

Data POINTS

A Newsletter for Users of Golden Software Products

Issue 51

Strater – Template Files Display Well Log Data

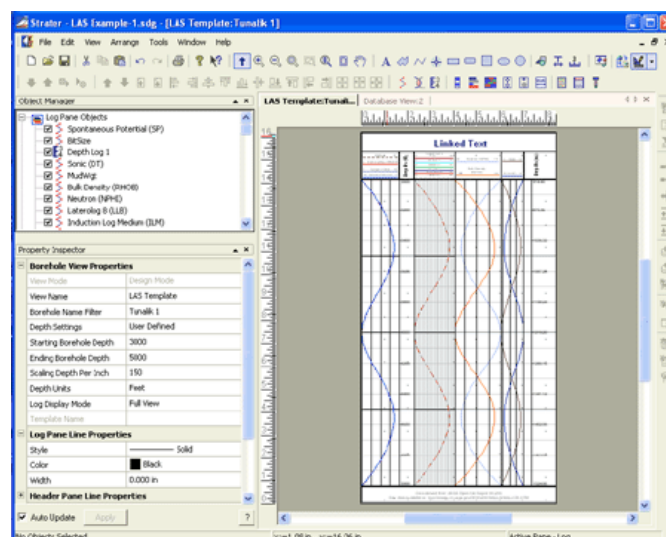
Introduction

Golden Software's new Strater program has an advanced user interface that makes designing your log and displaying your borehole data easier than ever. In this article we will save one of the predefined samples files as a template, load the template, and import new data for the logs to display. You can also design your own borehole log format and save it as a template file for future reuse. Reusing template files is ideal for those who want to continue making the same looking borehole designs for a wide variety of borehole data. If you haven't purchased Strater yet, you can download a [free working demo](http://www.goldensoftware.com/demo.shtml) from our web site at: <http://www.goldensoftware.com/demo.shtml>.

I. Saving a File as a Template

Strater comes with some sample files to help get you started. We are going to open one of the sample files and save it as a template so we can use it with our own data.

1. Open Strater.
2. Go to **File | Open**, navigate to the Strater installation directory, double click on the Samples folder, select LAS Example-1.sdg and click Open.
3. Currently the log is displayed in "active mode", meaning that the log items show real data. In order to save it as a template, the log needs to be in "design mode". Go to **Tools | Design Mode**. This will change the log items so that generic placeholder logs are shown. The placeholder logs do not show real data.



Design Mode displays generic placeholder logs.

4. Go to **File | Templates | Save**.
5. Give the template a name and click Save.

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II. Loading a Template

Now that we have a template file saved, we can use this template with many sources of data.

1. Go to **File | New**.
2. Then go to **File | Templates | Load**.
3. Select the template file [*.TSF] you saved above and click Open.
4. Click Yes when you are asked if you would like Strater to automatically create the necessary tables and fields for the template. The template loads and you see all the placeholder logs in design mode.

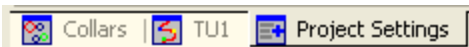
III. Importing Data

After the template file is loaded, we must import data into the database view for the logs to display.

1. At the top of the borehole window, you will see three tabs. From left to right, they are: 1) Borehole 1, which is empty, 2) Database View:2, which contains all the data tables and fields necessary for the logs, and 3) LAS Template, which is the active view and contains all the log items imported from the template in design mode. Click on the Database View:2 tab to switch views to the database view.



2. At the bottom of the database view, you will see that there are three data tables:




Three data tables displayed at the bottom of the database view.

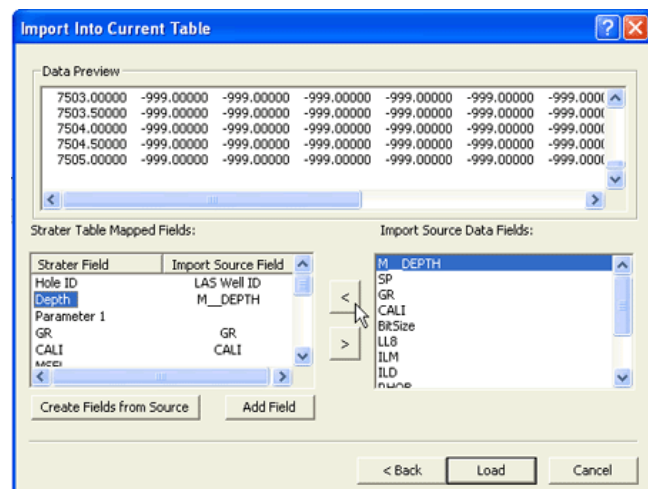
The Collars and Project Settings data tables are created automatically when you load a template file. We can ignore these data tables for now.

