
|---|--|
|  | Fetch Data. Shows the report with actual data. |
|  | Define. Enters define mode.                    |

In preview mode the Properties tab of the Smartpad will change to show the available options for browsing the calculated report and page numbers.

## *Zoom*



**Smartpad:** Properties tab. **Menu:** View | Zoom.

The report can be zoomed to view the current page in different sizes. The 'Zoom to fit' option causes each page to be viewed entirely on the screen. The 'Zoom 100%' option is default and will try to view the page as close to the natural size as possible, i.e. an inch on the screen will be an inch on the paper. Zoom to Page Width will cause the report to exactly use the total width of the preview area.

## *Navigation*



**Smartpad:** Properties tab. **Menu:** View | Go to.

The navigation functions are used to select which page of the calculated report to view. The 'First page' and 'Last page' options go to the beginning and the end of the report respectively, while the 'Previous page' and 'Next page' options are used to walk through the report one page at a time.



# Printing, Exporting and Sending

## *Printing Analyses and Reports*



Print. Prints the Analysis Work area, either the Analysis Objects or the TARGIT Report.

### ***Printer setup***

Printer setup is done using the standard Windows setup dialog. The features of this dialog are dependent on the operating system and the chosen printer. More detailed information is found in the Windows and printer documentation.

### ***Printing Analyses***

The basic printing method of an Analysis is to simply print the Objects in the Work area - criteria and drills included. This printing method can be selected from the Toolbar or from the File menu.

### ***Printing Objects***

Single objects may be printed in several different ways, Chart only, Chart and explanation, Data only or Data and explanation. These options are available from the 'File | Print special' menu.

When using options: 'Chart and explanation' or 'Data and explanation' explanations are by default printed at the bottom of each page. A User Preferences option 'Print explanation on last page' allows the user to print the explanation on the last page only.

**Note:** When an explanation occupies more than half the page height they will always be printed on the last page.

### ***Printing TARGIT Reports***

TARGIT Reports and Report Collections may be printed both in define mode and preview mode. When in define mode, actual data for the report is fetched before printing. Printing can be activated in two ways. Using the File menu or clicking the Print icon on the toolbar. This will bring up the print dialog to select paper type and printer, etc.

## ***Export analysis***

**Menu:** File | Export analysis.

The Export analysis function consists of the three output options; Image file, email and MS PowerPoint. The options may be selected in two ways; Select the output directly from the File | Export analysis menu or select the output from the Analysis export wizard also located in the File | Export analysis menu. Selecting the output option directly is the fastest way to export an analysis, but also the least flexible, since the output folder or the e-mail recipient is the only option that may be set. By using the analysis export wizard several options for each output are available. The options are described below.

**Note:** Export of analyses requires Developer user rights and a Corporate Communication Server license.

## Image file



The available output formats are PNG, JPEG, GIF and BMP all selectable from the drop down box. Exporting an analysis to an image file also provides the option to hide all object titles from the image. This option is set by default. The image size may be customized. As default the analysis size is chosen as image size, but several preset resolutions are available. Choosing the default or a preset resolution locks the proportion, width and height settings. When working with custom sizes with defined proportions e.g. 16:10 the width and height settings are automatically adjusted if one of the values are changed to keep proportions. If Custom size is selected both width and height may be set independently of each other.

In the bottom of the window the box 'Save as default for me' may be checked to save the options for the next time you want to make an image file export.

When clicking 'Export' a filename may be entered and the file path may be changed in the dialog.

## Email



Making an email export of an analysis includes the same settings as for image file export except that a name of the attachment may be specified and a direct link to open the analysis in TARGIT may be included in the email.

## Microsoft PowerPoint



The export to Microsoft PowerPoint also includes the same settings as for image file export except that the Documents location of the analysis may be included in the exported slide. The location refers to the analysis in the Virtual File System (VFS). The title on the slide may also be specified.

**Note:** Microsoft PowerPoint must be installed for this export option to be available.

## ***Exporting Reports***

**Menu:** File | Export

Besides being printed, reports may be exported to different electronic formats. This makes it easy to publish reports using electronic media like websites and email. Exports may also be scheduled. Reports may be exported by going to the 'File' menu and select 'Export' or clicking the drop down next to the save icon in the toolbar and select the output a dialog will open and request a filename and location where to store the exported report.

