Strater® 5

Superior well log, borehole & cross section plotting

User's Guide

Strater® Registration Information

Your **Strater** serial number is located on the CD cover or in the email download instructions, depending on how you purchased **Strater**.

Register your **Strater** serial number online at www.GoldenSoftware.com. This information will not be redistributed.

Registration entitles you to free technical support, free minor updates, and upgrade pricing on future **Strater** releases. The serial number is required when you run **Strater** the first time, contact technical support, or purchase **Strater** upgrades.

For future reference, write your serial number on the line below.

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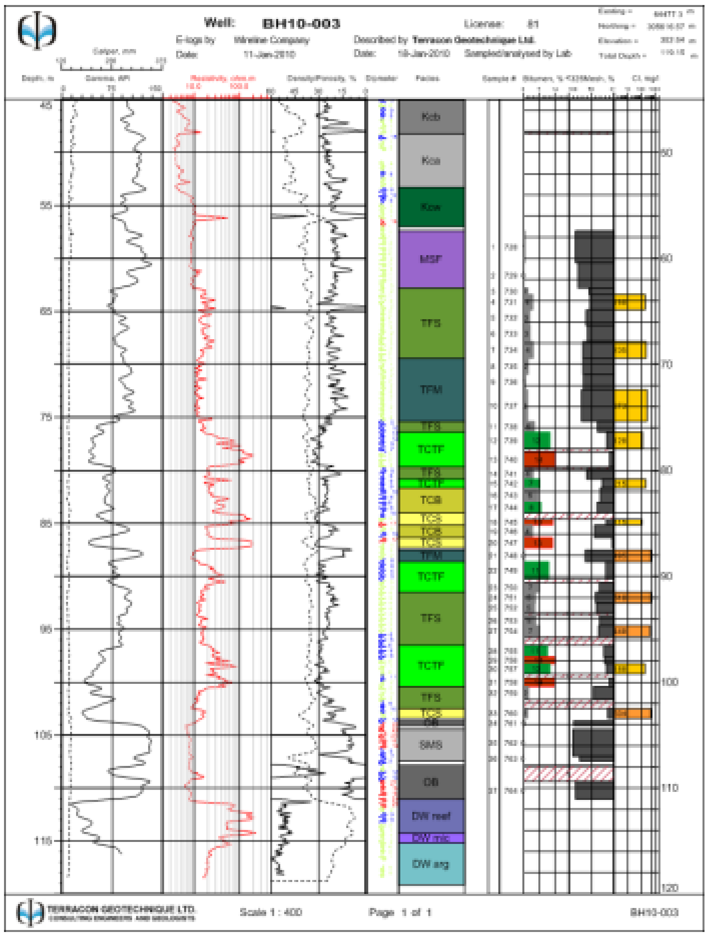
Chapter 1 - Introducing Strater®

Introduction to Strater

Welcome to **Strater**, a powerful well log, borehole, and cross section plotting software package. **Strater** creates 14 different log types: depth, line/symbol, crossplot, zone bar, bar, percentage, tadpole, post, classed post, complex text, graphic, lithology, well construction, and function logs. Each of the logs can be modified to suit your needs. **Strater also** creates maps to display the well locations and cross sections that interpolate between wells. **Strater** exports to a variety of formats, including a direct export to Golden Software's **Voxler** program.



Create individual logs or create cross sections connecting multiple logs.

Data

Data can be imported from many sources, including ASCII text files, LAS files, and just about any database. **Strater's** internal data structure can contain multiple tables. Multiple boreholes can be stored in the data tables at one time.

Multiple Boreholes, Multiple Views

Strater can have multiple boreholes displayed in a single view, and create multiple borehole views in a single project. You can specify a different borehole for each log in a borehole view with a few mouse clicks.

Reuse, Reuse, Reuse

Once you design a borehole view, you can use the design repeatedly with other data. There are several features in **Strater** designed to save time with borehole graphic processing. After creating an initial design, you can take advantage of templates and schemes, which can be used in different projects with different data or in the same project multiple ways. Templates store the design elements of a project, including log items, header and footer items, data tables, and schemes.

Schemes contain detailed information of how the data relate to drawing properties. For example, a lithology log uses lithology schemes, which contain keywords, such as granite, clay, etc. Each of these keywords is assigned a fill pattern, contact line properties, line properties, and font properties. Schemes can be reused; therefore, you do not have to go through the process of assigning properties each time you create a log.

Strater Projects

A project file consists of all borehole views, data tables, and optional schemes, and is saved in a single .SDG file. When **Strater** first opens you see a blank, unnamed project to which you can add all the components necessary to create the borehole design. Once the borehole design is complete, use **File | Save** to save it to an .SDG project file. View visibility and table cell formatting is saved with the .SDG project file.

Strater also provides batch printing and exporting. You can design a log and then print or export the log with multiple borehole data.

System Requirements

The minimum system requirements for **Strater** are:

- Microsoft Windows® XP SP2 or higher, Vista, 7, 8, 10 or higher
- 1024 x 768 x 16-bit color minimum monitor resolution
- At least 500 MB of free hard disk space
- At least 512 MB RAM above the Windows requirement for simple data sets, 1 GB RAM recommended

Strater Demo Functionality

The **Strater** demo version is a fully functioning read-only demo. This means that most commands work exactly as the command works in the full program. Saving, exporting, printing, and copying are disabled in the demo version.

The demo has no further restrictions on use. Any data set or image can be used to create any project. All properties can be changed in the demo version. The demo does not have a “time-out period” so will not expire after a certain number of hours or days of use. The demo can be installed on any computer that meets the system requirements.

New Features

The following is a list of new or improved features in **Strater**. Click the links for more information about these features.

User Friendly

- New Ribbon and Quick Access Toolbar layout to improve usability and customization.

- New **Fill Style Editor** and **Fill Style Manager** to create, modify, and share custom fill styles.
- New custom line styles in the line palette.
- Specify different header heights for the first and subsequent pages for the borehole and cross section views.
- Select to show header/footer pane objects in all pages or only on the first page.
- Tab visibility is saved with Strater project .SDG files
- Jump to a specific page with the page controls while in page view mode.
- Edit shared properties for logs, drawn objects, legends, and scale bars.
- New **Welcome to Strater** dialog to quickly start **Strater** the way you want.
- Side selection handles move with the zoom and view, so they are always visible.
- Break apart metafiles after pasting or import.
- Search for coordinate systems in the **Assign Coordinate System** dialog.
- Easily add and edit date/time formats with the **Date/Time Format Builder**.
- List items in the **Property Manager** always show the drop arrow.
- Set whether or not scheme items are case sensitive.

Data Table Enhancements

- Quickly view and manage tables in the project with the **Table Manager**.
- Cell formatting is saved with the **Strater** Project .SDG file.
- Convert an interval table to a lithology table.
- Include mode in the calculated statistics.
- Include or exclude specific values or ranges of values when calculating statistics.
- Improved **Sort** speed.
- Double-click a column header dividing line to auto-size the column width.

Borehole View Enhancements

- Add Unregistered Raster Logs to the borehole view.
- Add Registered Raster Logs to the borehole view.
- Easily add an end depth line.

Log Feature Enhancements

- Display water level symbols on all log types, excluding depth logs.
- Display multiple variables (plots) on a single line/symbol log.
- Link scale bar line color to the log/symbol, crossplot, or function log line color.
- Display zone bar and bar log labels from a worksheet column.
- Display units with the scale bar title.
- Repeat text blocks that break across pages for complex text logs.
- Omit unused scheme items from a legend.
- Set longer tick lengths and specify the tick side for depth log tick marks.
- Border lines end at the ending borehole depth.
- Use date/time formats for log labels.

Map View Enhancements

- Create custom unreferenced local coordinate systems.

Cross Section View Enhancements

- Create a depth-registered raster log cross section.
- Display the water level and water level symbols on all cross section types.
- Deviated line/symbol cross section logs display curve traces.
- Create linked scale bars for line/symbol log cross sections.
- Draw layer lines horizontally across logs in the cross section.
- Display well names in horizontal alignment with the top or bottom of the well.

Import and Export Format Improvements

- Import and export Google Earth KML/KMZ files.
- Import GPS Exchange Format GPX files.
- Import compressed (ZIP, TAR, TAR.GZ) Esri .SHP Shapefiles.
- More control when importing SID and ECW image files.
- Improved transparency and fill support for GSI file import and export.
- Export Raster PDFs with the page size specified by the project page setup.
- Export TIF Image files with transparency.
- Open, import, and export MID files in a table.
- Specify a custom resolution when importing PDF files.
- Improved transparency and fill handling when exporting Vector PDF files.

Projections, Coordinate Systems, and Datums

- Specify the units for the Local Unreferenced Coordinate System.
- Search for coordinate systems by text or EPSG code in the **Assign Coordinate System** dialog.
- Renamed Germany PD83 and RD83 Streifen Nährwert to PD83 and RD83 Gauss-Krüger Zones.
- New Coordinate Systems
    - ATF / Nord De Guerre
    - Jamaica National Grid
    - Kandawala Sri Lanka Grid
    - NTF (Paris) / France I
    - NTF (Paris) / France II
    - NTF (Paris) / France III
    - NTF (Paris) / France IV
    - NTF (Paris) / Lambert Centre France
    - NTF (Paris) / Lambert Corse
    - NTF (Paris) / Lambert I
    - NTF (Paris) / Lambert II
    - NTF (Paris) / Lambert III

  - NTF (Paris) / Lambert IV
  - NTF (Paris) / Lambert Nord France
  - NTF (Paris) / Lambert Sud France
  - RGF 1993 Lambert CC42
  - RGF 1993 Lambert CC43
  - RGF 1993 Lambert CC44
  - RGF 1993 Lambert CC45
  - RGF 1993 Lambert CC46
  - RGF 1993 Lambert CC47
  - RGF 1993 Lambert CC48
  - RGF 1993 Lambert CC49
  - RGF 1993 Lambert CC50
  - SIRGAS-ROU98 / UTM zone 22S (Uruguay)
  - SLD99 / Sri Lanka Grid 1999
- New Datums
  - Kandawala - Sri Lanka
  - RGF93 (WGS84 base)
  - SIRGAS-ROU98

Check for Update

Click the **File | Online | Check for Update** command to download and install an update for **Strater** if you do not have the most current version. An update (i.e. version 5.1 to 5.2) contains minor changes to the program. There are no new features added in updates. A list of changes is located at http://www.goldensoftware.com/Strater-Version-Info.

Before using this command, make sure your computer is connected to the Internet. Follow the directions in the dialog to complete the update if an update is available.

To obtain a full upgrade when available (i.e. **Strater** version 5 to **Strater** version 6), contact Golden Software.

Serial Number

Your **Strater**® serial number is located on the CD cover. If you purchased **Strater** with the download only option, the serial number was emailed to you with the download directions. Please take a minute to register your copy of **Strater** with us.

To register go online to www.GoldenSoftware.com.

Registering your serial number entitles you to free technical support, upgrade pricing announcements, and **Strater** upgrade pricing. Our database is confidential.

Three-Minute Tour

We have included several example files with **Strater** so that you can quickly see some of **Strater's** capabilities. Only a few example files are discussed here, and these examples do not include all of **Strater's** many log types and features. The **Object Manager** is a good source of information as to what is included in each file.

Sample Strater Files

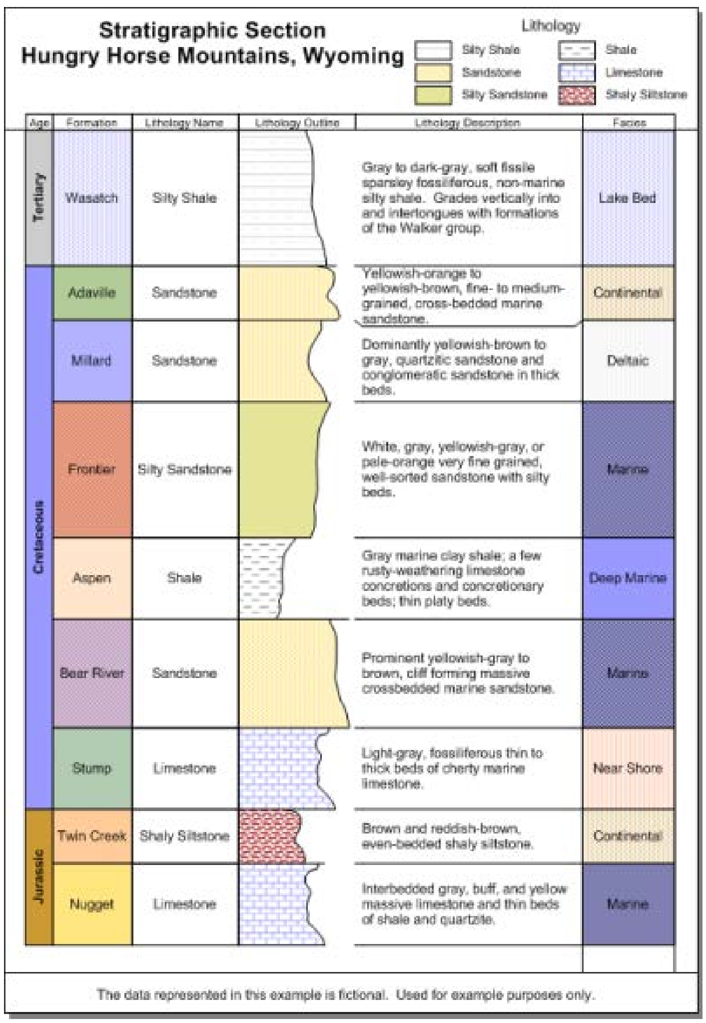
To see the sample Strater files:

1. Open Strater.
2. Click the **File | Open** command.
3. Click on a .SDG file located in the Samples folder. By default, the **Strater** Samples folder is located in C:\Program Files\Golden Software\Strater 5\Samples.
4. Click *Open* and the file opens.

The primary graphical component to a document is a borehole view. A borehole view is either based on a template file or created from scratch by adding the necessary log, header and footer items. Boreholes views, map views, and cross section views display logs, well and base maps, and cross sections of the selected data when the tab is selected. When a data table tab is selected its data appears in the workspace.