3. The TU1 data table is the data table that should contain all the data for the project. Click on TU1 to make that data table active. You will see all the header information entered (Hole ID, Depth, GR, etc.), but no actual data.
4. Go to **File | Import Data**.

5. Select another LAS file (or any other data file you might have showing depth data), check the check box next to *Import Data Into Current Table*, and click Open.
6. If you selected an LAS file, the **LAS Import Options** dialog will appear. If you selected another data file, the **Specify Worksheet Column Definitions** dialog will appear. In both cases, you can just accept the defaults and click Next.
7. The **Import Into Current Table** window will appear. All the data fields from the data file are listed on the lower right, and all the data fields from the Strater data table are listed on the lower left. Here is where you tell Strater which data fields from the data file should be imported into which fields in the Strater data table.

If there is a field in the data file that has the same name as a data table field, then Strater automatically enters this information. For example, many field names in LAS files are common and so they are automatically entered into the data table fields (e.g. GR and CALI). Other fields, such as the Depth data, may not be automatically correlated. In the example below the Strater data table field is called "Depth", but the field in the LAS data file is called "M_DEPTH". Select Depth from the list on the left, then select M_DEPTH

from the list on the right and click the  button.



Correlate imported fields with Strater Table Mapped fields.

Once all the data fields you want to import

from the right are correlated with a Strater data table field on the left, click Load. The data is loaded into the data table.


IV. Activate the Logs with the New Data

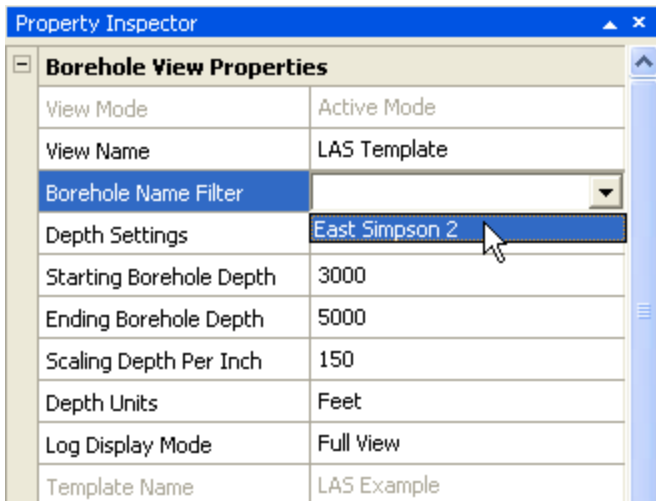
The last step is to activate the logs so that they display the imported data.

1. Click on the *LAS Template* tab at the top of the database view window to switch views to the borehole view.



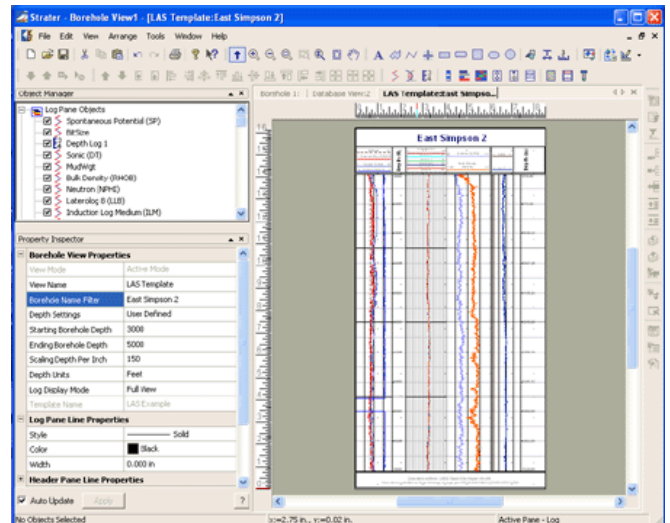
Switch to the LAS Template borehole view.

2. To activate the logs, go to **Tools | Design Mode** or click on the Design Mode tool  to toggle the view back to active mode.
3. To display the logs, you need to set the Borehole Name Filter to the current Hole ID. Go to **View | Borehole View Properties** and in the Property Inspector, and select the current Hole ID from the *Borehole Name Filter* drop down list.



Select the Hole ID from the drop down list.

