

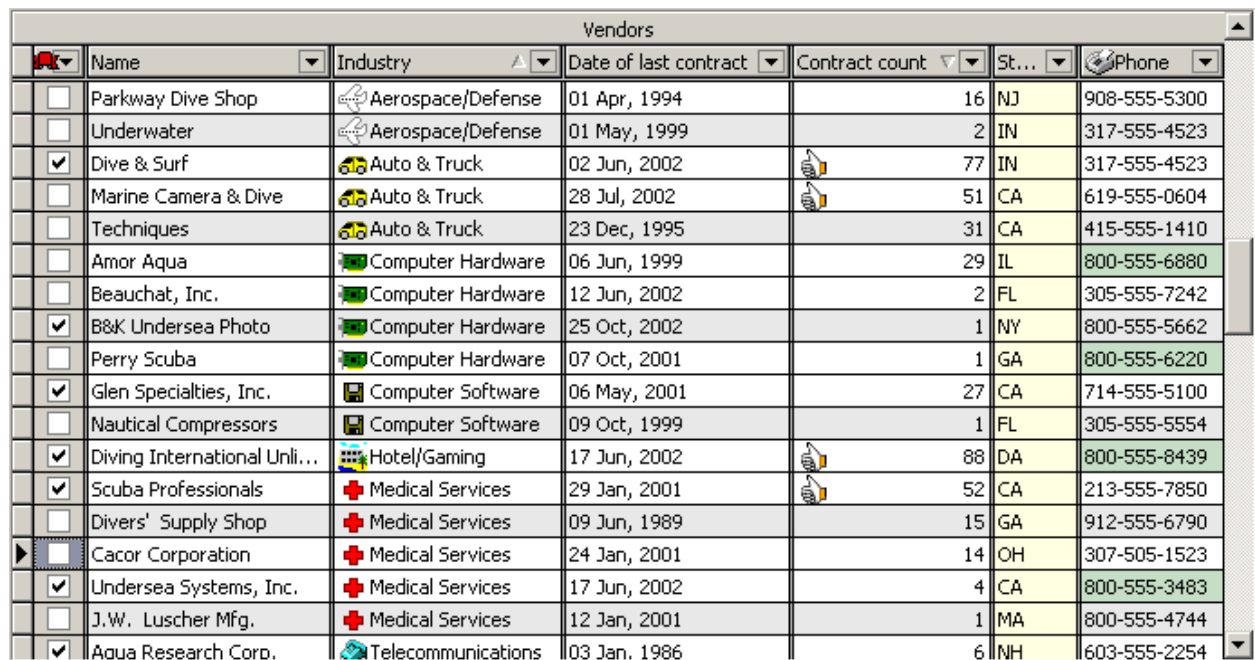
# TBoldGridPro

TBoldGridPro is the most powerful visual component included in the RAD-Studio for Bold suite. The basic tasks of the TBoldGridPro control are displaying and manipulating data objects from a specified handle in a tabular grid. Of course, these simple words do not describe all of the abilities of TBoldGridPro. It implements a vast number of advanced features which cover almost all tasks needed in MDA programming. All of this functionality is instantly available; you just need to set a few properties to specify the grid's behavior. However, TBoldGridPro does not limit you to only these settings, it has rich potential for extending the grid's capabilities even further using various events.

This document describes the most exciting TBoldGridPro features. To achieve this, we have combined TBoldGridPro properties and events into semantic groups, each group's items are intended for implementation of a specific TBoldGridPro feature, or a set of similar features. Thus, you will be able to discover the might of the TBoldGridPro component more easily. Let's begin!

## Column sorting

Data displayed in the TBoldGridPro may be sorted at runtime. Sorting can be performed automatically or manually. The sorting mode is determined by the options set in **OptionsBehavior** property of the TBoldGridPro component. The **bgboAutoSort** option enables automatic sorting, while **bgboManualSort** enables manual sorting. These two options are mutually exclusive. Object data may be sorted by clicking column title. The first click sorts the data in the column in ascending order, whereas next clicks reverse the sorting order. Sorting by multiple columns is possible by holding down the Shift key while clicking the column titles. To disable multiple column sorting the **OptionsBehavior** property should include the **bgboNoMultiSort** option. If you want to reset sorting on a specific column simply click on its title while holding Ctrl key.



