Using

ZRS Screener

(Previously known as Research Wizard)

Updated 12/05/2017

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Introduction

ZRS Screener Overview

The ZRS Screener is a powerful equity screening program, ideal for identifying new buying opportunities, monitoring your portfolios and backtesting for performance.

The ZRS Screener may be used to:

- Perform interactive screening to explore market distributions and find companies for investment consideration.
- Run pre-defined screens to generate and keep current list of possible new companies of interest.
- Examine the fundamental characteristics of current holdings or search for potential valuable additions to your portfolio.
- Access pre-configured multi-company reports, as well as reports you may create or modify independently.
- Perform user-defined calculations; screen and report on resulting values.
- Access pre-configured reports that alert you to the price-driven events affecting stocks in your portfolio (i.e. changes in brokerage analyst EPS estimates, changes in brokerage firm recommendations, and EPS surprises).
- View your screen's performance relative to a benchmark over time.

Using ZRS Screener

Do you want to identify certain low P/E stocks that reported EPS during the last 15 days, had earnings surprises above their industry median, had upward estimate revisions and no decreases in broker recommendations? Do you want to search for mid-cap stocks in the specific industries that are 30% off their highs? Or perhaps, you only want to view stocks with earnings growth above their industry median and with P/E and P/B below their industry medians. You can have answers to these questions in seconds, and after saving your searching criteria, generate and maintain a Followed List.

Once you have found promising candidates, you can run or modify pre-configured multi-company reports or create your own. These reports will help you monitor individual components affecting stocks in your portfolio. After your report is produced, you can select from a variety of export options to transfer your report's contents for use with other applications.

ZRS Screener is also an automation tool. This automation ability (called scripting) is a time-saver that allows you to combine repetitive tasks into one process, similar to macros in the spreadsheet and word processing programs. Once you have defined your script, with one click, you can then run a series of screens and reports, and then print or export the results.

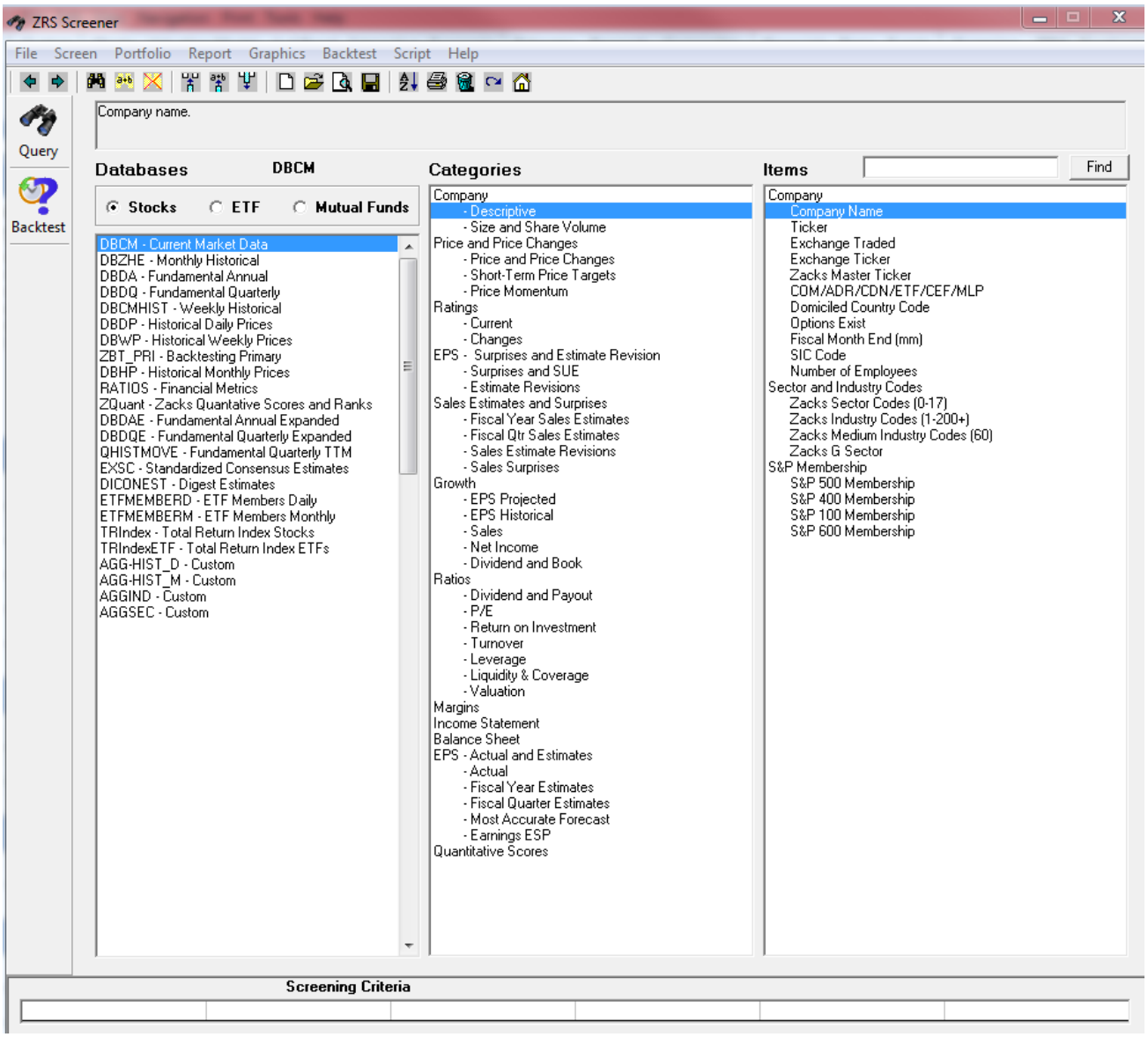
Guided Tour

Getting Started in ZRS Screener

Using ZRS Screener is quite easy. The ZRS Screener's main display is the screening interface. To aid in your work with Zacks data, the company's information is organized into several categories and sub-categories. Each sub-category contains individual items grouped by item category.

Zacks data includes: company description, size and share volume information, price and price changes, analyst recommendations and recommendation changes, annual and quarterly Consensus estimate data, expected report dates, growth rates, actual EPS, valuation data, financial ratios, and Income/Balance Sheet items.

As you select an item from its corresponding category, a brief item's description will be displayed in the item description box above the Categories and Items section.



The ZRS Screener main menu.

Parts of ZRS Screener

The following is a description of the ZRS Screener display elements and access buttons:

Title Bar – the bar at the top of the ZRS Screener window.

Menu Bar – a list of menu names displayed below the title bar of ZRS Screener.

Menu – a pull-down list of commands.

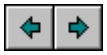
Command – a function or action chosen from a pull-down menu.

Toolbar – a bar containing tools (buttons) that, when chosen with the mouse pointer, produce a function or action.

Access Button – Run Query:

Query – execute your search and report commands.

Navigating in ZRS Screener



Use the BACK and FORWARD buttons on the ZRS Screener toolbar to switch between the ZRS Screener main interface and the report output display.

Report Export Options

Once your reports have been displayed, you can export the data to a variety of the file formats. You can export the report data to Excel or save it in one of the following text file types: text (tab-delimited), formatted text (space-delimited) or CSV (comma-delimited).

Exporting to Excel

To export the report data to Excel (after running a report), from the **Data** menu, select the Export to Excel command. The Excel application will automatically start and the report will be displayed in the *Export* worksheet.

Exporting to Text Files

To export the report data to the text file after running a report, follow these steps:

1. From the **Data** menu, select the Export to Text command and then select from the following text file options:
   - Select Text option to save the file in the Tab Delimited (that is, separated by tab characters) format.
   - Select Formatted Text option to save file in the Space Delimited (separated by spaces) format.
   - Select CSV option to save file in the Comma Delimited (separated by commas) format.
2. At the *Save* dialog box, type the file name and specify the file location (the default export folder is :\zir\output).
3. Click **Save**.

Print Options in ZRS Screener

Print options in ZRS Screener include Printer Setup and Print Report.

Printer Setup

To select or modify printer options, select the Printer Setup command from the **File** menu.

Printing Reports

To enable the Print Report option, you have to run a report first.

To print the report, select the Print Report command from the **File** menu or click the **Print Report** button.

Using Mouse in ZRS Screener

Right-clicking your mouse in specific areas of the interface of ZRS Screener, allows you to perform the following functions:

1. To screen by a database item, to add a database item to the report, or view item's summary, right-click your mouse on that item inside the *Items* section at the main menu.
2. To get the Zacks Company Snapshot report or a direct link to the Integrated Company Analysis module for the selected company, right-click your mouse on that company while at the report output display.
3. To get the Edit menu in the **Screening Criteria** or **Report Definition** tables, right-click your mouse while in the corresponding table at the main menu.

Screening Quick Start Guide

To begin the screening process, follow these steps:

1. From the list of *Categories,* choose a category and then highlight a data item from the list of *Items*.

2. Double-click the selected database item (alternatively, select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button. The *Screen By* dialog box will appear.
3. In the *Screen By* menu, enter the parameters for your screen and click **OK**. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). Each screening item will also be added to the **Report Definition** table.
4. To run the screen, click the **Run Query** button.

Tip *To add a screening item with the mouse, highlight that item in the Items section and right-click your mouse. Select the Screen by Database Item command from the menu.*

How to Save Tickers After Screening

After finding the universe that matches your criteria, you can save the list of companies that passed your screen in the Ticker List.

To save companies (after running a screen) as a Ticker List, follow these steps:

1. From the **Portfolio** menu, select the Save Tickers as List command or click the **Save Ticker List** button.
2. The *Save Ticker List* dialog box will appear and the default folder for the Ticker List files will be shown (:\zir\ports). To save the file in a different folder, click a different drive in the **Save in** box, or double-click a different folder in the folder list.
3. In the **File name** box, type a name for the Ticker List.
4. Click **Save**.

Tip To save companies as a portfolio at the report output menu, from the **Data** menu, click *Save Tickers As List*. At the *Ticker List* dialog box, specify the name and location of the portfolio. Click **Save**.

Creating Reports

There are two ways to create a report in the ZRS Screener. You can display items used in your screening definition, or you can select items for your portfolio (Ticker List).

Creating Reports for Existing Portfolio

To create a report for the existing Ticker List, follow these steps:

1. From the **Portfolio** menu, select the Open Ticker List command or click the **Open Ticker List** button and choose the Ticker List. The **Screening Criteria** table will show the Ticker List name and the number of companies in it.

2. To add a database item to your report, select that item from the *Items* section and click the **Add Item to Report** button (alternatively, from the **Report** menu, choose the Add Database Item command). The added item will appear in the **Report Definition** table.
3. To save the report for future uses, select the Save Report Definition command from the **Report** menu.
4. The *Report Definition* dialog box will appear and the default folder for the report files will be shown (usually:\zir\inputs). To save the file in a different folder, click a different drive in the **Save in** box, or double-click a different folder in the folder list.
5. In the **File name** box, type a name for the report (all reports have extension *.rpd) and click **Save**.

Tip *To add an item to your report with the mouse, highlight that item in the Items section and right-click your mouse. Select the Add Database Item to Report command from the menu.*

Running Reports

To run an existing report, follow these steps:

1. From the **Report** menu, select the Open Report Definition command. The *Report Definition* dialog box will appear. Saved reports usually appear in the :\zir\inputs folder and have extension *.rpd.
2. Select a report and click **Open**. The **Report Definition** table will fill up.
3. Click **Run Query** to display the report.

The ZRS Screener includes several pre-formatted sample reports.

Screening: Basic Steps

Overview of ZRS Screener Screening Process

The ZRS Screener screening capabilities provide a powerful tool for examining the fundamental characteristics of your current holdings or searching for potential valuable additions to your portfolio. With the ZRS Screener you can perform interactive screening to analyze market distribution and find companies that can serve as potential candidates for investments.

The ZRS Screener also allows you to explore the Zacks databases of over 6,500 stocks, using over 600 pre-defined items or an unlimited number of your own custom calculations.

Once your criteria have been specified, you can save them for the future use with the updated data, or run a series of backtest to see how these strategies have performed in the past.

Screening Menu

The ZRS Screener layout is organized to provide you with the most convenient way to analyze Zacks data. The data is organized into several *categories*. Each category contains individual *items* available for screening and reporting.

As you select an item from its corresponding category, a brief item's description will be displayed in the item description box above the items and categories.

In addition, the item's frequency (quarterly, weekly, etc.) and number of periods (3, 6, 9, etc.) available will be shown.

Selecting Databases

The Current Market database (DBCM.DBS) is ZRS Screener's default database. To select another database, follow these steps choose a database available in the left column

Available Zacks Databases

The following is a list of available Zacks databases.

DBCM: Current Market database containing quarterly and annual consensus EPS estimates, market data, fundamental data, growth rates, valuation ratios and supplementary information.

AGGIND: Aggregate Industry database containing current fundamental data aggregated by Zacks Expanded Industry Groups.

AGGSEC: Aggregate Sector database containing current fundamental data aggregated by Zacks Expanded Sector Groups.

DBZHE: Monthly Historical database containing data for fundamental estimate and ratio items for entire current universe.

DBDA: Fundamental Historical Annual Data database containing annual income statements, balance sheet and cash flow items; 10K data.

DBDQ: Fundamental Historical Quarterly Data database containing quarterly income statement and balance sheet items; 10Q data.

ZBT_PRI: Zacks Primary backtesting database containing 15 years of quarterly EPS data and monthly price, return and estimate data.

ZBT_SEC: Zacks Secondary backtesting database containing 15 years of quarterly EPS data and monthly price, return and estimate data.

DBDP: Daily Historical Prices database containing 560 days of daily price information.

DBWP: Weekly Historical Prices database containing 270 weeks of weekly price data.

DBQUOTE: Intraday (15-20 minutes delayed) prices database.

ZRS Screener works with DBCM ticker set.

Resetting Default Database

When in the process of working with several databases you can quickly switch to the default database by selecting the *Reset Database* command from the **File** menu.

Zacks Database Concepts

The ZRS Screener operates on a proprietary Zacks database structure. Conceptually, Zacks database consists of a set of time-series items for a set of companies. Each time series has a calendar (daily, weekly, monthly, quarterly, or annual) or fiscal (fiscal quarterly or fiscal annual) frequency, and is maintained for a fixed number of periods of that frequency. As an example, month-end closing prices (Item 6 in the Zacks Current Market databases, DBCM) have a calendar-monthly frequency and are maintained for 13 periods (13 months).

In addition to the dated frequencies, two non-periodic frequencies may be included in a database. An item may have an X frequency, whereby no date is associated with the data, or an E frequency where each data item has a specific non-periodic date associated with it.

One vitally important characteristic of a Zacks database is the END DATE. This date indicates a database update date. The dates associated with every element in an item's time series are determined by the database end Date and the item's frequency. For example, a fiscal quarterly EPS series will start with the last completed fiscal quarter before the End Date. Fiscal annual EPS data will start with the most recently completed company fiscal years as of the End Date.

Understanding Data Time Periods

The data items in the Zacks databases can be time-series items (have multiple periods). Period 1 in the Zacks databases is created as soon as the accounting period that it describes is complete. For example, on January 2, a firm with a December 31 fiscal year end will have period 1 earnings with a date of 12/31. In this case, Period 1 for this item will be N/A until the company releases its earnings several weeks later.

By default, when you specify an item for the screen or a report, the ZRS Screener will select the first non-N/A value (called period Recent). This could be data from the previous accounting period (in addition, the time period in the screening and reporting menu is presented on calendarized basis).

To align all items by the same period, you may want to use the specific period designations for your screens and reports such as: #1, #2, #3, etc. To add multiple periods, you can also use choices Today (meaning period #1), and Today-N Periods (select number of periods to go back).

Example using Quarterly Items: On September 29, 2000, DBCM i28 (Actual EPS Q before NRI) will have the calendarized completed quarterly periods specified as 06/2000, 03/2000; 12/1999, etc. Selecting the first calendarized period (06/2000) will pull companies with fiscal quarters ending on or before June (however, this data will not necessarily be from period #1, as explained next).

If companies have fiscal quarters that ended in July and August, that would be the period #1; however, selecting period 6/2000 will show April Quarter end data (or period #2), for April, July, and October FYE companies and will show May Quarter end data (or period #2), for companies with May, August, and November FY end months.

You can specify your screen or report choice as #1, #2, #3, etc., to align data by the same period. To add multiple periods, you can also use option Today (meaning period #1), and Today-nQ Periods (specify number of quarterly periods to go back).

Example using Annual Items: On October 4, 2000, DBCM item 80, Annual Sales, will have the first calendarized choice as 1999. Selecting the first calendarized option 1999 will select period #2 data for companies with the FY ending between January 2000 – September 2000. To view the period #1 for those companies, use option Today. For companies with FY ending in October-December, the calendarized option 1999 will select period #1 data, since their FY have not ended as of the beginning of October.

You can specify your screen or report choice as #1, #2, #3, etc. to align data by the same period. To add multiple periods, you can also use choices Today, and Today- nY Periods (specify number of annual periods to go back).

In addition, companies that have their FY ended by October 2000, but have not reported their data yet, will have #1 as N/A.

The time period specifications are summarized in this table:

Period	Explanation
Recent	Specifies the period with the first non-N/A value of the item.
Today	The first available data period (can also be specified as #1). Note that the data in this period may be N/A.
#1 (select period number)	Use the number "#" sign and a period number to select a specific period of data. Data periods are labeled from most recent to least recent, so Period 1 is the most recent date.
MM/YYYY (for quarterly	Example: 03/2000, 06/2000, 09/2000, 12/2000 Indicates calendarized quarterly periods.

frequency items)	
MM/YYYY (for monthly frequency items)	Example: 08/2000, 07/2000, 06/2000, 01/2000 Indicates calendarized monthly periods.
YYYY (for annual frequency items)	Example: 1999, 1998, 1997 Indicates calendarized annual periods.

Specifying Data Periods

The following table shows how you can select a specific time period for the screen or report items.

Data Elements	Usage	Comment
ix[Recent]	i93[Recent]	Specifies the period with the first non-N/A value of the item.
ix[Date]	i93[6/2000]	Specifies the calendarized period for the item.
ix[# period]	i108[#4]	Specifies the fourth period of the item.
ix[Today]	i7[Today]	Refers to the first period. Note that the data in this period may be N/A.
ix[-4]	i7[-4]	Lag item 7 by four periods for each data point.
ix[4]	i7[4]	Lead item 7 by four periods for each data point.
ix[R-2Q]	i27[R-2Q]	Specified the two quarterly periods before the most recent period with non-N/A value of item.
ix[Recent – 3W]	i7[Recent – 3W]	Specifies a period that is 3 weeks before the most recent period with non-N/A value of the item.
ix[Today – 15D]	i7[Today – 15D]	Refers to a period that is 15 days before the first period.
ix[Today – 5M]	i7[Today – 5M]	Refers to a period that is 5 months before the first period.
ix[Date, Ticker]	i7[12/1998, SPAL]	Refers to the data for SPAL for the 12/1998 period. Useful in relative calculation using SPAL or an Index ticker
ix[Today- 2Y]	Sales[Today – 2Y] i80[Today – 2Y]	Specifies a period that is 2 years before the first period.

Item Frequency Codes

The items in Zacks databases can have the following frequency codes:

Calendar Frequencies	Fiscal Frequencies
D - Daily (business days only)	**F** - Fiscal Quarterly
W - Weekly (Friday end)	**Y** - Fiscal Annual
M - Monthly	
Q - Calendar Quarterly	

A - Calendar Annual	

Other Frequencies

E - Event frequency (A special frequency, in which a non-periodic date is assigned to the item. Split adjustment factor for stock splits and dividends, which occur on specific and non-periodic dates, is an example of E-frequency item).

X - No Frequency (No date is assigned to the item, for example: Ticker or Company Name).