4. Once the borehole name is updated, the logs will appear.



Logs are displayed when the borehole name is selected.

Summary

Templates in the Strater program make it easy to reuse borehole designs with different data files.

If you have any questions about Strater or this article, contact us at stratersupport@goldensoftware.com.

Visit Golden Software on the Web!

Our web site provides great technical support and product information. You can also buy new or upgrade versions of our software and download them immediately!



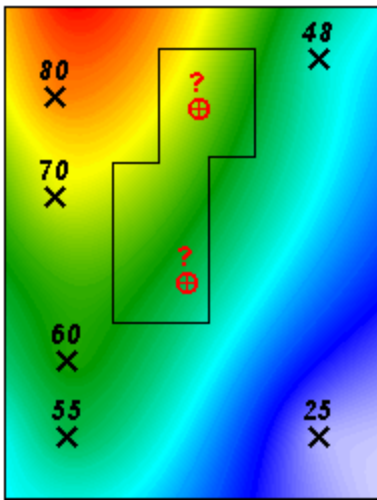
www.goldensoftware.com

Surfer 8 – Calculate the Z Value at Any XY Point in a Surfer Grid File

Introduction

After calculating a grid from XYZ data in Surfer, you may want to calculate the Z value of additional XY points within the map. Surfer provides several tools for this task.

- **Grid | Residuals** interactive method.
- **Grid | Interpolation** in automation.
- The Grid Node Editor.



Calculate the Z value of any XY data point.

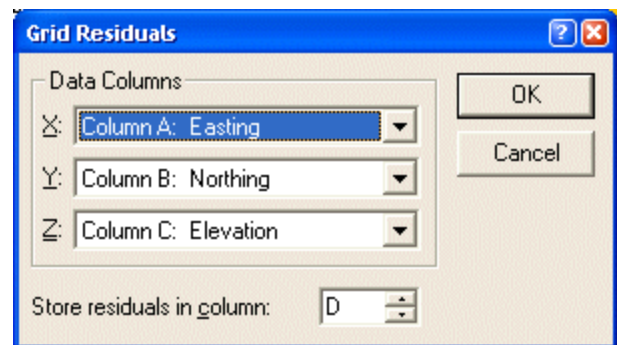
Work Interactively with Grid | Residuals

The **Grid | Residuals** menu command provides a way to calculate the difference between the grid value and data value at any XY location. This procedure is designed to measure how well a grid matches a data set, or to calculate the difference between a trend surface grid and the raw data. It can be used to return the grid value for XY points that have an unknown Z value. Surfer uses a bilinear interpolation method to calculate Z values at points that do not coincide with grid nodes.

In the Surfer worksheet, create or import a list of XY data points. Fill a blank column with 0's using the **Data | Transform** menu command, using the formula

$$C = 0$$

where C is the blank column letter. Save the changes, close the worksheet window, and open or switch to a plot window. Choose the **Grid | Residuals** menu command, specify the GRD file, the data file, and the column to contain the residual values. Click OK, and the worksheet displays the data file with the residuals column.



Specify XYZ and residual columns.

The **Residuals** command calculates the residuals by subtracting the grid value from the data value, so the negative of the grid value is returned when the values in the data column are 0. To reverse the sign of the values, select the Residuals column, and choose the **Data | Transform** menu commands and enter the formula

$$D = -D$$

where D is the Residuals column. Save the changes with the worksheet **File | Save** command.

Automate Z Calculations with Grid.Interpolate

The Surfer automation interface provides another way to return the Z value in a grid file. The Interpolate method of the Grid object returns the Z value at the specified XY location. It uses bilinear interpolation to return Z values at points that do not coincide with grid nodes.

```
zvalue = grid1.Interpolate( _
    x:=2.2, y:=3.4)
```

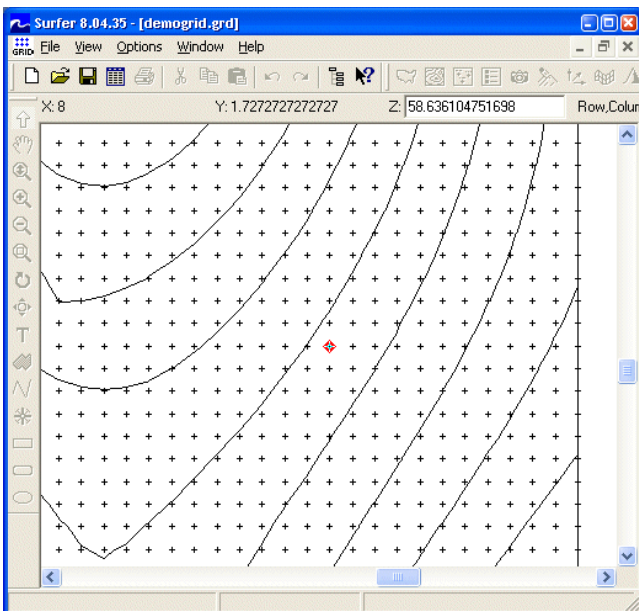
The grid1 object can be a GRD file or the grid information in a SRF file containing a map based on a GRD file.