Lith Secton-1 .sdg

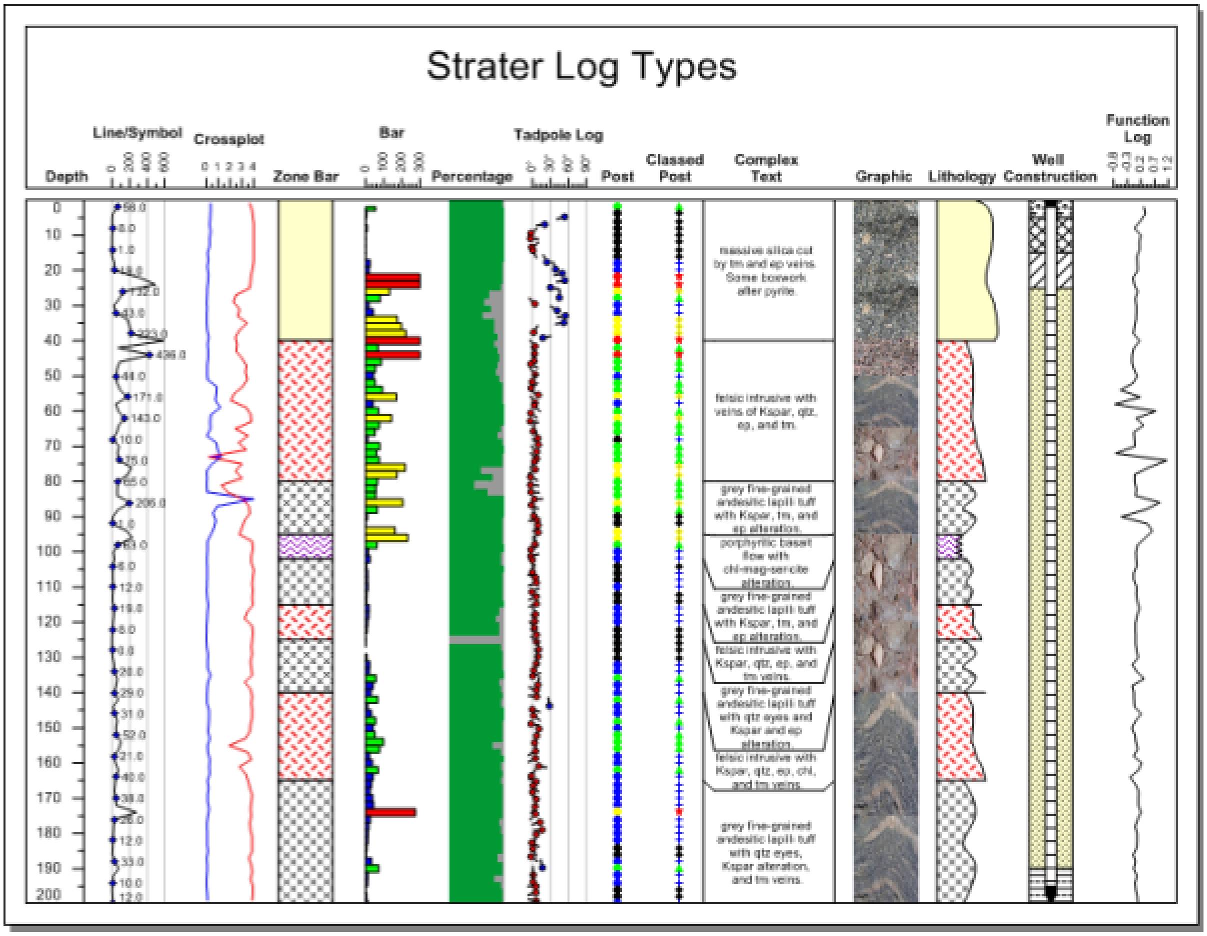
The Lith Section-1.sdg sample file contains a sample lithology log column. Age, formation, lithology type, and lithology description appear in the borehole view. Four data tables are included in the .SDG file and include the information being displayed in the borehole view.



The Lith Section-1.sdg file contains several zone bar logs and a lithology log.

Example Logs.sdg

The *Example Logs.sdg* sample file contains every type of log file that **Strater** can create. Click on a log and the **Property Manager** updates to show only that log's properties. Experiment with the properties for the logs to see how the log changes. Click on the map and cross section tabs to experiment with the properties for the map and cross section views.



The Example Logs.sdg file displays an example of each log type in the same borehole view.

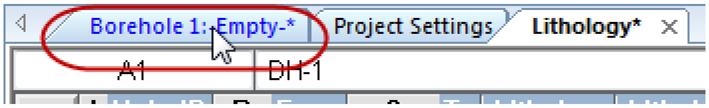
One purpose of the sample files is to discover the effects of changes made in the **Property Manager** – to experiment so that the functionality is closer to second nature and you do not need to search for the correct setting. Use these sample files, especially this file, to discover the breadth of options available. If you want to save any changes we recommend keeping the original file and using the **File | Save As** command to save a copy of the file to a new name.

Using Strater

The general steps to progress from a data file to a borehole are as follows.

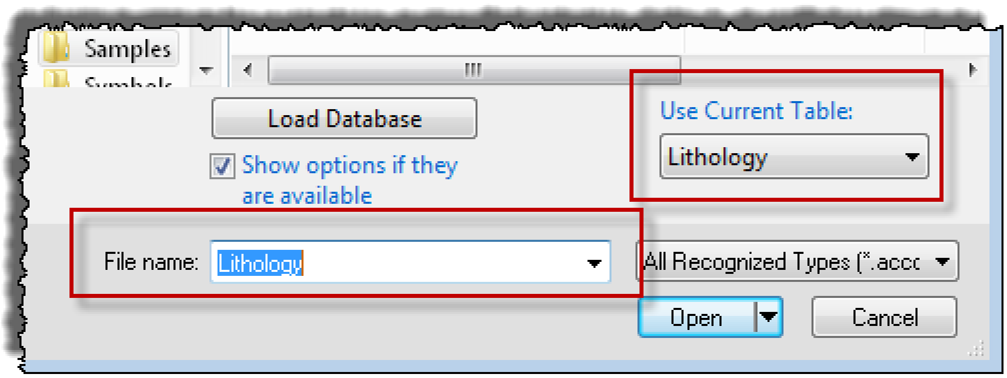
1. Open Strater.
2. Click the **File | Open** command or click the  button.
3. In the **Open** dialog, select the data file and click the *Open* button. For this example, the data should have *From* and *To* columns because of the type of log created. The sample *Tutorial 1.xls* file can be used with the *Lithology* sheet.

4. In the **Specify Worksheet Column Definitions** and **Specify Data Type and Column Positions** dialogs, set the column names and rows to import. The data opens into **Strater** and is displayed in a table view.
5. Click on the *Borehole 1* tab.



Click on the Borehole 1 tab.

6. Click the **Log | Create Log | Depth** command to create a depth log.
7. Click on the screen in the location where you want the depth log to be displayed.
8. In the **Open** dialog, verify that *Use current table* is selected and click *Open*. The depth log is displayed.



Verify that the table is selected.

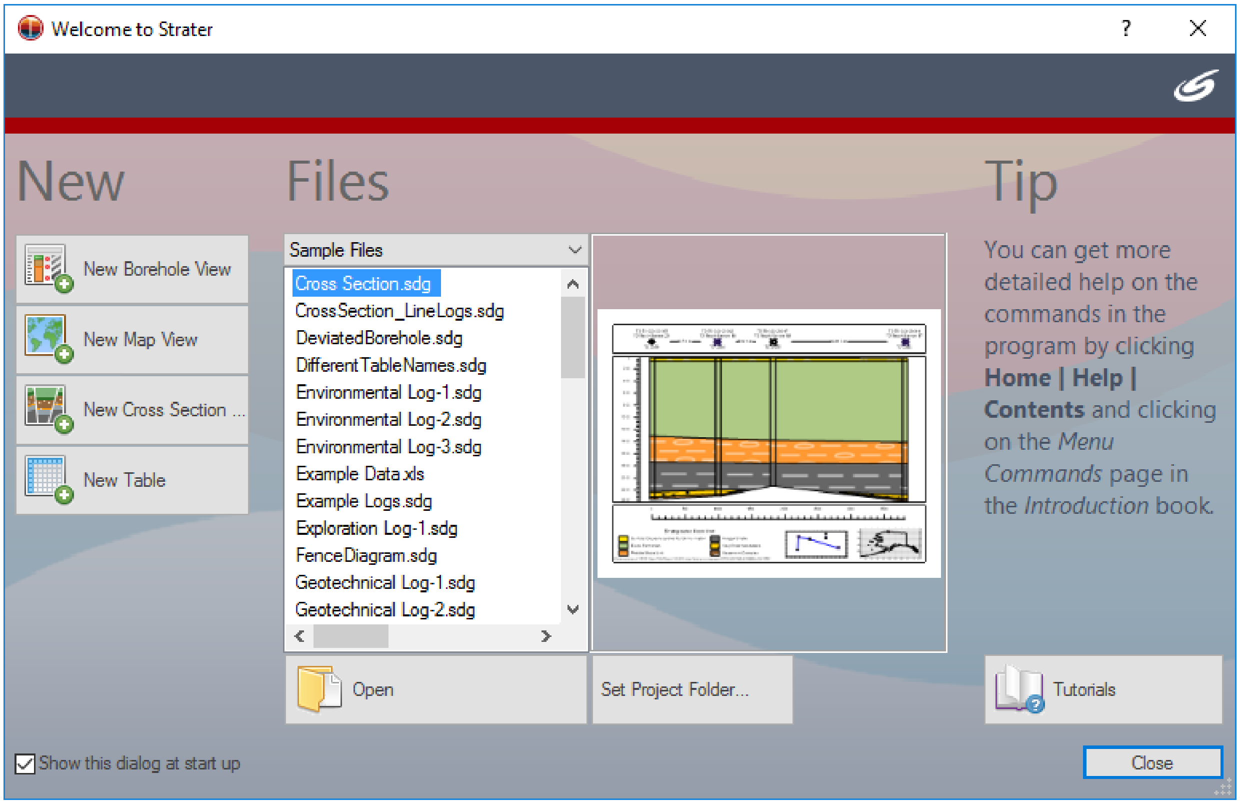
9. Click the **Log | Create Log | Zone Bar** command to create a zone bar log.
10. Click on the screen where you want the zone bar log to be displayed.
11. In the **Open** dialog, verify that *Use current table* is selected and click *Open*. The zone bar log is displayed.
12. Click the **File | Save As** command. Enter a *File name* in the **Save As** dialog and click the *Save* button to save your Strater project.

To proceed from the borehole to a map view and cross section view, these steps are used.

1. Click the **Home | New | Map View** command to create a new blank map window.
2. Click the **Map | Create | Well Map** to display the wells on the map. Select and open a collars table, if prompted. The sample *Example Data.xls* file can be used with the *Collars* sheet.
3. Click on the *Wells* layer in the **Object Manager**.
4. Click the **Map | Add | Well Selector** command.
5. Click on the wells in the order they should appear in a cross section.
6. Click the **Home | New | Cross Section View** command to create a new blank cross section.
7. Click the **Cross Section | Create / Add | Create Cross Section** command to create the default cross section from the well selector.

Welcome to Strater Dialog

When **Strater** is first opened, the **Welcome to Strater** dialog appears. The **Welcome to Strater** dialog provides a way to start **Strater** in your desired method. The dialog reappears every time **Strater** opens.



The ***Welcome to Strater*** *dialog appears when you open* ***Strater****.*

New Options

The *New* list, on the left side of the dialog, controls the method that this instance of **Strater** will begin with.

Click any of the buttons to open **Strater** using the method described below.

- *New Borehole View* opens a new empty borehole view. This is the default starting state for **Strater**.
- *New Map View* opens a new empty map view in addition to the starting borehole view.
- *New Cross Section* opens a new empty cross section view in addition to the starting borehole view.
- *New Table* opens the **Create a New Table** dialog. Once the new table has been defined, **Strater** is launched with the new table in addition to the starting borehole view.

Files List and Preview

The *Files* list, in the middle of the dialog, contains options to open specific files. Click the current file type selection and select the desired file type from the list. Available options are *Recent Files, Sample Files, Project Files,* and *Browse*. Select the desired option and the list updates to show all files in the selected type.

- *Recent Files* lists the most recent 10 files that have been opened in **Strater**. This is similar to the file list under the **File** menu. Click on any file in the list and click the *Open* button to open the selected file. Files that are pinned to the *Recent Documents* list will be displayed at the top of the *Recent Files* list, including pinned data files.
- *Sample Files* lists all of the **Strater** project files and data files in the **Strater** samples directory. This is C:\Program Files\Golden Software\Strater 5\Samples, by default. Click on any file in the list and click the *Open* button to open the selected file.

- *Project Files* lists all of the files in the selected project directory. After clicking *Project Files* the first time, a **Select Folder** dialog appears. Select the directory on the computer that should be used as the *Project Files* directory and click *Select Folder*. All of the files from the selected directory are listed. Click on any file in the list and click the *Open* button to open the selected file. Click the *Set Project Folder* button to change the directory, or change the *Default path* directory in the **Options** dialog **General** page.
- *Browse* opens the **Open** dialog, where you can select the file to open to start this instance of **Strater**. Select *Browse* to start **Strater** with a file that is not in the *Recent Files* list, *Sample Files* list, or *Project Folder*.

Click a file name to select to file. A preview of the selected file is displayed for **Strater** project .SDG files. The selected file can be opened by clicking the *Open* button. Click on another file or press the UP ARROW or DOWN ARROW keys to change the file selection.

Project Folder

Clicking the *Set Project Folder* button opens the **Select Folder** dialog. The **Browse for Folder** dialog will open for Windows XP users. The selected directory is used for the *Project Files* file list. The *Project Folder* can also be changed in the **Options** dialog. If the *Project Folder* specification is removed in the **Options** dialog, the Windows default (C:\Users\<username>\Documents) folder is used until a new project folder is selected.

Open

After clicking on a file in the file type list, click the *Open* button to open the selected file. The **Welcome to Strater** dialog closes and the action is performed. The *Open* button is disabled until a file is selected in the *Files* list. To open a file that is not located in any of the lists select *Browse* in the file type list.

Tips

The **Welcome to Strater** dialog displays a useful tip on the right side of the dialog.

Start with the Tutorial

Click the *Tutorials* button to start **Strater** with a new empty borehole view and the help open to the *Tutorial Introduction* topic.

Turn Welcome Dialog Off

The *Show this dialog at start up* check box is checked by default. Click the *Show this dialog at startup* to remove the check and open **Strater** without the **Welcome to Strater** dialog in all future instances. After closing **Strater** and reopening, the **Welcome to Strater** dialog will not be displayed.

This option can be changed by clicking the **Options** command. In the **Options** dialog, click on *User Interface* on the left side. On the right side, check the box next to *Show welcome screen at startup*. Click *OK* and the next time **Strater** is opened, the **Welcome to Strater** dialog is displayed.

Close

Click the *Close* button to close the **Welcome to Strater** dialog without selecting any option. **Strater** will start with an empty borehole view.

New Project

A new project can be created with the **File | New Project** command.