Fiscal Periods Abbreviations

The following table explains Fiscal and Quarterly abbreviations used in ZRS Screener:

Fiscal Abbreviations	Quarterly Abbreviations
F(0) – Completed fiscal year	**Q(0)** – Completed fiscal quarter
F(1) – Current fiscal year	**Q(1)** – Current fiscal quarter
F(2) – Next fiscal year	**Q(2)** – Next fiscal quarter
F(3) – Two years from the current fiscal year	**Q(3)** – Two quarters from the current fiscal quarter
	Q(4) – Three quarters from the current fiscal quarter

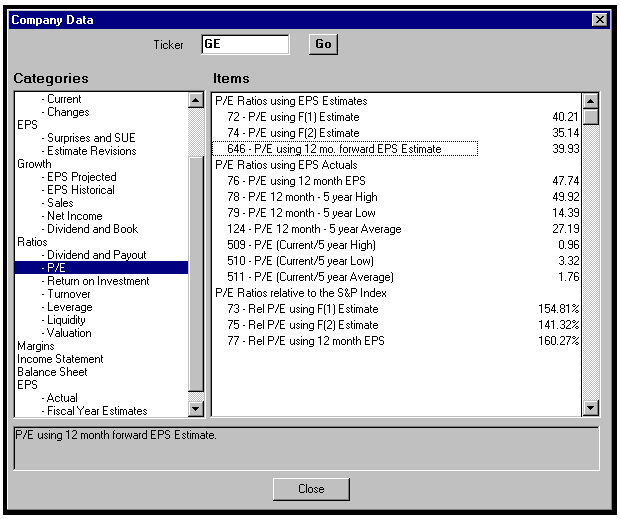
Viewing Data in ZRS Screener

The ZRS Screener provides you with the ability to view the data for a single company or a single item.

Accessing Single Company Data

You can quickly view the active database data for a particular company by following these steps:

1. From the **Report** menu, click Company Data. The *Company Data* window appears. This window displays data Categories and Items using the same layout as the main screening menu.
2. Type the company's ticker symbol in the **Ticker** box and click **Go**. The data for all items in each category will be displayed. As you browse each category, the item information for the company will be changing accordingly. The Company Data will show item's Recent period (the first period that is not N/A).
3. To exit the *Company Data* window, click **Close**.



Company Data display.

Viewing Single Item Statistics

Sometimes before defining your screening criteria, you want to have a visual impression of how the companies in the full universe are distributed, making it easier to determine appropriate operators and values for screening.

To view single item statistics, follow these steps:

1. From the **Screen** menu, select Item Summary. The *Item Summary* window appears. This window contains the following item statistics for the full universe:

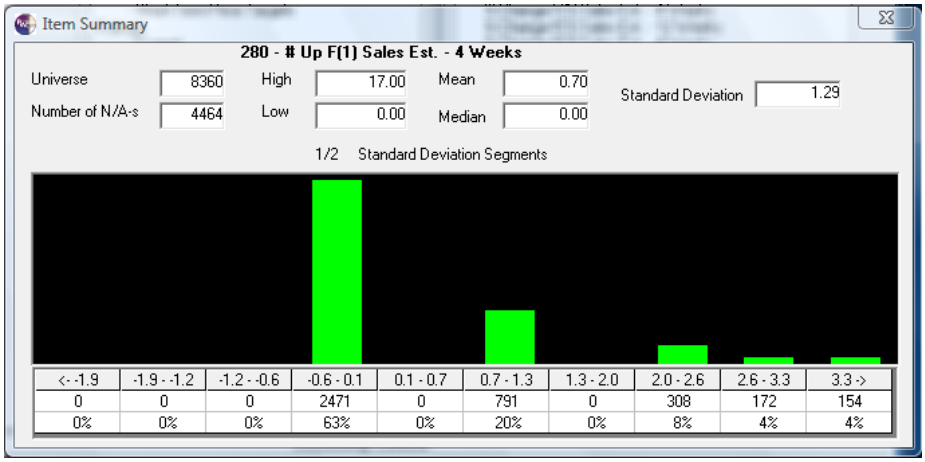
- High – the highest value for the item in the universe
- Low – the lowest value for the item in the universe
- Mean – the average value for the item in the universe
- Median – the median value for the item in the universe
- Standard Deviation – the standard deviation for the item in the universe

In addition, the total number of companies in the database and the number of N/A values for the item are noted.

Item Summary Histogram Table

Below the item's statistics, the item's histogram table is shown. This display groups the values into equal ranges around the item's mean value. The range is calculated as the fraction of the Standard Deviation for the selected item. The fraction of the Standard Deviation used will depend on the Standard Deviation value: the bigger the value, the bigger the fraction that is used. In addition, each bar represents the number of companies within a certain range of values of the specified item, allowing a quick graphical look at how the companies in the universe are distributed.

The Item Summary histogram table has 3 rows. The first row contains ranges of Standard Deviation Segments fractions on the left and on the right side of the mean. The second row contains the number of companies falling within the particular range. The third row shows the percentage of companies within the particular range.



Item Summary display.

Tip Another way to access the Item Summary option is to follow these steps:

1. Right-click your mouse on the selected item inside the *Items* section on the ZRS Screener main menu.
2. Select the Item Summary option from the drop-down menu.

Available Screening Operators

Operator	Meaning
>	Greater than X
<	Less than X
=	Equal to X
<>	Not equal to X
>=	Greater than or equal to X
<=	Less than or equal to X
In	Specifies a range to include in the criteria
Out	Specifies a range to be excluded from the criteria
Top #	Top number of companies
Top %	Top percentage of companies
Bot #	Bottom number of companies
Bot %	Bottom percentage of companies

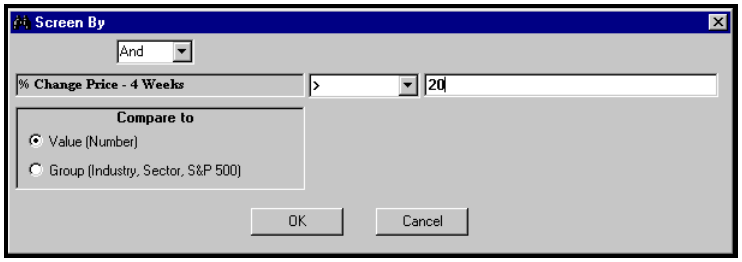
"Top" and "Bottom" operators refer to the value of a data item and do not imply qualitative characteristics of an item, they just select the largest or the smallest value.

How to Screen: Basic Concepts

To begin the screening process, follow these steps:

1. From the list of *Categories,* choose a category, subcategory and then highlight a data item from the *Items* section.

2. Double-click the selected database item or click the **Screen by Database** Item button. The *Screen By* dialog box will appear.



Screen by 20 % Price Change in the last 4 weeks.

3. At the *Screen By dialog box*, enter the parameters for your screen. You can compare the selected item to a Value (any number) or a Group. If you are comparing to a specific Value, enter that number into the value data entry box. When you are comparing to a Group (Industry, Sector or S&P 500 ETF), select it from the pull-down menu and then specify the method of aggregation (mean, median).
4. Next, choose an operator from the operators pull-down menu and click **OK**.
5. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). Each screening item will also be added to the **Report Definition** table.
6. To run the screen, click the **Run Query** button.

Tip *To add a screening item with the mouse, highlight that item in the Items section and right-click your mouse Select the Screen by Database Item command from the menu.*

Using Historical Search Option in Screening

When an item in a database has more then one period associated with it, the Screen By dialog box has a special check box: Historical Search. The Historical Search option allows you to screen on several data periods. In addition, you can specify whether you want the specific conditions to be met in Every or Any time period.

Saving Screens

You can save your screen definition for the later use. To save a screen definition after executing a series of screens, follow these steps:

1. From the **Screen** menu, select the Save Screen Definition command.
2. The *Screen Definition* dialog box will appear. In the **File Name** box, type a name for the saved screen and then click **Save**. The screen definition will be saved in a file with the extension *.und.

Running Saved Screens

To run a saved screen, follow these steps:

1. From the **Screen** menu, select the Open Screen Definition command.

2. At the *Screen Definition* menu, select the previously saved screen (files with the extension *.und) and click **Open**. The **Screening Criteria** and **Report Definition** tables will fill up with data.

3. If you want to run both the screen and the report, just click the **Run Query** button.

4. If you want to run the screen only, select the Clear Report Definition command from the **Report** menu and then click the **Run Query** button.

Combining Screen Definitions

You can combine several screen definitions by following these steps:

1. From the **Screen** menu, select the Open Screen Definition command and select a screen definition file.

2. At the *Screen Definition* menu, select the previously saved screen (files with the extension *.und) and click **Open**. The **Screening Criteria** and **Report Definition** tables will fill up with data.

3. From the **Screen** menu, select the Open Screen Definition command and select second screen definition file. The message "Would you like to CLEAR the Screen Definition?" will appear.

4. Click **No**. The message "Would you like to CLEAR the Report Definition?" will appear. Select either **Yes** or **No**. (Selecting **No** will leave items used in the first screen definition in the report, selecting **Yes** will remove items used in the first screen definition from the report and will replace them with the items used in the second screen definition). The screen definitions will be combined.

Editing Screens Overview

One way to modify a screen, is to add a new criterion to the screen definition. The other option is to manipulate the existing criterion.

Adding Screening Criteria

To add a screening criterion to the existing screen definition, follow these steps:

1. Open the screen definition you want to edit. The **Screening Criteria** table will fill up.

2. Select a new screening item and then double-click the item's name in the *Items* section or click the **Screen by Database Item** button.

3. At the *Screen By* menu, enter the data into the Value box. The new item will be added to the **Screening Criteria** table.

Tip *To add a screening item with the mouse, highlight that item in the Items section and right-click your mouse. Select the Screen by Database Item command from the menu.*

Editing Screen Definitions

To edit a criterion in the screen definition, from the **Screen** menu, select the Edit Screen Definition command to display the following screen editing options:

- **Modify** – changes screening parameters, criterion's value, time period or name and calculation for the calculated screening item.
- **Cut** – removes the selected criterion from the Screen Definition and places it on the Clipboard.
- **Copy** – copies the selected criterion to the Clipboard.
- **Paste** – inserts the criterion currently placed on the Clipboard at the insertion point in the **Screening Criteria** table, and replaces any selection. This command is available only if you have cut or copied a criterion.
- **Delete** – permanently removes the criterion from the Screen Definition.
- **Insert** – puts in the criterion currently placed on the Clipboard between the criteria at the insertion point in the **Screening Criteria** table. This command is available only if you have cut or copied a criterion item.

Tip *To get the edit menu in the **Screening Criteria** table, right-click your mouse inside the **Screening Criteria** table.*

Modify (Edit Screen Menu)

The screening criterion can be a database item or a calculated item. This will determine the additional edit options.

Modifying Database Item

1. Open the screen definition you want to edit. The **Screening Criteria** table will fill up.
2. From the **Screening Criteria** table, highlight the item you want to modify and double-click it (or right-click your mouse on that item to bring up the Edit menu and select the Modify option). The *Screen By* dialog box will appear.
3. In the *Screen By* menu, modify the parameters for your screen and click **OK**.

Modifying Calculated Item

1. Open the screen definition you want to edit (if the calculation expression was build using database that is not currently active, you will be prompted to switch to that database). The **Screening Criteria** table will fill up.
2. From the **Screening Criteria** table, highlight the calculated item you want to modify and double-click it (or right-click your mouse on that item to bring up the Edit menu and select the Modify option).
3. The Calculation Expression dialog box will appear. Make the necessary changes there and click **OK**. The *Screen By* dialog box will appear.
4. In the *Screen By* menu, modify the parameters for your screen and click **OK**.

Cut (Edit Screen Menu)

To use this option, follow these steps:

1. Open the screen definition you want to edit. The **Screening Criteria** table will fill up.

2. From the **Screening Criteria** table, highlight the criterion you want to cut and right-click the mouse on that criterion to bring up the Edit menu and select Cut.

Copy (Edit Screen Menu)

To copy screening criteria, follow these steps:

1. Open the screen definition you want to edit. The **Screening Criteria** table will fill up.
2. In the **Screening Criteria** table, highlight the criteria you want to copy and right-click the mouse on that criterion to bring up the Edit menu and select the Copy option. (If you want to copy these criteria to another screen definition, switch to that screen definition).
3. In the **Screening Criteria** table, click where you want the criteria to appear.
4. To replace the criteria, highlight a criterion you want to replace and right-click the mouse to bring up the Edit menu. Select the Paste option.
5. To place the criterion before another one, highlight that criterion and right-click the mouse to bring up the Edit menu. Select the Insert option.

Paste (Edit Screen Menu)

This command is available only if you have cut or copied a screening criterion. To replace an existing criterion, in the **Screening Criteria** table, highlight a criterion you want to replace and right-click the mouse to bring up the Edit menu. Select the Paste option.

Delete (Edit Screen Menu)

To delete a criterion, follow these steps:

1. Open the screen definition you want to edit. The **Screening Criteria** table will fill up.
2. In the **Screening Criteria** table, highlight the criterion you want to delete.

3. From the **Screen** menu, select the Edit Screen Definition command and select the Delete option or click the **Delete Criterion** button.

Tip *To delete a criterion from the Screening Criteria table, highlight that item in the Screening Criteria table and right-click your mouse. Select the Delete command from the menu.*

Insert (Edit Screen Menu)

This command is available only if you have cut or copied a screening criterion. To place the criterion before another one, in the **Screening Criteria** table, highlight that criterion and right-click the mouse to bring up the Edit menu. Select the Insert option.

Clearing Screening and Reporting Criteria

There are three ways to clear the **Screening Criteria** and **Report Definition** tables. You can:

a. Clear the Screening Criteria only.

b. Clear both the Screening Criteria and the Repot Definition tables.

c. Clear the Repot Definition table only.

To Clear Screening Criteria Only

1. From the **Screen** menu, select the Clear Criteria command, or click the **Clear Criteria** button.
2. The message “Would you like to clear the Report Definition?” will appear. Click **No**.
3. Only the screening criteria will be removed.

To Clear both Screening Criteria and Report Definition Tables

1. From the **Screen** menu, select the Clear Criteria command, or click the **Clear Criteria** button.
2. The message “Would you like to clear the Report Definition?” will appear. Click **Yes**.
3. The **Screening Criteria** and the **Report Definition** tables will be emptied.

To Clear Repot Definition Table Only

1. From the **Report** menu, select the Clear Report Definition command.
2. The **Report Definition** table will be emptied.

Viewing Active Universe

After running a screen, you can view the list of companies that passed your criteria. To view the active tickers, follow these steps:

1. From the **Portfolio** menu, select the View/Edit Active Tickers command, or click the **View/Edit Ticker List** button.
2. The *Ticker List* dialog box will appear containing the companies that passed your screening criteria.
3. You can save the companies that passed your screening criteria in the Ticker List by clicking the **Save** button.

How to Save Tickers After Screening

After finding the universe that matches your criteria, you can save the list of companies that passed your screen in a Ticker List.

To save companies (after running a screen) as a Ticker List, follow these steps:

1. From the **Portfolio** menu, select the Save Tickers as List command or click the **Save Ticker List** button.
2. The *Save Ticker List* dialog box will appear and the default folder for the Ticker List files will be shown (:\zir\ports). To save the file in a different folder, specify that drive in the **Save in** box, or double-click a different folder in the folder list.
3. In the **File name** box, type a name for the Ticker List.
4. Click **Save**.

Tip To save tickers as portfolio while a the report output menu, select *Save Tickers as List* command from the **Data** menu.

Report Writing: Basic Steps

Working with Reports

The ZRS Screener allows you to create multi-company reports that combine Zacks database items and your own calculated items. The ZRS Screener also includes several sample reports. The reports have extension *.rpd and are located in the :\zir\inputs folder.

Creating New Reports

There are two ways to create a report in the ZRS Screener. You can display items used in your screening definition, or you can select items for your portfolio (Ticker List). When you build the screen definitions in the ZRS Screener, the screening criteria items are automatically added to the **Report Definition** table. By default, the report will always include the Company Name and the Ticker items.

In order to run a report, you must have the Screening Criteria defined first. The Screening Criteria could be a screen definition or a portfolio.

Creating Reports for Existing Portfolio

To create a report for the existing Ticker List, follow these steps:

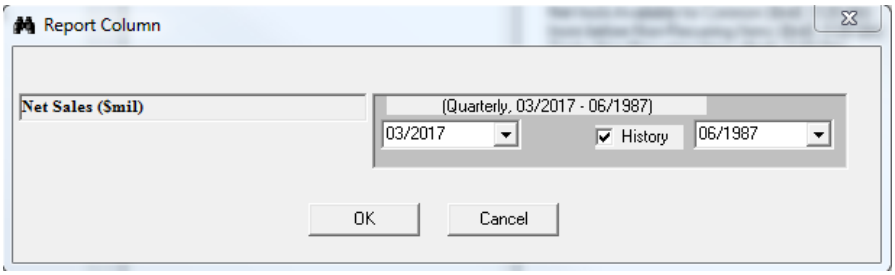
1. From the **Portfolio** menu, select the Open Ticker List command or click the **Open Ticker List** button and choose your Ticker List.
2. The **Screening Criteria** table will show the Ticker List name and the number of companies in it.

3. To add a database item to your report, select that item from the *Items* section and click the **Add Item to Report** button (or from the **Report** menu choose the Add Database Item command).
4. The added item will appear in the **Report Definition** table.
5. To save the report for future uses, select the Save Report Definition command from the **Report** menu.
6. The *Report Definition* dialog box will appear and the default folder for the report files will be shown (usually :\zir\inputs). To save the file in a different folder, click a different drive in the **Save in** box, or double-click a different folder in the folder list.
7. In the **File name** box, type a name for the report (all reports have extension *.rpd).
8. Click **Save**.

Tip *To add an item to your report with the mouse, highlight that item in the Items section and right-click your mouse. Select the Add Database Item to Report command from the menu.*

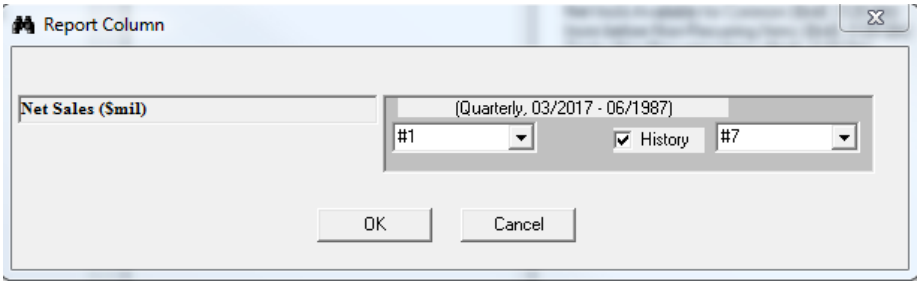
Adding Multi-Period Data Items

When adding items that have more then one period associated with them, the Report Column dialog box has a special check box: History. This option allows you to add multiple data periods at once. After marking the History check box, simply select the desired time periods and click **OK**.



Add several periods of data at once by selecting the History check box on the Report Column menu.

To align data by the same period, you can specify your selection as period #1, #2, etc.



Editing Report Definitions

One way to modify a report is to add a new item to the report definition. The other option is to manipulate the existing items.

Adding Items to Report

To add an item to the report, follow these steps:

1. Open the report definition you want to edit. The **Report Definition** table will fill up.
2. Highlight a new item from the *Items* section.
3. From the **Report** menu, select the Add Database Item command or click the **Add Database Item** button.
4. The item will be added to the **Report Definition** table.
5. Save your report definition.

Tip *To add an item with the mouse, highlight that item in the Items section and right-click your mouse. Select the Add Database Item to Report command from the menu.*

Editing Report Definitions Overview

To edit the report, from the **Report** menu, select the Edit Report Definition command to display the following report editing options:

- **Modify** – changes report column's name, alignment, format, time period and calculation.
- **Cut** – removes the selected item from the Report Definition table and places it on the Clipboard.
- **Copy** – copies the selected report item to the Clipboard.
- **Paste** – inserts the item currently placed on the Clipboard at the insertion point in the **Report Definition** table, and replaces any selection. This command is available only if you have cut or copied a report item.
- **Delete** – permanently removes the item from the **Report Definition** table.
- **Insert** – puts in the item currently placed on the Clipboard between the items at the insertion point in the **Report Definition** table. This command is available only if you have cut or copied a report item.

Tip *To get the edit menu in the **Report Definition** table, right-click your mouse inside the **Report Definition** table.*

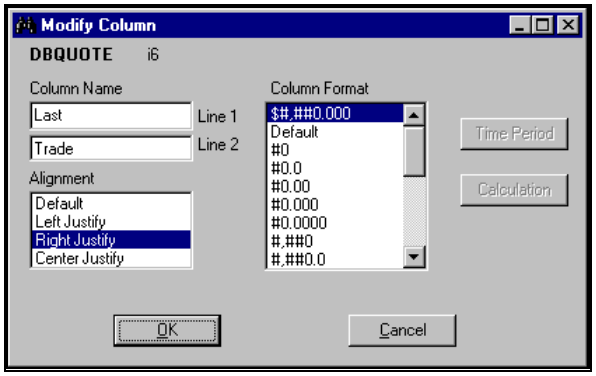
By default, you report definition will always have Ticker and Company items. These items cannot be deleted.