The [GridInterpolate.bas](#) script on our ftp site runs in the Surfer Scriptor program and calculates the Z values at the XY locations specified in a data file.

Z Value at Grid Nodes

For the special case of XY data points that coincide with the grid nodes, there are interactive and file-based methods to return the Z values.

- Open a GRD file with the **File | Open or Grid | Grid Node Editor** menu commands. Click within the map or scroll with the arrow keys to display the X, Y, and Z values. In addition, Z values can be modified and saved to a file.



Use the Grid Node Editor to view Z values coincident with the grid nodes.

- Choose the **Grid | Convert** menu commands to convert any existing GRD file into a GS ASCII GRD file or an ASCII XYZ DAT file. Open the GRD file in a text editor to view the values. The DAT file can be opened in a text editor or in the Surfer worksheet.

Summary

Surfer offers many useful tools for querying the grid file for Z values, including interactive methods via the user interface, and automated methods via the scripting language.

If you have any questions about Surfer or this article, contact us at surfersupport@goldensoftware.com.

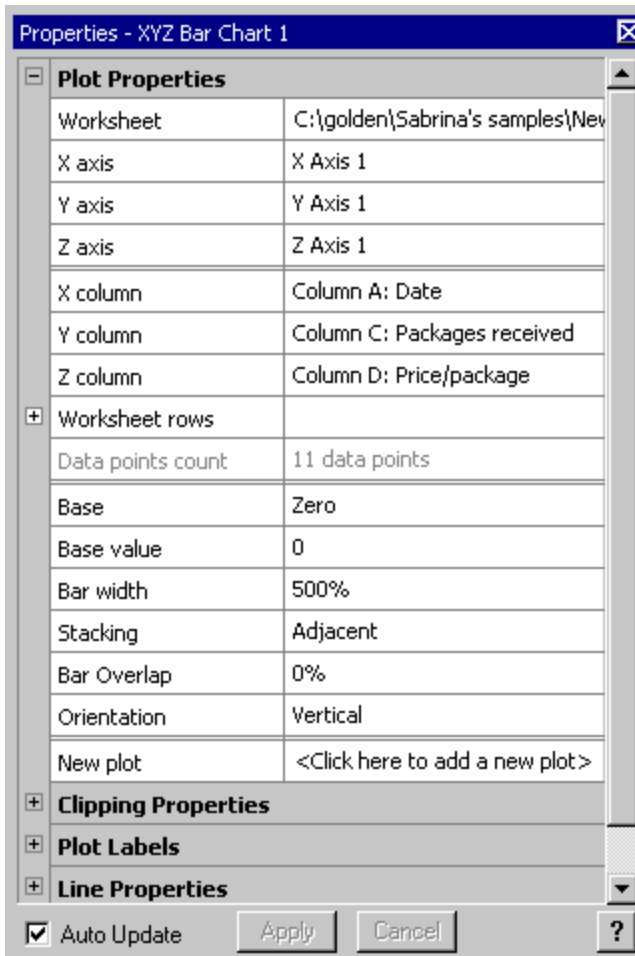
Grapher 5 – New and Updated Features

Introduction

Grapher 5 has added several new features and updated many existing features from older versions of the Grapher program. This article will highlight a few of these changes by creating one of the new graph types and editing portions of the graph and axes using the new Property Inspector. This article refers to a dataset that has been created specifically for this article. Although you can use your own data and do not need this exact data file, following the steps will be easier with the indicated data file due to some assumed formats in the columns. Download the data file [newsletter51_Grapher_data.xls](#).

The Property Inspector

The Property Inspector is completely new in Grapher 5 and replaces the more cumbersome dialog boxes that previous versions of Grapher used. The Property Inspector allows immediate changes to be made, allows object properties to be accessed in a quicker manner, simplifies switching between objects, and speeds the total graph-making process. Since the Property Inspector is new to Grapher 5, this article discusses how to change some relatively simple object properties, such as axis titles, and how to change some more complex properties, such as prefixes for axis labels.