## **Exporting TARGIT Reports**

TARGIT Reports and Report Collections may be exported in the following formats:

### ***PDF***

**Menu:** File | Export

The PDF document is a de facto standard for distributing documents. The most obvious advantage of the format is the ability to preserve the layout and formatting of the document and PDF document viewers are available on almost any platform.

### ***HTML***

**Menu:** File | Export

This function exports a HTML file for each page of the report in the format <filename>XXXX.htm, where <filename> is the filename entered in the 'Save as ...' dialog and XXXX is the page number with leading 0's. Also a directory with the name <filename> is created and here the images (if any) are stored. All HTML pages contain navigational hyperlinks in the bottom to enable jumps to the first, last previous and next page.

### ***RTF (Rich Text File)***

**Menu:** File | Export

The Rich Text format is a generic document format readable by most text processing systems. One advantage of this format is that any Microsoft Windows user has a built in program to view the report.

## ***Exporting table data***

**Menu:** Object | Data | Export table data **Right-click menu:** Data | Export table data

All objects in TARGIT are based on cross tables. Data from these tables may be exported by using the 'Export Wizard' found in the Object | Data | Export table data menu. When the wizard is started a

new window with three output options pops up. Clicking one of the outputs will open formatting options for the chosen output. The sections below describes what formatting options are available.

### **Microsoft Office Excel**

The appearance of this output may be kept by selecting the appearance option 'Preserve formatting'. This preserves the formatting as it is shown in the table with regard to font settings and colors. Selecting 'Remove formatting' removes the formatting from the table data before export. Placing a check mark in the 'Repeat dimension members for all rows' box, places dimension member names on each row of the table, instead of placing dimension member names on the first row of each dimension member. The last appearance option is the 'Excel 2000 compatible (HTML)' box. If the box is marked the table data is exported as a Web Page (.htm or.html). In the bottom of the window the box 'Save as default for me' may be checked to save the options for the next time you want to make an export.

### **Text File**

Text file export has several options divided into two sections. The first section is for formatting the file, which includes options to change the character used to separate data values in the table data and change the character used to enclose values in the text file. Furthermore, the newline type in the export file may be chosen. The available types are; CRLF (Carriage Return Line Feed), CR (Carriage Return) and LF (Line Feed). An appropriate choice depends on the underlying operating system and the applications used to handle the text file.

The second section is for formatting numbers. The number format used in the source data is preserved by clicking the 'Preserve source format' button. A custom format is created by clicking the 'Custom format' button. This will also enable the options placed below the button. The first of these options is to group thousands, that is, after every three decimals of an integer the separator written in the 'Group Separator' box is placed in the number. Decimals in a number is separated by the 'Decimal Separator' and the number of decimals is written in the 'Number of decimals'. The number format is by default set to 'Standard' but may be changed by clicking the text. This opens a number format dialog with settings equal to the settings when making general number formatting on tables. For more information about the settings please refer to the section 'Formatting options'. In the bottom of the window the box 'Save as default for me' may be checked to save the options for the next time you want to make an export.

### **XML**

Exporting table data to an XML file is identical to exporting a text file except from the file formatting options, which are excluded from the XML export.

## **Sending Analyses and Reports**



**Menu:** File | Send to. **Toolbar:** Send as email.

Analyses and TARGIT Reports may be sent by email to any recipient. The email includes an URL to open the analysis or report in the recipient's own TARGIT.

An analysis will be attached to the email as a .PNG image of the work area's objects while reports will be attached to the email as a PDF file.

# TARGIT Desktop

With TARGIT Desktop you can watch important objects, graphs, and gauges directly from your windows desktop. You can also click on objects to see a preview of the analysis in TARGIT, and in this way you are advised as to when you should log on to TARGIT to further analyze critical deviations. The feature builds on the concept of providing TARGIT users with "Real-Time" awareness of important data.





## Installing Desktop

Installing TARGIT Desktop may be done by selecting 'Tools | Launch Desktop' from the menu bar or by right-clicking an object and selecting 'Object | Desktop | Add to my TARGIT Desktop clients', or 'Use as Windows Background'. This automatically starts the verification of the system requirements and you are asked if you want to install the application. By clicking 'Install', the application is installed and opened on the right side of your screen.