Modify Report Overview

Some options on the Modify menu are available for all types of items. These options include Column Name, Alignment, and Column Format.

Other options become enabled when the item used in a report has more then one data period or is a calculated item. These options are Time Period and Calculation.

To aid in your work, the database name and the item's number (or a calculation expression) are also noted at the *Modify Column* dialog box.



Modify Column options will depend on the item.

Column Name – used to change the item's name. If the item's name is long, you can use two lines for the name.

Alignment – used to change the item's position within the column. By default, all items are Right Justified.

Column Format – used to change the way numbers are displayed (the first format shown on the list is the default format).

- ***Numbers Format:*** columns can be formatted to display numbers with zero, one, or more decimal places and use the 1000 separator (,). You can also apply currency, percent, and comma styles to the numbers.

  The following table explains the column formats:

Input	*Format*	*Result*
21366.8457	*#0*	*21367*
21366.8457	*#0.0*	*21366.8*
21366.8457	*#0.00*	*21366.85*
21366.8457	*#0.000*	*21366.846*
21366.8457	*#0.0000*	*21366.8457*
21366.8457	*#,##0*	*21,367*
21366.8457	*#,##0.0*	*21,366.8*
21366.8457	*#,##0.00*	*21,366.85*
21366.8457	*#,##0.000*	*21,366.846*
21366.8457	*#,##0.0000*	*21,366.8457*
21366.8457	*$#,##0*	*$21,367*
21366.8457	*$#,##0.0*	*$21,366.8*
21366.8457	*$#,##0.00*	*$21,366.85*
1.839	*#0%*	*2%*
1.839	*#0.0%*	*1.8%*
1.839	*#0.00%*	*1.84%*

- ***Text Capitalization Format:*** there are three additional column format options, available for the text items:

Format	*Result*
Text(Upper)	UPPERCASE
Text(Lower)	lowercase
Text(Default)	Title Case

Time Period – used to change item's period (available for time-series items only).

Calculation – used to change the calculation for the custom item (Calculation Expression).

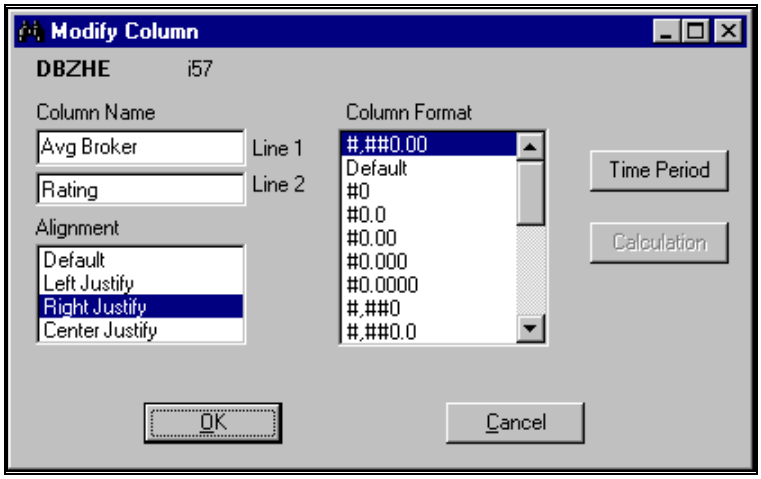
Modify (Edit Report Menu)

The report item can be a database item or a calculated item. This will determine the additional edit options.

Modifying Database Item

1. Open the report definition you want to edit. The **Report Definition** table will fill up.

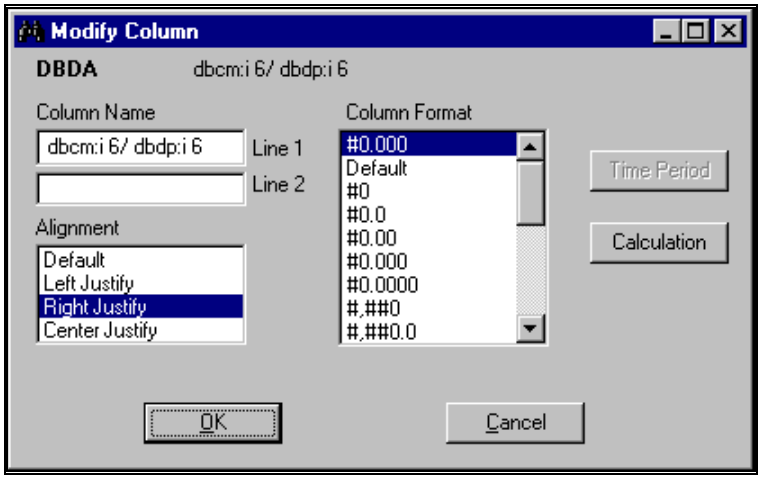
2. From the **Report Definition** table, highlight the item you want to modify and double-click it (or right-click your mouse on that item to bring up the Edit menu and select the Modify option). The *Modify Column* dialog box will appear, where item number and database association are noted.



3. Modify the parameters for your report and click **OK**.

Modifying Calculated Item

1. Open the report definition you want to edit. The **Report Definition** table will fill up.
2. From the **Report Definition** table, highlight the calculated item you want to modify and double-click it (or right-click your mouse on that item to bring up the Edit menu and select the Modify option). The *Modify Column* dialog box will appear, where item formula will be noted.



3. Click the **Calculation** button (if the calculation expression was build using database that is not currently active, you will be prompted to switch to that database). The Calculation Expression dialog box will appear. Make the necessary changes there and click **OK**.

Cut (Edit Report Menu)

To cut a report item, follow these steps:

1. Open the report definition you want to edit. The **Report Definition** table will fill up.
2. Highlight the data item you want to cut.
3. From the **Report** menu, select the Edit Report Definition command and select the Cut option. You can then paste or insert the item anywhere in the report definition (except for two default items: Ticker and Company).

Tip *To get the Edit menu in the Report Definition table, right-click your mouse inside the Report Definition table.*

Copy (Edit Report Menu)

To copy a report item, follow these steps:

1. Open the report definition you want to edit. The **Report Definition** table will fill up.
2. Highlight the data item you want to copy.
3. From the **Report** menu, select the Edit Report Definition command and select the Copy option. (If you want to copy these items to another report definition, switch to that report).
4. In the **Report Definition** table, click where you want the item to appear.
5. To replace the item, from the **Report** menu, select the Edit Report Definition command and select the Paste option.
6. To add the item, from the **Report** menu, select the Edit Report Definition command and select the Insert option.

Tip *To get the Edit menu in the Report Definition table, right-click your mouse inside the Report Definition table.*

Paste (Edit Report Menu)

This command is available only if you have cut or copied a report item. In the **Report Definition** table, highlight the item you want to replace. From the **Report** menu, click Edit Report Definition command and select the Paste option.

Tip *To get the Edit menu in the Report Definition table, right-click your mouse inside the Report Definition table.*

Delete (Edit Report Menu)

To delete a report item, follow these steps:

1. Open the report definition you want to edit. The **Report Definition** table will fill up.
2. Highlight the item you want to delete.
3. From the **Report** menu, select the Edit Report Definition command and select the Delete option.

Tip *To get the Edit menu in the Report Definition table, right-click your mouse inside the Report Definition table.*

Insert (Edit Report Menu)

This command is available only if you have cut or copied a report item. In the **Report Definition** table, click where you want the item to appear. To add the item to the report, from the **Report** menu, click Edit Report Definition command and select the Insert option.

Tip *To get the Edit menu in the Report Definition table, right-click your mouse inside the Report Definition table*.

Clearing Report Definition

To Clear both Screening Criteria and Report Definition Tables

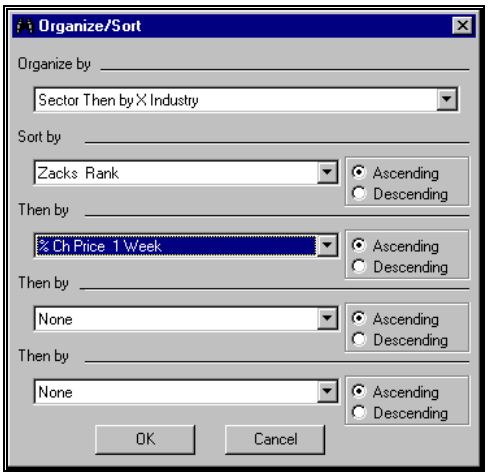
1. From the **Screen** menu, select the Clear Criteria command or click the **Clear Criteria** button.
2. The message "Would you like to clear the Report Definition?" will appear. Click **Yes**.
3. Both the **Screening Criteria** and the **Report Definition** tables will be emptied.

To Clear the Repot Definition Table Only

1. From the **Report** menu, select the Clear Report Definition command.
2. The **Report Definition** table will be emptied.

Sorting and Organizing Reports

You can manipulate the information displayed in your reports using the Sort and Organize options. These features are accessed through the **Data** menu.



Organize/Sort Report dialog box.

By default, all new reports are sorted by Zacks M (Medium) Industry.

Organize Report Options

An Organize option is used to classify companies in the report. Your report can be organized by

- Zacks X (Expanded) Industry
- Zacks X (Expanded) Sector
- Zacks (M) Medium Aggregate Industry

There are two more special options that allow two levels of organization:

- Organize by Zacks Expanded Sector and then by Expanded Industry designations
- Organize by Zacks Expanded Sector and then by Medium Aggregate Industry designations

If you do not want to have your report organized, select **None** from the pull-down menu.

Organizing Reports

You can organize your reports before or after you run them. To organize a report, follow these steps:

1. From the **Data** menu, select the Organize/Sort command or click the **Organize/Sort** button. The *Organize/Sort* dialog box will be displayed.
2. From the *Organize by* pull-down menu, choose the desired organize option and click **OK**.
3. After organizing the report, you will be able to sort on up to three additional items. If you selected two levels of organization, you will be able to sort on up to two additional items.

Sorting Reports

You can sort your reports based on the contents of two or more columns. When you sort, the ZRS Screener rearranges the report based on the sort order you specify. You can sort reports in ascending (1 to 9, A to Z) or descending (9 to 1, Z to A) order, based on the contents of one or more columns.

To sort the report, follow these steps**:**

1. From the **Data** menu, select the Organize/Sort command or click the **Organize/Sort** button. The *Organize/Sort* dialog box will be displayed.
2. Select the first sorting item in the *Sort by* box and the sort order – ascending or descending.
3. If the column you specify in the *Sort by* box has items that have identical values for several companies (example, Zacks Rank of 1), you can sort the values further by specifying another column in the first Then By box. If there are duplicate items in the second column, you can specify a third column to sort by in the second Then By box (the ZRS Screener allows for sort on up to four items).
4. Click **OK**.

Running Existing Reports

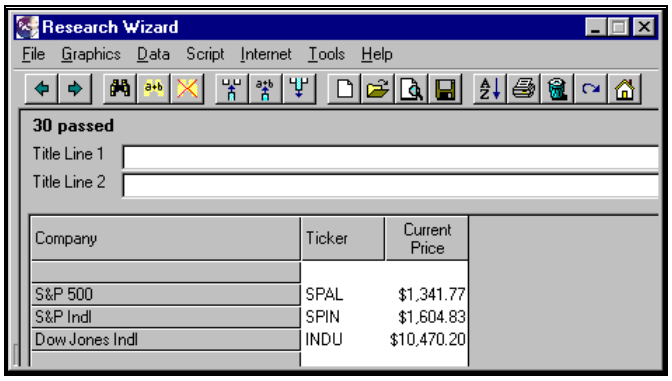
To run an existing report, follow these steps:

1. From the **Report** menu, select the Open Report Definition command. The *Report Definition* dialog box will appear. (Saved reports usually appear in :\zir\inputs folder and have extension *.rpd).
2. Select a report and click **OK**. The **Report Definition** table will fill up.
3. Click **Run Query** to display the report.

The ZRS Screener has several sample pre-formatted reports.

Adding/Removing Indices Options in Reports

By default, every report includes data for S&P 500, S&P Industrials, and DJIA Indices at the top of the report. You can add or remove these indices, by clicking *Indices* from the report output **Data** menu.



Adding Titles to Reports

To add title to your report, type the desired name in the provided report Title section at the report output menu (remember to save the report definition).

Working with Portfolios

Ticker List Overview

ZRS Screener allows you to select and save group of tickers as a portfolio, called a Ticker List. A Ticker List is a text (tab-delimited) file that contains a column of ticker symbols. ZRS Screener has a sample Ticker List - myportf.txt.

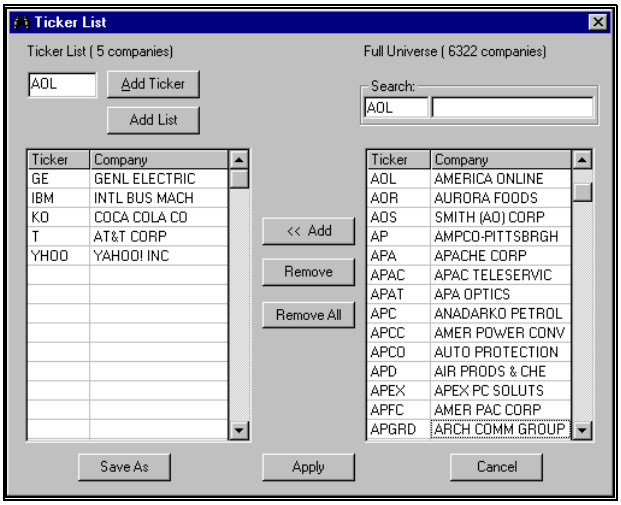
Creating Ticker Lists

ZRS Screener works with special portfolio file called a Ticker List. A Ticker List is a text (tab-delimited) file with one column of data – companies' tickers.

There are several ways you can create a Ticker List. You can save the companies that passed your screening criteria or you can manually enter the ticker symbols to the Ticker List.

To manually create a Ticker List, follow these steps**:**

1. From the **Portfolio** menu, select the Enter New Ticker List command or click the **New Ticker List** button. The *Ticker List* dialog box will appear.



Ticker List dialog box.

2. In the Ticker box, type a ticker symbol.

3. Click **Add Ticker** or press **Enter**.

4. To view the list of all available companies, use the scroll bar to browse the Full Universe selection. Select a company from the list and click **<< Add**.

5. After all of your tickers have been entered, click **Save As** and then **Apply** to make the newly created Ticker List active.

Selecting Ticker Lists

To select a Ticker List, follow these steps:

1. From the **Portfolio** menu, select the Open Ticker List command or click the **Open Ticker List** button. The *Ticker List* dialog box will appear.
2. In the **Look in** box, click the drive and folder that contains the Ticker List.
3. In the folder list, double-click folders until you open the folder that contains the Ticker List you want. Double-click the Ticker List you want to open.

Editing Ticker List

Removing Tickers From Ticker List

To remove tickers from the list, follow these steps:

1. Open the Ticker List and then select the View/Edit Active Tickers command from the **Portfolio** menu, or click the **View/Edit Ticker List** button.
2. At the *Ticker List* dialog box, highlight a ticker on the Ticker List and click **Remove**.
3. To delete all ticker from the list, click **Remove All**.

Adding Tickers to Existing Ticker List

To add tickers to the existing Ticker List, follow these steps:

1. From the **Portfolio** menu, select the View/Edit Active Tickers command, or click the **View/Edit Ticker List** button.
2. At the *Ticker List* dialog, proceed with adding tickers to the list by entering them in the Ticker box.
3. After all of the tickers have been entered, click **Save**.

Combining Several Ticker Lists

To combine several Ticker Lists, follow these steps:

1. Open the first Ticker List and then select the View/Edit Active Tickers command from the **Portfolio** menu, or click the **View/Edit Ticker List** button. The *Ticker List* dialog box appears.
2. Click the **Add List** button.
3. In the **Look in** box, click the drive and folder that contains the Ticker List you want to add.
4. In the folder list, double-click the folders until you open the folder that contains the Ticker List you want.
5. Double-click the Ticker List you want to add.
6. The ticker lists will be combined.

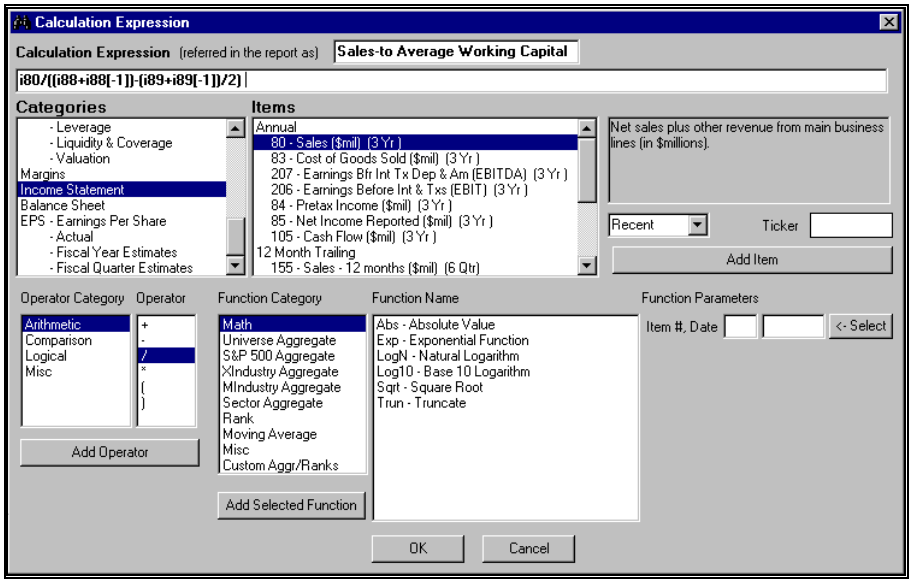
Working with Calculation Expressions

Understanding Calculation Expression (User–Defined Calculations)

With the ZRS Screener, you can create your own screening or reporting items using the Calculation Expression function. The ZRS Screener provides a comprehensive set of operators and functions that you can use to create custom items and complex calculations.

To build a calculation for screening, select the Screen by Calculation Expression command from the **Screen** menu (alternatively, you can click the **Screen by Calculation Expression** button).

To use a calculation in the report, select the Add Calculation Expression command from the **Report** menu (alternatively, you can click the **Add Calculation Expression** button).



Calculation Expression window.

Building Calculation Expression Basics

The Calculation Expressions are built by selecting items, time periods, operators and functions from the corresponding menus of the Calculation Expression window. As you select items, operators, and functions and enter constants to build your expression, the formula for the expression will be displayed in the Calculation Expression data entry box.

There are two techniques for creating a calculation expression: the Direct Method (manually typing in the calculation expression) or using the Choose and Click Method.

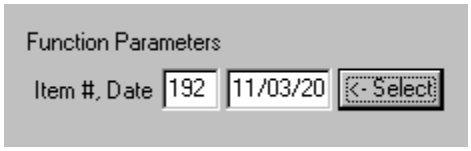
For both options, the calculation expression is displayed in the Calculation Expression data entry box.

Creating Screening Calculation Expression

To create a screening calculated item, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) an item to be used in the calculation. If the item has several time periods, select the period from the pull-down menu. If you want to simply add the item, click the **Add Item** button. (If necessary, use additional operators).

   If you want to use a function, proceed to the Function Parameters selection and click **<-Select** (the item number and period will be shown).

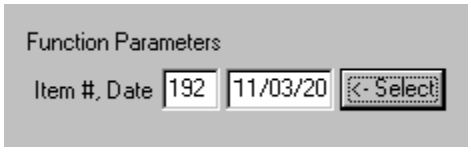


3. Next, select (highlight) the desired Function Category and select the function from the menu. Some functions will have additional parameters that you will need to specify. Click the **Add Selected Function** button when done.
4. Enter the name for the calculated item in the entry box labeled "**Calculation Expression** (referred in the report as)".
5. When the expression is complete, click **OK**. The *Screen By* dialog box will appear. Specify your screening criteria and click **OK**. The calculation expression will be added to the **Screening Criteria** table.

Using Calculation Expression in Reports

To add a calculated item to the report, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) an item to be used in the calculation. If the item has several time periods, select the period from the pull-down menu. If you want to simply add the item, click the **Add Item** button. (If necessary, use additional operators). If you want to use a function, proceed to the Function Parameters selection and click **<-Select** (the item number and period will be shown).