The Property Inspector speeds up your graphs.

The Property Inspector normally displays a single object's properties. So, a single axis, single plot, or the entire graph can be edited in the Property Inspector. One "trick" to using the Property Inspector is to have only the item you want to edit selected. The other "trick" is to have items that you use frequently already opened. The Property Inspector will remember the last state of the opened property, thus making repeat edits much easier. If having items pre-opened makes finding commands difficult, close each section after making an edit.

To open a section, click on the + sign located next to the section name. To close a section, click on the - sign located next to the section name. As many sections as you like can be opened at any one time.

It is possible to edit some features of multiple objects at the same time. To edit multiple similar objects (line and fill style, for example), select all of the objects to edit in either the plot window or the object manager. Then, change the shared properties in the Property Inspector. All of the objects selected will update automatically.

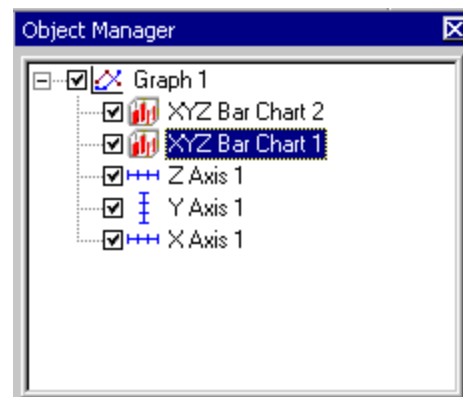
Step 1: Creating a default graph

For this project, we are going to create a three dimensional bar chart comparing date of delivery, number of packages, and the price per package. Our client believes that company A gives better prices on larger orders than company B. So, we will break the bars out into two separate groups based on a data criterion column that contains a company designation letter, either A or B. The graph will give the client a visual reference to who has better prices or better discounts (if anyone does). To create the default graph, open a new Grapher 5 plot window.

1. Choose Graph | 3D XYZ Graphs | Bar Chart.
2. Select the downloaded XLS file and click Open. The first default bar graph is created.
3. Make sure that some part of the graph is selected and choose **Graph | Add to Graph | Plot**.
4. Select XYZ Bar Chart and click OK.
5. Click OK in the Choose Axes dialog. No changes are necessary.
6. Select the downloaded XLS file and click Open. The second default graph is created.

Step 2: Customizing the bar charts

At this point, the graphs are identical, using the same columns and the same data points. In addition, the bars are stacked on top of each other, revealing very little about the actual data. So, some changes are necessary. In the Object Manager, select XYZ Bar Chart 1.

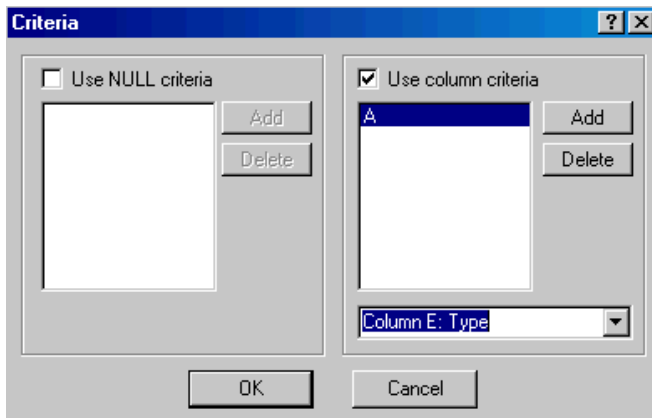


Select the XYZ Bar Chart 1 in the Object Manager

In the Property Inspector, open the **Plot Properties** section. Locate the *Y column* item. Click in the *Y column* box and change it to *Column C: Packages received*. Click in the *Z column* box and change it to *Column D: Price/package*. To make the bars thicker, change the *Bar width* item to 500%. Change the

Stacking option to *Adjacent*. This will force the bars to be side by side instead of stacked, making direct comparisons easier. Select XYZ Bar Chart 2 in the Object Manager and repeat these steps. Now both bars are using the correct data columns. The next step is to limit which data are plotted by each bar.