## Desktop interface

TARGIT Desktop is divided into two main sections identified by the names in the Desktop title line. The first section is for fixed objects ie. objects that are manually added to the Desktop so you can follow the development of specific areas. The second section is for notifications and changes day by day - controlled by system intelligence. The TARGIT Server monitors changes in data, and the system closely watches your Key Performance Indicators (KPIs). Following, it shows you objects that are critical or estimated by the system to have special value for you at that specific time of day. An example is gauges that indicate that you have reached a predetermined goal for the month, or issues that you have asked to be notified about (notifications and Sentinels) that become critical ahead of the scheduled time. If you add more objects than a section can show, the title line shows arrows to navigate through several pages of objects. The title line also shows the number of objects available.

If objects in the Desktop are hovered, four small icons appear above the object with the following functions:

| Icon  | Function  |
|---|---|
|  | Clicking the explanation icon opens a new window with further information about the object - the measures, dimensions and criteria chosen.  |
|  | A click on the magnifying glass opens a new window with a large representation of the object. This may also be done by clicking the object. |
|  | Clicking this icon opens the object in the client that Desktop is integrated with.  |
|  | Clicking this tool icon presents options to show/hide: legend, axis labels, labels and gauge  |

|           |
|-----------|
| captions. |
|-----------|

These options may also be accessed by right-clicking an object in the desktop and selecting each of the options from the menu. This menu also provides options to move the object up or down or remove the object from Desktop. The order of the objects may also be changed by dragging objects around within their section.

When interaction with Desktop has stopped and the pointer is moved away from Desktop for a few seconds, Desktop will close and only leave a small tap, which may be hovered to open Desktop again. Hiding Desktop may be disabled and the hiding delay may be set in the preferences dialog.

Desktop is also represented in the system tray as a small icon. Right-clicking the icon presents the following options: 'Exit' - closes the Desktop. 'About...' - opens a small window with license and user information of the client. 'Clear updated' - Removes the updated symbol on the tray icon and the orange frames around updated objects in Desktop (may also be done by double-clicking the tray icon). 'Dismiss all' - removes all objects from the notification section of the Desktop. 'Refresh' - updates all objects on the Desktop. 'Preferences' - opens a new window with preferences for Desktop. 'Login' - opens the login window. and 'Analyze' - starts the client that the desktop is integrated with. If the tray icon has an orange exclamation icon on top of it, this is an indication of new available data. Furthermore, objects with new data are shown on an orange background in the Desktop.

## Adding objects to Desktop

**Right-click menu:** Object | Desktop | Add to my TARGIT Desktop clients/Add to all TARGIT Desktop clients/Use as Windows Background.

Adding objects to Desktop is done through the client that Desktop is integrated with. Simply right-click an object and select 'Object | Desktop | Add to my TARGIT Desktop clients'. If Desktop is activated the object will be added to the fixed object section. Otherwise, the login window appears and after login information has been entered the object is added to Desktop. Users with developer access right to TARGIT or TARGIT NET may also add Desktop objects to all users' Desktop clients for easy sharing. This is done by right-clicking an object and select 'Add to all TARGIT Desktop clients'. Note, that this may only be done from analyses located in the Documents Shared folder. Objects added using this method may be hidden in Desktop by right-clicking the object and select "Hide object". To reverse this right-click the object and select "Show object". All hidden objects may also be shown by right-clicking the Desktop work area and select "Show hidden objects". Notifications may also be hidden by right-clicking them and select "Hide object". They are made visible again by right-clicking the notifications area and selecting "Show hidden notifications".

You also have the option of using the entire Windows Desktop as your personalized dashboard by using an object from a dashboard as a background picture on the Windows Desktop. This may for instance be a gauge which shows the company turnover compared to the goal. An instant snapshot of an object is added to the Windows Desktop from the object's right-click menu by selecting 'Object | Desktop | Use as Windows Background' in the client that the Desktop is integrated with.

## ***Adding shared objects to Desktop***

**Menu:** Tools | Shared Desktop objects **Toolbar:** Shared Desktop objects

As mentioned above shared objects may be added to the Desktop from the right-click menu. Another convenient way to add objects to the Desktop is to use the Shared Desktop objects dialog available from the Tools menu and the drop down shown by clicking the arrow next to the user preferences icon on the toolbar.