3. Next, select (highlight) the desired Function Category and select the function from the menu. Some functions will have additional parameters that you will need to specify. Click the **Add Selected Function** button when done.
4. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

5. When the expression is complete, click **OK**. The calculated item will be added to the **Report Definition** table.

Changing Calculated Items Name in Screens

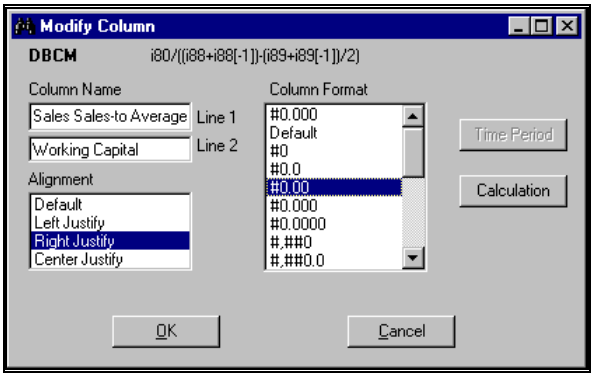
To rename a calculated item in the screen definition, follow these steps:

1. Open the screen definition. At the **Screening Criteria** table, right-click the calculated item to display the Edit menu. (Alternatively, you can double-click the item).
2. Select the Modify command. The *Calculation Expression* dialog box will appear.
3. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)"* and click **OK**. At the *Screen by* menu, enter your parameters and click **OK**.
4. Save the screen definition.

Changing Calculated Items Name in Reports

To rename a calculated item in the report definition, follow these steps:

1. Open the report definition. At the **Report Definition** table, right-click the calculated item to display the Edit menu. (Alternatively, you can double-click the item).
2. Select the Modify command. The *Modify Column* dialog box will appear.
3. At the Column Name section, type the item name using, if needed, two lines for the names (for example: Sales-to Average Working Capital). Click **OK**.



4. Save the report definition.

Calculation Expression Parameters

Overview

The maximum number of characters for a calculation expression is 500. The maximum number of operands/elements that can be used in a calculation expression is 60. The item name for a calculation expression is restricted to 10 characters.

Constants: Large numbers should be typed without commas: 1000000 instead of 1,000,000.

Lag (Date) - You may also lead or lag an item in your calculation expression. For example, you want to calculate 3 month relative price change using the

month end close price (item 6, 13 months available) you create an expression as (i6 – i6[-3]) / i6[-3]. The i6[-3] lags the month end close price (i6) by 3 months.

Ticker - Specifying a ticker in the Calculation Expression allows creation of the Relative Calculations.

Calculation Expression Operator Categories

There are four Operator Categories in the ZRS Screener:

1. Arithmetic Operators:

+ – addition and subtraction

* / multiplication and division

( ) parentheses

2. Comparison Operators:

> Greater than

>= Greater than or equal to

< Less than

<= Less than or equal to

= Equal to

<> Not equal to

3. Logical Operators:

AND returns TRUE if all its arguments are TRUE; returns FALSE if one or more arguments is FALSE.

OR returns TRUE if any argument is TRUE; returns FALSE if all arguments are FALSE.

4. Miscellaneous Operators:

^ Exponentiation operator. Exponentiation may be done in two ways: raising a database item to a specified power, or raising a specified constant to the power of an item.

An item raised to a user-specified power: i##^n would raise the value of item ## to the power n. For example, the expression i5 ^ 2, when item 5 is equal to 54.25, would be interpreted as $(54.25)^2$ and will produce 2,943.06.

A user-specified constant raised to the power of an item: n^i## would raise n to the value of item ##. For example, when the value of item 136 is equal to 2.19, the expression 2 ^ i136 would be interpreted as $(2)^{2.19}$ and will produce 4.58.

| "SELECT" operator. To select alternative item for a calculation if a given item is N/A. Use the "Select" operator (<|>, or <Shift + Backslash>) as follows: **i5 | i6**. This expression will use the value of item 5 unless it is N/A, in which case it will use the value of item 6.

Calculation Expression Function Categories

There are nine function categories available when building a calculation expression. They are:

Math: Use the following functions to manipulate or combine items:

- **Abs** – Calculates the absolute value (i.e. value without its sign).

- **Exp** – Calculates the value of a constant e raised to the specified power.
- **LogN** – Calculates the natural logarithm.
- **Log10** – Calculates the base 10 logarithm.
- **Sqrt** – Calculates a square root.
- **Trun** – Truncates a data item value to the lowest integer by removing the decimal, or fractional, part of the number.

Universe Aggregate: Use this option to perform calculations using all companies in the Zacks database. Aggregate values may then be compared to individual values to create relative comparisons. N/A values are excluded from the calculations.

- **AllSum** – Calculates the Sum value for the selected item for all companies in the Full Universe.
- **AllMed** – Calculates the Median value for the selected item for all companies in the Full Universe.
- **AllMean** – Calculates the Mean value for the selected item for all companies in the Full Universe.
- **AllHi** – Calculates the highest value for the selected item for all companies in the Full Universe.
- **AllLo** – Calculates the lowest value for the selected item for all companies in the Full Universe.
- **AllStdDev** – Calculates the Standard Deviation for the selected item for all companies in the Full Universe.
- **AllMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the Full Universe.

S&P 500 ETF Aggregate: Use this option to calculate aggregate values of the data item for the companies in the S&P 500 ETF. N/A values are excluded from the calculations.

- **SPSum** – Calculates the Sum value for the selected item for the S&P 500 ETF.
- **SPMed** – Calculates the Median value for the selected item for the S&P 500 ETF.
- **SPMean** – Calculates the Mean value for the selected item for the S&P 500 ETF.
- **SPHi** – Calculates the highest value for the selected item for the S&P 500 ETF.
- **SPLo** – Calculates the lowest value for the selected item for the S&P 500 ETF.
- **SPStdDev** – Calculates the Standard Deviation for the selected item for the S&P 500 ETF.
- **SPMktWtAv** – Calculates the Market Weighted Average for the selected item for the S&P 500 ETF.

XIndustry Aggregate: Use this option to calculate aggregate values of the data item for the companies in Zacks X Industry. Aggregate values may then be compared to individual values to create relative comparisons. N/A values are excluded from the calculations.

- **XIndSum** – Calculates the Sum value for the selected item for the companies in the X Industry.
- **XIndMed** – Calculates the Median value for the selected item for the companies in the X Industry.
- **XIndMean** – Calculates the Mean value for the selected item for the selected item for the companies in the X Industry.
- **XIndMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the X Industry.
- **XIndHi** – Calculates the highest value for the selected item for the selected item for the companies in the X Industry.
- **XindLo** – Calculates the lowest value for the selected item for the selected item for the companies in the X Industry.
- **XIndNum** – Returns the Number of Companies in the Industry in the Full Universe.
- **XIndStdDev** – Calculates the Standard Deviation for the selected item for the companies in the X Industry.

MIndustry Aggregate: Use this option to calculate aggregate values of the data item for the companies in Zacks M Industry. Aggregate values may then be compared to individual values to create relative comparisons. N/A values are excluded from the calculations.

- **MIndSum** – Calculates the Sum value for the selected item for the companies in the M Industry.
- **MIndMed** – Calculates the Median value for the selected item for the companies in the M Industry.
- **MIndMean** – Calculates the Mean value for the selected item for the selected item for the companies in the M Industry.
- **MIndMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the M Industry.
- **MIndHi** – Calculates the highest value for the selected item for the selected item for the companies in the M Industry.
- **MindLo** – Calculates the lowest value for the selected item for the selected item for the companies in the M Industry.
- **MIndNum** – Returns the Number of Companies in the Industry in the Full Universe.
- **MIndStdDev** – Calculates the Standard Deviation for the selected item for the companies in the M Industry.

Sector Aggregate: Use this option to calculate aggregate values of the data item for the companies in Zacks X Sector. Aggregate values may then be compared to individual values to create relative comparisons. N/A values are excluded from the calculations.

- **SecSum** – Calculates the Sector Sum value for the companies in the X Sector.
- **SecMed** – Calculates the Sector Median value for the selected item for the companies in the X Sector.
- **SecMean** – Calculates the Sector Mean value for the selected item forthe companies in the X Sector.
- **SectMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the X Sector.

- **SecHi** – Calculates the highest value for the selected item for the selected item for the companies in the X Sector.
- **SecLo** – Calculates the lowest value for the selected item for the selected item for the companies in the X Sector.
- **SecNum** – Returns the Number of Companies in the Industry in the X Sector.
- **SecStdDev** – Calculates the Standard Deviation for the selected item for the companies in the X Sector.

Rank: Classify companies within the full universe or corresponding Zacks Sector, X or M Industry.

- **AllOrdRank** – Classifies companies in the Full Universe using Ordinal Rank.
- **AllHstRank** – Classifies companies in the Full Universe using Histogram Rank.
- **AllUnRank** – Classifies companies in the Full Universe using Uniform Rank.
- **XIndOrdRank** – Classifies companies in the X Industry using Ordinal Rank.
- **XIndHstRank** – Classifies companies in the X Industry using Histogram Rank.
- **XIndUnRank** – Classifies companies in the X Industry using Uniform Rank.
- **MIndOrdRank** – Classifies companies in the M Industry using Ordinal Rank.
- **MIndHstRank** – Classifies companies in the M Industry using Histogram Rank.
- **MIndUnRank** – Classifies companies in the M Industry using Uniform Rank.
- **SecOrdRank** – Classifies companies in the Sector using Ordinal Rank.
- **SecHstRank** – Classifies companies in the Sector using Histogram Rank.
- **SecUnRank** – Classifies companies in the Sector using Uniform Rank.

Moving Average: Use this option to perform the following functions:

- **MovingSum** – Calculate the sum of the values over the specified period for the data item.
- **MovingMean** – Calculate the mean value over the specified period for the data item.
- **MovingLo** – Calculate the lowest value for the specified period for the data item.
- **MovingHi** – Calculate the highest value for the specified period for the data item.

Miscellaneous: Use this option to perform the following:

- **ChkNA** – Produces 0 if item has N/A or 1 if item is not N/A.

- **NaTo0** (item) – Shows a value of the item when item is not N/A. If the item is a N/A, show 0.
- **FiscM** (i2) – Creates calculations using fiscal year end month.
- **FiscD** (i2) – Creates calculations using day in the fiscal year.

Custom Aggregates/Ranks: Use this option to perform the following:

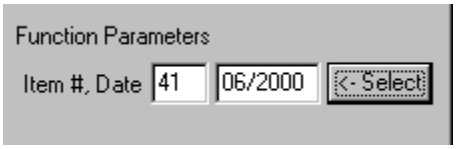
- **AllAgg** – Allows to select a certain aggregate for the full universe.
- **AllWtAv** – Calculate a Weighted Average for all companies in the database universe using any specific item.
- **GrAgg** – Calculate a Group–specific aggregate.
- **SpGrAgg** – Calculate special aggregates for Group.
- **GrOrdRank** – Calculate Ordinal Rank in Group.
- **GrUnRank** – Calculate Uniform Rank in Group.
- **GrHstRank** – Calculate Histogram Rank in Group.

Calculation Expression: Math

Using Math Functions in Screening Calculation Expression

To create a screening calculation expression using the Math function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, click **Math**.
5. From the Function Name list, select the desired Math function (Example: Abs – Absolute Value) and double-click that function name or click the **Add Selected Function** button.

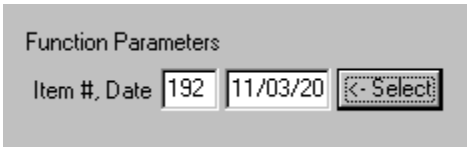
   The calculation expression will appear in the *Calculation Expression* data entry box (Example: Abs(i41[06/2000]).
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.

8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: Math

To add a calculated item to the report using the Math function, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, click **Math**.
5. From the Function Name list, select the desired Math function and double click that function name or click the **Add Selected Function** button. The calculation expression will appear in the Calculation Expression data entry box.
6. Enter the name for the calculated item in the entry box labeled *"**Calculation Expression** (referred in the report as)".*
7. Click **OK**.
8. The Calculation Expression will be added to the **Report Definition** table.

Available Math Functions

- **Absolute Value**: Calculates the absolute value of an item (i.e. without its sign). This function may be applied to a data item, constant or an expression.

  Example a: Abs(i122), when item 122 is –4.69, will be 4.69.

  Example b: 5 * Abs(i122), when item 122 is –4.69, will multiply 5 by the absolute value of item 122 and will be equal to 23.45.

  Example c: Abs(i122/2), when item 122 is –4.69, will be 2.35.

- **Exponential Function** or $\mathbf{e^x}$: Calculates the value of a constant e (2.71828) raised to the power of x. This function may be applied to a data item, constant or an expression.

  Example: Exp(i80), when the value of item 80 is 3 will produce the value of 20.09 (2.71828 raised to the third power).

- **Natural Logarithm** or **ln x**: Calculates the natural (Naperian, or base e) logarithm of a data item. This function may be applied to a data item, constant or an expression.

Example: LogN(i5), when item 5 is 76.06 will be 4.33.

- **Base 10 Logarithm**: Calculates the base 10 logarithm of a number. This function may be applied to a data item, constant or an expression.

  Example: Log10(i5), when item 5 is 76.06 will be 1.88.

- **Square Root**: Calculates a square root. This function may be applied to a data item, constant or an expression.

  Example: Sqrt(i5), when item 5 is 76.06 will be 8.72.

- **Trun:** Truncates a data item value to the lowest integer by removing the decimal, or fractional, part of the number.

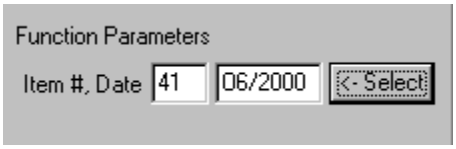
  Example: Trun(i136), when item 136 is 1.925 will produce 1.

Calculation Expression: Universe Aggregate

Using Universe Aggregate Functions in Screening Calculation Expression

To create a screening calculation expression using the Universe Aggregate function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

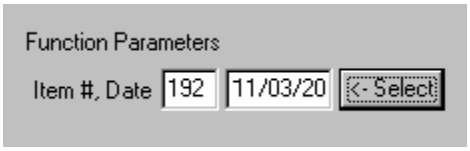


4. From the Function Category list, select the Universe Aggregate category.
5. Next, select the desired Universe Aggregate function from the Function Name list and double-click that function name or click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.
8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: Universe Aggregate

To add a calculated item to the report using the Universe Aggregate function, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, select the Universe Aggregate category.
5. Next, select the desired Universe Aggregate function from the Function Name list and double-click that function name or click **the Add Selected Function** button. The calculation expression will appear in the Calculation Expression data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**.
8. The Calculation Expression will be added to the **Report Definition** table.

Available Universe Aggregate Functions

- **AllSum** – Calculates the Sum value for the selected item for all companies in the Full Universe.
- **AllMed** – Calculates the Median value for the selected item for all companies in the Full Universe.
- **AllMean** – Calculates the Mean value for the selected item for all companies in the Full Universe.
- **AllHi** – Calculates the highest value for the selected item for all companies in the Full Universe.
- **AllLo** – Calculates the lowest value for the selected item for all companies in the Full Universe.
- **AllStdDev** – Calculates the Standard Deviation for the selected item for all companies in the Full Universe.
- **AllMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the Full Universe.Calculation Expression: S&P 500 ETF Aggregate

Using S&P 500 ETF Aggregate Functions in Screening Calculation Expression

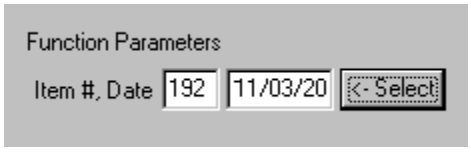
To create a screening calculation expression using the S&P 500 ETF Aggregate function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.
4. From the Function Category list, select the S&P 500 ETF Aggregate category.
5. Next, select the desired S&P 500 ETF Aggregate function from the Function Name list and double-click that function name or click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.
8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: S&P 500 ETF Aggregate

To add a calculated item to the report using the S&P 500 ETF Aggregate function, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, select the S&P 500 ETF Aggregate category.

5. Next, select the desired S&P 500 ETF Aggregate function from the Function Name list and double-click that function name or click **the Add Selected Function** button. The calculation expression will appear in the Calculation Expression data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**.
8. The Calculation Expression will be added to the **Report Definition** table.

Available S&P 500 ETF Aggregate Functions

- **SPSum** – Calculates the Sum value for the selected item for the S&P 500 ETF.
- **SPMed** – Calculates the Median value for the selected item for the S&P 500 ETF.
- **SPMean** – Calculates the Mean value for the selected item for the S&P 500 ETF.
- **SPHi** – Calculates the highest value for the selected item for the S&P 500 ETF.
- **SPLo** – Calculates the lowest value for the selected item for the S&P 500 ETF.
- **SPStdDev** – Calculates the Standard Deviation for the selected item for the S&P 500 ETF.
- **SPMktWtAv** – Calculates the Market Weighted Average for the selected item for the S&P 500 ETF.

Calculation Expression: X Industry Aggregate

Using X Industry Aggregate Functions in Screening Calculation Expression

To create a screening calculation expression using the X Industry Aggregate function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

4. Select the X Industry Aggregate category from the Function Category list and then desired aggregated from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.

5. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

6. Click **OK**. The *Screen by* dialog box will appear.

7. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

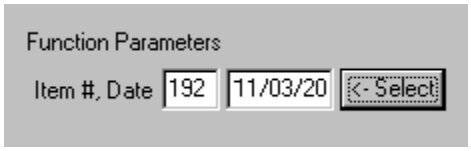
Adding Calculation Expression to Reports: X Industry Aggregate

To add a calculated item to the report using the X Industry Aggregate functions, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.

2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. Select the X Industry Aggregate category from the Function Category list and then desired aggregated from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.

5. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

6. Click **OK**.

7. The Calculation Expression will be added to the **Report Definition** table.

Available X Industry Aggregate Functions

- **XIndSum** – Calculates the Sum value for the selected item for the companies in the X Industry.
- **XIndMed** – Calculates the Median value for the selected item for the companies in the X Industry.
- **XIndMean** – Calculates the Mean value for the selected item for the selected item for the companies in the X Industry.
- **XIndMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the X Industry.
- **XIndHi** – Calculates the highest value for the selected item for the

selected item for the companies in the X Industry.

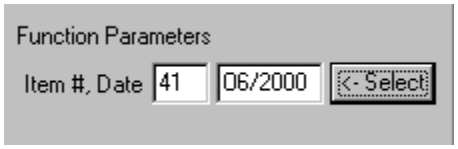
- **XindLo** – Calculates the lowest value for the selected item for the selected item for the companies in the X Industry.
- **XIndNum** – Returns the Number of Companies in the Industry in the Full Universe.
- **XIndStdDev** – Calculates the Standard Deviation for the selected item for the companies in the X Industry.

Calculation Expression: M Industry Aggregate

Using M Industry Aggregate Functions in Screening Calculation Expression

To create a screening calculation expression using the M Industry Aggregate function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

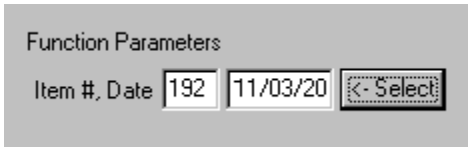


4. Select the M Industry Aggregate category from the Function Category list.
5. Select the desired aggregate from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.
8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: M Industry Aggregate

To add a calculated item to the report using the M Industry Aggregate functions, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. Select the M Industry Aggregate category from the Function Category list.
5. Select the desired aggregate from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**.
8. The Calculation Expression will be added to the **Report Definition** table.

Available M Industry Aggregate Functions

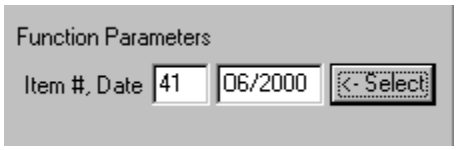
- **MIndSum** – Calculates the Sum value for the selected item for the companies in the M Industry.
- **MIndMed** – Calculates the Median value for the selected item for the companies in the M Industry.
- **MIndMean** – Calculates the Mean value for the selected item for the selected item for the companies in the M Industry.
- **MIndMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the M Industry.
- **MIndHi** – Calculates the highest value for the selected item for the selected item for the companies in the M Industry.
- **MindLo** – Calculates the lowest value for the selected item for the selected item for the companies in the M Industry.
- **MIndNum** – Returns the Number of Companies in the Industry in the Full Universe.
- **MIndStdDev** – Calculates the Standard Deviation for the selected item for the companies in the M Industry.