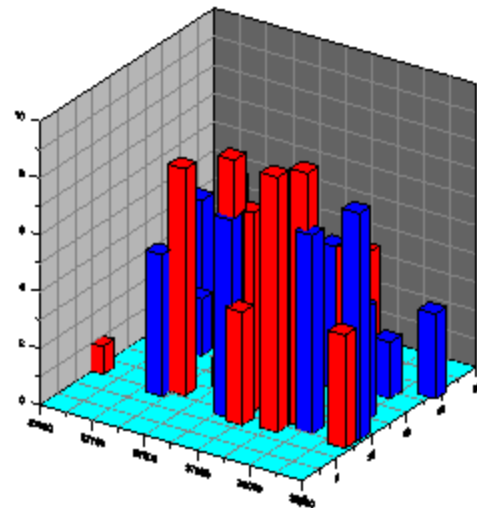
Select XYZ Bar Chart 1 in the Object Manager. Close the **Plot Properties** section and open the **Clipping Properties** section. Place a check mark in the *Use criteria* box. Click in the *Criteria* box where it says <Click here to set criteria>. This will open a **Criteria** dialog box. Check the *Use column* criteria box and press the *Add* button. For the *Value*, type in the letter A and click OK. Change the drop down column to *Column E: Type*. Your dialog box should look like this:



Criteria dialog box

Click OK in the dialog box. Your bars for XYZ Bar Chart 1 will update to only show company A. Select XYZ Bar Chart 2 in the Object Manager and repeat this process, changing the criteria to the letter B.

The only other item to change on the bars is the fill color for XYZ Bar Chart 2 and the bar names. To change the fill color, select XYZ Bar Chart 2 in the Object Manager. Open the **Fill Properties** section in the Property Inspector. Change the Foreground color to any color other than red, such as blue. Your graph should now appear as a comparison between the two companies.

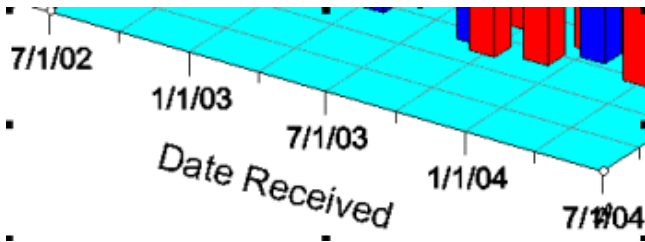


Red and blue bars illustrate data from two companies

Step 3: Change the X axis to show date format labels

Now that the bars are displayed as we want them, we need to alter the axes slightly so that they display more informative and easier to read text. We will start with the X axis. In the Object Manager, select X Axis 1. In the Property Inspector, open the **Axis Properties** section. Open the *Axis title* section. Click in the Title box where it says <Click here to edit text>. This will open a **Text Editor** dialog box. Type in a descriptive title for the date axis, such as *Date Received*. Highlight all of the text and change the point size from 12 pts to 20 pts and click OK. The title appears, but it is overwriting the labels for the axis. In the Property Inspector, first change the angle of the text. To do this, type in -15 in the Angle box. Then, change the X offset to -0.40 inches. This will center the title a little better.

The X axis now has a title, but the tick mark labels do not seem to describe what the axis shows. This paragraph will change the tick labels to date labels and set a date/time spacing on the labels. Open the **Tick Labels** section. Open the *Major label text* section. Check the *Use date/time format* box. Scroll down and uncheck the *Angled* box. Open the *Major labels* section. Click in the *Label format* command where it says <Click here to set label format>. Change the *Points* to 16 and click OK. Open the **Tick Marks** section. Open the *Major ticks* section. Place a check mark in the *Use date/time spacing* box. Click on the *Every Year* in the *Date/time spacing*. This opens a **Date/Time Spacing** dialog. Change the values to 6 and *Month*. There are now regular date tick labels along the X axis. Your X axis should look something like this:



Display date labels for tick mark labels.

Step 4: Customize the Y axis

Using the same principles as outlined in step 3, you can add a title and change the tick labels of the Y axis. In the Object Manager, select Y Axis 1. In the Property Inspector, open the **Axis Properties** section. Open the *Axis title* section. Click in the *Title* box where it says <Click here to edit text>. This will open a **Text Editor** dialog box. Type in a descriptive title for the date axis, such as *Number of Packages Received*. Highlight all of the text and change the point size from 12 pts to 20 pts and click OK. The title appears and looks good without any additional changes. To have the tick labels face forward, in the **Tick Labels** section, uncheck the *Angled* box. Then, again in the **Tick Labels** section, open the *Major labels* section. Click in the *Label format* command where it says <Click here to set label format>. Change the *Points* to 16 and click OK.