	Name	Industry	Date of last contract	Contract count	St...	Phone
<input type="checkbox"/>	Parkway Dive Shop	Aerospace/Defense	01 Apr, 1994	16	NJ	908-555-5300
<input type="checkbox"/>	Underwater	Aerospace/Defense	01 May, 1999	2	IN	317-555-4523
<input checked="" type="checkbox"/>	Dive & Surf	Auto & Truck	02 Jun, 2002	77	IN	317-555-4523
<input type="checkbox"/>	Marine Camera & Dive	Auto & Truck	28 Jul, 2002	51	CA	619-555-0604
<input type="checkbox"/>	Techniques	Auto & Truck	23 Dec, 1995	31	CA	415-555-1410
<input type="checkbox"/>	Amor Aqua	Computer Hardware	06 Jun, 1999	29	IL	800-555-6880
<input type="checkbox"/>	Beauchat, Inc.	Computer Hardware	12 Jun, 2002	2	FL	305-555-7242
<input checked="" type="checkbox"/>	B&K Undersea Photo	Computer Hardware	25 Oct, 2002	1	NY	800-555-5662
<input type="checkbox"/>	Perry Scuba	Computer Hardware	07 Oct, 2001	1	GA	800-555-6220
<input checked="" type="checkbox"/>	Glen Specialties, Inc.	Computer Software	06 May, 2001	27	CA	714-555-5100
<input type="checkbox"/>	Nautical Compressors	Computer Software	09 Oct, 1999	1	FL	305-555-5554
<input checked="" type="checkbox"/>	Diving International Unli...	Hotel/Gaming	17 Jun, 2002	88	DA	800-555-8439
<input checked="" type="checkbox"/>	Scuba Professionals	Medical Services	29 Jan, 2001	52	CA	213-555-7850
<input type="checkbox"/>	Divers' Supply Shop	Medical Services	09 Jun, 1989	15	GA	912-555-6790
<input type="checkbox"/>	Cacor Corporation	Medical Services	24 Jan, 2001	14	OH	307-505-1523
<input checked="" type="checkbox"/>	Undersea Systems, Inc.	Medical Services	17 Jun, 2002	4	CA	800-555-3483
<input type="checkbox"/>	J.W. Luscher Mfg.	Medical Services	12 Jan, 2001	1	MA	800-555-4744
<input checked="" type="checkbox"/>	Aqua Research Corp.	Telecommunications	03 Jan, 1986	6	NH	603-555-2254

The screenshot above shows a grid sorted by its "Industry" column in ascending order, followed by its "Contract count" column in descending order.

To handle data sorting in manual mode you should use the **OnTitleStateChanged** event. It occurs every time the state of column title is changed. You should take special actions that perform sorting (for example, rebuilding the OCL query) in an **OnTitleStateChanged** event handler.

## Column filtering

TBoldGridPro supports data filtering that can work both in automatic and manual modes. The kind of filtering (automatic, manual, or none) is determined by the **bgboAutoFilter** and **bgboManualFilter** options of the **OptionsBehavior** property. Note, that only one option, **bgboAutoFilter** or **bgboManualFilter** can be turned on at one time. Once the filtering is enabled the special filter icons are displayed in the column titles. Clicking on the filter icon shows the filter dropdown window.

Vendors						
Name	Industry	Date of last contract	Contract count	St...	Phone	
(All)	Medical Services	24 Jan, 2001	14	OH	307-505-1523	
(Custom...)	Aerospace/Defense	01 May, 1999	2	IN	317-555-4523	
Amor Aqua	Medical Services	12 Jan, 2001	1	MA	800-555-4744	
Aqua Research Corp.	Medical Services	29 Jan, 2001	52	CA	213-555-7850	
B&K Undersea Photo	Medical Services	09 Jun, 1989	15	GA	912-555-6790	
Beauchat, Inc.	Auto & Truck	23 Dec, 1995	31	CA	415-555-1410	
Cacor Corporation	Computer Hardware	07 Oct, 2001	1	GA	800-555-6220	
Central Valley Skin Divers	Computer Hardware	12 Jun, 2002	2	FL	305-555-7242	
Dive & Surf	Computer Hardware	06 Jun, 1999	29	IL	800-555-6880	
Dive Time	Telecommunications	03 Jan, 1986	6	NH	603-555-2254	
Divers' Supply Shop	Computer Hardware	25 Oct, 2002	1	NY	800-555-5662	
Diving International Unlimited	Hotel/Gaming	17 Jun, 2002	88	DA	800-555-8439	
Felix Diving	Computer Software	09 Oct, 1999	1	FL	305-555-5554	
Fish Research Labs	Computer Software	06 May, 2001	27	CA	714-555-5100	
Nautical Compressors	Telecommunications	09 Nov, 2000	1	CA	213-555-3708	
Glen Specialties, Inc.	Medical Services	17 Jun, 2002	4	CA	800-555-3483	
Dive Time	Telecommunications	24 Feb, 1998	2	IL	800-555-3549	
Undersea Systems, Inc.	Aerospace/Defense	04 Jun, 1999	124	NY	718-555-5772	
Felix Diving						
Central Valley Skin Divers						