Calculation Expression: Sector Aggregate

Using Sector Aggregate Functions in Screening Calculation Expression

To create a screening calculation expression using the Sector Aggregate function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

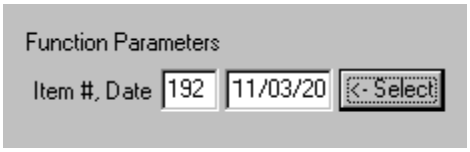


4. Select the Sector Aggregate category from the Function Category list.
5. Select the desired aggregate from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.
8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: Sector Aggregates

To add a calculated item to the report using the Sector Aggregate Functions:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. Select the desired aggregate from the Function Name list and click the **Add Selected Function** button. The calculation expression will appear in the *Calculation Expression* data entry box.
5. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
6. Click **OK**.
7. The Calculation Expression will be added to the **Report Definition** table.

Available Sector Aggregate Functions

- **SecSum** – Calculates the Sector Sum value for the companies in the X Sector.
- **SecMed** – Calculates the Sector Median value for the selected item for the companies in the X Sector.
- **SecMean** – Calculates the Sector Mean value for the selected item forthe companies in the X Sector.
- **SectMktWtAv** – Calculates the Market Weighted Average for the selected item for the companies in the X Sector.
- **SecHi** – Calculates the highest value for the selected item for the selected item for the companies in the X Sector.
- **SecLo** – Calculates the lowest value for the selected item for the selected item for the companies in the X Sector.
- **SecNum** – Returns the Number of Companies in the Industry in the X Sector.
- **SecStdDev** – Calculates the Standard Deviation for the selected item for the companies in the X Sector.

Calculation Expression: Rank

Overview

Ranking functions allow you to classify companies within the full universe or corresponding sector or industry.

The ordinal ranking algorithm will rank items by their values, based on the number of tickers in the group.

The uniform ranking algorithm will place approximately equal numbers of companies in each fractile. If there are several fractiles of companies with the same value for the variable selected, they will be assigned a rank in the middle of the range they would otherwise fill.

The histogram ranking algorithm will create equal-length intervals based on high and low values within each time period. Histogram ranking shows the distribution of values on a selected item. If an item has a wide range of values with a number of "outliers" this ranking method will have small numbers of companies in the top and bottom ranking, and a large number of companies in each of the middle ranks.

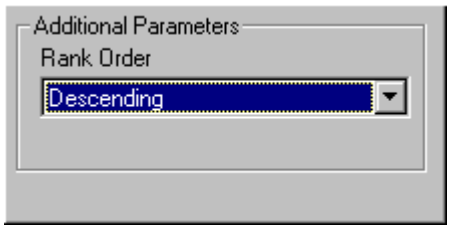
N/A values are not assigned a rank, but receive a N/A rank.

Using Rank Functions: Ordinal Ranking in Screening Calculation Expression

To create a screening calculation expression using the Ordinal Rank function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

4. From the Function Category list click Rank and then select the desired Ordinal ranking (Full Universe, Industry or Sector) from the Function Name list.
5. At the Additional Parameters menu, select a ranking order (ascending or descending) from the Rank Order pull-down menu.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.
7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
8. Click **OK**. The *Screen by* dialog box will appear.
9. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

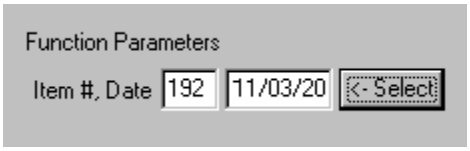
Adding Calculation Expression to Reports: Ordinal Ranking

To add a calculated item to the report using the Ordinal Ranking, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.

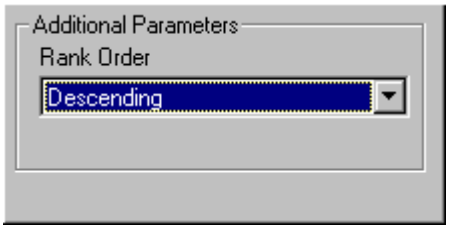
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list click Rank and then select the desired Ordinal ranking (Full Universe, Industry or Sector) from the Function Name list.

5. At the Additional Parameters menu, select a ranking order (ascending or descending) from the Rank Order pull-down menu.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.

7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

8. Click **OK**.

9. The Calculation Expression will be added to the **Report Definition** table.

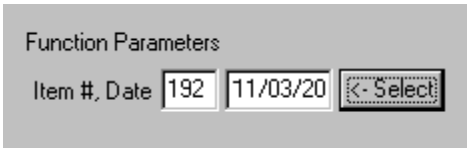
Using Rank Functions: Uniform or Histogram Ranking in Screening Calculation Expression

To create a screening calculation expression using either Uniform or Histogram Ranking, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.

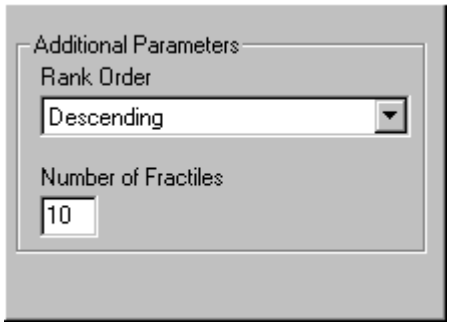
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list click Rank and then select the desired Uniform or Histogram ranking (Full Universe, Industry or Sector) from the Function Name list.

5. At the Additional Parameters menu, select a ranking order (ascending or descending) from the Rank Order pull-down menu and type the number of fractiles (default is 10) into which item's values will be ranked (e.g., 5 for quintiles, 10 for deciles, and so on) in the corresponding Number of Fractiles box.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.

7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

8. Click **OK**. The *Screen by* dialog box will appear.

9. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

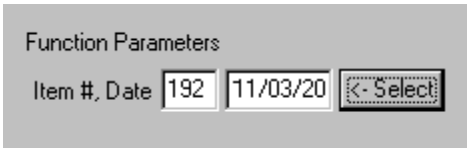
Adding Calculation Expression to Reports: Uniform or Histogram Ranking

To add a calculated item to the report using Uniform or Histogram Ranking, follow these steps:

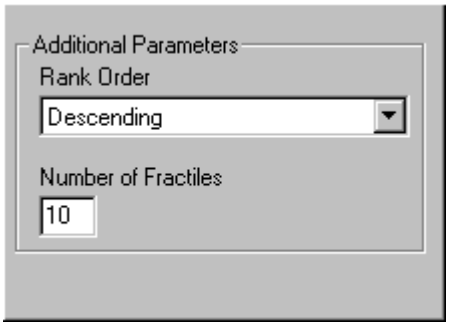
1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.

2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list click Rank and then select the desired Uniform or Histogram ranking (Full Universe, Industry or Sector) from the Function Name list.
5. At the Additional Parameters menu, select a ranking order (ascending or descending) from the Rank Order pull-down menu and type the number of fractiles (default is 10) into which item's values will be ranked (e.g., 5 for quintiles, 10 for deciles, and so on) in the corresponding Number of Fractiles box.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.
7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
8. Click **OK**.
9. The Calculation Expression will be added to the **Report Definition** table.

Available Rank Functions

- **AllOrdRank** – Classifies companies in the Full Universe using Ordinal Rank.
- **AllHstRank** – Classifies companies in the Full Universe using Histogram Rank.
- **AllUnRank** – Classifies companies in the Full Universe using Uniform Rank.
- **XIndOrdRank** – Classifies companies in the X Industry using Ordinal Rank.
- **XIndHstRank** – Classifies companies in the X Industry using Histogram Rank.
- **XIndUnRank** – Classifies companies in the X Industry using Uniform Rank.
- **MIndOrdRank** – Classifies companies in the M Industry using Ordinal Rank.
- **MIndHstRank** – Classifies companies in the M Industry using Histogram Rank.

- **MIndUnRank** – Classifies companies in the M Industry using Uniform Rank.
- **SecOrdRank** – Classifies companies in the Sector using Ordinal Rank.
- **SecHstRank** – Classifies companies in the Sector using Histogram Rank.
- **SecUnRank** – Classifies companies in the Sector using Uniform Rank.

Selecting Ranking Order

When specifying your ranking method, you will be asked to select the ranking order: Ascending or Descending. This selection will specify whether the highest numerical value of the ranked item will be ranked highest (ascending order) or lowest (descending order). For example, an ascending order rank of raw values 47 and 44 might be "10" and "9" respectively. A descending-order rank would assign 47 a "1" and 44 a "2".

In ZRS Screener, there is an assumption that 1 is the best Rank. The descending order will assign low rank numbers to high values. Ascending order will assign low ranks to low values.

Example: Rank on Market Value

Company	Market Cap ($mil)	Ordinal Descending	Histogram Descending (Decile)	Uniform Descending (Decile)
Company A	$82,798	1	1	1
Company B	$56,098	2	4	1
Company C	$53,640	3	4	2
Company D	$13,715	4	9	3
Company E	$6,297	5	10	4
Company F	$1,063	6	10	5
Company G	$626	7	10	6
Company H	$58	8	10	6
Company I	$48	9	10	7
Company J	$41	10	10	8
Company K	$34	11	10	9
Company L	$32	12	10	10

Carefully specify your ranking order when working with the items for which the low values are "better" then the higher ones. For example, Broker Ratings will range from 1 – Strong Buy to 5 – Strong Sell.

Calculation Expression: Moving Average

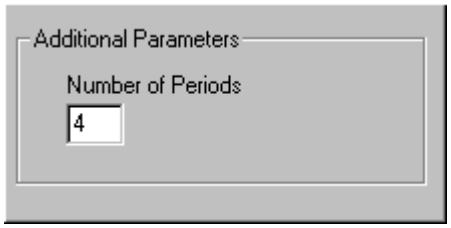
Using Moving Functions in Screening Calculation Expression

To create a screening calculation expression using the Moving function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.

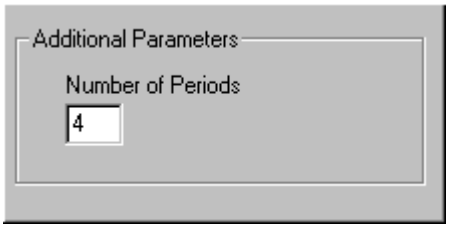
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, click Moving Average and then select the desired function from the Function Name list.

5. At the Additional Parameters menu, select type the number of periods to be used in the moving calculation in the Number of Intervals box.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.

7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

8. Click **OK**.

9. The *Screen by* dialog box will appear. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

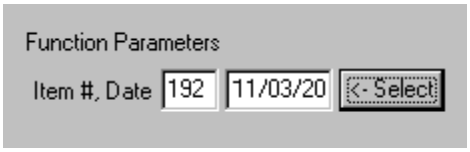
Adding Calculation Expression to Reports: Moving Functions

To add a calculated item to the report using the Moving Average Function, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.

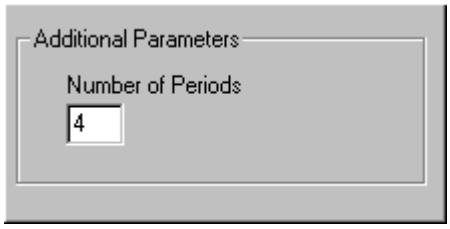
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).

3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, click Moving Average and then select the desired function from the Function Name list.

5. At the Additional Parameters menu, select type the number of periods to be used in the moving calculation in the Number of Intervals box.



6. Click the **Add Selected Function** button to add the expression to the Expression Calculation box.

7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*

8. Click **OK**.

9. The Calculation Expression will be added to the **Report Definition** table.

Available Moving Functions

There are several moving transformations available:

- **The Moving Sum**: Calculates the sum of the values in the specified period for the data item. Example: MovingSum5(i6), when item 6 has the following values for the specified five periods: 71, 59.88, 69.31, 65.94, 69.38, will produce 335.51. Usable for items with multiple periods only.

- **The Moving Mean**: Calculates the mean value over the specified periods for the data item. Example: MovingMean5(i6), when item 6 has the following values for the specified five periods: 71, 59.88, 69.31, 65.94, 69.38, will produce 67.1 as their mean. Usable for items with multiple periods only.

- **The Moving High**: Calculates the highest value for the specified periods for the data item. Example: MovingHi5(i6), when item 6 has the following values for the specified five periods: 71, 59.88, 69.31, 65.94, 69.38, will produce 71 – the highest value over the five periods. Usable for items with multiple periods only.

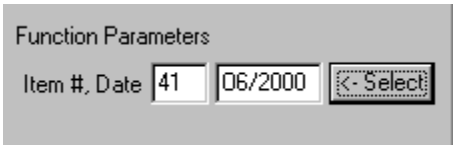
- **The Moving Low**: Calculates the lowest value for the specified periods for the data item. Example: MovingLo5(i6), when item 6 has the following values for the specified five periods: 71, 59.88, 69.31, 65.94, 69.38, will produce 59.88 – the lowest value over the five periods. Usable for items with multiple periods only.

Calculation Expression: Miscellaneous

Using Miscellaneous Functions in Screening Calculation Expression

To create a screening calculation expression using the Miscellaneous function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.

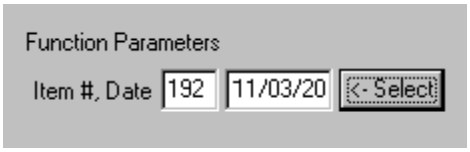


4. From the Function Category list, select the Miscellaneous category.
5. Next, select the desired Miscellaneous function from the Function Name list and double-click that function or click the **Add Selected Function** button. The Calculation Expression will appear in the Calculation Expression data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**. The *Screen by* dialog box will appear.
8. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: Miscellaneous Functions

To add a calculated item to the report using the Miscellaneous Functions, follow these steps:

1. From the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* dialog box will be displayed.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.



4. From the Function Category list, select the Miscellaneous category.
5. Next, select the desired Miscellaneous function from the Function Name list and double-click that function or click the **Add Selected Function** button. The Calculation Expression will appear in the Calculation Expression data entry box.
6. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
7. Click **OK**.
8. The Calculation Expression will be added to the **Report Definition** table.

Available Miscellaneous Functions

- **Fiscal Month** (FiscM): Allows you to create calculations using the fiscal year end month. Could be used in creating time-weighted calculations.

  *Example: ((12 - FiscM(i2))*i49 + FiscM(i2)*(i59|i49)) / 12 will create a Time Weighted 12 Month Forward Looking Estimate, where item 49 is F(1) Consensus Estimate ($/share) and item 59 is F(2) Consensus Estimate ($/share).*

- **Fiscal Day** (FiscD): Allows you to create calculations using the number of days into the company's fiscal year. Could be used in creating time-weighted calculations.

  *Example: ((365-FiscD(i2))*i49+FiscD(i2)*(i59|i49))/365 will create a Time Weighted 12 Month Forward Looking Estimate, where item 49 is F(1) Consensus Estimate ($/share) and item 59 is F(2) Consensus Estimate ($/share).*

- **Check N/A**: Allows you to select or display all tickers in your active universe with N/A's for a given data item; this operation produces 0 if item has N/A or 1 if item is not N/A.

  Example: ChkNA(i41), when item 41 has a value for ticker A as 5% and value for ticker B as N/A for the specified period, this operation will assign 0 for ticker B and 1 for ticker A.

- **Convert N/A to 0**: Converts an NA data point to a 0 value. Shows a value of the item when item is not N/A. If the item is a N/A it will show 0.

  Example: NaTo0(i41), when item 41 has a value for ticker A as 5% and value for ticker B as N/A for the specified period, this operation will assign 0 for ticker B and 5% for ticker A.

Calculation Expression: Custom Aggregates/Ranks

Using Custom Aggregates/Ranks Functions in Screening Calculation Expression

The Custom Aggregates/Ranks functions is a group of special functions that allow users to use any item as the basis for aggregation or ranking. It also allows to use any item as the Weight or Rank Item.

To create a screening calculation expression using the Custom Aggregates/Ranks function, follow these steps:

1. From the **Screen** menu, select the Screen By Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. Select (highlight) the item to be used in the calculation. When the selected item has more than one period of data, you can also select a specific time period from the time period pull-down menu (above the **Add Item** button).
3. At the Function Parameters menu, click the **<-Select** button. The selected item's number and time period will appear in the Function parameters data boxes.
4. From the Function Category list, select the Custom Aggregates/Ranks category.
5. Next, select the desired function from the Function Name list. Specify Additional Parameters and then click the **Add Selected Function** button.
6. The Calculation Expression will appear in the Calculation Expression data entry box.
7. Enter the name for the calculated item in the entry box labeled "***Calculation Expression*** *(referred in the report as)".*
8. Click **OK**. The *Screen by* dialog box will appear. Specify the screening parameters and click **OK**. The Calculation Expression will be added to the **Screening Criteria** table.

Adding Calculation Expression to Reports: Custom Aggregates/Ranks

To add a calculated item using the Custom Aggregates/Ranks Functions, from the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button.

Available Custom Aggregates/Ranks Functions

- **AllAgg** – **All Aggregates**. Allows to select a certain aggregate for the full universe. To use, select from Average, Median, Sum, Hi, Low, number of observations, or Standard Deviation options from the Aggregate Type pull-down menu.
- **AllWtAv** – **All Weighted Average**. Calculates a Weighted Average for all companies in the database universe. To use, select (highlight) the Weight Item from the Items section of the Calculation Expression window, and click the **<-Select** button.

- **GrAgg** – **Group Aggregate**. Calculates a Group–specific aggregate. To use, select from Average, Median, Sum, Hi, Low, number of observations, or Standard Deviation options from the Aggregate Type pull-down menu. Next, select (highlight) the Group Item from the Items section of the Calculation Expression window, and click the **<-Select** button.
- **SpGrAgg** – **Special Group Aggregate**. Calculates special aggregates for Group. To use, select from Average, Median, Sum, Hi, Low, number of observations, or Standard Deviation options from the Aggregate Type pull-down menu. Next, select (highlight) the Group Item from the Items section of the Calculation Expression window, and click the **<-Select** button. Finally, specify if you want the selected aggregate to be True of False, by selecting one from the Boolean value pull-down menu.
- **GrOrdRank** – **Ordinal Rank in Group**. Calculate Ordinal Rank in Group. To use, select (highlight) the Group Item from the Items section of the Calculation Expression window, and click the **<-Select** button. Specify the Rank order.
- **GrUnRank** – **Uniform Rank in Group**. Calculate Uniform Rank in Group. To use, select (highlight) the Group Item from the Items section of the Calculation Expression window, and click the **<-Select** button. Specify the Rank order and number of fractiles to be used in ranking.
- **GrHstRank** – **Histogram in Group**. Calculate Histogram Rank in Group. To use, select (highlight) the Group Item from the Items section of the Calculation Expression window, and click the **<-Select** button. Specify the Rank order and number of fractiles to be used in ranking.

Backtesting

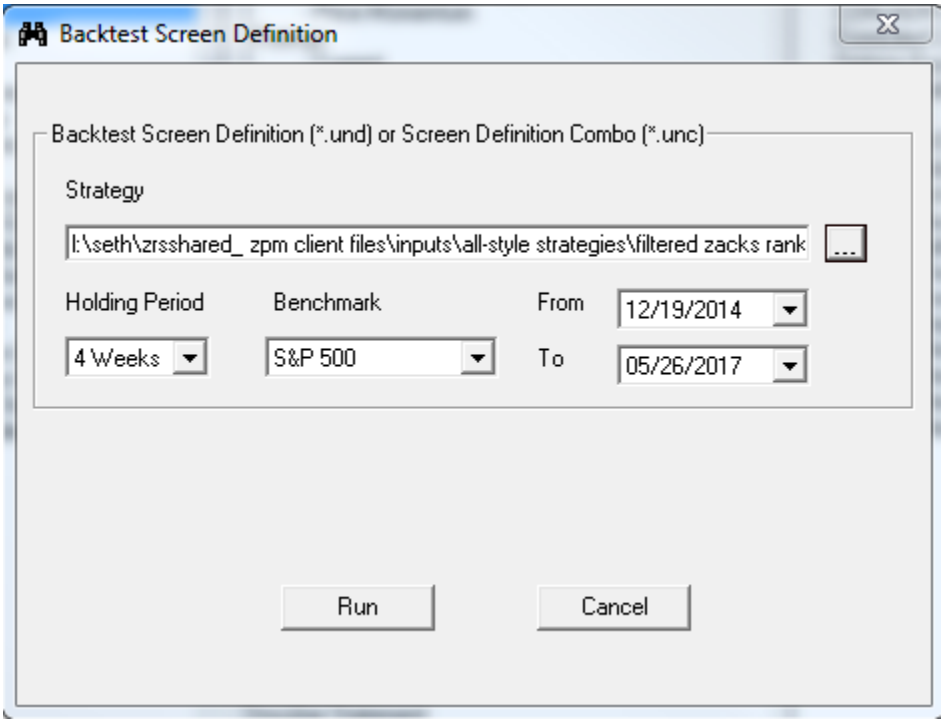
Overview

With the ZRS Screener you can produce reports showing the performance of your screens (based on DBCM data items only). The Backtest option in the ZRS Screener enables you to select a saved screen definition (DBCM items only) and to test it historically and view the screen's performance relative to a benchmark over time.