Click the **File | New Project** command, click the button, or press CTRL+N on the keyboard to create a new **Strater** project.

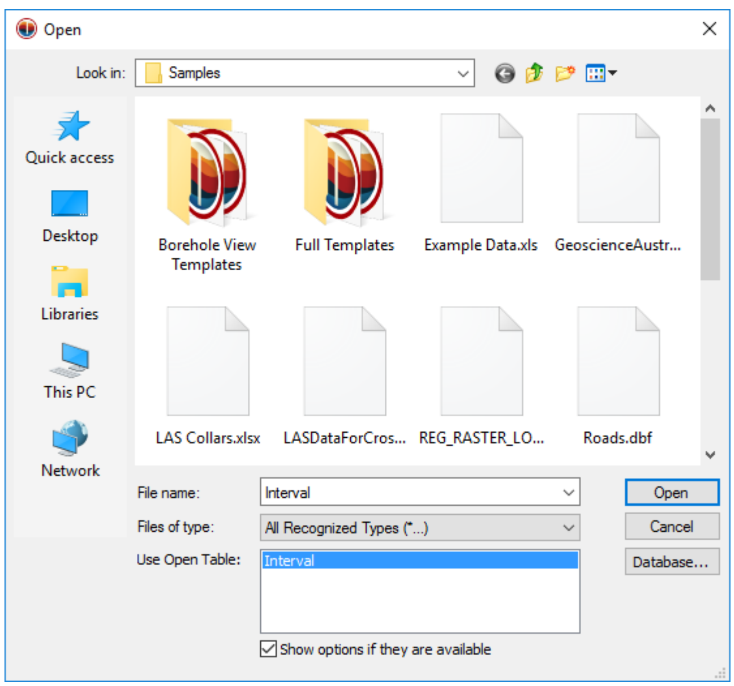
Only one project can be open at a time. If an existing file is open, you will be prompted to save any unsaved changes. If multiple .SDG files need to be opened at the same time, open multiple instances of **Strater**.

Open

Click the **File | Open** command, click the button, or press CTRL+O on the keyboard to open a **Strater** project .SDG file, **Strater** .TSF template file, or a worksheet file. Select the file in the **Open** dialog and the new project opens. When a project opens, the borehole views, cross section views, map views, and data table tabs that were visible when the SDG was saved are opened. The views and tables that were hidden when the SDG was saved are hidden when the project is opened.

The Open Dialog

Use the **File | Open** command to open an existing **Strater** project or template file or any worksheet file.



*Click on the desired file name in the **Open** dialog.*

Look In

The *Look in* field shows the current folder. Click the down arrow to choose a new folder. Click on the folders to change directories.

The buttons to the right of the *Look in* field allow you to create new folders and change the view of the file list.

File List

The *File list* displays files in the current folder. The current folder is listed in the *Look in* field. The *Files of type* field controls the display of the file list. To see all files in the folder, choose All Files (*.*) from the *Files of type* list. Double-click on a file to open it or single click the file and then click the *Open* button.

File Name

The *File name* field shows the name of the selected file. You can also type a path and file name into the box to open a file

Files of Type

The *Files of type* field shows the file format to be opened. To change the file format click the down arrow and select the file type from the list. All Files (*.*) display all files in a folder.

Use Open Table

The *Use Open Table* list is displayed when the **Open** dialog is accessed via one of the **Log | Create Log** commands, the **Map | Create | Well Map** command, or the **Map | Add | Well Layer** command. To use an open table for the log or well map, click the table name in the *Use Open Table* list. Only table types that are supported for the selected log type are displayed in the *Use Open Table* list when creating a new log. Only open collars tables are included in the *Use Open Table* list when creating a new well map or well layer.

Load Database

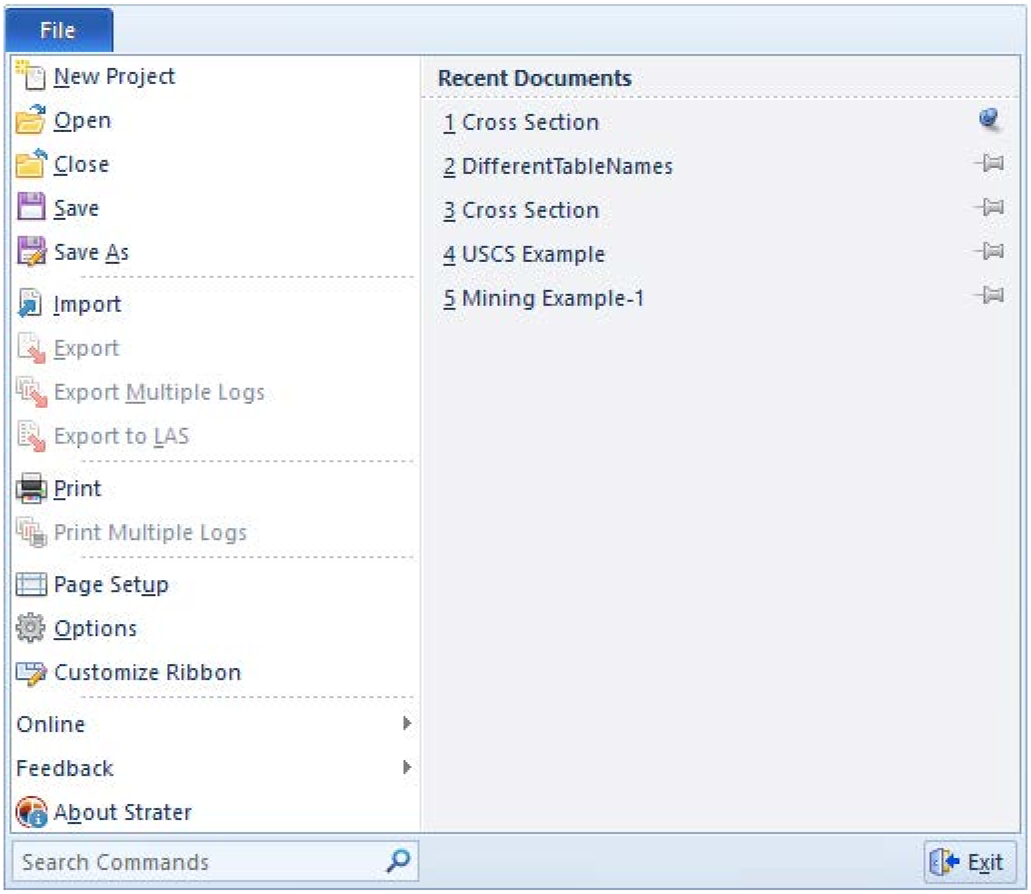
Click the *Load Database* button in the **Open** dialog to open the data linking function. Data linking provides a method to link to virtually any database supported by Microsoft via an OLE DB Provider, ODBC, or some other supported format. Set the database information in the dialogs Data Link Properties, Database Tables and Fields, and **Specify Data Type and Column Positions**.

Open Multiple Sheets or Multiple Data Files

The **File | Open** command opens a single worksheet in a new table. Click the **File | Open Multiple** command to open multiple data files into multiple tables. Click the **File | Import** command in an existing table to import a single data file into an existing table. **File | Import** also allows multiple sheets from a single data file to be imported at once.

Recent Documents

Use the numbers and file names listed on the right side of the **File** menu to open the most recently used files. You can type a number that corresponds with the document or click on the document name to open it.



Click on any of the document names listed in the Recent Documents *list to open that file.*

You can pin documents to the *Recent Documents* list. Pinned files will be moved to the top of the *Recent Documents* list and will not be removed as new files are added to the list.

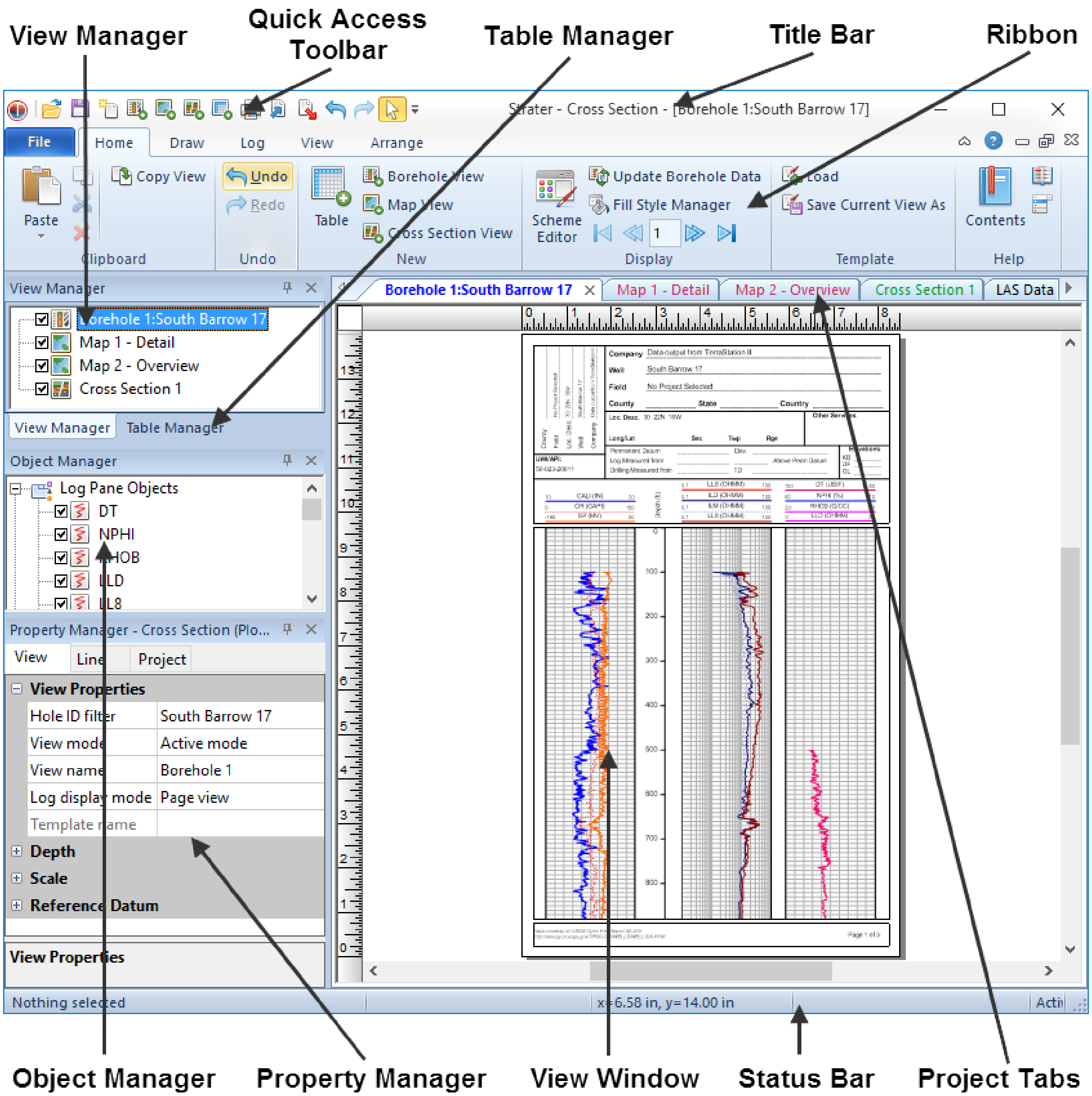
To pin a file, click the gray pin to the right of the file name. The pin is displayed as , and the file is pinned to the top of the *Recent Documents* list.

To unpin a file from the *Recent Documents* list, click the blue pin to the right of the file name. The pin is displayed as , and the file is unpinned.

Strater User Interface

Strater contains four document window types: borehole view, map view, cross section, and table windows. Borehole views display various log types. Map views display post and base maps that can be used to identify where individual wells are located. Cross sections are created and edited in the cross section view. The data is opened, edited, and transformed, and saved in the table windows.

Left-click on the image below to see detailed information about the various parts of the **Strater** window.



*This is the **Strater** borehole view with the tabbed **View** and **Table Managers, Object Manager,** and **Property Manager** windows displayed on the left side. Tabs displaying the view windows and tables are displayed above the horizontal ruler. Left-click anywhere in the image to see detailed information about each part of the **Strater** window.*

Opening Windows

Clicking the **File | New** command opens a new project, or adds a new borehole view, map view, cross section view, or table to the existing project.

Strater Layout

The following table summarizes the function of the **Strater** layout components.

Title Bar	The title bar lists the program name plus the saved **Strater** .SDG file name. An asterisk (*) after the file name indicates the file has been modified since it was last saved.
Ribbon	The ribbon contains the commands used to run **Strater**.
Quick Access Toolbar	The Quick Access Toolbar contains **Strater** tool buttons, which are shortcuts to menu commands. Move the cursor over each button to display a tool tip describing the command. The Quick Access Toolbar can be customized with the **File | Customize Ribbon** command.
View Manager	The **View Manager** displays a list of all of the borehole view, map view, and cross section windows open in the existing project.
Table Manager	The **Table Manager** displays a list of all the data tables open in the existing project.
Object Manager	The **Object Manager** contains a hierarchical list of the objects in a **Strater** borehole view, map view, or cross section window. These objects can be selected, added, arranged, edited, and renamed in the **Object Manager**. The **Object Manager** is initially docked on the left side above the **Property Manager** and below the **View Manager**. Changes made in the **Object Manager** are immediately reflected in the borehole view, map view, or cross section window. The **Object Manager** can be dragged and placed at any location on the screen.
Property Manager	The **Property Manager** allows you to edit any of the properties of the selected object. When no objects are selected in the borehole view or cross section, the general properties for the window are displayed.
Tabbed Documents	Multiple borehole views, map views, cross sections, and tables can be displayed as tabs. Click on the tab to display that window.
View window	The view window is the area where the selected borehole view, map view, cross section, or table is displayed.
Status Bar	The status bar displays information about the activity in **Strater**. The status bar is divided into five sections that contain information about the selected command or object, depth or XY position, size of the selected object, and the page number that is currently displayed.