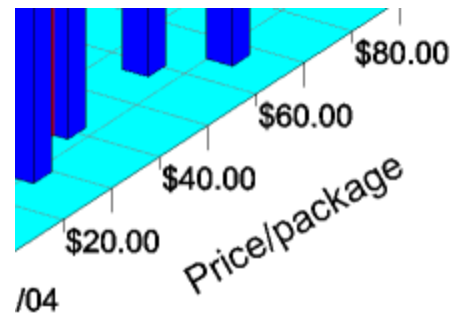
Step 5: Customize the Z axis

The Z axis defaults to an axis minimum value that will allow all of the bars to show with plenty of space between individual bars. In most circumstances, this is the desired situation. However, this axis is showing the price of an object, therefore a negative value is not defined. For this reason, you may choose to adjust the axis minimum and maximum values. If you choose to change the limits, open the *Axis limits* section. Type in a new *Minimum value*, such as zero. The graph will automatically update to show the new limits.

The Z axis title can be adjusted in the same manner as the X axis title. A title such as *Price/package* would describe this data column well. In addition, this axis title will need to be rotated similar to the X axis title. If you do this, I would recommend an *X offset* of 0.4 inches, a *Y offset* of 0.9 inches, and an *Angle* of 30 degrees. You can also simply check the *Angled* box to have the title automatically align with the axis.

For the labels, it might be more descriptive to display monetary units, as appears in the data file. It is also necessary to give a custom starting value for the first tick so that the first tick on the Z axis does not

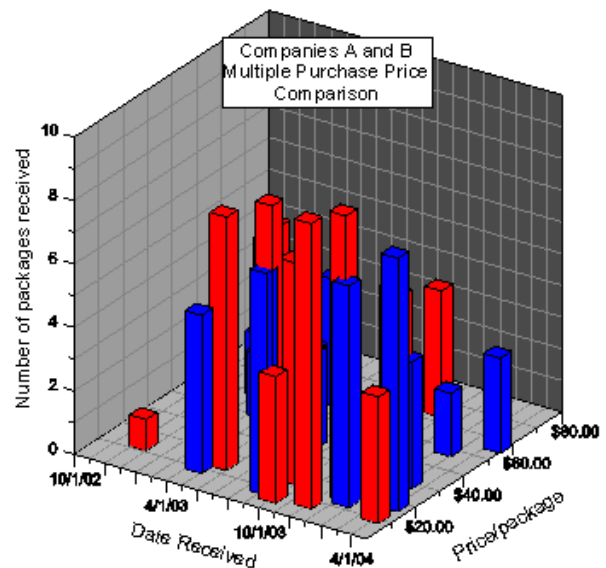
overlap the last date on the X axis. To change the first tick mark label location, open the **Tick Marks** section. Open the *Tick range* section. Change the *First tick* value to 10. This removes the overlapping label from the Z axis so that you can see the date on the X axis. Now, open the **Tick Labels** section. Open the *Major labels* section. In the *Label format* command, click where it says <Click here to set label format>. Change the *Points* to 16. Click on the **Format** tab. Change the *Numeric Format* to *Fixed*. Change the *Digits after decimal point* to 2. Finally, type in the *Prefix* box the dollar sign (\$). Click OK in the dialog. Then, uncheck the *Angled* command box. Your Z axis should appear something like this:



Z axis with dollar format

Step 6: Final notes

At this point, the graph is in what many would consider a complete state. However, due to personal preferences, you may choose to make additional changes. For instance, you may choose to give a title to the graph or change the fill colors for each of the walls. Your final graph may look something like this:



The final graph

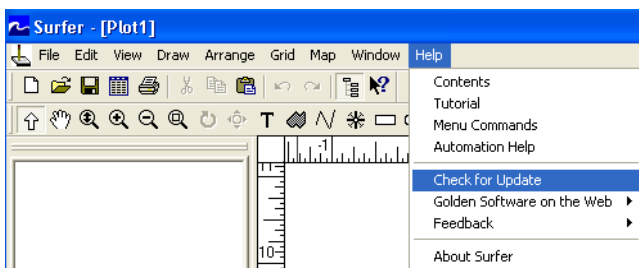
After all of the customizations have been completed, you need to present the graph back to your client. If they do not have Grapher, you will need to choose an export format or paste the entire graph into another program. Grapher exports to a wide variety of formats including PDF, EMF, JPG, and TIF. These common export formats can be inserted into many other programs, such as word processing programs, photo editing programs, or slide show creation programs. Choose the format that works best for you!