Running Backtest

To run a Backtest, follow these steps:

1. From the ZRS Screener menu, select the Backtest option. The *Backtest Screen Definition* dialog box will appear.



Backtest Screen Definition dialog box.

2. At the *Backtest Screen Definition* dialog box, select a saved screen by clicking the **Browse** button and selecting a saved screen definition.

3. Select a time period using the **From** and **To** pull-down menus (dates are displayed at the week ends; Backtest ALWAYS shows one week BEFORE the last completed week as the first period for backtesting).

4. Select a Holding Period (in weeks).

5. Select the benchmark: S&P 500 or an Equal Weighted index (DBCM Universe; Eq Wt Index Return = Mean(PriceChg) + Mean(DivYeald) *(nWk/52)).

6. Click the **Run** button to view the results.

If the time frame specified in your backtest is outside the holding period span, you will see the results only for the completed holding periods. For example, if on July 6, 1999, you specified a 24-week holding period (with the time period set from 7/11/1997 to 6/25/1999), you will see 5 period returns, with the period five dated 5/14/1999 - the last complete 24 -week period up to the current date.

DBCM Items Not Suitable for Backtesting (Error 1001)

There are some DBCM items that are not suitable for backtesting. If these items are included in the screen definition, the ZRS Screener will produce an Error message 1001 - Backtest Failed, followed by the Query Error message.

The ZRS Screener does not allow to backtest screens that include the following DBCM items:

Est. One Year EPS Growth F(1)/F(0) – item 529

Est. Two Year EPS Growth F(2)/F(0)) – item 531

12 Mo. Forward Estimate/12 Mo. Actual – item 645

Est.YTD EPS Gr.Q(1)/YTD Year ago – item 636

Est.YTD EPS Gr.Q(2)/YTD Year ago – item 637

Est.YTD EPS Gr.Q(3)/YTD Year ago – item 638

Est.YTD EPS Gr.Q(4)/YTD Year ago – item 639

Est.12 mo. EPS Gr.Q(1)/Year ago – item 533

Est.12 mo. EPS Gr.Q(2)/Year ago – item 534

Est.12 mo. EPS Gr.Q(3)/Year ago – item 535

Est.12 mo. EPS Gr.Q(4)/Year ago – item 536

Est. EPS Gr. Q(1)/Q(0) – item 547

Est. EPS Gr. Q(2)/Q(1) – item 548

Est. EPS Gr. Q(3)/Q(2) – item 549

Est. EPS Gr. Q(4)/Q(3) – item 550

Est. EPS Gr. Q(1)/Q(-3) – item 537

Est. EPS Gr. Q(2)/Q(-2) – item 538

Est. EPS Gr. Q(3)/Q(-1) – item 539

Est. EPS Gr. Q(4)/Q(0) – item 540

Screening Criteria Not Suitable for Backtesting (Error 1004)

Screen Definitions that contain expressions “EVERY” or “ANY” cannot be backtested. If the screen contains any of these expressions, the ZRS Screener will produce an Error message 1004, Bactest Failed, followed by the Query Error message.

Data Limitations and Biases

- There are five years of data available for the backtest.
- The backtest calculates the Total Return as % Price Change + Yield * (52 / Holding Period)in weeks. Since we are using 1,4, 12, or 24 week holding periods, the above Total Return is only an approximation, but we think it is very close to the actual total return.
- The database used for Backtest contains only survivor companies, it is created using the DBCM universe, so all backtests using it have survivor bias.
- On the plus side, the database used for Backtest is the only estimate database in existence that does not have a look ahead bias. For example, in other databases, the Current Fiscal Year (F1) estimates on a specific date t include estimates that were received on dates t +1 , t +2, etc., that were dated before t by the broker but which had not yet been received on date t. The (F1) estimates in the backtest database are what was known on date t.

Understanding Backtest Output Report

The *Historical Performance of the Screen* report shows a summary of the strategy and compares it with the specified benchmark. It shows statistics such as portfolio return, benchmark return and excess returns for entire time span and for individual periods. It also displays how the investment strategy performed in up and down markets.

The *Historical Performance of the Screen* report contains the following data:

Period	Date	Companies in Portfolio	Tot Return of Portfolio %	S&P 500 Tot Return %	Excess Ret of Screen %	STATISTICS ex.: $10,000 start	Strategy	S&P 500
1	12/19/14	4	-0.5	-2.3	1.8	Total Compounded Return %	47.2%	24.1%
2	01/16/15	9	8.2	4.0	4.2	Total Compounded Return $	$14,724	$12,406
3	02/13/15	6	6.1	-1.9	8.0	Compounded Annual Growth Rate %	17.0%	9.2%
4	03/13/15	1	7.0	2.5	4.4	Win Ratio %	66%	63%
5	04/10/15	6	-0.1	0.8	-0.9	Winning Periods/Total Periods	21 of 32	20 of 32
6	05/08/15	4	-3.1	-0.9	-2.2	Avg. # of Stocks Held	4.6	
7	06/05/15	3	-0.6	-0.6	-0.0	Avg. Periodic Turnover %	98.9%	
8	07/03/15	5	-5.4	1.5	-6.8	Avg. Return per Period %	1.4%	0.7%
9	07/31/15	12	-6.2	-5.3	-0.9	Avg. Winning Period %	4.4%	2.4%
10	08/28/15	5	4.0	-2.7	6.7	Largest Winning Period %	19.6%	8.6%
11	09/25/15	2	6.4	7.6	-1.2	Avg. Losing Period %	-4.4%	-2.2%
12	10/23/15	4	0.3	0.8	-0.6	Largest Losing Period %	-13.3%	-6.1%
13	11/20/15	5	4.7	-3.8	8.6	Max. Drawdown %	-25.2%	-10.3%
14	12/18/15	6	-13.3	-6.1	-7.2	Avg. Winning Stretch (# of Periods)	3.5	2.5
15	01/15/16	4	-13.0	-0.6	-12.4	Best Stretch (# of Periods)	6	6
16	02/12/16	3	1.5	8.6	-7.1	Avg. Losing Stretch (# of Periods)	1.8	1.5
17	03/11/16	2	5.1	1.4	3.7	Worst Stretch (# of Periods)	5	3
18	04/08/16	0	0.0	0.6	-0.6			
19	05/06/16	14	7.0	2.2	4.8			
20	06/03/16	2	19.6	0.3	19.3			
21	07/01/16	0	0.0	3.5	-3.5			
22	07/29/16	5	-1.5	-0.1	-1.4			
23	08/26/16	3	4.3	-0.0	4.4			
24	09/23/16	2	1.0	-0.9	1.9			
25	10/21/16	3	6.1	2.1	4.1			
26	11/18/16	2	6.4	3.7	2.7			
27	12/16/16	4	1.1	0.9	0.2			
28	01/13/17	8	-4.3	2.0	-6.3			
29	02/10/17	8	1.5	2.6	-1.1			
30	03/10/17	3	-0.6	-0.6	-0.0			
31	04/07/17	3	1.3	2.0	-0.7			
32	05/05/17	10	1.8	1.8	-0.0			
Average								
		4.9	1.4	0.7	0.7			
Up Markets								
	19	5.1	3.3	2.6	0.8			
Down Markets								
	13	4.8	-1.4	-2.0	0.6			
Annualized								
			19.8	9.8	9.2			

Bactest Report.

Period – displays the number of holding periods in your backtest. This number will depend on the time span and the number of weeks in your holding period specifications.

Date – identifies holding period end dates.

Companies In Portfolio – number of companies passed the screen in each period.

Total Return of Portfolio % – the return of the portfolio comprised of stocks that passed the screening criteria for the period. The returns are "forward - looking" - that is the return value for the week 6/11/1999 represents the return that would be earned during the week from 6/11/1999 to 6/18/1999. These returns are unweighted - in other words, the return for the portfolio is the arithmetic mean of the returns for individual companies in the portfolio.

Calculation: Total Return of Portfolio%: TotRet = PrChMean + DivYldMean * nWeekBt / 52; where PrChMean = Average of i120 (1 wk) or i11(4 wk) or i13(12 wk) or i15(24 wk) for active universe (DBCMHIST), and DivYldMean = Average i26 for active universe.

Benchmark Total Return % – the return of the benchmark for the period shown.

Excess Return of Screen % – the return of the portfolio less the return for the benchmark return for the period shown.

Average – average value of each of the columns.

Up Markets – average for those rank dates where the benchmark return was positive. Displays number of periods.

Down Markets – average for those rank dates where the benchmark return was negative. Displays number of periods.

Annualized Return – calculated as the average return raised to the power (52 / Holding Period in Weeks).

Calculation: ((1+(Average of TotRet)/100)^(52/nWeekBt)-1)*100.

Graphics

Overview

With the ZRS Screener Graphics option, you can produce several special charts: Hot Maps and X-Y Scatter Plot.

With the Hot Map charts, you can graphically evaluate the attractiveness of the companies within the active universe based on the items in your screen or report definitions.

Based on the numerical values of each report item, the companies are ranked on each item using the Full Universe Uniform Rank function (they are ranked into 100 fractiles, equal number of companies in each fractile). The individual scores are then combined into the Composite Rank (the Composite Rank of the company is equally weighted average of individual ranks per each item).

The final score is then interpreted using a color scheme: the most attractive companies are colored in green, and the least attractive are colored in red. The neutral is represented by white.

The X-Y Scatter Plots option produces a scatter plot of two database items. A scatter plot is useful in determining the relationship between two numerical variables. It is constructed simply by plotting the response Y variable (vertical axis) against the explanatory X variable (horizontal axis).

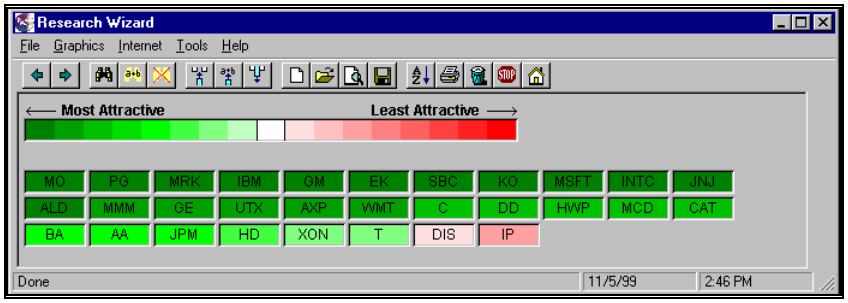
Hot Maps

Specifying Hot Maps

The Hot Map option allows you to graphically view the attractiveness of the companies within the active universe. The Hot Maps can be run only after displaying the results of a screen or a report. The Hot Maps are not available for all data items.

To use the Hot Map feature (after displaying the results of a screen or report), follow these steps:

1. From the **Graphics** menu, select the Hot Maps command. The Hot Maps chart will appear.



2. Use the **Back** button to return to the main menu.

Modifying Hot Maps Display

The Hot Maps display can be organized to view the results as organized by Sector or Industry.

To modify the Hot Map display, follow these steps:

1. At the ZRS Screener main menu, click the **Sort/Organize** button. The *Organize/Sort* window will be displayed.
2. At the Organize by section, select the desired organizational option, and click **OK**.
3. Click the **Run Query** button.
4. From the **Graphics** menu, select the Hot Maps command. The modified Hot Maps chart will be displayed.

Hot Maps Organize Options

The following Organize options can be used:

- Zacks X (Expanded) Industry
- Zacks X (Expanded) Sector
- Zacks (M) Medium Aggregate Industry
- Organize by Zacks Expanded Sector and then by Expanded Industry designations
- Organize by Zacks Expanded Sector and then by Medium Aggregate Industry designations.

If you do not want to have your report organized, select **None** from the pull-down menu.

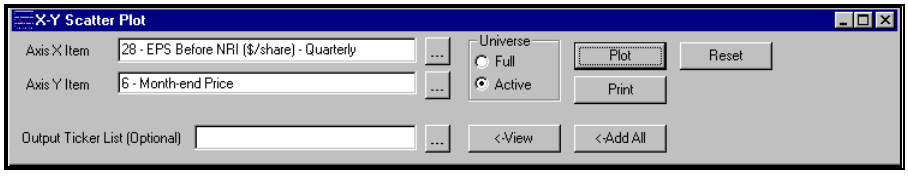
X-Y Scatter Plot

Specifying Scatter Plots

The X-Y Scatter Plot feature produces a scatter plot of the values of any pair of database items for the full or active universe. The graph also displays the results of a linear regression of the variables, including the estimated alpha and beta, the R-squared value, and the number of data points. In addition, the high and lows values for X and Y are provided.

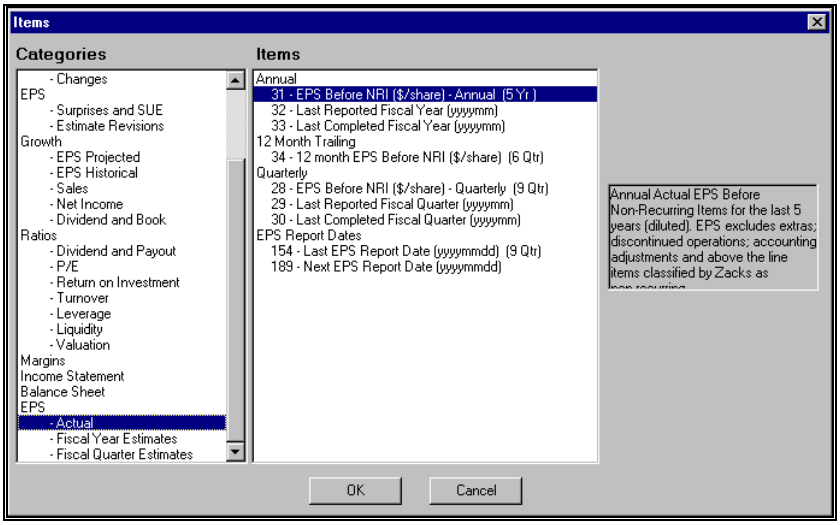
To perform the analysis of two data items, follow these steps:

1. From the **Graphics** menu, select the X-Y Scatter Plot command. The *X-Y Scatter Plot* dialog box will be displayed.



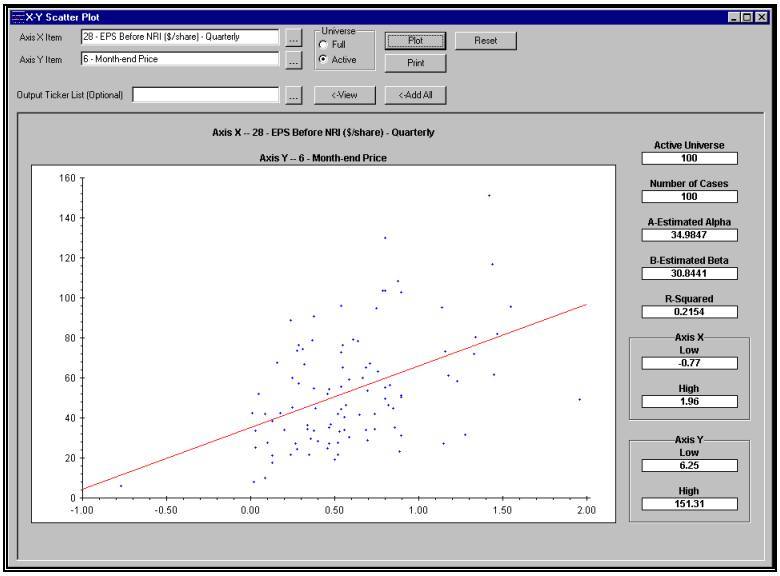
2. You can chart the Scatter Plot for companies in either the Full or Active Universe.To specify the desired Universe option, select the corresponding radio button: Full or Active in the Universe selection section.

3. To select the X-axis item (the independent variable), click the **Browse** button located next to the **Axis X Item** box; to select the Y-axis item (dependent variable), click the **Browse** button located next to the **Axis Y Item** box. The list of the available database items will appear.



4. Double-click the item to select it and click **OK**.

5. After specifying the axes, click **Plot**. The X-Y Scatter Plot will be displayed.



6. To exit the X-Y Scatter Plot menu, click **Close**.

Output Ticker List Option

You can save the list of companies used in the X-Y Scatter Plot, by following these steps:

1. Click the browse button next to the Output Ticker List box.

2. At the *Output Ticker List* menu, specify the Ticker List name and location. You can either type a new Ticker List name, or select an existing Ticker List (if you specify the existing Ticker List, its contents will be replaced with the companies used in the X-Y Scatter Plot). Click **Open** when done.

3. To add the companies used in the X-Y Scatter Plot to the specified Output Ticker List, click the **<-Add All** button.

4. Click **<-View** to see the companies on the list.

X-Y Scatter Plot Display and Summary

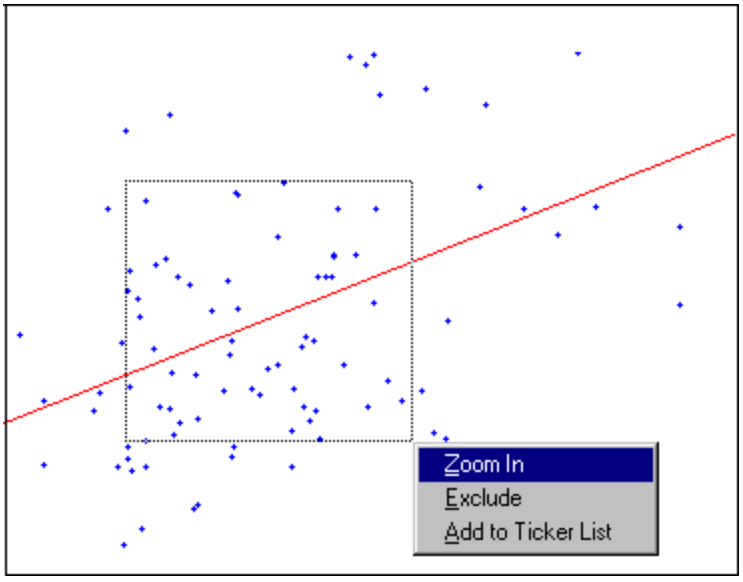
A regression line is fit to a Scatter Plot. Next to the graph, the X-Y Scatter Plot summary is displayed. The summary section displays regression statistics: estimated alpha, estimated beta, R-squared, the size of the active universe, number of cases (non-N/A values), and Low and High for the X and Y values.

Manipulating X-Y Scatter Plot Display

You can zoom in to the specific parts of the chart, exclude some tickers from the plot, or add some companies to the Output Ticker List. To perform any of these tasks, follow these steps:

1. At the X-Y Scatter Plot display, place your cursor at the area you want to analyze.

2. Click the left mouse button, hold it down and drag it up or down to form a rectangular outline.



Scatter Plot display options.

3. You will have the following options available at the drop-down menu: Zoom In, Exclude and Add to Ticker List. Select the desired option from the menu.

4. To return to the original display, click the **Reset** button.

Zoom-In Option

After selecting the area to view, use the Zoom In option to analyze the selected companies.

Exclude Option

After selecting the area to view, use the Exclude option, to eliminate specific companies from the chart (useful for removing extreme data values).

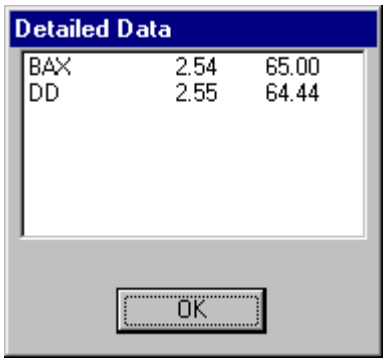
Add to Ticker List Option

After selecting the area of the chart, you can add companies bounded by the area to the specified Output Ticker List.

Detailed Data Window

To view companies associated with a stand alone data point, double-click that data point on the Scatter Plot.

A *Detailed Data* window will be displayed, showing the X and Y values for the companies associated with the data point.



Click **OK** to close the window.

Printing X-Y Scatter Plot

Click the **Print** button at the X-Y Scatter Plot menu to print the graph.

Working with Scripts

Introduction

When you have defined your screens and reports, you can then combine these tasks in one-step process using the Script feature of ZRS Screener. Once you have defined your script, with one click you can then run a series of screens and reports, an then print or export the results.