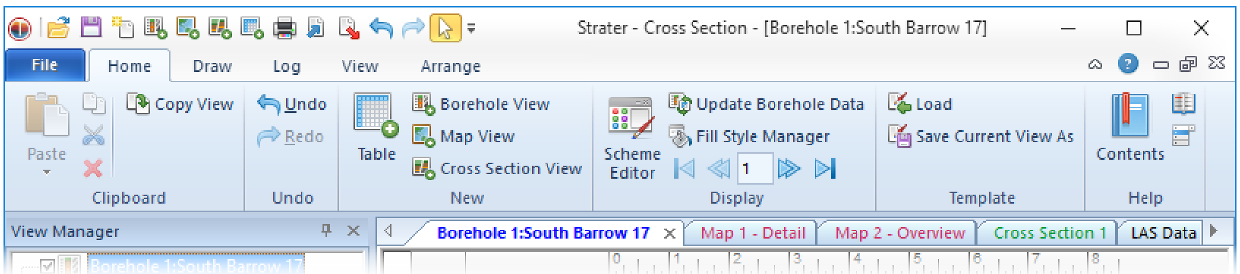
Title Bar

The title bar is the top part of the **Strater** window and contains the name of the current project or template and the active tab, if any. Use the title bar to drag the window to reposition. Double-click the title bar to maximize or restore a window. Use the three buttons on the right to minimize, maximize, or close **Strater**

Ribbon

The Ribbon is the strip of buttons and icons located above the manager and view windows. The Ribbon replaces the menus and toolbars found in earlier versions of **Strater**. The ribbon is designed to help you quickly find the commands that you need to complete a task.

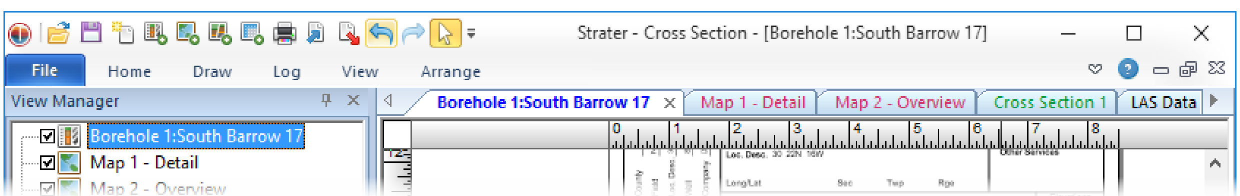
Above the Ribbon are a number of tabs, such as **Home**, **Draw**, and **Log**. Clicking or scrolling to a tab displays the options located in this section of the ribbon. The tabs have commands that are organized into a group. For instance, all the drawing object related commands are on the **Draw** tab.



*The Ribbon is displayed with the **Home** tab selected.*

Minimizing the Ribbon

The ribbon can be minimized to take up less space on the screen. To minimize the ribbon, right-click on the ribbon and select **Minimize the Ribbon** or click the button in the top right portion of the **Strater** window. When displayed in a minimized mode, only the tabs at the top of the screen are visible. To see the commands on each tab, click the tab name. After selecting a command, the ribbon automatically minimizes again.



The Ribbon displayed with the Minimize the Ribbon option selected. Clicking any tab name displays the ribbon.

Customizing the Ribbon

The ribbon is customizable in **Strater**. To customize the commands in the ribbon, right-click on the ribbon and select **Customize the Ribbon**.

In the **Customize Ribbon** dialog, you can add new tabs, add groups, hide existing tabs or custom groups, and add commands to any custom group. You can also rearrange the tabs into an order that fits your needs better.

To customize the commands in the **Customize Ribbon** dialog, right-click on the ribbon and select **Customize the Ribbon**. In the **Customize Ribbon** dialog, use the following options.

Tab options:

1. To add a custom tab, set the *Customize the Ribbon* section to *All Tabs*. Click in the list on the right side of the dialog where the custom tab should be located and click the *New Tab* button.
2. To delete custom tab, right-click on the tab name in the list on the right side of the dialog and select **Delete**.
3. To rename a default or custom tab, click on the tab name in the list on the right side of the dialog. Click the *Rename* button. Type the new name and press OK to make the change.
4. To hide a default or custom tab, uncheck the box next to the tab name on the right side of the dialog. Only checked tabs will be displayed.
5. To change the order of default or custom tabs, click on the tab name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected tab up or down. Default tabs must remain in their major group.

Group options:

1. To add a custom group to a default or custom tab, click on the ⊞ next to the tab name. Click in the list of group names where the new group should be located and click the *New Group* button.
2. To delete a default or custom group on any tab, right-click on the group name in the list on the right side of the dialog and select **Delete**.
3. To rename a default or custom group on any tab, click on the group name in the list on the right side of the dialog. Click the *Rename* button. Type the new name and click OK to make the change.
4. To change the order of default or custom groups on any tab, click on the group name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected group up or down in the list.
5. To replace a default group with a custom group, right-click on the default group name and select **Delete**. Click the *New Group* button. Add the desired commands to the new group that you want displayed. Rename the new group, if desired.

Command options:

Commands can only be added to or deleted from custom groups. Commands can only be rearranged or renamed in custom groups. If commands in default groups are desired to be edited, the default group should be hidden and a new custom group should be created with the same commands.

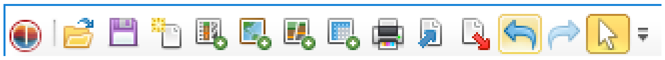
1. To add a command to a custom group, set the *choose commands from* list to *All Tabs* so that all commands are listed on the left side of the dialog. Select the desired command that should be added. On the right side of the dialog, click the ⊞ next to the custom group name. Click on the desired position in the list of commands. If no commands exist in the group yet, click on the group name. Click the *Add>>* button and the command is added to the custom group.
2. To delete a command from a custom group, right-click on the command name in the list on the right side of the dialog and select **Delete**. Only commands from custom groups can be deleted.
3. To rename a command in a custom group, click on the command name in the list on the right side of the dialog. Click the *Rename* button. Type the new name and click OK to make the change. Only commands in custom groups can be renamed.
4. To change the order of commands in a custom group, click on the command name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected command up or down in the list.

Reset the Ribbon

To reset all customizations on the ribbon, click the *Reset* button at the bottom of the **Customize Ribbon** dialog.

Quick Access Toolbar Commands

The Quick Access Toolbar is at the top of the **Strater** window. This toolbar has frequently used commands and can be customized by the user. The commands in the Quick Access Toolbar are the same regardless of the type of window displayed in **Strater**.



*The Quick Access Toolbar is displayed at the top of the **Strater** window.*

Customizing the Quick Access Toolbar

The Quick Access Toolbar is a customizable toolbar. One method that can be used to add commands to the Quick Access Toolbar is to right-click on the command in the ribbon and choose **Add to Quick Access Toolbar**. The command is automatically added to the end of the toolbar.

To customize the commands on the **Quick Access Toolbar**, right-click on the Quick Access Toolbar or ribbon and select **Customize Quick Access Toolbar**.

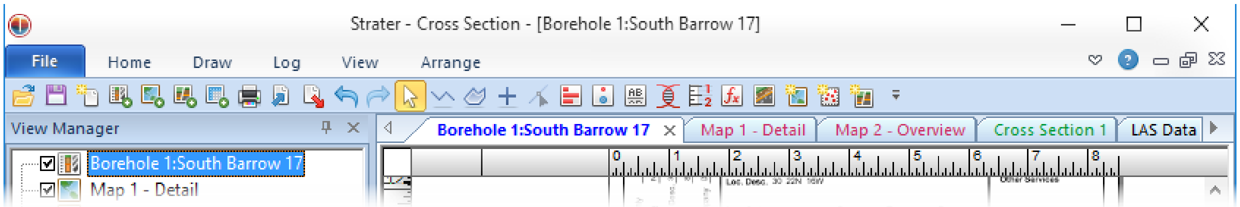
In the Quick Access Toolbar dialog,

1. To add a command, select the command from the list on the left that you want to add. Click the *Add>>* button and the command is added to the list on the right.
2. To add a separator between commands, set the *Choose commands from* to Main on the left side of the dialog. Select *<Separator>* and click *Add>>*. Move the separator to the desired position.
3. To delete a command, select the command from the list on the right. Click the *<<Remove* button and the command is removed from the list on the right.
4. To rearrange commands or move separators, click on the command or separator name from the list on the right that you want to move. Click the up and down arrow buttons on the far right to move the command up or down the list. Commands are shown in the exact order that they are displayed in the Quick Access Toolbar.
5. To reset the Quick Access Toolbar to the default display, click the *Reset* button below the list on the right side of the dialog.
6. Click OK and all changes are made.

Note: to add individual log types as buttons to the Quick Access Toolbar, set the *Choose commands from* to *Log*. Then on the left side of the dialog, select the desired log type, such as *Classed Post Log. Click Add>>* and the log type is added with an icon to the right side. Click *OK* and the log type is displayed in the Quick Access Toolbar.

Displaying the Quick Access Toolbar Below the Ribbon

To display the Quick Access Toolbar below the ribbon, right-click on the Quick Access Toolbar or ribbon and select **Show Quick Access Toolbar Below the Ribbon**. This setting is useful if you have added many commands to the Quick Access Toolbar. More commands display, by default, when the Quick Access Toolbar is below the ribbon. When combined with the minimized ribbon appearance, this can give single click access to all your most used commands and maximize the viewing area for the plot.



Customize the Quick Access Toolbar to display all the commands you frequently use. Then, display the Quick Access Toolbar below the ribbon bar. When the ribbon bar is minimized, it appears that all of your commands are in a single toolbar, ready to create exactly what you want with a single click.

Menu and Tab Commands

The ribbon bar contents change, depending upon the current active window in **Strater**.

Regardless of which view is currently active, clicking the **Strater** icon in the top left of the **Strater** window displays commands to restore, move, size, maximize, minimize, and close **Strater**.

Shared Commands

The shared commands are displayed regardless of the currently active view. However some commands may be disabled for specific view types. For example all of the **Draw**, **Log**, and **Arrange** tab commands are disabled when in the table view.

File	Contains commands for opening, saving, exporting, and printing files
Home	Contains clipboard, project, help, and miscellaneous editing commands
Draw	Provides tools to draw objects and text
Log	Provides commands to create each of the log types and to switch between active and design modes
View	Controls the display of toolbars, status bar, managers, resets window positions, and controls the zoom level of objects in the visible window
Arrange	Contains commands to arrange objects on the page

Map Commands

The **Map** tab commands are available when a map view is currently active. The **Map** tab commands add base maps and layers, add well maps and layers, and select wells for a cross section.

Cross Section Commands

The **Cross Section** tab commands are available when a cross section view is currently active. The **Cross Section** tab commands create a cross section and connect, overlay, and adjoin logs in a cross section.

Table Commands

The **Table** and **Data** tab commands are available when a table view is currently active.

Data	Contains commands to sort, filter, and transform data, create TVD, and export data.
Table	Contains commands to delete, rename, and convert tables, add or change hole IDs, create schemes, and update borehole names

Keyboard Commands

You can use the keyboard to move the pointer within the borehole view, to select and move objects, and perform commands.

- The ARROW keys move the cursor within the borehole view.
- Pressing the SPACEBAR is equivalent to clicking the left mouse button.
- Double-pressing the SPACEBAR is the same as double-clicking the mouse.

Menu Access

Use the keyboard to access menu commands by holding down the ALT key and pressing an underlined letter in the menu bar. When the drop-down menu is displayed, you can access a command by pressing the underlined letter in the command.

Dialog Access

You can also use the keyboard to move around within a dialog. The TAB key moves between the options in the dialog. The SPACEBAR is used to simulate mouse clicks, allowing you to toggle check boxes or press buttons that provide you with access to other dialogs or close the current dialog. As you use the TAB key to move through the dialog, the options are highlighted as they become active. You can also use the underlined hotkeys by holding down the ALT key and typing the letter. This moves you immediately to the desired option. Note that not all of the dialogs have ALT key access.

GENERAL COMMANDS

These keyboard commands are used in both borehole views and data tables.

View and Menu Control

CTRL+F4	Close the view
ALT+F4	Close Strater
ALT+SPACE	Display the application control menu
ALT+HYPHEN	Display the view control menu
CTRL+F6	Next view or table
CTRL+SHIFT+F6	Previous view or table
CTRL+TAB	Switch between **Strater** views
ALT+ENTER	Move from the borehole view to an open **Property Manager**
ALT	Activate the menu bar
CTRL+ESC	Display the Windows start menu

ALT+TAB	Switch to the last active application

Help

F1	Open help
SHIFT+F1	Open context sensitive help on a highlighted command or open dialog
SHIFT+F10	Open the context-menu for the selected object(s)

File

CTRL+N	Open a new view
CTRL+O	Open a file into a new view
CTRL+S	Save a file
CTRL+P	Print the view
ALT+F4	Close Strater

Edit

CTRL+X or SHIFT+DEL	Cut the selected objects to the clipboard
CTRL+C or CTRL+INSERT	Copy the selected objects to the clipboard
CTRL+V or SHIFT+INSERT	Paste the clipboard contents into the view
CTRL+A	Select All (borehole view)
CTRL+SHIFT+A	Deselect All (borehole view)
CTRL+Y	Redo the previous undo command
CTRL+Z or ALT+BACKSPACE	Undo the last command
DEL	Delete the selected objects (clears cells in a data table)
F2	Rename Object (borehole view)

BOREHOLE VIEW

These keyboard commands are specific to the borehole view.

Edit

CTRL+A	Select all objects in the current borehole view
CTRL+SHIFT+A, F3	Deselect all
CTRL+I	Import an object
CTRL+E	Export an object
CTRL+F5	Update logs after tables change

View

PAGE DOWN	Scroll to the next page in a multi-page log
PAGE UP	Scroll to the previous page in a multi-page log

HOME	Scroll to the first page in a multi-page log
END	Scroll to the last page in a multi-page log
F5	Redraw the screen
CTRL++	Zoom in twice the scale at the center of the screen
CTRL+-	Zoom out twice the scale from the center of the screen
CTRL+R	Zoom on a selected rectangle
CTRL+L	Zoom in on selected objects so they fill the view
CTRL+T	Zoom by dragging the mouse, drag up to zoom in and drag down to zoom out
CTRL+G	Zoom to the extents of the page

Arrange

SHIFT+PGUP	Move to front
SHIFT+PGDN	Move to back
CTRL+PGUP	Move forward
CTRL+PGDN	Move backward

Log

F4	Toggle between active and design modes

Cross Section

CTRL+SHIFT+D	Connect logs with Layers

DATA TABLE COMMANDS

These keyboard commands are specific to working inside data tables.