The dialog displays a list of all shared Desktop objects currently added and if an object is selected the lower part of the dialog shows a preview of the object along with an object explanation. To add a new object click 'Add' and browse to the object of choice in the file explorer that opens. A search field similar to the Documents search field in the Smartpad is available for finding a specific analysis. An object may be removed by selecting it in the object list and clicking 'Remove', thereby removing it from all Desktops it was shared to. For each object a link to the analysis containing the object is displayed to the right. Clicking the link opens the analysis.

**Note:** Only users with Developer rights have access to the shared Desktop objects dialog.

## ***Desktop preferences***

TARGIT Desktop may be displayed in different ways. To change the preferences right-click on the TARGIT icon in the system tray and select 'Preferences', which will bring up a window with preferences settings.

The preferences dialog consist of four parts. The first part is toolbar location. If Desktop is running on a machine with more than one screen, a screen may be selected to display Desktop and one of the four edges may be selected as the placement. The Desktop may also be dragged to any of the screen edges by clicking, holding and dragging the Desktop title line.

The second part of the preferences dialog concerns Desktop behavior. Desktop may be automatically hidden if it is unhovered. Auto hide is enabled by checking the box and the delay, from unhovering Desktop until it is closed, is written or selected in the delay box. Animations may also be disabled if Desktop is used in an environment where animation rendering takes up too many system resources (e.g. Citrix, remote connections, terminal server etc.). The auto setting automatically detects the environment and turns animations on/off appropriately.

In the third part of the preferences dialog a checkmark may be placed in the checkbox to enable automatic updates of an object, that has been added to Windows desktop. The updates appear with the same frequency as the objects in TARGIT Desktop.

The last option is the client integration. TARGIT Desktop may be integrated with the windows client or the NET client. The selected client is opened, when `Analyze` is clicked from the right-click menu of TARGIT Desktop's system tray icon or clicking the TARGIT icon when hovering an object in the Desktop.





# Appendix A: Keyboard shortcuts

Keyboard shortcuts are available many places in the application in order to improve productivity. Most of the functionality is available from the keyboard making use of a mouse optional. The shortcuts are categorized according to the use and placement of the functionality in the application environment.

## *Primary controls*

| <b>Use</b>        | <b>To</b>                         |
|-------------------|-----------------------------------|
| CTRL + O          | Open Analysis or Report           |
| CTRL + P          | Print Analysis or Report          |
| CTRL + R          | Open Criteria editor              |
| CTRL + S          | Save Analysis or Report           |
| CTRL + SHIFT + S  | Save as                           |
| CTRL + TAB        | Toggle Smartpad / active Object   |
| F4                | Toggle Smartpad On / Off          |
| F5                | Refresh, meaning fetch data again |
| F6                | Smartpad Documents tab            |
| F7                | Smartpad 'Source data' tab        |
| F8                | Smartpad Properties tab           |
| F9                | Smartpad Calculations tab         |
| F10               | Toggle Menu bar On / Off          |
| ALT + F4          | Exit program                      |
| ALT + ENTER / ESC | Toggle full screen mode On / Off  |

## *Graphical Objects*

| <b>Use</b>                               | <b>To</b>                    |
|--|------------------------------|
| <b>In Normal mode (F9 changes mode):</b> |                              |
| CTRL + 0-9                               | Change Object type           |
| CTRL + C                                 | Copy object                  |
| CTRL + V                                 | Paste object                 |
| CTRL + D                                 | Toggle Graphical / Data view |

|   |                           |
|---|---------------------------|
| CTRL + I  | Toggle Explanation / Data |
| CTRL + N  | Create new Chart          |
| SHIFT+F10   | Activate right-click menu |
| Arrow keys  | Rotate Object             |
| DEL   | Delete Object             |
| ENTER   | Drill down                |
| + (Numeric keypad plus-key)   | Zoom in                   |
| - (Numeric keypad minus-key)  | Zoom out                  |
| Mouse wheel / Scroll button   | Zoom in / out             |
| <b>Navigate explanation (CTRL + I toggles Object Explanation / Data):</b> |                           |
| Arrow keys  | Navigate text             |
| HOME  | Jump to top               |
| END   | Jump to end               |
| PAGE UP / PAGE DOWN   | Jump up / down in text    |