The filter window contains two system rows, followed by a list of unique values taken from the current column. Selecting a value instantly filters the grid data, showing only rows having the same value as one selected. **(All)** clears filter settings previously set in the current column, while **(Custom...)** displays the Custom Filter that allows setting advanced filter conditions.

Vendors						
	Name	Industry	Date of last contract	Contract count	State	Phone
<input type="checkbox"/>	Cacor Corporation	Medical Services	24 Jan, 2001	14	OH	307-505-1523
<input type="checkbox"/>	J.W. Luscher Mfg.	Medical Services	12 Jan, 2001	1	MA	800-555-4744
<input checked="" type="checkbox"/>	Scuba Professionals	Medical Services	29 Jan, 2001	52	CA	213-555-7850
<input type="checkbox"/>	Divers' Supply Shop	Medical Services	09 Jun, 1989	15	GA	912-555-6790
<input checked="" type="checkbox"/>	Undersea Systems, Inc.	Medical Services	17 Jun, 2002	4	CA	800-555-3483

**Custom filter**

Show rows where:

Name

ends on  
 blanks  
 non blanks  
 starts with  
 does not start with  
**ends on**  
 does not end on  
 contains  
 does not contain

OK

Cancel

☒ (Industry = Medical Services)

Notice in the screenshot above how the filter status appears in a panel at the bottom of the grid. This status panel displays the current filter state, in addition, it provides two checkboxes for quick filter control. Cross checkbox instantly clears the filter, while another checkbox just set it active or inactive.

In automatic mode the grid handles all of the filtering operations itself. If you want to handle filtering manually you need to implement an **OnFilterChanged** event handler. This event occurs every time the filter conditions are altered.

## Footer summary

It is often required to aggregate totals for the data displayed in the grid. TBoldGridPro provides a special footer row intended for displaying these totals. To make the footer row visible you need to set **ShowFooters** property to True, the **FootLines** property indicates how many lines of text will be shown in the footers.

You will also need to specify how the aggregate values should be calculated, automatically or manually. This depends on the **bgboAutoFooterSummary** and **bgboManualFooterSummary** options of the **OptionsBehavior** property. In automatic mode the grid handles all the calculations.



## Column layout customization

TBoldGridPro has rich capabilities for run-time and design-time layout customization. As a standard grid TBoldGridPro allows simple column moving and resizing equipped with a full set of events, but there is more!

First of all, columns in the grid may be arranged in multiple levels as shown in the screenshot below. The number of such vertical levels is practically unlimited. Multilevel column layout is implemented via the column grouping concept. A column group is logical combination of columns intended for visualization purposes. Thus, in the screenshot below, columns are arranged in 5 groups:

- 1- Name + Industry
- 2- Debit sum + Credit sum + Balance
- 3- Date of last contract + Contract count
- 4- Phone
- 5- State

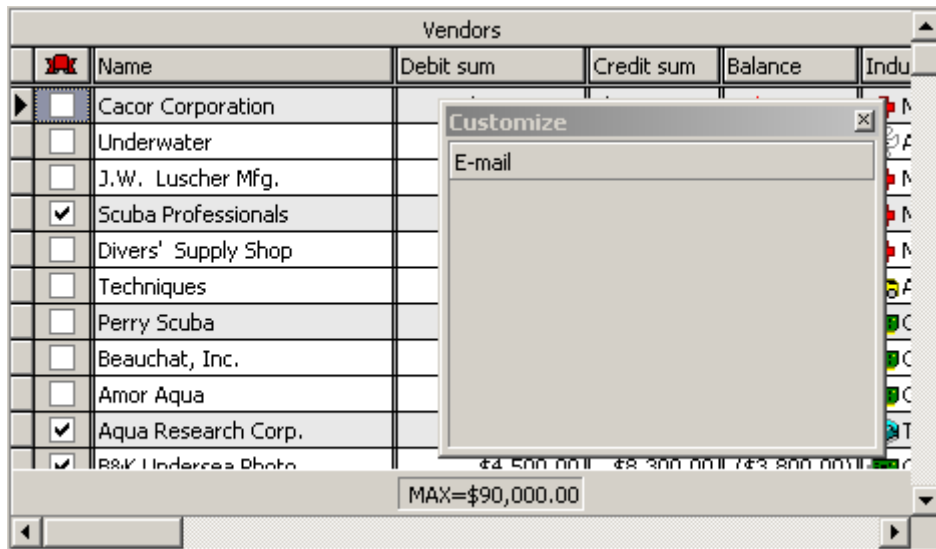
As you see, every group may contain one or more columns. To add a column to the group you should drag its header to the position that you want the column to be located. As you hover over the group a set of yellow arrows will appear, these yellow arrows indicate the new position of the column if the mouse button is released. In the illustration below, the State column is being moved under the Phone column, when the mouse is released a new column group will be created containing both the Phone column and State column. To remove a column from the group, drag its title to the desired location, this time the colored arrows which appear will be green. When the mouse button is released the column groups will be rearranged. To enable column grouping for end-users at runtime, the **bgboColumnGrouping** option should be included in the **OptionsBehavior** property.