DEL	Delete the contents of the selected cell, numeric cells are replaced with 0 (zero)
ARROW KEYS	Move to adjacent cell
ENTER	Preserve the typed contents in the cell
HOME	Go to the first column containing data
END	Go to the last column containing data
PAGE UP	Scroll the table up by the number of visible rows
PAGE DOWN	Scroll the table down by the number of visible rows
TAB	Move the active cell right one column
CTRL+HOME	Move the active cell to the top cell of the left most column
CTRL+END	Move the active cell to the bottom occupied row and right most column
CTRL+O	Sort the data
CTRL+U	Move the row containing the active cell up
CTRL+R	Insert Rows
CTRL+D	Delete

CTRL+F	Find

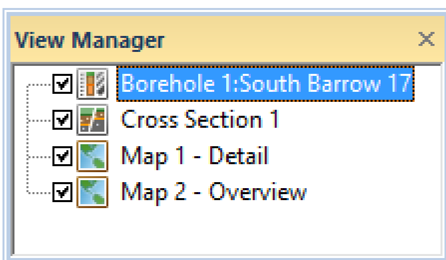
View Manager

In **Strater** you can have multiple view window types in one project. This is useful in displaying multiple graphics for multiple wells, displaying different layouts for the same data, or displaying maps or cross sections. Click the **View | Managers | View** command to display the **View Manager**. The **View Manager** contains a list of the various borehole views, cross section views, and map views. You can open or close views, add or delete views, and save or load template files in the **View Manager**.

The check box to the left of a view name indicates if that view is displayed or hidden. If a view is not visible either check the box next to the view name or click the view name. Unchecking all view check boxes in the **View Manager** closes the entire project. When the last check box is unchecked a window appears asking you to save any unsaved work in the project. The project then closes.

To display the view properties associated with any view in the **View Manager** menu, click on the view name. The view properties are listed in the **Property Manager**.

Click and drag a view name in the **View Manager** to rearrange the order of the views in the list. The pointer changes to a black arrow if the object can be moved to the pointer location or a red circle with a diagonal line if the object cannot be moved to the indicated location. The view tabs will also rearrange to reflect the new ordering. The topmost view in the **View Manager** is the left-most document tab in the view window.



*The **View Manager** allows you to create new views, delete existing views, or save and load templates.*

Right-click in the **View Manager** to see options available for adding or deleting views or for loading templates.

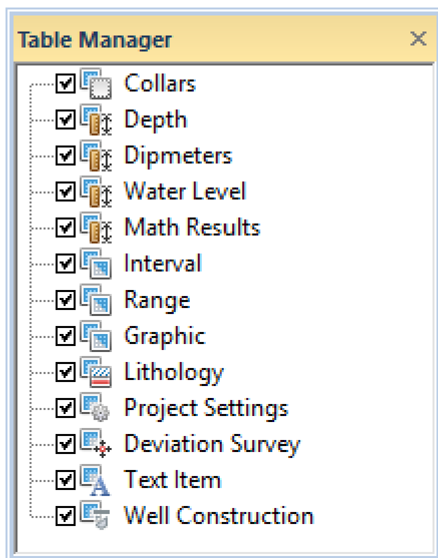
- **New Borehole View** creates a new blank borehole view in the current project.
- **New Map View** creates a new blank map view in the current project.
- **New Cross Section View** creates a new blank cross section view in the current project.
- **Delete** deletes the currently highlighted view from the project. There is no **Undo** for this operation so use caution when deleting views.
- **Rename** allows you to type a new name for the view.
- **Sort Views Top to Bottom** sorts the views in descending order from the top to the bottom of the **View Manager**, i.e. ascending order from bottom to top. Sorting the views in the **View Manager** also updates the order of the document tabs. The topmost view in the **View Manager** is the left-most document tab in the view window.
- **Sort Views Bottom to Top** sorts the views in descending order from the bottom to the top of the **View Manager**, i.e. ascending order from top to bottom. Sorting the views in the **View Manager** also updates the order of the document tabs. The topmost view in the **View Manager** is the left-most document tab in the view window.

- **Save Template of Current View** saves the current view window as a template .TSF file.
- **Load Template** opens a template into a new borehole view.
- **View Properties** displays the currently selected view window's borehole, map, or cross section view properties in the **Property Manager**.

Table Manager

In **Strater** you can have multiple data tables in one project. This is useful in displaying graphics for multiple wells or data types. The **Table Manager** includes a list of all the tables in the project. Click the **View | Managers | Table** command to display the **Table Manager**. You can open or close tables, add or delete tables, and change the table order in the **Table Manager**.

Click a table name in the **Table Manager** to make the table the active document. If you click a hidden table, the table will be opened and made the active view.



Toggle table visibility, create and remove tables, or change table order with the ***Table Manager****.*

Table Visibility

The check box to the left of a table name indicates if the table is displayed or hidden. If a table is not visible either check the box next to the table name or click the table name. Click the **View | Display | Hide All Tables** command or right-click in the **Table Manager** and select **Hide All Tables** to hide all the tables in the project. Click the **View | Display | Show All Tables** command or right-click in the **Table Manager** and select **Show All Tables** to open all the tables in the project.

Renaming Tables

Tables can be renamed in the **Table Manager** by slowly clicking the table name twice. Pause between the two clicks to ensure the application does not interpret the two clicks as a double-click. Alternatively, click a table name and press F2, click the **Table | Table | Rename** command, or right-click the table name in the **Table Manager** and select **Rename** to rename the table. Type a new name for the selected table and press ENTER to rename a table.

Changing the Table Order

The table tabs are listed from left to right in the same order as in the **Table Manager** from top to bottom. Click and drag a table name to a new location to change the order of the tables in the **Table Manager**. The tab order will also update with the new table order. You can also change the order of the tables by clicking and dragging a table tab to a new location. This will automatically update the order in **Table Manager**. Right-click in the **Table Manager** and select **Sort Ascending** or **Sort Descending** to sort the tables alphabetically. The table order and view orders are not linked. When a table or view visibility is changed, the table and view tabs are displayed in two groups.

Creating and Deleting Tables

Right-click in the **Table Manager** and select **New** to create a new table, similar to the **Home | New | Table** command. Right-click in the **Table Manager** and select **Delete** to permanently remove the table from the project, similar to the **Table | Table | Delete** command.

Object Manager

The **Object Manager** contains a list of all objects, separated into a list of each pane in the borehole view and cross section view. The objects can be selected, arranged, and edited in both the **Object Manager** and through the menu commands. Changes made in the **Object Manager** are reflected in the view window, and vice versa.

When an object is highlighted in the **Object Manager** it is also selected in the view window, indicated by a bounding box surrounding the object.

Opening and Closing the Object Manager

The **Object Manager** is opened and closed by clicking the **View | Managers | Object** command. Alternatively, you can click ☒ in the title bar of the **Object Manager** to close the window.

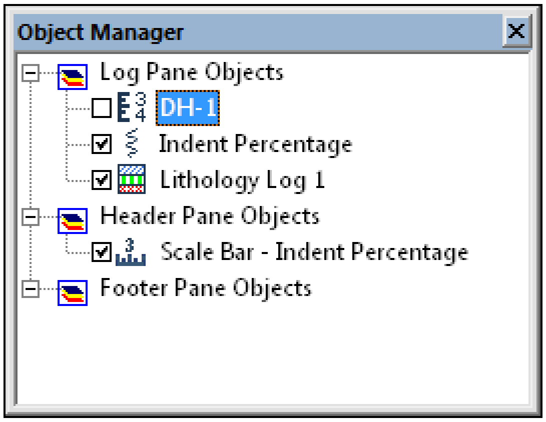
Panes

There are three groupings in the borehole view: Log Pane Objects, Header Pane Objects and Footer Pane Objects. There are three groupings in the cross section view: Cross Section Pane Objects, Header Pane Objects, and Footer Pane Objects. Each object is listed in the **Object Manager** according to its location in the view window. For example, if there is a rectangle in the footer, it is listed under the *Footer Pane Objects* section.

Use the ⊞ or ⊟ located to the left of the pane name to expand or collapse the list of pane objects.

Object Visibility

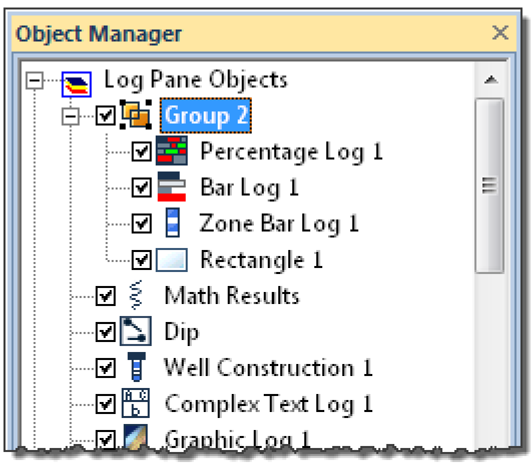
Each item in the list consists of an icon indicating the type of object, a text label for the object, and a check box that indicates if the object is visible. To change the visible status of an object, click the check box to the left of the object icon. Invisible objects do not appear in the view window and do not appear on printed or exported output.



A check mark next to an object indicates that the object is visible. In this instance, the depth log associated with DH-1 is unchecked, so not visible.

Grouped and Ungrouped Objects

When two or more objects have been grouped, the objects appear under a special *Group* object. Grouped objects can be edited by clicking on the object in the group and editing in the **Property Manager** as normal. All grouped objects move together. Ungroup the grouped object to move individual objects outside the group.

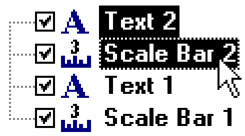


Grouped objects appear under a special Group object in the ***Object Manager****.*

To ungroup the objects from the **Object Manager**, select the *Group* name, right-click and select **Ungroup**. The objects are no longer grouped.

Selecting Objects

To select an object, click the object name and the object name is highlighted. The selection handles in the graphical borehole view change to indicate the selected item.



Use the CTRL or SHIFT keys to select multiple objects in the ***Object Manager****.*

To select multiple objects in a pane, hold down the CTRL key and click on each object. To select multiple contiguous objects, select the first object, and then hold down the SHIFT key and click on the last object. Change the shared properties for the multiple object selection in the **Property Manager**.

If you select an object in the view window, its name is selected in the **Object Manager** as well. Note that multiple objects cannot be selected in multiple pane groups. For example, an object in the *Footer Pane Object* section and an object in the *Log Pane Object* section cannot be selected at the same time.

Opening Object Properties

To display the properties for an object, click the object name. The properties are displayed in the **Property Manager**.

Renaming Objects

To edit the text ID associated with an object in the **Object Manager**, select the object and click again on the selected item (two slow clicks). You must allow enough time between the two clicks so it is not interpreted as a double-click. Enter the new name into the box that appears. Alternatively, you can right-click on the object and select the **Rename Object** command or go to **Edit | Rename Object**.

Arranging Objects

To change the display order of the objects in a pane grouping with the mouse, select an object and drag it to a new position in the list. The pointer changes to a black arrow if the object can be moved to the pointer location or a red circle with a diagonal line if the object cannot be moved to the indicated location. These actions are analogous to the **Arrange | Move** commands, which include the **To Front**, **To Back**, **Forward**, and **Backward** options. These menu items are accessed through the borehole view **Arrange** menu or by right-clicking on an object in the **Object Manager**.

Deleting Objects

To delete an object, select the object and press the DELETE key on the keyboard. Some objects cannot be deleted.

Property Manager

The **Property Manager** allows you to edit the properties of an object. See the specific online help topic for the object you have selected for more information on the properties unique to that object.

Opening and Closing the Property Manager

The **Property Manager** is opened and closed with the **View | Managers | Property** command.

You can also click  in the title bar of the **Property Manager** to close it.

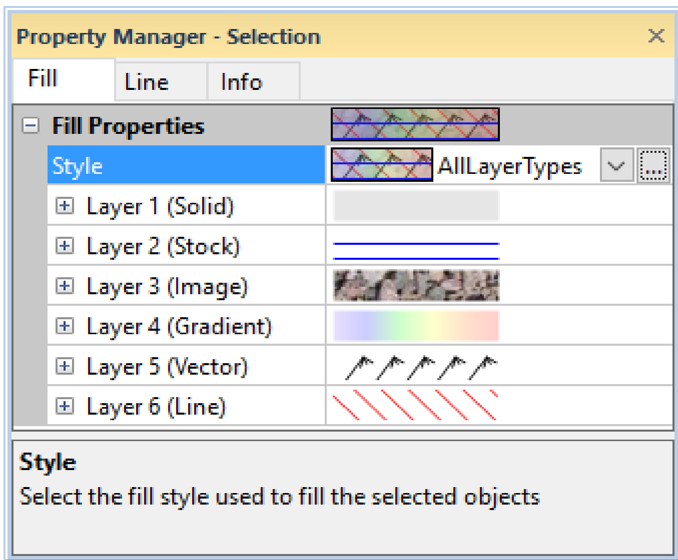
Opening and Closing Sections

Click the appropriate tab to open pages in the tab view.

In both tab and horizontal views, individual sections can be expanded or collapsed. A ⊞ or ⊟ is located to the left of the name if the section can be expanded or collapsed. To expand the section, click the ⊞, click the section name and press the plus key (+) on the numeric keypad, or press the right arrow key on your keyboard. To collapse a section, click the ⊟, click the section name and press the minus key (-) on the numeric keypad, or press the left arrow key.

Display info area

To display an area with field hints check the *Show property manager info area* check box in the **Options** dialog **User Interface** page. When a field or label is selected a hint describing the function or type of data is displayed:



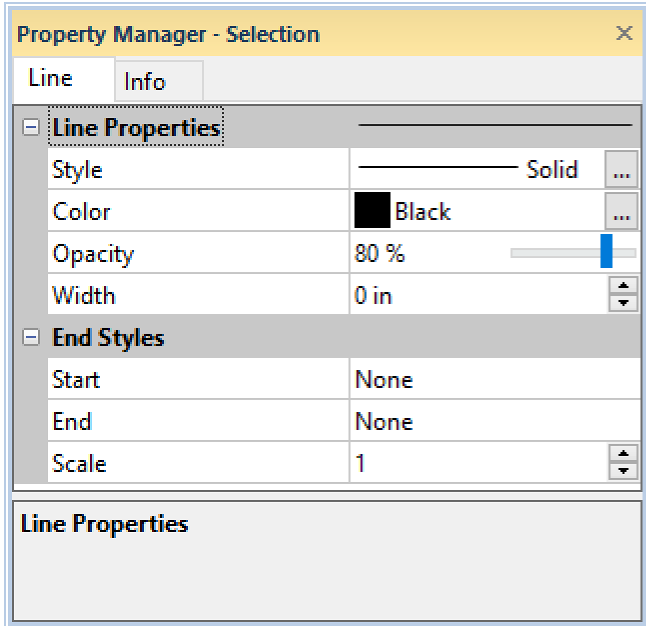
*The infor area shows hints about the currently highlighted field in the **Property Manager**.*

Keyboard Commands

When working with the **Property Manager** the up and down ARROW keys move up and down in the **Property Manager** list. The ENTER key activates the highlighted property. The right arrow key expands collapsed sections (i.e. *Fill Properties*) and the left arrow collapses the section.