## ***Non-graphical Objects***

| <b>Use</b>                   | <b>To</b>                          |
|------------------------------|------------------------------------|
| CTRL + 0-9                   | Change Object type                 |
| CTRL + C                     | Copy object                        |
| CTRL + V                     | Paste object                       |
| SHIFT + F10                  | Activate right-click menu          |
| CTRL + I                     | Toggle Explanation / Data          |
| Arrow keys                   | Navigate grid                      |
| PAGE UP / PAGE DOWN          | Jump up/down in grid               |
| HOME                         | Jump to first row in grid          |
| END                          | Jump to last row in grid           |
| ENTER                        | Drill down                         |
| SPACE                        | Activate right-click menu for cell |
| DEL                          | Delete Object                      |
| + (Numeric keypad plus-key)  | Expand hierarchy                   |
| - (Numeric keypad minus-key) | Collapse hierarchy                 |

|  |                        |
|--|------------------------|
| Mouse wheel / Scroll button  | Scroll grid up or down |
| <b>Navigate explanation (CTRL + I toggles Explanation / Data):</b> |                        |
| Arrow keys   | Navigate text          |
| HOME   | Jump to top            |
| END  | Jump to end            |
| PAGE UP / PAGE DOWN  | Jump up / down in text |

## ***Report design mode***

| <b>Use</b>                      | <b>To</b>                           |
|---------------------------------|-------------------------------------|
| <b>Band/Component selected:</b> |                                     |
| CTRL + ENTER                    | Preview report                      |
| DEL                             | Delete Band/Component(s)            |
| TAB                             | Next field/band                     |
| SHIFT +TAB                      | Previous field/band                 |
| ESC                             | Select parent component/band/report |
| Arrows                          | Move component                      |
| CTRL + Arrows                   | Move component in smaller steps     |
| CTRL + PAGE UP                  | Zoom in                             |
| CTRL + PAGE DOWN                | Zoom out                            |
| CTRL + C                        | Copy                                |
| CTRL + X                        | Cut                                 |
| CTRL + V                        | Paste                               |

# Appendix B: Formula syntax

## Arithmetic operators

Please note that operators listed first are 'stronger' than the later ones, e.g. multiplication is stronger than addition.

After all,  $2 + 3 * 4$  equals 14; if addition had been stronger (or equally strong) it would have been 20.

| Operator | Description   |
|----------|---|
| -        | Unary minus, negates the expression, e.g. -5.   |
| ^        | Power, e.g. $5 ^ 2 = 25$ , and $25 ^ 0.5 = 5$ .   |
| *, /, %  | Multiplication, division and a new division operator, which simply divides and then multiplies the result by 100. |
| +, -     | Addition and subtraction  |

## Boolean operators

All Boolean operators return 1 ('nonzero') if the condition is met and 0 if it is not.

The operator 'not' can be used to negate an expression, but remember to use parenthesis, as 'not' is stronger than all other operators: 'not  $1 > -1$ ' is nonzero, while 'not  $(1 > -1)$ ' is zero.

The other Boolean operators are all weaker than the arithmetic operators.

| Operator            | Description  |
|---------------------|--|
| not                 | Nonzero if the expression after 'not' is zero, otherwise zero.               |
| <, <=, >, >=, =, <> | Value comparison operators.  |
| and                 | Nonzero if the expressions on either side of 'and' are both nonzero.         |
| or                  | Nonzero if one or both of the expressions on either side of 'or' is nonzero. |

## Other operators

| Operator     | Description   |
|--------------|---|
| [label:] ( ) | Use parenthesis to group expressions, e.g. to make '(2+3)*4' equal 20.<br>Also, by supplying a label, the expression can be used more than once in a statement without having to copy it textually. A complex expression that you want to use |

|                          |  |
|--------------------------|--|
|                          | <p>several times is easier to only have to adjust in one place; -or if, in spite of the added Boolean operators, you have to use the same expression in two different branches of an 'if-then-else' expression.</p> <p>The label name can contain the letters A-Z, underscore ('_') and 0-9. The first letter of the label can only be A-Z or underscore:</p> <p>E.g: 'if AccumAvg:(avg(d-1,d1:0,m1)) &lt;&gt; 0 then sum(d-1,0,m1) % AccumAvg else 100'</p> |
| if [A] then [B] else [C] | Evaluates to B if A is non zero or to C if A is zero.  |

## Aggregation functions

| Function                   | Description                                   |
|----------------------------|---|
| sum( [element sets] )      | Simple sum of elements                        |
| count( [element sets] )    | Number of non-empty elements                  |
| allcount( [element sets] ) | Number of elements, both empty and non-empty. |
| stdev( [element sets] )    | Standard deviation of elements                |
| avg( [element sets] )      | Average of elements                           |
| max( [element sets] )      | Maximal value found in elements               |
| min( [element sets] )      | Minimal value found in elements               |

## Element sets

The content of the parenthesis given after the function name, is the collection of cells, the element set, that is fed to the aggregation function to produce the result.