Vendors						
	Name	Debit sum	Credit sum	Date of last contract	Phone	State
	Industry	Balance		Contract count		
<input type="checkbox"/>	Cacor Corporation	\$40,000.00	\$37,000.00	24 Jan, 2001	307-505-1523	OH
<input type="checkbox"/>	Medical Services	\$3,000.00		14		
<input type="checkbox"/>	Underwater	\$1,520.00	\$1,520.00	01 May, 1999	317-555-4523	IN
<input type="checkbox"/>	Aerospace/Defense			2		
<input type="checkbox"/>	J.W. Luscher Mfg.	\$11,000.00	\$14,000.00	12 Jan, 2001	800-555-4744	MA
<input type="checkbox"/>	Medical Services	(\$3,000.00)		1		
<input checked="" type="checkbox"/>	Scuba Professionals	\$90,000.00	\$90,000.00	29 Jan, 2001	213-555-7850	CA
<input type="checkbox"/>	Medical Services			52		
<input type="checkbox"/>	Divers' Supply Shop	\$1,213.00	\$2,213.00	09 Jun, 1989	912-555-6790	GA
<input type="checkbox"/>	Medical Services	(\$1,000.00)		15		
<input type="checkbox"/>	Techniques	\$1,257.00	\$2,000.00	23 Dec, 1995	415-555-1410	CA
<input type="checkbox"/>	Auto & Truck	(\$743.00)		31		
<input type="checkbox"/>	Perry Scuba	\$10,000.00	\$8,920.00	07 Oct, 2001	800-555-6220	GA
<input type="checkbox"/>	Computer Hardware	\$1,080.00		1		
<input type="checkbox"/>	Beauchat, Inc.	\$8,500.00	\$8,900.00	12 Jun, 2002	205-555-7343	FL
		MAX=\$90,000.00		22		

Another useful option is automatic column fitting. Automatic column fitting mode is enabled when the **AutoColumnFit** property is set to True. In this mode, if the grid width changes, all columns are proportionally resized, so that all visible columns fit the whole grid client area.

There is a similar feature by the name of **best fit**. If you double-click the right edge of the column title, the width of the column will be changed to accommodate the data it portrays, so that the contents of every visible cell will be displayed in full without clipping.

The most powerful custom layout tool by far is the column customizer.



The column customizer window can be invoked by calling the **Customize** method of the grid. The customizer window contains all columns which are available in the list handle to which the grid is linked, but are currently not displayed within the grid. You may move columns between the grid and customizer form in order to show or hide them.

In addition, all runtime layout settings can be easily saved and later restored. Settings may be stored in a file, the Windows registry, or any other place of your choosing. This document does not cover this technique, however, a sample of saving grid layouts is included in the RAD-Studio samples.