The script files have extension (*.scr), and are usually stored in the *Inputs* folder of ZRS Screener.

Scripting Process Overview

To create a script you will need to select a task from the Operation list, specify the Parameters for the operation, and then add that task to the script.

Available Script Operations

The following is a list of Script Operations:

- **Open Saved Screen Definition** – select a screen to be used in the script.
- **Open Ticker List** - select a Ticker List to be used in your script.
- **Open Saved Report Definition** - select a report definition to be used in the script.
- **Run Screen/Report Query** - select options for the reports' output.
- **Print Snapshot for Active Tickers** – print Snapshot reports for all companies that passed particular screen.

Available Script Parameters

An Operation selection you made (at the ZRS Screener Script dialog box) will determine the Parameters choices in script. You can specify the location of your screens, portfolios, and reports; select the Full Universe, Active Universe or Ticker List to be used in screening; select the desired output (save in a specific file format, export to other applications, or print).

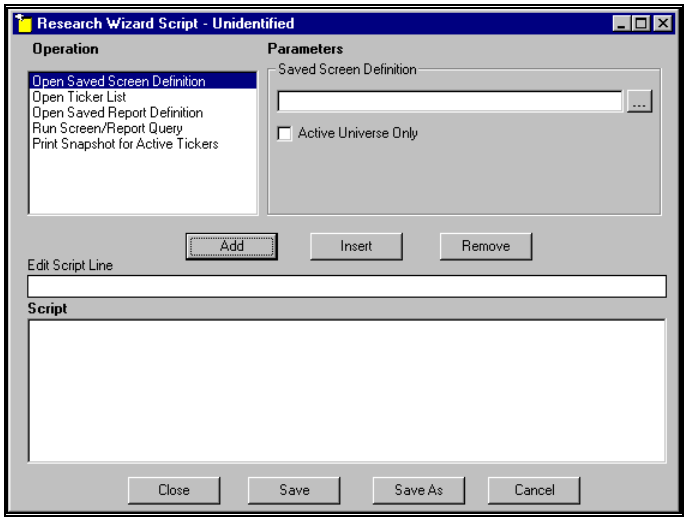
Operation	Script Parameters
Open Saved Screen Definition	 At the Parameters menu, click the **Browse** button to locate the Saved Screen Definition file. If you want to run a subsequent screen on companies that passed your first screening criteria, mark the **Active Universe Only** check box to limit your universe to those that passed the screen.
Open Ticker List	 At the Parameters menu, click the **Browse** button to locate the Ticker List for the report.

Operation	Script Parameters
Open Saved Report Definition	 At the Parameters menu, click the **Browse** button to locate the Report Definition file.
Run Screen/ Report Query	This is a special set of parameters that will allow you to specify the desired output for your screens and reports by using the Parameters pull-down menu. You MUST include the Run Screen/Report Query operation line in your script to produce the output. At the Parameters menu, select from the following: • Print - will print the selected report • Save as Text (tab-delimited) - will save the report results in a *.txt file (specify the file name and location) • Save as Formatted Text (space-delimited) - will save the report results in a *.prn file (specify the file name and location) • Save as CSV (comma-delimited) – will save the report results in a *.csv file (specify the file name and location) **Save as Ticker List** check box – mark it to save the companies that passed the screening criteria in a Ticker List (specify the file name and location)
Snapshot Batch Print	No additional parameters.

Creating New Scripts

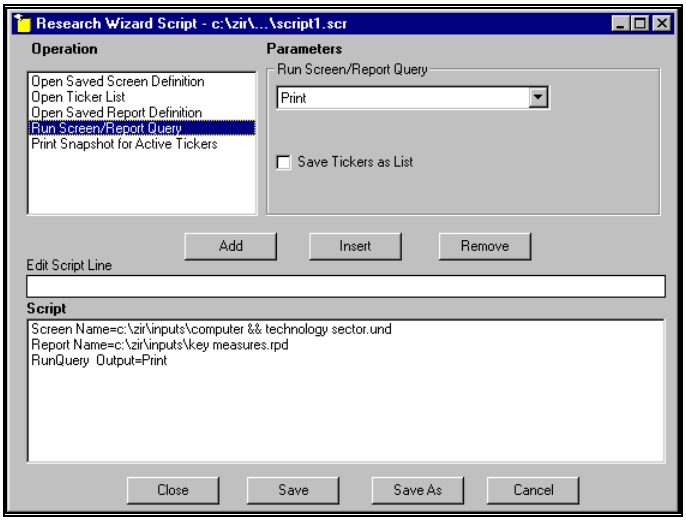
To create a new script, follow these steps:

1. From the **Script** menu select the New Script command. The *ZRS Screener Script* dialog box will be displayed.



2. Highlight the desired action from the **Operation** menu and then select the corresponding script **Parameters**.

3. After selecting each parameter, click the **Add** button. The specified action will appear in the **Script** section of the *ZRS Screener Script* window.



4. Click **Save** when done.

Running Scripts

To run a previously saved script, follow these steps:

1. From the **Script** menu, select the Run Script command.
2. At the *ZRS Screener Script* dialog box, select the script file and click **Open**.

Editing Scripts

To edit a previously saved script, follow these steps:

1. From the **Script** menu, select the Edit Script command.
2. At the *ZRS Screener Script* dialog box, select the script file and click **Open**.
3. At the *Script* window, make the desired changes to the script. To remove a line from the Script section, highlight it and click the **Remove** button.
4. Save your script.

Screening Examples

Basic Screening

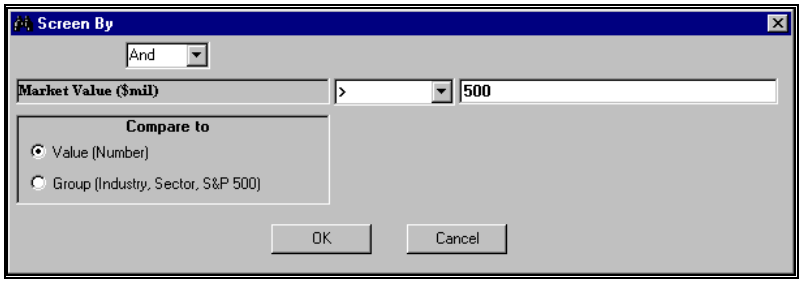
The following examples will introduce you to the screening basics. Before running each screen, clear both the **Screening Criteria** and **Report Definition** tables, unless otherwise noted.

Screening for Investable Universe

Using the Current Market database (DBCM) of over 6,500 companies, let's narrow down our investable universe to include companies with the market cap over 500 million and that are followed by at least 3 analysts.

Define a screen for stocks with a market capitalization above 500 million:

1. From the list of *Categories*, choose a Company category and then the sub-category - Size and Share Volume.
2. From the *Items* section, choose the *Company Size* category and highlight the Market Value ($mil) item.
3. Double-click the Market Value ($mil) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
4. The *Screen By* dialog box will be displayed. From the operators pull-down menu, select the greater than (>) operator.
5. In the value entry box type the market capitalization: "500 " (market cap item is in millions) and click **OK**.

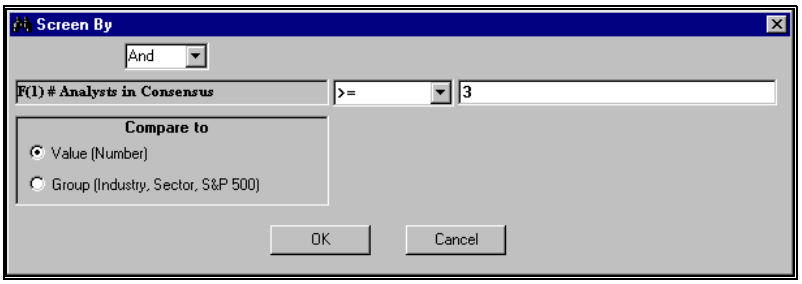


6. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

Next, screen for the companies followed by at least 3 analysts:

7. From the list of *Categories*, select the EPS category and then the Fiscal Year Estimates sub-category.
8. From the *Item* list, choose the *Estimates for Current Fiscal Year* category and highlight the F(1) # Analysts in Consensus item.
9. Double-click the F(1) # Analysts in Consensus item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
10. The *Screen By* dialog box will appear. From the operators pull-down menu, select the equal or greater than (>=) operator.

11. In the value entry box type “3” and click **OK**.



12. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

13. Next, click the **Run Query** button to run the investable universe definition screen.

When you have executed the screen, your active universe will consist of only those tickers that meet all of your screening criteria and the **Screening Criteria** table will show the number of tickers passed the screen.

Screening on Stocks vs. their Industry

Continue from the previous example.

Now that we have defined our investable universe, let’s find companies that have an EPS growth that is above the median for their Industry and for which analysts are revising their estimates.

(If you are at the Report display, click the **Back** button to return to the main menu).

Define a screen for stocks that have an EPS growth above their X Industry median:

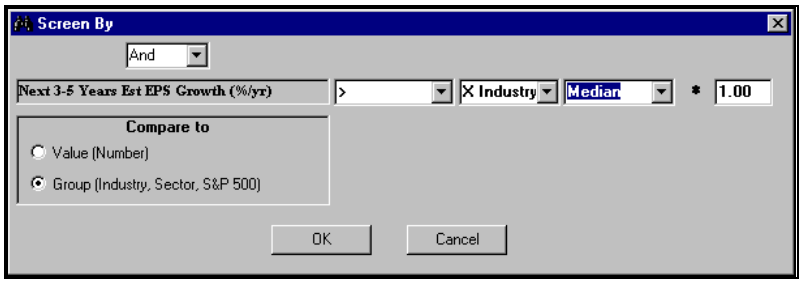
1. From the list of *Categories*, select the Growth category and then the EPS Projected sub-category.

2. From the *Item* list, choose the *Trend* category and highlight the Next 3-5 Years Est EPS Growth (%/yr) item.

3. Double-click the Next 3-5 Years Est EPS Growth (%/yr) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.

4. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the *Compare to* section, choose Group.

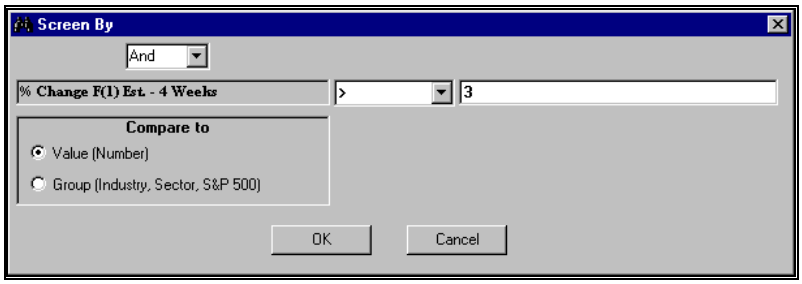
5. From the Group pull-down menu, select X Industry as the group and select Median as the aggregate. Leave the default “1.00” value in the coefficient box (the default coefficient of 1.00 represents the Industry median) and click **OK**.



6. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

Next, search for companies with the estimate increases above 3%:

7. From the list of *Categories*, select the EPS category and then the Estimate Revisions sub-category.
8. From the *Item* list, choose the *Estimate Revisions - Last 12 Weeks* category and highlight the %Change F(1) Est. - 4 Weeks item.
9. Double-click the %Change F(1) Est. - 4 Weeks item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
10. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the value entry box type "3" and click **OK**.



11. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
12. Next, click the **Run Query** button to run the screen and view the companies that meet our criteria.

Screening on Two Criteria

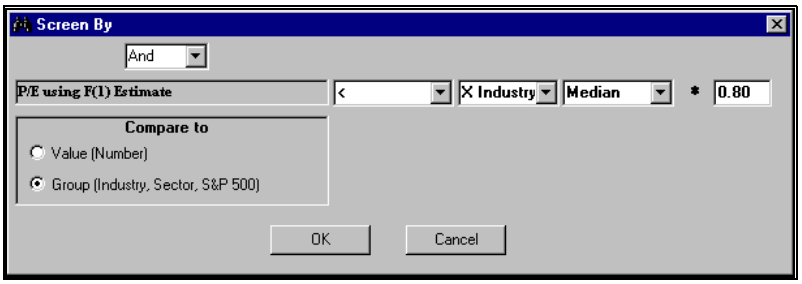
Screen for stocks that have a P/E (using F1 estimate) 20% below the X Industry median and are paying dividends.

1. From the list of *Categories*, select the Ratios category and then the P/E sub-category.
2. From the *Item* list, choose *P/E Ratios using EPS Estimates* category and highlight the P/E using F(1) Estimate item.
3. Double-click the P/E using F(1) Estimate item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.

4. The *Screen By* dialog box will be displayed. From the operators pull-down menu, select the less than (<) operator. In the *Compare to* section, choose Group.

5. From the Group pull-down menu, select X Industry as the group and select median as the aggregate.

6. Next, type 0.8 in the coefficient box. The default coefficient of 1.00 represents the Industry median. Typing 0.8 will indicates the P/E 20% below the median P/E. Click **OK**.



7. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

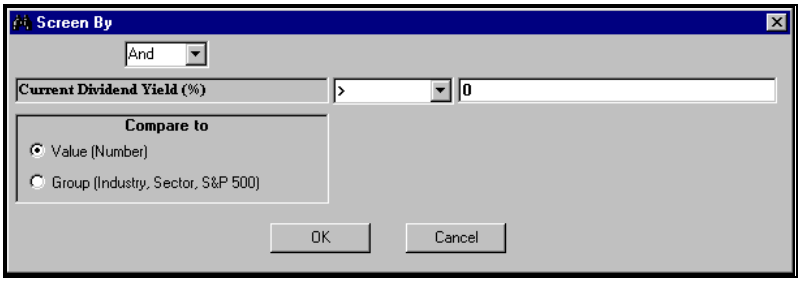
Next you would like to include only stocks that pay dividends. To do this, screen for stocks with a current dividend yield above 0.

8. From the list of *Categories*, select the Ratios category and then the Dividend and Payout sub-category.

9. From the *Item* list, choose the Dividend Ratio category and then highlight the Current Dividend Yield (%) item.

10. Double-click the Current Dividend Yield (%) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.

11. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the value entry box type "0" and click **OK**.



12. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

13. Next, click the **Run Query** button to run the screen and view the companies that meet our criteria.

Screening for Growth

ROE>20%, Estimated EPS Growth >20% and P/E 12 month < 15.

1. From the list of *Categories*, select the Ratios category and then the Return on Investments sub-category.
2. From the *Item* list, choose the *Return on Equity (ROE)* category and highlight the ROE - Most Recent 12 month (%) item.
3. Double-click the ROE - Most Recent 12 month (%) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
4. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the value entry box type "20" and click **OK**.
5. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
6. From the list of *Categories*, select the Growth category and then the EPS Projected sub-category.
7. From the *Item* list, choose the *Trend* category and highlight the Next 3-5 Years Est EPS Growth (%/yr) item.
8. Double-click the Next 3-5 Years Est EPS Growth (%/yr) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
9. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the value entry box type "20" and click **OK**.
10. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
11. From the list of *Categories*, select the Ratios category and then the P/E sub-category.
12. From the *Item* list, choose *P/E Ratios using EPS Actuals* category and highlight the P/E using 12 month EPS item.
13. Double-click the P/E using 12 month EPS item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
14. The *Screen By* dialog box will appear. From the operators pull-down menu, select the less than (<) operator. In the value entry box, type "15" and click **OK**.
15. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
16. Next, click the **Run Query** button to run the screen and view the companies that meet our criteria.

Screening for Value

Trailing 12 month P/E < 15, Price/Book < 1 and ROE > 15%.

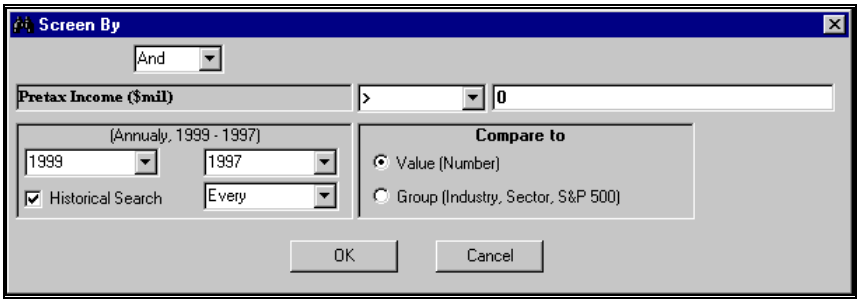
1. From the list of *Categories*, select the Ratios category and then the P/E sub-category.
2. From the *Item* list, choose *P/E Ratios using EPS Actuals* category and highlight the P/E using 12 month EPS item.
3. Double-click the P/E using 12 month EPS item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
4. The *Screen By* dialog box will appear. From the operators pull-down menu, select the less than (<) operator. In the value entry box, type "15" and click **OK**.
5. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
6. From the list of *Categories*, select the *Ratios* category and then the Valuation sub-category.
7. From the *Item* list, choose the *Price/Fundamentals* category and highlight the Price/Book (Common Equity) item.
8. Double-click the Price/Book (Common Equity) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
9. The *Screen By* dialog box will appear. From the operators pull-down menu, select the less than (<) operator. In the value entry box, type "1" and click **OK**.
10. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
11. From the list of *Categories*, select the Ratios category and then the Return on Investments sub-category.
12. From the *Item* list, choose the *Return on Equity (ROE)* category and highlight the ROE - Most Recent 12 month (%) item.
13. Double-click the ROE - Most Recent 12 month (%) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
14. The *Screen By* dialog box will appear. From the operators pull-down menu, select the greater than (>) operator. In the value entry box, type "15" and click **OK**.
15. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.
16. Next, click the **Run Query** button to run the screen and view the companies that meet our criteria.

Using Historical Search Option

The Historical Search option allows you to screen on several data periods. In addition, you can specify whether you want the specific conditions to be met in Every or Any period.

In this example you will screen for companies that had a positive pre-tax income **Every** year for the past three years. We will be using DBCM item 84.

1. From the *Categories* list select the *Income Statement* category.
2. From the *Items* list, select the *Annual* category and then highlight the Pretax Income ($mil) item.
3. Double-click the Pretax Income ($mil) item (or select the Screen by Database Item command from the **Screen** menu) or click the **Screen by Database Item** button.
4. The *Screen By* dialog box will appear. Check the **Historical Search** box.
5. Using the corresponding pull-down menus, select the desired time periods and the option **Every** year.
6. From the operators pull-down menu, choose the greater than (>) operator. In the value entry box, type "0" and click **OK**.



7. The screening item will appear in the **Screening Criteria** table (below the Categories and Items section). It will also be added to the **Report Definition** table.

Examples of Advanced Screening and Reporting

Calculating New Items Using Existing Database Items

Suppose you want to include the Sales-to-Average Working Capital ratio in your report for a portfolio. You can create this item using the DBCM items 80 (Annual Sales), 88 (Annual Total Current Assets), and 89 (Annual Total Current Liabilities).

Working Capital is calculated as the difference between the current assets and current liabilities. To create an average Working Capital we will use the average Total Current Assets and the average Total Current Liabilities.

To create the Sales-to Average Working Capital ratio using the Direct Method (manually typing in the calculation expression), follow these steps:

1. Select a Ticker List first.

2. From the **Report** menu, select the Add Calculations Expression command or click the **Add Calculations Expression** button. The *Calculation Expression* window will be displayed.
3. Type the following formula in the Calculation Expression data entry box:

i80/((i88+i88[-1])-(i89+i89[-1])/2)

4. Click **OK**.

5. The calculated item will be added to the **Report Definition** table.

To create the above calculation using your mouse, select the items and operators by double-clicking them from the corresponding sections of the Calculation Expression window.

How to Screen for Several Industries

This example will show how to screen for several X Industries at the same time using the DBCM database.

1. From the *Categories* section, select the *Company* category and then the Descriptive sub-category.

2. From the *Items* section, select the *Sector and Industry Codes* category and highlight the Zacks Industry Codes (1-200+) item.

3. Double-click the Zacks Industry Codes item. The *Screen by* dialog box will appear, containing the list of available X Industries.

4. Press **Ctrl** key on your keyboard and at the same time highlight Industry 211(Electronic Commerce, 212 (Internet Content, 213 (Internet Services) and 214(Internet Software) with your left mouse button.

5. Click **OK**.

6. The selected Industries will be added to the **Screening Criteria** table.

Tip: To screen for several consecutive industries, hold your **Shift** key and highlight consecutive industries with your mouse.

Using Moving Functions in Reports

In this example, we will create a report with the MovingHi calculation for the 12 month-end prices for the companies in your portfolio (using the DBCM database).