Changing Properties

The **Property Manager** displays the properties for selected objects. For example, this selected well selector line has *Style*, *Color*, *Foreground Opacity, Width*, *Start Style*, *End Style*, and *Scale* properties.



Change any of the properties for
the object in the ***Property Manager****.*

To change a property, click the property's value and select a new property from the pop-up box, scroll to a new number using the  buttons, or type new numbers or text. The method used to change a property depends on the property type. In the polyline example, changing the color requires clicking the current color box and selecting a new color from the color palette; changing the width requires typing a new number or scrolling to a new number. When you type the new number, press ENTER or click somewhere in the **Property Manager** to make the change permanent.

Occasionally, some properties are dependent on other selections. For example, in the fill properties there is a *Scale* option. This option is disabled (grayed out) unless you have selected an image fill type as the *Pattern* and *Cover Areas By* set to *Tile.*

Properties Tips

- If multiple objects are selected, only features common to all objects appear in the **Property Manager**.
- To change the default line, fill, symbol, or text properties for all borehole views and all sessions of **Strater**, use **File | Options**.

Hide / Show All Managers

Click the **View | Managers | Hide All** command to hide all manager windows and maximize the space available for viewing the window. This command is especially useful if you want to zoom in on the current display.

Click the **View | Managers | Show All** command to change the view to include the window and all managers. Note: This command returns all managers to their respective locations before the **Hide All Managers** command was used; it does not restore their default positions. Use the **View | Windows | Reset Windows** command to restore the default window layout.

Tabbed Documents

Each tab represents a view window or a table. To select a tab to view, click the tab name. To close a tab, right-click and select **Close** or click the X next to the tab name. The tab is no longer displayed. This does not delete the information on the tab; this action simply removes a tab from display. To display the tab again click the **View | Display | Show All Tables** command, click on the view window name in the **View Manager**, or click on the table name in the **Table Manager**.

To delete the tab and all information contained in the view or table from a project, right-click on the tab and select **Delete**. Alternatively, click the **Table | Table | Delete** command, right-click on the view name in the **View Manager** and select **Delete**, or right-click on the table name in the **Table Manager** and select **Delete**.

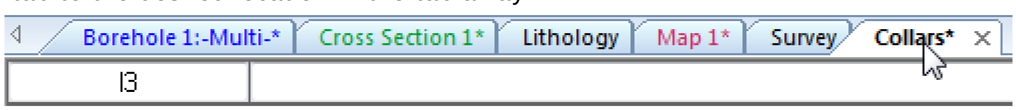
Rename a view window or table by right-clicking the document tab and selecting **Rename**. You may also rename a table by right-clicking the table in the **Table Manager** and selecting **Rename** or by clicking the **Table | Table | Rename** command. You may also rename a view by right-clicking the view in the **View Manager** and selecting **Rename**.

Tab Colors

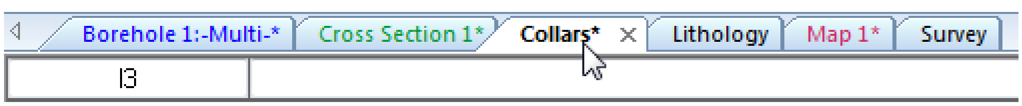
Each type of window displays the name of the window on the tab in a different color. Borehole views are displayed with blue text, map views are displayed with red text, cross section views are displayed with green text, and tables are displayed with black text. This can be changed from the **File | Options** dialog in the **Display** section.

Change Order of Tabs

You can change the order of tabs by clicking on the tab name. Hold down the left mouse button and drag the tab to the desired location in the tab array.



Select the tab to move by clicking it and not releasing the mouse button.



Drag the tab to the desired location and release the mouse button.

Changing the Window Layout

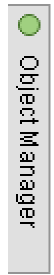
The windows and managers display in a docked view by default; however, they can also be displayed as floating windows. The visibility, size, and position of each item may also be changed.

Visibility

Use the **View | Managers** commands to toggle the display of the **Object Manager**, **Property Manager**, **Table Manager**, and **View Manager**. Alternatively, you can click the button in the title bar of the **Object Manager**, **Property Manager**, **Table Manager**, or **View Manager** to close the manager window. The **Property Manager** can also be opened by double-clicking on an object.

Auto-Hiding Managers

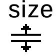
Click the button to auto-hide a docked manager. The manager slides to the side or bottom of the main **Strater** window and a tab appears with the window name.



The Object Manager appears
as a tab on the side of the window.

Position the mouse pointer over the tab to view the manager. Move your mouse away from the manager and the manager "hides" again. You can also click inside the manager to anchor it at its current position. Click in another manager to release the anchor and hide the manager. Click the  button to disable the auto-hide feature.

Size

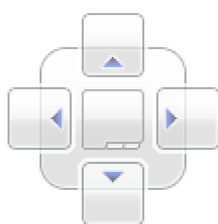
Drag the sides of a floating window or manager to change its size. If a window or manager is docked, its upper and lower bounds are indicated by a  or  cursor. Move the cursor to change the size.

Position

To change the position of a docked manager, click the title bar and drag it to a new location. The entire manager is displayed if the manager is floating. To dock the manager, use the docking mechanism. You can also double-click the manager's title bar to toggle between floating and docked modes. A tabbed manager view is also an option. The **Table Manager** and **View Manager** are displayed as tabbed managers by default.

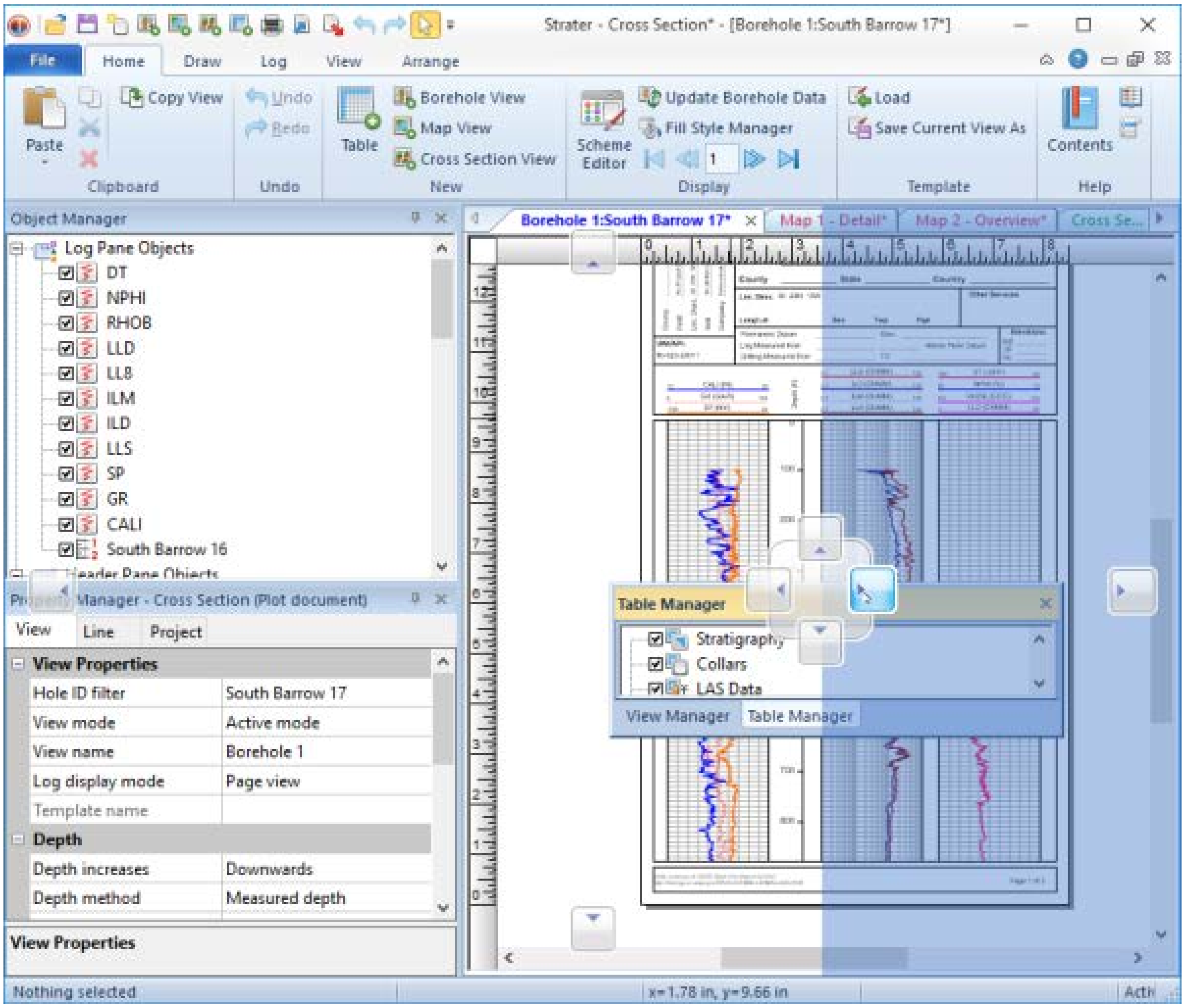
Docking Mechanism

Left-click the title bar of a manager and drag it to a new location while holding the left mouse button. The docking mechanism displays with arrow indicators as you move the manager.



The docking indicator
can lock the location of
the Object Manager.

When the cursor touches one of the docking indicators in the docking mechanism, a blue rectangle shows the window docking position. Release the left mouse button to allow the manager to be docked in the specified location.



*This image displays the **Table Manager** being docked to the right side of the **Strater** window.*

Tabbed Managers

To create tabbed managers:

1. Drag one manager on top of another window.
2. Hover over the center section of the docking mechanism. The blue area shows where the tabbed manager will display.
3. Release the mouse button.

To return to individual managers from the tabbed view:

1. Click on the manager's name on the tab.
2. Drag the tab to a new position.

Click on a manager's tab and drag it to a new position to separate the managers.

Reset Windows

Click the **View | Windows | Reset Windows** command to change the display of the program. This command resets the **Object Manager**, **Property Manager**, **Table Manager**, and **View Manager** windows back to the default size and position. It also resets all ribbon customizations and custom shortcuts back to the defaults.

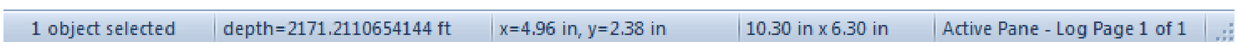
This command is especially handy if your windows or managers become hidden by mistake.

You must restart **Strater** in order for this command to take effect. Click *Yes* in the dialog, close the program, and reopen **Strater**. The managers, Ribbon, Quick Access Toolbar, and accelerators are now restored to the default states.

Status Bar

Click the **View | Display | Status Bar** check box to show or hide the status bar. A check mark next to **Status Bar** indicates that the status bar is displayed.

The status bar displays information about the current command or activity in **Strater**. The status bar is divided into five sections. Click each section in the graphic to display additional information.



View Window Types

There are four different view types available in a **Strater** workspace: borehole views, map views, cross section views, and tables. There is no limit to the number of views that can be associated with a **Strater** project.

Borehole View

The primary graphical component to a **Strater** document is a borehole view. A borehole view represents a collection of logs and drawing objects used to graphically display data for one or more boreholes. A borehole view may be derived from a template file or it can be created from a default view window with the necessary log items defined to create the borehole. The borehole view displays the true data for the project once data are defined in the project file.

You are presented with an empty borehole view when you first start **Strater**.

Opening a New Borehole View

During a **Strater** session, new projects with an empty borehole view are created with the **File | New Project** command. New borehole views in an existing project are created with the **Home | New | Borehole View** command, clicking the  button, or right-clicking in the **View Manager** and selecting *New Borehole View*.

Opening an Existing Borehole View

Existing borehole views are opened by clicking the appropriate **Borehole** tab, clicking on the borehole name in the **View Manager**, or by selecting **Window | [Borehole name]**. By default, the first borehole view is named **Borehole 1** so this borehole view would be opened by choosing the **Window | Borehole 1** command. To open an existing project, use the **File | Open** command.

Map View

Map views graphically display wells on a map. Map views display any wells listed in the collars table. Wells can be removed individually to customize the appearance of the map view. Map views also can display base maps, such as field outlines or exported **Surfer** maps. Drawing objects and labels can be added to a map view. Map views can have maps from different projections and can convert the map into any supported projection.

Opening a New Map View

New map views are created in an existing project by clicking the **Home | New | Map View** command, clicking the button, or right-clicking in the **View Manager** and choosing *New Map View*.

Opening an Existing Map View

Existing map views are opened by clicking the appropriate **Map** tab, clicking the map view name in the **View Manager**, or by clicking **Window | [Map name]**. By default, the first map view is named **Map 1** so this map view would be opened by clicking the **Window | Map 1** command.

Cross Section View

Cross section views display multiple wells on a page. Each well can have a variety of curves, similar to a borehole view. Wells are connected to display layers, zones, or lithologies across the page, connecting information from the wells. Automatic connections between wells or manual connections between wells can be made. Well spacing and elevation hanging can be altered to give you the look you need to display your data. Deviated wells can be displayed as vertical or with the deviation displayed in the cross section. The cross section view also allows data to be exported to a data file for use in **Surfer** or exported to a **Voxler** 3D display to create fence diagrams. Drawing objects and labels can be added to a cross section view.

Opening a New Cross Section View

New cross section views are created in an existing project by clicking the **File | New | Cross Section View** command, clicking the button, or right-clicking in the **View Manager** and choosing *New Cross Section View* to add a new blank cross section view to the existing project.

A new cross section window can also be created with the **Cross Section | Create/Add | Create Cross Section** command.

Opening an Existing Cross Section View

Existing cross section views are opened by clicking the appropriate **Cross Section** tab, clicking the cross section view name in the **View Manager**, or by clicking **Window | [Cross Section name]**. By default, the first cross section view is named **Cross Section 1** so this cross section view would be opened by clicking the **Window | Cross Section 1** command.

Data Table View

All data used to generate logs in a borehole view must be opened or imported into a **Strater** project. These data tables are represented by data tabs. Collar tables, depth tables, interval tables, lithology tables, project settings tables, survey tables, text item tables, and well construction tables can be created in **Strater**. Each table type has a different function in **Strater**. Refer to the *Table Types* page for an in-depth discussion of the types.

Opening a New Table View

During a **Strater** session, new blank tables are created by clicking the **Home | New | Table** command, clicking the button, or by pressing CTRL+W on the keyboard.

Opening an Existing Table in a New View

To open existing data into the current project, click the **File | Open** command. If you want the worksheet to appear in a new data table, select the worksheet and click *Open*. Step through the opening process and a new data table is added.