There are three cellset functions that can be specified here, two of which are just a shorthand for the generic one. The cellset functions take an X range, a Y range and a measure range. The measure has been split out to make it easier to select which measure should be included, when the number of cube measures or custom measures added varies. (More on this later, under Ranges -- Measure references).

| Cellset function                              | Description  |
|---|--|
| cells([x range] , [y range], [measure range]) | This is the generic cell set function, which specifies a range on the X-axis and one on the Y-axis in the grid, and which measure to select. |
| cols([x range], [measure range])              | Shorthand for cells([x range], [same row], [measure range])  |
| rows([y range], [measure range])              | Shorthand for cells([same column], [y range], [measure range])   |

|         |  |
|---------|--|
| range]) |  |
|---------|--|

If only one cells() function is needed to specify the cell range, its name and parenthesis can be omitted.  
 Similarly, if the sum of only one cells(), cols() or rows() is wanted, the sum() part can be omitted.  
 You cannot, however, omit both sum() and cells().

| Calculation examples   | Description  |
|--|--|
| avg(cols(d1,m1), cols(d-1,m1))                                     | Average of the first measure in the first and the last columns, on the same row. |
| cols(d-1,m1) - cols(d-2,m1)<br>or<br>sum(d-1,0,m1) - sum(d-2,0,m1) | Difference of the first measure in the two last columns, on the same row.        |

## Measure references

Measures are selected by specifying a measure range. This is usually just a singular reference, with only one reference, but a range of measures can be selected with e.g. 'm1:m3', which selects the range from the first to the third measures.

In measure references, no distinction is made between cube measures and custom measures. If there are three cube measures and two custom measures, the first custom measure is called 'm4'.

| Reference type      | Syntax example | Description                     |
|---------------------|----------------|---------------------------------|
| Relative to current | cells(0,0,-1)  | Refers to the previous measure. |
| Left-to-right       | cells(0,0,m1)  | Refers to the first measure.    |
| Right-to-left       | cells(0,0,m-1) | Refers to the last measure.     |

## Element references

Element ranges are, like measure ranges, specified with one or two element references, like 'd-1' or 'd1:d-1'.

| Reference type      | Notation                            | Syntax example            | Description                            |
|---------------------|-------------------------------------|---------------------------|--|
| Relative to current | An integer.<br>0 = current element, | cols(1,m1)<br>cols(-1,m1) | Refers to the next / previous element. |

|   |   |                             |   |
|---|---|-----------------------------|---|
|   | n < 0:<br>nth<br>previous<br>element,<br>n > 0:<br>nth next<br>element.   |                             |   |
| N.B. Calculated elements cannot refer relatively to data elements and vice versa. Use data or calculation references instead. |   |                             |   |
| Calculations  | `c' and a positive integer.<br>`c1': first calculation,<br>`c2': second, etc.   | cols(c1,m1)                 | Refers to the first calculation.  |
| N.B. The measure range is not used when referring to calculations.  |   |                             |   |
| Data reference  | `d' and an integer.<br>n < 0:<br>`backward', e.g.<br>`d-1': the last element,<br>`d-2': the second to last.<br>n > 0:<br>`forward', e.g.<br>`d1': the first element,<br>`d2': the second element. | cols(d1,m1)<br>cols(d-1,m1) | Refers to the column of the first / last value of the dimensions on the X axis.                       |
| Default value   | An integer  | cols(d1,m1,0)               | Refers to the default value displayed if the range is out of reach e.g. referring to a column that is |