Program Updates Available
Surfer 8.05 - Grapher 5.02 - Didger 3.06 -
Strater 1.01

Program updates are available for Surfer 8, Grapher 5, Didger 3, and Strater 1. Updates are minor changes to the programs, and are available for free download to owners of the programs. For a list of changes and fixes, refer to the release history pages.

- [Surfer 8 Release History](#)
- [Grapher 5 Release History](#)
- [Didger 3 Release History](#)
- [Strater 1 Release History](#)

To download the update, start the program and choose **Help | Check for Update** from the main menu.



Use **Help | Check for Update** to see if an update is available, and download the update.

In the **Internet Update** dialog, press the *Next* button once to see if you have the most recent version. Your computer will connect to the Golden Software Internet update server to check your version against the current version. If an update is available, you will see the **Internet Update** dialog:

Summary

Grapher 5 has added many new and updated features. New graph types and the new Property Inspector let you display your data with unsurpassed vividness and clarity.

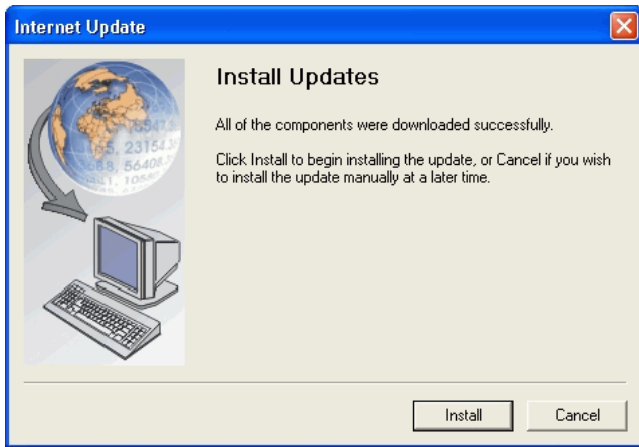
If you have any questions about Grapher or this article, contact us at graphersupport@goldensoftware.com.



An update is available! Click Next to begin downloading it.

Click the *Next* button to download the update. The updates are several MB, and it may take several minutes to download depending on the speed of your Internet connection.

After the file is downloaded, the dialog box will change to an installation dialog. Close the main program (Surfer, Grapher, Didger, Strater) before starting the update installation. Press the *Install* button in the dialog to install the update.



The update has downloaded. Close Surfer, then click Install.

When the update installation has completed, press the *Finish* button. You can then reopen Surfer, Grapher, Didger, and Strater to continue with your work. You can verify the version you are running by going to **Help | About**.



Go to **Help | About** to see the version you are running.
(The serial number has been obscured in this example.)

Some network firewalls and proxy servers prevent communication between your computer and the Golden Software update server. If you have any difficulties with the above steps, manually download the update. Right-click on the link below and choose **Save Target As** to display the **Save As** dialog box. Specify the main application directory. For example, the Surfer default main directory is `c:\Program Files\Golden Software\Surfer8\`.

- Surfer 8.05 update: [SurferUpdate805.exe](#) (6,358,619 bytes).
- Grapher 5.02 update: [Grapher\(5.02.16\) Patch.msp](#) (2,382,848 bytes).

- Didger 3.06 update: [DidgerUpdate30637.exe](#) (2,294,713 bytes).
- Strater 1.01 update: [Strater\(1.01.26\) Patch.exe](#) (763,648 bytes).

After the file is completely downloaded, close the main application (Surfer, Grapher, Didger, Strater). For EXE files, double-click on the EXE to install the update. For MSP files, choose the Windows File | Run menu commands, and enter

```
msiexec /p <MSP file name>
```

If you have any problems with the update, contact us at

- surfersupport@goldensoftware.com
- graphersupport@goldensoftware.com
- didgersupport@goldensoftware.com
- stratersupport@goldensoftware.com

Golden Software at Rocky Mountain Natural Gas 2004 Conference



Golden Software, Inc. will be exhibiting at the Rocky Mountain Natural Gas 2004 conference August 9 - 11 at the Colorado Convention Center in Denver, Colorado, USA. The Rocky Mountain Section of the AAPG (AAPG - RMS) joins with the Colorado Oil & Gas Association (COGA) to present the conference. The theme for the conference is Sound Science - Smart Business. Attendees can enjoy field trips, technical sessions, short courses, and exhibits covering the technology and business of natural gas production.

For more information, see the AAPG - RMS web site at <http://www.rmagg.org/RMNG2004/>