To import existing data into the current project in an existing table, click on the table where you want the data to appear. Click **File | Import**. In the **Import Data** dialog, select the data file and click *Open*. Step through the importing process and the data is added to the current table.

Borehole View

A borehole view represents a collection of logs and drawing objects used to graphically display data for one or more boreholes. A borehole view may be derived from a template file or it can be created from a default view window with the necessary log items defined to create the borehole. The borehole view displays the true data for the project once data are defined in the project file.

You are presented with an empty borehole view when you first start **Strater**.

Opening a New Borehole View

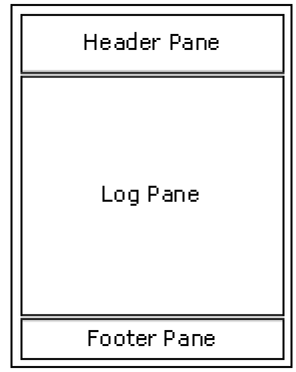
During a **Strater** session, new projects with an empty borehole view are created with the **File | New Project** command. New borehole views in an existing project are created with the **Home | New | Borehole View** command. Alternatively, you can right-click in the **View Manager** and select **New Borehole View**.

Opening an Existing Borehole View

Existing borehole views are opened by clicking the appropriate **Borehole** tab, checking the box next to the borehole name in the **View Manager**, or by selecting **Window |[Borehole name]**. By default, the first borehole view is named **Borehole 1** so this borehole view would be opened by choosing the **Window | Borehole 1** command. To open an existing project, use the **File | Open** command.

Panes

There are three main components of a borehole view: the log pane, header pane, and footer pane. The panes are outlined when you open a blank borehole view. The upper rectangle is the header pane, the middle rectangle is the log pane, and the bottom rectangle is the footer pane. You can change the rectangle line properties in the **View Properties**. The size of the header, log, and footer panes is defined by clicking **File | Page Setup**.



The top rectangle is the header pane, the middle rectangle is the log pane, and the bottom rectangle is the footer pane.

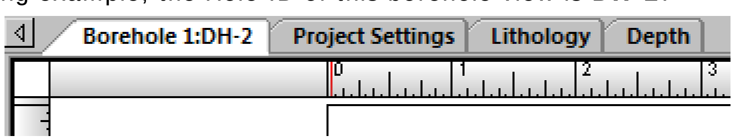
The header and footer panes generally contain static, unlinked information. The header and footer items are used repeatedly with minimal changes when different borehole data are applied to the view. Two objects are exceptions to the static unlinked information "rule": linked text and some scale bars. Linked text data changes as new data is applied to the view. Horizontal scale bars can be associated with some log items, a cross section, or they can be created as a stand-alone, static object. When the scale bar is linked to a log or cross section, the scale bar changes as changes are made to the linked item.

The log pane contains all the graphical log items to display the borehole data. This pane is dependent on linked tables and columns to create the graphical view. The log pane is also dependent on depth and scaling values. These values determine the size of the pane rectangle and/or the number of pages. The log pane can also contain legends, text and linked text, drawn objects, and imported images, as well.

Multiple Boreholes in the Borehole View

Strater permits multiple boreholes to appear in the same borehole view. You can define multiple boreholes with a single table, distinguished by a hole ID, or you can create several tables that define different boreholes in each table. This allows you to quickly change the borehole graphics in the borehole view.

Appended to the borehole view name is the borehole ID associated with the data displayed in the view. In the following example, the Hole ID of this borehole view is **DH-2**:



*Click the borehole tab at the top of the **Strater** window to open a borehole view.*

If there is more than one borehole represented by the logs in a borehole view, the associated borehole view tab's name ends with *-Multi-*.

If there is more than one borehole in the borehole view, the label of the tab reads -Multi-.

Types of Logs

Strater creates 15 different types of logs in the borehole view. Click on the links below for more information on each of the log types.

- Depth Log
- Line/Symbol Log
- Lithology Log
- Complex Text Log
- Zone Bar Log
- Bar Log
- Percentage Log
- Post Log
- Classed Post Log
- Graphic Log
- Well Construction Log
- Registered Raster Log
- Unregistered Raster Log
- Tadpole Log
- Crossplot Log
- Function Log

Adding Additional Information to the Borehole View

Scale bars, linked text, drawing objects, legends, and images can be added to the borehole view at any location.

Creating a Log in the Borehole View

For detailed information, refer to the *Creating a Borehole* topic. In general, you can add a log to any borehole view by following these steps:

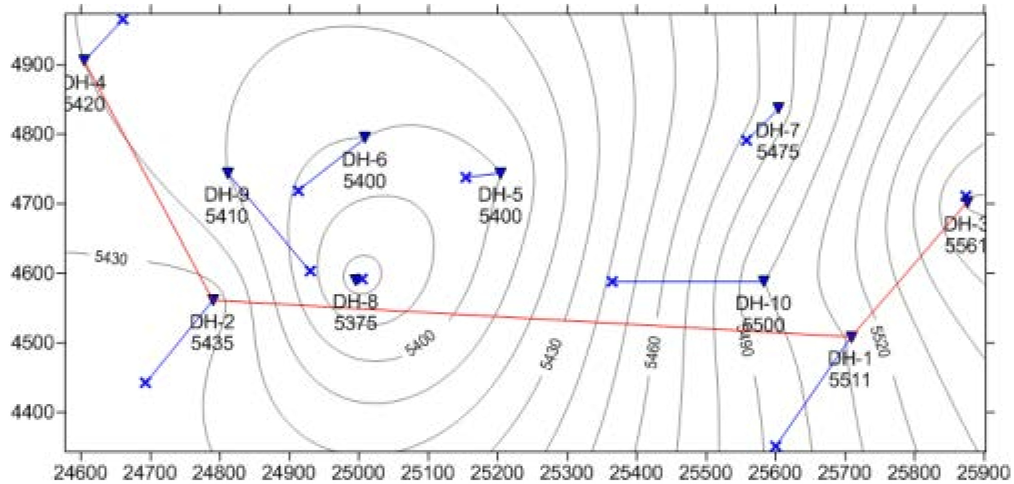
1. Click the **Log | Create Log | [log type]** command for the object you want to create. For instance, if you want to create a line/symbol log, click the **Log | Create Log | Line/Symbol** command.
2. Click on the log pane where you want the log to be located.
3. In the dialog, select the data file to use. An existing table can be selected in the *Use Current Table* list.
4. If a new data file was selected, step through the importing process. The log will be displayed.
5. Any customizations can be made by selecting the log and making changes in the **Property Manager**.

Map View

Map views graphically display wells or base map files on a map. Map views display any wells listed in the collars table as a symbol on the map. Each well in the collars table is displayed as a separate symbol. Wells can display deviation as a line with a symbol at the end of the well or only show the collar location of the well. Wells can be edited as a group or individually. Individual wells can be unchecked in the **Object Manager** to customize the appearance of the map view. The map also contains a set of four axes, that can be edited individually. Maps can add base layers, such as field outlines or exported **Surfer** maps, additional well layers, or well selector lines.

All map layers are positioned according to the map layer's coordinate system. Each layer can have a separate source coordinate system. All layers are reprojected into the *Map* target coordinate system.

Drawing objects and labels can be added to a map view.



This map view contains wells with names and elevations,
a well selector line, and a contour map loaded as a base map.

Opening a New Map View

New map views in an existing project are created by clicking the **Home | New | Map View** command, clicking the button, pressing CTRL+M on the keyboard, or right-clicking in the **View Manager** and selecting *New Map View*. A new blank map view is created.

Opening an Existing Map View

Existing map views are opened by clicking the appropriate **Map** tab, checking the box next to the map view name in the **View Manager**, or by selecting **Window | [Map name]**. By default, the first map view is named **Map 1** so this map view would be opened by choosing the **Window | Map 1** command. To open an existing project, use the **File | Open** command.

Creating Map Layers

Create the first map layer with the **Map | Create | Well Map** or **Map | Create | Base Map** command.

If creating a well map and a single collars table already has been created, the map view automatically uses that Collars table. If no Collars table exists, you are prompted for the data file. A Collars table is automatically created. If multiple Collars table exist, you are prompted to select one table.

If an existing map has already been created and the well map or base map should be added to the existing map, click the **Map | Add | Well Layer** or **Map | Add | Base Layer** commands. If the **Create Well Map** or **Create Base Map** command is used and a blank map view is available, the map is created in that map view, otherwise, the map is created in a new map view.

Adding Additional Information to the Map View

Base maps, additional well maps, and well selector maps can be added to an existing map view. Drawing objects can also be added to a map layer.

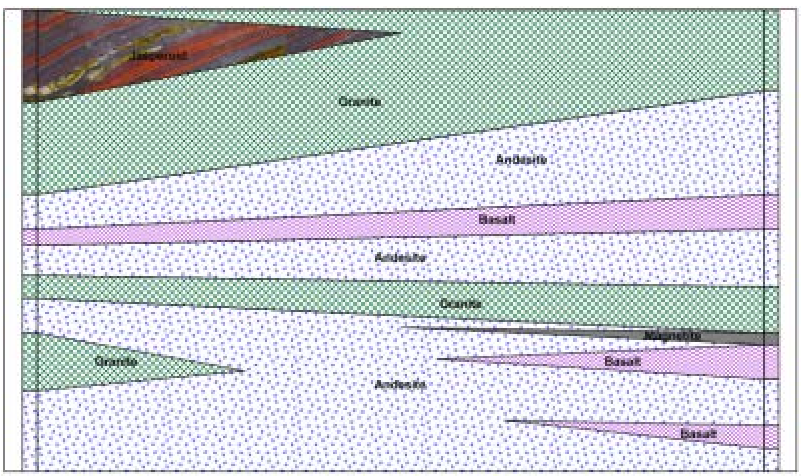
Cross Section View

Cross section views display multiple wells on a page. Cross sections can be created from zone bar, lithology, or line/symbol log types. Other log types can be added to the display, similar to a borehole view, but these logs are not included in the automatic cross section connections.

Wells can be automatically connected to display layers, zones, or lithologies from a table view, connecting information from the wells across the page. The wells can also be displayed without connections or with manual connections, connecting the wells where you select.

Wells can be displayed vertically or with deviations calculated from *Inclination* (or *Dip*) and *Azimuth* columns from a table. Well spacing and elevation hanging can be altered to give you the look you need to display your data.

The cross section view also allows data to be exported to a data file for use in **Surfer** or exported to a **Voxler** 3D display to create a fence diagram. Drawing objects, labels and other logs can be added to a cross section view.



This cross section displays two wells and the layers between.

Opening a New Cross Section View

Click the **File | New | Cross Section View** command, click the button, or right-click in the **View Manager** and choose **New Cross Section View** to add a new blank cross section view to the existing project.

A new cross section view window can also be created with the **Cross Section | Create/Add | Create Cross Section** command.

Opening an Existing Cross Section View

Existing cross section views are opened by clicking the appropriate **Cross Section** tab, checking the box next to the cross section view name in the **View Manager**, or by selecting **Window | [Cross Section name]**. By default, the first cross section view is named **Cross Section 1** so this cross section view would be opened by choosing the **Window | Cross Section 1** command.

Adding Additional Information to the Cross Section View

Drawing objects and inserted map layers can be added to a cross section view.

Tables

There are several table types in **Strater**: collars, depth, interval, and text item. There are also a few specialized table types based on the four main table types: lithology, project settings, survey table, and well construction. Most of these table types contain required columns. For example, interval tables require *From* and *To* depth or elevation columns.

Creating New Tables

To create a new table select **Home | New | Table** or click  . The **Create New Table** dialog opens. You can add data to the new table by clicking its tab and selecting **File | Import**.

Data Organization

The data to be represented in boreholes needs to be in column and row (record) format.

Columns

Each column contains three properties: a name, description, and units. The description and units are optional for every column.

If a column is required for a particular table type, for example the *To* column in an interval table, the column name cannot be changed. However, optional column names can be changed. If the *Column Name* has a gray background in the **Column Editor**, the column is required and the name cannot be changed.

Columns can be added and deleted by either selecting **Data | Edit | Append** or selecting a row, right-clicking, and selecting *Append Column*.

Rows

Typically, each row in the data is devoted to a depth or an interval in the borehole. Rows can be added by clicking the **Data | Edit | Insert** command, right-clicking and selecting the *Insert Rows* command, or by typing data into a new row.

Schemes and Tables

Strater uses schemes when "linking" the data in a table to a borehole design. A scheme associates information from the data table (such as text entries (keywords) or number ranges) with fill properties, line properties, font properties, etc. When **Strater** locates a keyword or number range in the column, the borehole is assigned the keyword or number range properties for the depth, interval, or well construction item. Scheme item names can be automatically created with **Table | Table | Create Scheme**.

Data Selection

Use the cursor to drag and select any number of conterminous cells and rows.

File Formats

Strater can read numerous file formats such as data files (including Excel spreadsheets and ASCII text files), databases, and LAS files. **Strater** can also link to virtually any database system installed on your computer using the Data Link Source.

Log Types

Both borehole views and cross section views display logs. Several different log types can be created in **Strater**. To create a log in either the borehole view or cross section view, click the **Log | Create Log | [log type]** command. Click on the screen where the log should be created. In the **Open** dialog, select the table to use or data file to import and click *Open*. The log is displayed with the default options.

Click the *Example* numbers for sample log illustrations:

Depth

Depth logs are used as a scale bar to display the depth or elevation of the data in the log or cross section pane. True vertical depth can be displayed on a depth log, if azimuth and inclination (or dip) are available for the wells. *Examples: 1, 2*

Line / Symbol

Line/symbol logs are used to display data as a symbols with connected lines. Line/symbol logs are useful for displaying assay values, geophysical parameters, moisture content, etc. *Example 1*

Crossplot

Crossplot logs are used to display intersections of two data curves on a graph. Crossplot logs can be used to characterize properties such as porosity, water saturation, or clay content by comparing where two logs intersect. *Example 1*

Zone Bar

Zone bar logs display data as filled blocks within intervals, and can show a wide variety of logging data. For instance, zone bars can represent sample intervals, alteration zones, contamination layers, etc. *Examples: I, 2*

Bar

There are two types of bar logs: standard bars and polarity bars. Standard bar logs plot a bar from the data minimum value to the row's data value. Polarity bar logs plot data based upon zero so there are bars on both sides of zero if there is a mix of negative and positive data. *Examples: 1, 2.*

Percentage

Percentage logs are similar to bar logs. Percentage logs display the percentage of each alteration in a sample; the amounts of sand, clay, gravel, silt, etc. The percentage log uses data to create either a series of blocks (interval data) or polygons (depth data) that always add up to 100%.
Examples: 1, 2, 3.