To use the MovingHi function, follow these steps:

1. After selecting the portfolio, from the **Report** menu, select the Add Calculation Expression command or click the **Add Calculation Expression** button. The *Calculation Expression* window will appear.

2. From the list of categories, select the *Price and Price Changes* category.

3. From the *Items* list, select the *Price* category and highlight the Month-end Price item (i6).

4. From the Function Category menu, select the Moving Average option.

5. From the Function Name menu, highlight the MovingHi function and double-click it to open up the *Moving Average* dialog box.

6. In the *Moving Average* dialog box, enter 12 as the number of periods and Click **OK**.

7. The following expression will appear in the Calculation Expression data entry box: MovingHi12(i6).

8. Click **OK**.

Using Boolean "And" Calculations

Example A

"Technical Investor": Screen the DBCM database for companies with significant recent price action. Select those companies with a 20% price increase over the last 4 week period and a 50% price increase over the last 12 week period.

Four week %Price change is DBCM Item 11 and twelve week %Price Change is DBCM Item 13.

1. From the **Screen** menu, select the Screen by Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will be displayed.
2. Type the following expression into the Calculation Expression data entry box:

   i11>20 And i13>50
3. Click **OK**.
4. The *Screen By* dialog box will appear. Select TRUE from the menu options to include only those companies that meet both conditions (20% price increase over the last 4 week period and a 50% price increase over the last 12 week period).
5. The **Screening Criteria** table will fill up showing the calculation. The Report Definition will also contain the calculation expression. You may want to delete it from the Report Definition, because every company will have 1 as the data value. Instead, you may want to include a 4 week % Price Change item and a 12 week %Price Change item.
6. Click the **Run Query** button to view the companies that passed your screen.

Example B

Search for companies with the P/E in a 15 to 25 range and include only companies with the positive EPS.

We will use DBCM items 34 (12 month Trailing EPS) and 76 (P/E using 12 month EPS). We will use the Choose and Click Method for creating this calculation expression.

Here is how you can define these conditions:

1. From the **Screen** menu, select the Screen by Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will be displayed.
2. From the list of categories, select the *Ratios* category and then the P/E sub-category.
3. From the *Items* list, select the *P/E ratios using EPS Actuals* category and highlight the P/E using 12 month EPS item. Double-click the item; it will be added to the Calculation Expression data entry box: i76.
4. From the Operator Category, select Comparison and highlight the greater than (>) operator and click the **Add Operator** button.
5. In the Calculation Expression data entry box, type "15" (i76 > 15).

6. From the Operator Category, select Logical and highlight the "And" operator and click the **Add Operator** button.
7. From the list of categories, select the *Ratios* category and then the P/E sub-category.
8. From the *Items* list, select the *P/E ratios using EPS Actuals* category and highlight the P/E using 12 month EPS item. Double-click the item, it will be added to the Calculation Expression data entry box: i76.
9. From the Operator Category, select Comparison and highlight the less than (<) operator and click the **Add Operator** button.
10. In the Calculation Expression data entry box, type "25" (i76 < 25).
11. From the Operator Category, select Logical and highlight the "And" operator and click the **Add Operator** button.
12. From the *Categories* list, select EPS, and then *Actual* sub-category.
13. From the *Items* list, select the 12 Month trailing and highlight the 12 month EPS before NRI item. Double-click that item to be added to the Calculation Expression data entry box (i34).
14. From the Operator Category, select Comparison and highlight the greater than (>) operator and click the **Add Operator** button.
15. In the Calculation Expression data entry box, type "0" (i34 > 0), so that final calculation expression will look like this:

    i76 >15 And i76 < 25 And i34 >0
16. Click **OK**.
17. The *Screen By* dialog box will appear. Select TRUE from the menu options to include only those companies meeting all three conditions (P/E ratios in a 15 to 25 range and only positive EPS).
18. The **Screening Criteria** table will fill up showing the calculation. The Report Definition will also contain the calculation. You may want to delete it from the Report Definition, because every company will have 1 as the data value. Instead, you may want to include the items 76 and 34.
19. Click the **Run Query** button to run the screen.

Using Boolean "Or" Calculations

In this example, we will search for companies that have P/E in a 20 to 25 range or PEG Ratio of 1. We will use DBCM items 72 - P/E using F(1) Estimate and item 551 - PEG Ratio (P/E F(1)/ EPS Growth). We will use the Direct Method for creating this calculation expression.

Here is how you can define these conditions:

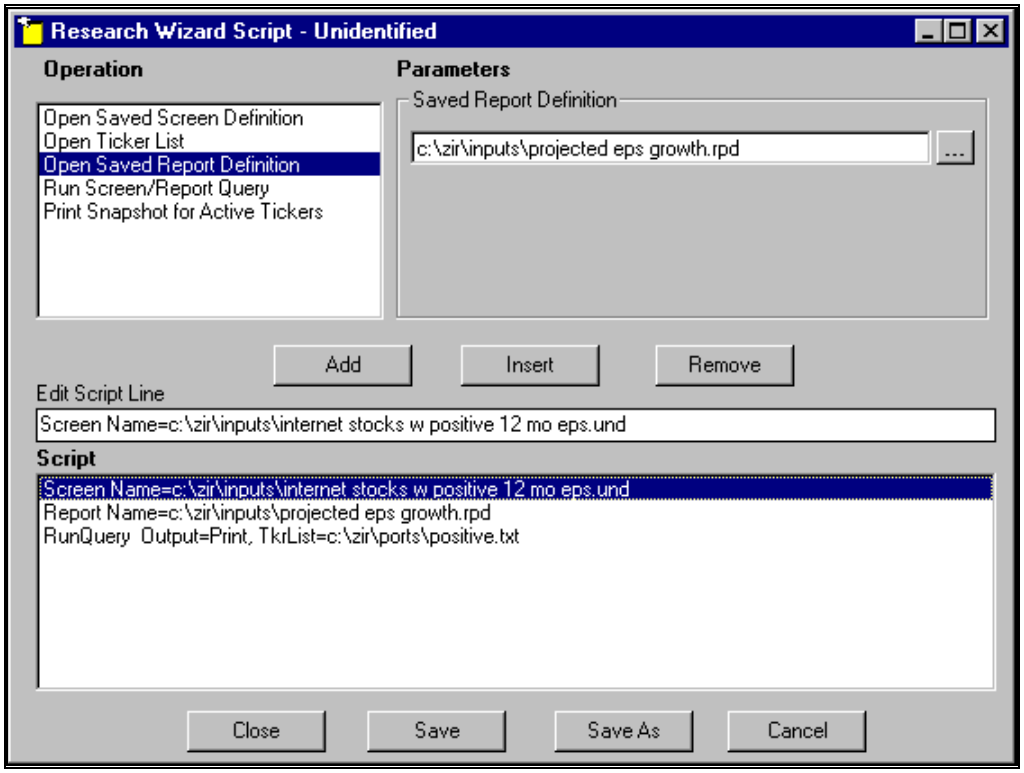
1. From the **Screen** menu, select the Screen by Calculation Expression command or click the **Screen by Calculation Expression** button. The *Calculation Expression* window will appear.
2. In the Calculation Expression data entry box, type the following formula:

   i72>20 And i72<25 Or i551=1
3. Click **OK**. The *Screen By* dialog box will appear. Select TRUE from the menu options.
4. The **Screening Criteria** table will fill up showing the calculation. The Report Definition will also contain the calculation. You may want to

delete it from the Report Definition, because every company will have 1 as the data value. Instead, you may want to include the items 72 and 551.

Sample Script

Here is a sample script that selects a screening definition, runs a report, saves the report as a *.csv file and saves the companies that passed the screen as a Ticker List.



Screening/Reporting on Multiple Databases

To create a calculation involving data from multiple databases, use the following syntax at the Calculation Expression menu:

1. If you want to use the item from the active database and another database, you can specify the following calculation: i5/DBDA:i 25
2. If you have one active database and want to use the items from two other databases, you can specify the following calculation:

   DBCM: i 6/DBDP: i6.

Using Index Tickers

Zacks databases contain information on various Indexes. The following table lists the available Indexes and corresponding ticker symbols:

Index	Ticker

Dow Jones Industrial Average	INDU
Nasdaq Composite	COMPX
Russell 2000	RUT.X
S&P 100	OEX.X
S&P 500	SPAL
S&P 500 As Reported	SPX.X
S&P Industrial	SPIN
S&P Industrial As Reported	SPN.X
S&P MidCap 400	MID.X
S&P SmallCap 600	SML.X
Wilshire 5000	WLSH

Appendix

List of Zacks Sector and Industry Designations

The following is a list of Zacks X (Expanded) Industries, Zacks Sectors, and Zacks M (Medium) Industries designations.

Zacks X (Expanded) Sector Groups

0 Indices
1 Consumer Staples
2 Consumer Discretionary
3 Retail-Wholesale
4 Medical
5 Auto-Tires-Trucks
6 Basic Materials
7 Industrial Products
8 Construction
9 Conglomerates
10 Computer and Technology
11 Aerospace
12 Oils-Energy
13 Finance
14 Utilities
15 Transportation
16 Business Services
17 Unclassified

Zacks M (Medium) Industry Groups

0 INDICES
1 APPAREL
2 BEVERAGES
3 FOOD
4 PUBLISHING
5 SOAPS-COSMETICS
6 TOBACCO
7 CONS PROD-MISC STAPLES
8 HOME FURNISHING-APPLIANCE
9 LEISURE SERVICE
10 MEDIA
11 PHOTO EQUIPMENT & SUPPLIES
12 OTHER CONSUMER DISCRETIONARY
13 FOOD/DRUG-RETAIL/WHOLESALE
14 NONFOOD RETAIL-WHOLESALE
15 DRUGS
16 MEDICAL CARE
17 MEDICAL PRODUCTS
18 AUTOS-TIRES-TRUCKS
19 CHEMICALS & FERTILIZER
20 METALS-NON FERROUS
21 STEEL
22 PAPER
23 CONTAINERS & GLASS
24 INDUSTRIAL PRODUCTS-SERVICES
25 MACHINERY-ELECTRICAL
26 MACHINERY
27 POLLUTION CONTROL
28 BUILDING PRODUCTS
31 COMPUTER-OFFICE EQUIPMENT
32 COMPUTER SOFTWARE-SERVICES
33 ELECTRONIC-SEMICONDUCTORS
34 ELECTRONICS
35 MISC TECHNOLOGY
36 TELECOMMUNICATIONS EQUIPMENT
37 TELECOMMUNICATIONS SERVICES
38 AEROSPACE-DEFENSE
39 COAL
40 ENERGY-ALTERNATE SOURCES
41 OIL MACHINERY-SERVICES-DRILLING
42 OIL-EXPLORATION&PRODUCTION
43 OIL-MISC
44 OIL-INTEGRATED
45 OIL&GAS PRODUCTION-PIPELINE
46 BANKS-MAJOR
47 BANKS & THRIFTS
48 FINANCE
49 INSURANCE
50 INVEST BKRS-MGRS
51 INVESTMENT FUND
52 REAL ESTATE
53 UTILITY-ELEC PWR
54 UTILITY-GAS DISTR
55 UTILITY-TELEPHONE
56 UTILITY-WATER SUPPLY
57 TRANSPORTATION-AIR
58 TRANSPORTATION
59 BUSINESS SERVICE

29 CONSTRUCTION-BUILDING SERVICES
30 CONGLOMERATES
70 UNCLASSIFIED

Zacks X (Expanded) Industry Groups

1 ADVERTISING
2 AEROSP/DEFENSE
3 AEROSP/DEF EQ
4 AGRI OPERATIONS
5 APPLIANCE-HSHLD
6 AUDIO/VIDEO PRD
7 AUTO -DOMESTIC
8 AUTO -FOREIGN
9 RET/WHL-AUTO PT
10 AUTO/TRUCK-ORIG
11 AUTO/TRUCK-REPL
12 BANKS-FOREIGN
13 BANKS-MIDWEST
14 BANKS-MONEY CTR
15 BANKS-NORTHEAST
16 BANKS-SOUTHEAST
17 BANKS-SOUTHWEST
18 BANKS-WEST
19 BEVERAGES-ALCOH
20 BEVERAGES-SOFT
21 BLDG&CONST-MISC
22 BLDG PRD-AIR/HT
23 BLDG PRD-DRS&TR
24 BLDG PRD-LTG FX
25 BLDG PRD-RT/WHL
26 BLDG PRD-WOOD
27 BLDG-CMT/CNT/AG
28 BLDG-HEAVY CNST
29 BLDG-MAINT & SV
30 BLDG-MBL/MFG&RV
31 BLDG-RSDNT/COMR
32 BRDCST-RADIO/TV
33 CABLE TV
34 CHEM-DIVERSIFD
35 CHEM-FIBERS
36 CHEM-PLASTICS
37 CHEM-SPECIALTY
38 COAL
39 COMP-GRAPHICS
40 COMP-MAINFRAME
41 COMP-MICRO
42 COMP-PERIPH EQP
43 COMP-SERVICES
44 COMP-SOFTWARE
45 CONTNRS-MTL/GLS
46 CONTNRS-PPR/PLS
47 COSMETICS&TLTRS
48 DIVERSIFIED OPS
49 ELEC COMP-SEMIC
50 ELEC-MISC COMPN
51 ELEC MSRNG INST
52 ELEC PRODS-MISC
55 ELEC-MILITARY
56 ENERGY-ALT SRCS
57 ENGINRG/R&D SVS
58 ENGINES-INT CMB
59 FERTILIZERS
60 FIBER OPTICS
61 FIN-CONS LOANS
62 FIN-INVEST BKRS
63 FIN-INVEST MGMT
64 FIN-LEASING COS
65 FIN-MTG&REL SVS
66 FIN-INVEST FUND
67 FIN-SVGS & LOAN
68 FIN-SBIC&COMMRL
69 FIN-MISC SVCS
70 FOOD ITEMS-WHLE
71 FOOD-CANNED
72 FOOD-CONFECTNRY
73 FOOD-DAIRY PRDS
74 FOOD-FLOUR&GRN
75 FOOD-MEAT PRODS
76 FOOD-MISC/DIVERS
77 FOOD-SUGAR&REFG
78 FUNERAL SVS&REL
79 FURNITURE
80 GLASS PRODUCTS
81 HOTELS & MOTELS
82 INDL AUTO/RBTCS
83 INSTRU-CONTROL
84 INSTRU-SCIENTFC
85 INS-ACC & HLTH
86 INS-BROKERS
87 INS-LIFE
88 INS-MULTI LINE
89 INS-PROP&CASLTY
90 LASERS-SYS/COMP
91 LEISURE&REC PRD
92 LEISURE&REC SVS
93 LINEN SPLY &REL
94 MACH TLS&RL PRD
95 MACH-CONST/MNG
96 MACH-ELEC UTILS
97 MACH-ELECTRICAL
98 MACH-FARM
99 MACH-GENL INDL
100 MACH-MATL HDLG
101 MACH-PRINT TRAD
102 MACH-THRML PROC
103 MED INSTRUMENTS
104 MED PRODUCTS
105 MED-BIOMED/GENE
106 MED-DRUGS
109 MED-HOSPITALS
110 MED-NURSING HMS
111 MED-OUTP/HM CRE
112 MED-WHSL DRG/SN
113 MED/DENTAL-SUPP
114 MINING -GOLD
115 MINING -IRON
116 MINING -MISC
117 MINING -NON FERR
118 MINING -SILVER
119 METAL PROC&FABR
120 METAL PRD-DISTR
121 METAL PRD-FSTRS
122 MOVIE/TV PROD/DISTR
123 CON PRD-MISC DISCR
124 OFFICE AUTO&EQP
125 OFFICE SPPL&FRM
126 OIL-US RYLTY TR
127 OIL FLD MCH&EQP
128 OIL REFING&MKTG
129 OIL-C$ EXP&PROD
130 OIL-C$ INTEGRTD
131 OIL-FIELD SVCS
132 OIL-INTL INTGD
133 OIL-INTL SPCLTY
134 OIL&GAS-DRILL
135 OIL-PROD/PIPELN
136 OIL-US EXP&PROD
137 OIL-US INTEGRTD
138 COMP-OPTICL REC
139 PAINTS&REL PRDS
140 PAPER &REL PRDS
141 PAPER-BUS FORMS
142 PHOTO EQP &SUPP
143 POLLUTION CNTRL
144 PREC MTLS/JWLRY
145 PRINTING-COMMRL
146 PROTECTION-SFTY
147 PUBLSHG-BOOKS
148 PUBLSHG-NEWSPRS
149 PUBLSHG-PRDCALS
150 REIT-EQTY TRUST
151 REIT-MTGE TRUST
152 REAL ESTATE DEV
153 REAL ESTATE OPS
154 RETAIL-APP/SHOE
155 RETAIL-CATLG SH
156 RETAIL-CONS ELC
157 RETAIL-CNV STRS
158 RETAIL-DISCOUNT
159 RETAIL-DRUG STR
160 RETAIL-RESTRNTS
163 RETAIL-MAIL ORD
164 RETAIL-MJR DEPT
165 RETAIL-MISC/DIV
166 RETAIL-RGN DEPT
167 RETAIL-SUPERMKT
168 RETAIL-VENDING
169 RETAIL/WHSL CMP
170 RUBBER&PLASTICS
171 RUBBER-TIRES
172 SCHOOLS
173 SHOES&REL APPRL
174 SOAP&CLNG PREPS
175 STEEL-PIPE&TUBE
176 STEEL-PRODUCERS
177 STEEL-SPECIALTY
178 TELECOMM SVCS
179 TELECOMM EQUIP
180 TEXTILE-APPAREL
181 TEXTILE-HME FRN
182 TEXTILE-PRDUCTS
183 TOBACCO
184 TOOLS-HAND HELD
185 TOYS/GAME/HOBBY
186 TRANS-AIR FRGHT
187 TRANS-AIRLINE
188 TRANS-EQP&LSNG
189 TRANS-RAIL
190 TRANS-SHIP
191 TRANS-SERVICES
192 TRANS-TRUCK
193 UTIL-ELEC PWR
194 UTIL-GAS DISTR
195 UTIL-TELEPHONE
196 UTIL-WATER SPLY
197 WIRE&CABLE PRDS
198 COMP-NETWORKS
199 COMP-MINI
200 LEISURE&REC/GMG
201 TELECOMMCTNS-WIRELESS
202 COMP-STORAGE DEV
203 COMP-INTEGT SYS
204 BANKS-MAJOR REGIONAL
205 BUS SVCS
206 BUS INFO SVCS
207 CON PRD-MISC STAPLES
208 MEDIA CONGLOMERATES
209 ELEC-MFG MACHINERY
210 RET/WHLSL AUTO/TRUCK
211 ELECTRONIC COMMERCE
212 INTERNET CONTENT
213 INTERNET SERVICES
214 INTERNET SOFTWARE

53 ELEC-CONNECTORS	107 MED-GENERIC DRG	161 RETAIL-HOME FRN	400 INDICES
54 ELEC PARTS DIST	108 MED-HMO	162 RETAIL-JEWELRY	500 UNCLASSIFIED

Glossary of Terms

Active Ticker List

A portfolio file being analyzed at the current moment.

Active Universe

The group of companies being analyzed at the current moment: either the companies in the current Ticker List, or the companies remaining after a screen has been executed.

Backtest

A historical simulation of trading strategy.

Calculation Expression

A user-defined screening criteria or report item.

Consensus Estimate

An average of analysts' estimates for the particular company.

Constant e

e, irrational number occurring widely in mathematics and science, approximately equal to the value 2.71828; it is the base of natural, or Naperian, logarithms. e is transcendental, i.e., not a ROOT of any algebraic equation. It is defined as the limit of the expression (1 + 1/n)^n as n becomes infinitely large.

Source: The Concise Columbia Encyclopedia 1995.

Delimited Text File Type

A text separated by tab characters, commas, or spaces.

Exponential Function

Expressions in the form of e^(x).

Item

A data element in a Zacks database. An item may contain alphanumeric or numeric data.

Look Ahead Bias

The data bias referring to the use of data in a backtest that was not, in reality, available to the analyst at the time the backtest assumes.

Recent

Specifies the period with the first non-N/A value of the item.

Screening

A process of selecting companies that meet your selected criteria.

Survivor Bias

Also, survivorship bias, refers to a database that conations only presently existing companies and no companies that are no longer in business (through the bankruptcy or liquidation).

Taskbar

The taskbar is the bar on your desktop that has the Start button on it. Buttons representing programs currently running on your computer appear on this bar.