## Variable row height

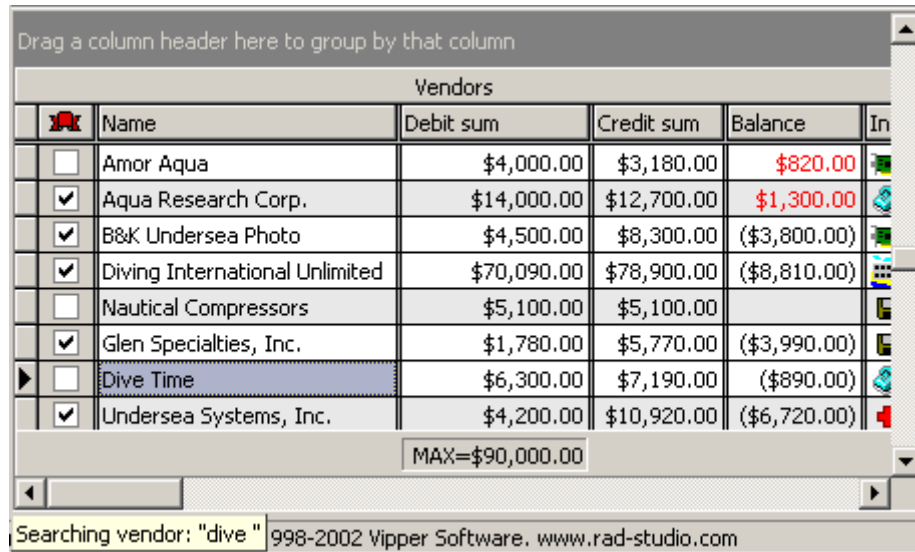
Sometimes you may want the grid to display rows with different heights, based upon some condition. This may be implemented easily by handling the **OnGetRowInfo** event. This event is fired every time the row of the grid is being painted. The **RowDef** parameter passed to the event handler contains proposed settings for the current row of the grid, which you may use to specify the values you need. One of the most useful members is **RowDef.Height**, which specifies the height of the row in pixels.

Vendors					
	Name	Debit sum	Credit sum	Balance	Industry
<input type="checkbox"/>	Cacor Corporation	\$40,000.00	\$37,000.00	\$3,000.00	Medica
<input type="checkbox"/>	Underwater	\$1,520.00	\$1,520.00		Aerosp
<input type="checkbox"/>	J.W. Luscher Mfg.	\$11,000.00	\$14,000.00	(\$3,000.00)	Medica
<input checked="" type="checkbox"/>	Scuba Professionals	\$90,000.00	\$90,000.00		Medica
<input type="checkbox"/>	Divers' Supply Shop	\$1,213.00	\$2,213.00	(\$1,000.00)	Medica
<input type="checkbox"/>	Techniques	\$1,257.00	\$2,000.00	(\$743.00)	Auto &
<input type="checkbox"/>	Perry Scuba	\$10,000.00	\$8,920.00	\$1,080.00	Compu
<input type="checkbox"/>	Beauchat, Inc.	\$8,500.00	\$8,900.00	(\$400.00)	Compu
<input type="checkbox"/>	Amor Aqua	\$4,000.00	\$3,180.00	\$820.00	Compu
<input checked="" type="checkbox"/>	Aqua Research Corp.	\$14,000.00	\$12,700.00	\$1,300.00	Telecor
<input checked="" type="checkbox"/>	B&K Undersea Photo	\$4,500.00	\$8,300.00	(\$3,800.00)	Compu
<input checked="" type="checkbox"/>	Diving International Unlimited	\$70,090.00	\$78,900.00	(\$8,810.00)	Hotel/C
<input type="checkbox"/>	Nautical Compressors	\$5,100.00	\$5,100.00		Compu
MAX=\$90,000.00					

The screenshot above shows a grid where the rows having a “checked” state of the first column cell are displayed with double height. There are several other parameters that may be altered in the **OnGetRowInfo** event handler, but their discussion is beyond the scope of this document. You can find several examples of **OnGetRowInfo** usage in the RAD-Studio samples, or find more information in the RAD-Studio help files.

## Incremental autosearch

The incremental autosearch facility provides a way to instantly locate rows matching some specified text.



This feature may be enabled by setting the **Enabled** sub property of the **ParamsAutoSearch** property to True. The **ParamsAutoSearch** property also contains various parameters to fine tune the autosearch.

In the screenshot above a search is being performed on the Name column, the grid navigates to the row where text in the cell starts with "dive ". You may also define shortcuts that allow navigating to the previous or the next matching record.