|                     |  |                                     |   |
|---------------------|--|-------------------------------------|---|
|                     | placed as last parameter in a reference.             |                                     | not present. Instead of displaying 'undefined' the default value is displayed.  |
| Dimension value     | '@' and the dimension values in double quotes.       | cols(@"[2008].[Q1]",m1)             | Refers to the 2008 Q1 value, if present under the current criteria. Note that when referencing absolute dimension values across levels, level scope modifiers are needed. E.g. if both totals and member values are needed in the syntax example it looks like this: cols(@"[2008].[Q1]"(l1), m1). Also note that the hierarchy must be expanded to the referred level. |
| Dimension reference | '@@"' and the dimension references in double quotes. | cols(@@"[Period].[Quarter].[1]",m1) | Refers to the value for the member with key value "1" in the Period Quarter level if present under the current criteria. Note that a list of key values may also be referred to in this way: cols(@@"[Period].[Quarter].[1]";@"[Period].[Quarter].[3]",m1)  |

## ***Element reference scope modifiers***

The element references can be filtered by appending a list of filter names to the element range. E.g. 'sum(d-1, d1:0 (visible, siblings), m1)' gives the accumulated sum of the first measure of the last column, but includes only the visible elements, and only the elements that are siblings to the current row.

As a shorthand, the abbreviation letter in the table below can be supplied instead of the entire name.

| <b>Visibility modifier</b> | <b>Short</b> | <b>Description</b>  |
|----------------------------|--------------|---|
| all                        | a            | Both visible and hidden elements are included. This is the default visibility scope modifier.     |
| visible                    | v            | Only visible elements are included.   |
| hidden                     | h            | Only hidden elements are included.  |
| <b>Hierarchy modifier</b>  |              |   |
| level                      | l            | Only elements on the same hierarchy levels in the dimensions as the current element are included. |

|                       |    |  |
|-----------------------|----|--|
|                       |    | <p>This is the default hierarchy scope modifier.</p> <p>If an integer <math>\geq 0</math> immediately follows this filter name, e.g. 'l2', then only the values in level 2 are included, with level zero being the grand total. As an example <math>\text{sum}(d1, d-1(l(1)), m1)</math> references the first column (d1) in the last row (d-1) and the last row is to be found in the second level in the hierarchy l(1). Referencing the grand total should be done this way: <math>\text{sum}(d1, d-1(l0), m1)</math>. Note that with two dimensions on the X-axis two parameters to the level modifier may be added e.g. <math>\text{sum}(d1, d-1(l(1,1)), m1)</math> references the first column (d1) in the last row (d-1) and the last row is to be found in the second level in the first hierarchy and the second level in the second hierarchy l(1,1).</p> |
| siblings              | s  | Only elements with the same hierarchy parents in the dimensions as the current element are included.   |
| children              | c  | <p>Only elements that are nested inside the current element are included. Please note that only data references can be used with this filter.</p> <p>Example: This filter can be used with an if-then-else operator for making subtotals that only include the visible elements, when some elements have been hidden by a Visibility Agent:</p> <p><math>\text{if allcount}(0,d1:d-1(c),m1) &gt; 0 \text{ then } \text{sum}(0,d1:d-1(v,c),m1) \text{ else } \text{sum}(0,0,m1)</math></p>  |
| ragged                | r  | <p>This modifier is useful e.g. for making an accumulation which follows the current expansion of single elements.</p> <p>Like with the 'level' filter, an integer <math>\geq 0</math> can follow this filter name, e.g. 'r0'. In ragged filter, however, this value is somewhat more complicated to explain: Level zero are the leaf elements, i.e. the elements that have no children. Level one are their parents. Level two are the elements that have level 1 children, etc.</p>  |
| leaves                | rl | Only elements with no children are included. This is the exact same as 'r0'.   |
| <b>Order modifier</b> |    |  |
| sorted                | o  | <p>Relative and data references are indexed according to the current sorting of the grid.</p> <p>This is the default order scope modifier.</p>   |
| unsorted              | u  | Relative and data references are indexed according to the order of the dimension values in the cube.   |
| uncollated            | n  | <p>Relative and data references are indexed according to the uncollated order of the dimension values in the grid.</p> <p>This is useful, e.g. when the top 10 products must be highlighted by a Color Agent in a collated grid.</p>   |

## Template metadata

If you want to reuse a calculation, it may be a good idea to put some flexibility into your calculation, so that e.g. the choice of which value should be used as index 100 can be changed easily, from the

smartpad instead of having to edit the formula manually. To tell the Smart Calculations editor that there is such a customizable reference in the formula, you must supply the metadata (name, default value etc.) for the ranges in question.