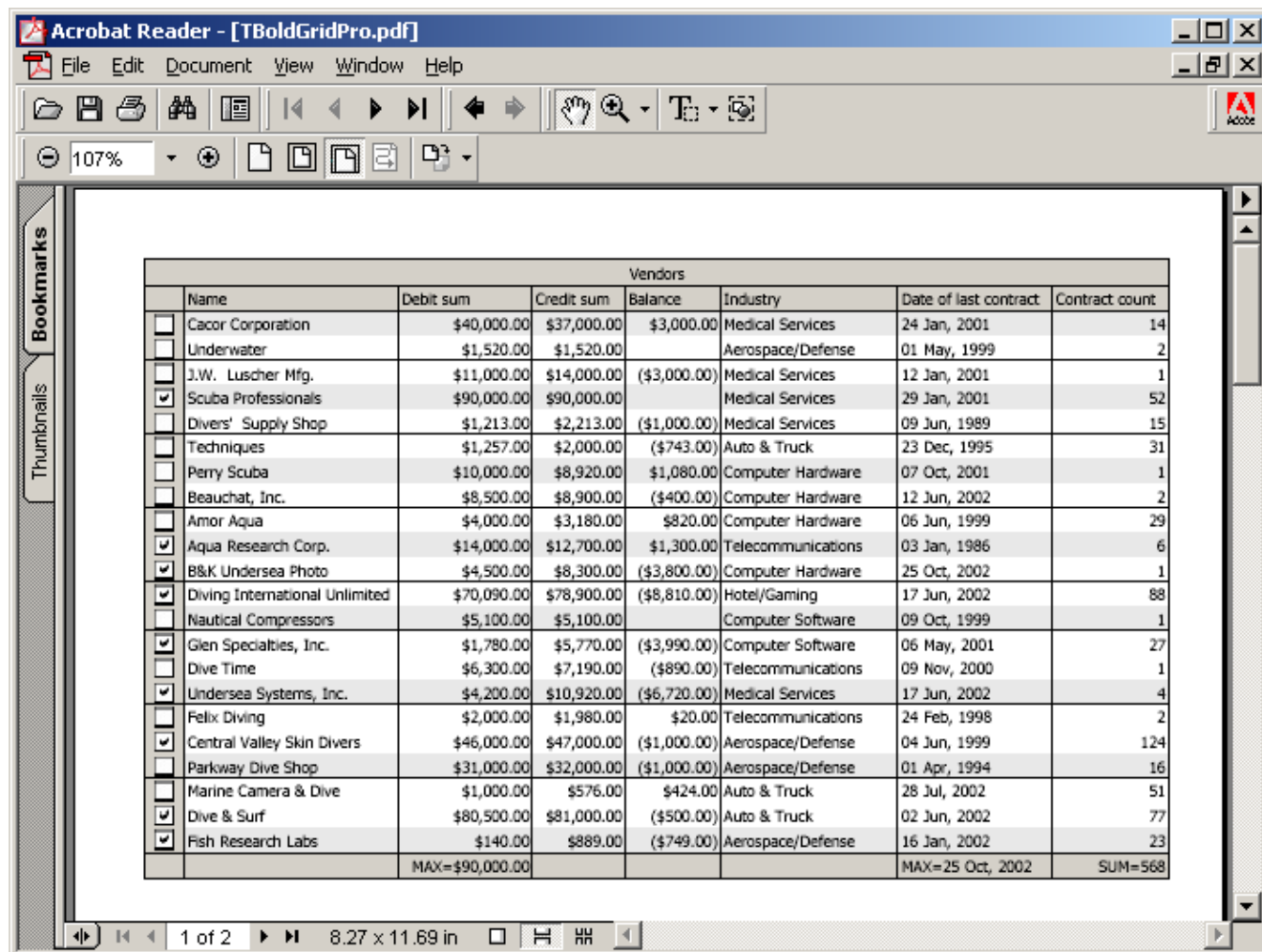
## Grid printing and export facilities

RAD-Studio now provides you with a number of ways of exporting the content displayed in TBoldGridPro to some common formats, or to print it. All these are possible by calling just a single method!

RAD-Studio contains three units that are responsible for exporting: **rs\_html**, **rs\_excel** and **rs\_rave** (only for Delphi 7). Each of them contains procedures which perform the export. For example, the **GridToHTML** procedure declared in the **rs\_html** unit renders the grid as a HTML file. The following table lists all of the export procedures available:

Method	Unit	Description
GridToHTML	rs_html	Exports the grid content as an HTML file.
GridToXLS	rs_excel	Exports the grid content to an Excel spreadsheet.
GridPreview	rs_rave	Previews the generated Rave report in the Rave preview window.
GridToPrinter	rs_rave	Sends the grid directly to the printer.
GridToPDF	rs_rave	Exports the grid content to a PDF file.

Every procedure gets the grid to be exported as the parameter.



The above screenshot illustrates a grid exported as a PDF file and viewed in Adobe Acrobat Reader.