The metadata for a range are given in square brackets after the range, just as range filters are given in parenthesis.

| Metadata element                     | Syntax example         | Description   |
|--------------------------------------|------------------------|---|
| Parameter name                       | d1 ["A"]               | Name, identifies the parameter. Must always be present. All ranges with the same name are synchronized.   |
| Allow range                          | d1 ["A":range]         | Allow the user to select both starting and ending point.  |
| Editable filters                     | d1 ["A":filter(v,h,o)] | Allow the user to edit the given filter types. Filters: v = visibility, h = hierarchy, o = order. If the parenthesis are missing, all filters can be edited.  |
| Default value                        | d1 ["A"]=0]            | When a template is used to add a new calculation, the default reference can be specified here. If a relative reference is given, like it is in this example, it is modified unless the calculation is added 'for all dimension values', i.e. as a custom measure. If it is greater than zero, it is modified to a left-to-right data reference, e.g. 2 => d2. If it is less than or equal to zero, it is modified to a right-to-left data reference, e.g. 0 => d-1 and -1 => d-2. In this way, if the template is designed as a custom measure, it can reasonably easily be added as calculated columns and rows too. |
| Description                          | d1 ["A","Source data"] | Short explanation to be shown in the list of parameters and on the edit page of this parameter.   |
| d1(v) ["Base":filter=d1,"Index 100"] |                        |   |

The metadata for measures are like the metadata for ranges, except the `:range` and `:filter` elements are not available.

# Appendix C: Glossary

## **Analysis**

An Analysis basically consists of one or more Objects in the Work area. All Objects in an Analysis are connected, allowing one Object to be used to specify or influence data shown in other Objects.

## **Band**

Is a rectangular area of the report with a fixed width (typically the width of the paper) and a dynamic height depending on how the contents repeats.

## **Business Intelligence**

A computer based BI System is designed to generate information in a user-friendly way. This offers decision-makers with limited knowledge of computers the ability to specify their own analysis.

## **Cube**

Is a multi-dimensional organization of Dimensions and Measures in an OLAP database for optimized analytical performance.

## **Data Warehouse**

A Data Warehouse has been defined as a collection of data in support of management decision making processes. A Data Warehouse solution can ensure consistent and cleansed information at the corporate level to facilitate planning and to make everyday decisions for smooth functioning of an enterprise.

## **Dimension**

Dimensions tell something about measures - like where, who, what, when etc. Dimensions are often not measurable.

## **Drill down**

The process of dynamically applying criteria to Objects by selecting elements of related Objects.

## **ERP**

Enterprise Resource Planning.

## **Hierarchy**

A Hierarchy is an organizational ordering of Dimensions making detailed 'Drill down' searches in Objects even easier than in "standard" Objects. Hierarchies are available when the Data Warehouse is running on Microsoft Analysis Services 2000.

**KPI**

Key Performance Indicator - is a critical measurement of the performance of essential tasks, operations, or processes in a company. A KPI will usually unambiguously reveal conditions or performance that is outside the norm and that signals a need for managerial intervention.

**MDX**

Multidimensional expression language, the multidimensional equivalent of SQL.

**Measure**

Measures are the quantitative values in the database that can be analyzed. Typical measures are sales, cost and budget data. Measures are analyzed against the different dimension categories available.

**Objects**

Objects are basically windows within the Work area that display data. An Object can show data in many ways, for instance as a pie charts or a table. Within each Object window it is possible for the user to influence which data is displayed and how it is displayed.

**Selection Line**

A line of text in the definition window of an Object indicating where a dimension or measure may be placed in the Object.

**Statusbar**

The Statusbar below the Work area shows information about the tasks being performed. The leftmost part of the Statusbar describes the current task being performed. The middle part shows the progress of the task. The third part shows more detailed information about e.g. the objects. Using the View menu, the Statusbar may be invoked or hidden.

**Toolbar**

The Toolbar contains buttons for activating the primary functions of Analysis. Using the View menu, the Toolbar may be invoked or hidden.

**Work area**

The Work area is the part of the window where the actual work is done. All Analyses and Reports are placed in the work area.