Tadpole

Tadpole logs are used to display dip and dip direction down the borehole. This gives an indication of strike and dip of bedding planes, fractures, or any other structure along the depth of the borehole. The symbols, colors, and labels can be altered to display the most useful information along the well.
Example:1

Post

Post logs are used to display a symbol and text at the data position. The symbols can represent sample locations at depth or intervals, and in the case of monitoring wells, the depth to water, contamination, etc.

Classed Post

Classed post logs are similar to the post logs, except classed post logs use range schemes and numerical values to determine the symbol properties. *Example: 1*

Complex Text

Complex text logs show text in intervals. This type of complex text is generally used for rock descriptions, alteration descriptions, or any general descriptive text that represents interval data. Long text blocks are wrapped to fit within the log width. Separator styles can be used to separate text in long descriptions, and if adjacent sections contain the same text they can be combined into a single, larger section. *Examples 1, 2*

Graphic

Graphic logs allow you to specify image file names and show the images at specified intervals. This is useful in displaying photos of the core, rock type, alteration, etc. *Example 1*

Lithology

Lithology logs show the various stratigraphic layers in the borehole. The display can be as simple as a filled block from the top to bottom, or the display can be more elaborate and show weathering patterns and line types*. Example: 1*

Well Construction

Well construction logs replicate a well construction diagram for the log, and is generally used in the environmental industry. This log type shows items such as screen, packing material, end caps, and covers.

Registered and Unregistered Raster

An unregistered raster log is a scanned image of a paper or electric log without depth-registration information. It is easy to depth-register the unregistered raster log with **Strater**. Once the depth registration is complete the log can be used in cross sections and modified with the properties in the **Property Manager**. A registered raster log is a scanned image of a paper or electric log with a depth registration file. Registered raster logs can be used in cross sections and modified with the properties in the **Property Manager**.

Function

Function logs combine multiple existing log variables into a new log using mathematical formulas. The log variables being combined can contain different depth spacings and be from different tables. A new table is created from the output data of the input logs. *Example: 1*

Strater® Help

There are several ways to obtain help in **Strater**:

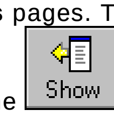
Getting Help from the Help Menu

Within **Strater**, the online help file is opened through **Home | Help | Contents** or **Home | Help | Tutorial**. Alternatively, press F1 at anytime to open the help. You can navigate help using the

Contents, **Index**, **Search**, and **Favorites** pages in the navigation pane to the left of the topic page.

- The **Contents** page allows you to search the predefined table of contents. The table of contents has a variety of help books and help topic pages. Double-click on a help book, or click the ⊞ button to the left of a book to open it.
- The **Index** page allows you to search index words to find a help topic. If you do not find a topic with an index word, try a search on the **Search** page.
- The **Search** page offers advanced search options including phrases, wildcards, boolean, and nested searching.
- The **Favorites** page allows you add help pages to a custom list. This allows you to quickly find favorite help topics that you reference frequently.

Navigating the Help

The navigation pane shows the **Contents, Index, Search,** and **Favorites** pages. The navigation page is displayed by default. The navigation pane can be displayed with the 

button and hidden with the 

button.

Internet Help Resources

There are several Internet help resources.

- Click the 

or 

buttons in online help to research a question or to post a question.
- Use the **Help | Feedback** commands to send a problem report, suggestion, or information request by email.
- Search our web page at www.goldensoftware.com or use the **Help | Golden Software on the Web** commands for links to the Golden Software Home Page, Strater Product Page, and Frequently Asked Questions.
- The Golden Software website has a variety of resources including training videos, a support forum, a newsletter, a user image gallery, a blog, and a variety of free downloads.

Obtaining Information on Dialogs and Commands

To obtain information about dialogs or highlighted commands:

- Press F1 at anytime to open help.
- Click  in dialogs to open the help topic pertaining to that dialog.
- Find out the function of highlighted menu commands or open dialogs by pressing F1.
- Click , or press SHIFT+F1 on your keyboard, then click a menu command, toolbar button, or screen region to view information regarding that item.

Strater Overview

For general information on **Strater**, select *Introduction to Strater*, *Borehole View*, *Creating a Borehole*, and *Log Items*.

Context Sensitive Help

Press SHIFT+F1 on your keyboard to change the cursor to the context sensitive help cursor. Click on a command, tool button, or screen regions for help on the item. This method will produce a detailed help page for the item of interest. Not all items can be linked to the context-sensitive help.

F1 Key

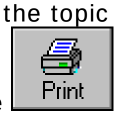
Alternatively, you can obtain help for specific commands or items by hovering the mouse over the command and pressing the F1 key on the keyboard.

Printing the Online Help

The online help topics may be printed. You can print a single topic, a section of the table of contents, or all topics in the table of contents. Open the online help by choosing the **Home | Help | Contents** command in **Strater**.

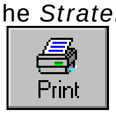
Printing One Topic

To print one topic:

1. Open the online help by clicking the **Home | Help | Contents** command in the **Strater** window.
2. Click on the topic you wish to print.
3. Click the  button.
4. If the **Contents** tab is open in the help navigation pane, the **Print Topics** dialog appears. Select *Print the selected topic* and click *OK*.
5. The **Print** dialog opens. Click the *Print* button, and the individual topic is printed.

Printing One Book

To print one help book, such as the tutorial:

1. Open the online help file by clicking the **Home | Help | Contents** command in the **Strater** window.
2. Click the **Contents** tab on the left side navigation pane.
3. Expand the *Strater 3* book and click on the *Tutorial* book.
4. Click the  button.
5. The **Print Topics** dialog appears. Select *Print the selected heading and all subtopics* and click *OK*.
6. The **Print** dialog opens. Click the *Print* button and all the topics included in the *Tutorial* book are printed.

Printing the Entire Help File

To print all of the topics in the help file table of contents:

1. Open the online help by clicking the **Home | Help | Contents** command in the **Strater** window.
2. Click the **Contents** tab on the left side navigation pane.
3. Select the top-level book in the help file, *Strater 3*.
4. Click the  button.
5. The **Print Topics** dialog opens. Select *Print the selected heading and all subtopics* and click *OK*.
6. The **Print** dialog opens. Click the *Print* button, and all the topics included in the online help table of contents are printed.

WARNING: Printing the entire help file takes hundreds of letter-sized sheets of paper and is very time consuming to print. There is no table of contents or index printed with the file.

For a full length guide that is arranged in a book-format with an index and table of contents, it is recommended that you purchase the additional user's guide. You can place your order for this guide on our website at www.goldensoftware.com.

Technical Support

Golden Software's technical support is free to registered users of our products. Our technical support staff is trained to help you find answers to your questions quickly and accurately. We are happy to answer any of your questions about any of our products, both before and after your purchase. We also welcome suggestions for improvements to our software and encourage you to contact us with any ideas you may have for adding new features and capabilities to our programs. To allow us to support all customers equitably, an individual user's daily support time may be limited.

Technical support is available Monday through Friday 8:00 AM to 5:00 PM Mountain Time, excluding major United States holidays. We respond to email and fax technical questions within one business day. When contacting us with your question please have the following information available:

- Your **Strater** serial number
- Your **Strater** version number, found in **File | About Strater**
- The operating system you are using (Windows XP, Vista, 7, or 8)
- The steps taken to produce the issue
- The exact wording of the first error message (if any) that appears

If you cannot find the answer to your question in the online help, on our web page frequently asked questions, in our support forums, on the knowledge base, or in the quick start guide please do not hesitate to contact us:

Phone: 303-279-1021

Fax: 303-279-0909

Email: StraterSupport@GoldenSoftware.com

Web: www.GoldenSoftware.com

Mail: Golden Software, LLC, 809 14th Street, Golden, Colorado, 80401-1866, USA

Chapter 2 - Tutorial

Tutorial Introduction

This tutorial is designed to introduce you to some of **Strater's** basic features. After you have completed the tutorial, you should be able to begin to use **Strater** with your own data, creating your own boreholes, maps, and cross sections. We strongly encourage completion of the tutorial before proceeding with **Strater**. The lessons should be completed in order; however, they do not need to be completed in one session. The tutorial should take approximately one hour to complete.

The following is an overview of lessons included in the tutorial.

- Lesson 1 - Opening Data shows how to open a data file in a table view.
- Lesson 2 - Creating Logs shows how to create a Depth log, Line/Symbol log, and Zone Bar log.
- Lesson 3 - Changing Properties shows how to edit the log properties.
- Lesson 4 - Creating and Editing Drawing Items shows how to add text, linked text, and a legend to the borehole view.
- Lesson 5 - Changing Boreholes shows how to change all of the logs to another borehole and how to change an individual log to a different borehole.
- Lesson 6 - Creating a Map View shows how to import collar data into a table and create a map view with a well layer and a well selector line.
- Lesson 7 - Creating a Cross Section View shows how to create and edit a cross section view.
- Lesson 8 - Saving Information shows how to save the **Strater** project and how to create a template.

Advanced Tutorial Lessons

The advanced tutorial lessons are optional, but give additional information about working with legends, design mode, and LAS files.

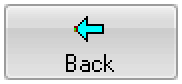
- Lesson 9 - Editing Legends shows how to edit many of the properties of the legend object.
- Lesson 10 - Design Mode and Activating Boreholes shows how to create a log in design mode and activate the borehole with data after all of the logs are created.
- Lesson 11 - Creating Logs from LAS files shows how to import LAS data and create logs from it.
- Lesson 12 - Creating a Cross Section from Line/Symbol Logs shows how to create a cross section from line/symbol logs. It also steps through the process of creating manual layers and editing layers.
- Lesson 13 - Displaying Deviated Maps and Cross Sections shows how to change the display of wells on maps and cross sections to display deviation paths.

A Note about the Documentation

Various font styles are used throughout the **Strater** quick start guide and online help. **Bold** text indicates menu commands, dialog names, and page names. *Italic* text indicates items within a dialog such as group box names, options, and field names. For example, the **Save As** dialog contains a *Save as type* drop-down list. Bold and italic text may occasionally be used for emphasis.

In addition, menu commands appear as **Home | Undo | Undo**. This means, "click on the **Edit** menu at the top of the **Strater** window, then click **Undo** within the **Edit** menu list." The first word is always the menu name, followed by the commands within the menu list.

Topic Links

Each topic contains several links to other topics. Click the link for an in-depth discussion on the subject. Use the  button in the help file to return to the tutorial topic.

Using the Tutorial with the Demo Version

If you are using the demo version of **Strater**, you will not be able to complete some of the steps due to disabled save, export, print, and copy features. The demo version is a fully functional read-only version of the program. When this is a factor it is noted in the text and you are directed to proceed to the next step that can be accomplished with the demo.

Starting Strater

To begin a **Strater** session:

1. Navigate to the installation folder, which is C:\Program Files\Golden Software\Strater 5 by default.
2. Double-click on the Strater.exe application file.
3. Click *New Borehole View* in the **Welcome to Strater** dialog. A new project is created with an empty borehole view. If this is the first time that you have opened **Strater**, you will be prompted for your serial number. Your serial number is located on the CD cover, or in the email download instructions, depending on how you purchased **Strater**.

If **Strater** is already open, click the **File | New Project** command or the  button to open a new empty project before continuing with the tutorial.

Lesson 1 - Opening Data

Data can be opened in **Strater** before any logs are created, while creating the logs, or after the logs have been created. In this section, the initial data is opened before any logs are created. If you prefer to create a log design first, use design mode. Design mode is discussed in Lesson 10.

To open an existing data file into a table:

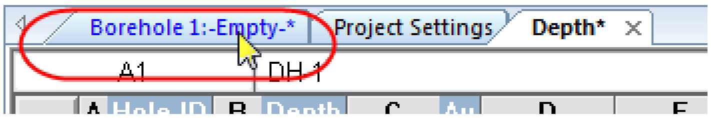
1. Click the **File | Open** command or click the  button on the Quick Access Toolbar.
2. In the **Open** dialog, navigate to the **Strater** Samples folder. By default, this is located in C:\Program Files\Golden Software\Strater 5\Samples. Click on the *Tutorial 1.xls* file and click *Open*.
3. In the **XLS Import Options** dialog, select the *Depth* sheet and click *OK*.
4. In the **Specify Worksheet Column Definitions** dialog, check the box next to *Specify Column Header Row*. This tells **Strater** that the specified row number contains text indicating the column name.
5. Click *Next*.
6. In the **Specify Data Type and Column Positions** dialog, set the *Data type* to *Depth (Single Depth)*.
7. Set the *Hole ID*, *Depth*, *Hole Inclination*, and *Hole Azimuth* columns to the appropriate columns.
    a. Set *Hole ID* to the *Hole ID* column.
    b. Set *Depth* to the *Depth* column.
    c. Set Hole Inclination and Hole Azimuth to [Unspecified].
8. Click *Finish*.

The data is displayed in a table view named *Depth*. This table can now be used to create logs.

Lesson 2 - Creating Logs

The most common types of logs that are created are depth logs and line/symbol logs. Data are immediately associated with the log when creating log items in active mode, providing an immediate image representing the log. This section will use the previously opened data file to create a line/symbol and depth log. Another table will be opened to create a zone bar log.

To create the logs in the borehole view, click on the *Borehole 1* tab.



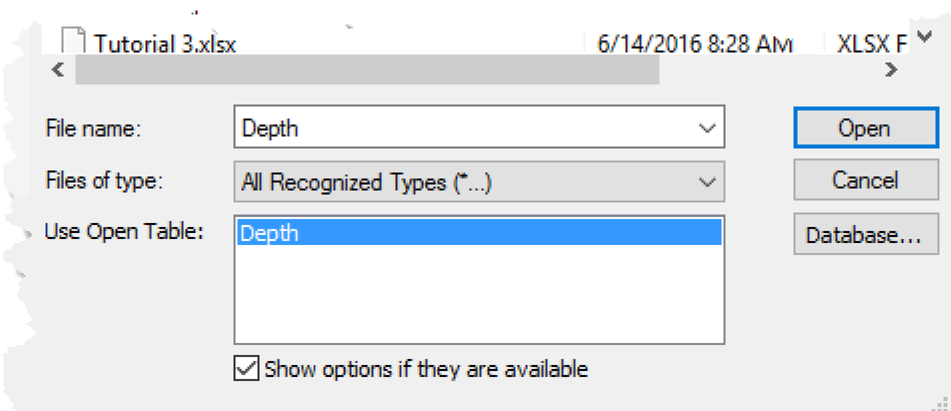
Click on the Borehole 1 tab to switch to the borehole view, where logs are created.

Creating a Depth Log - Tutorial

Depth logs display the borehole's depth or elevation information. For deviated wells, the depth log can be adjusted so that the true vertical depth can be displayed.

To create a depth log:

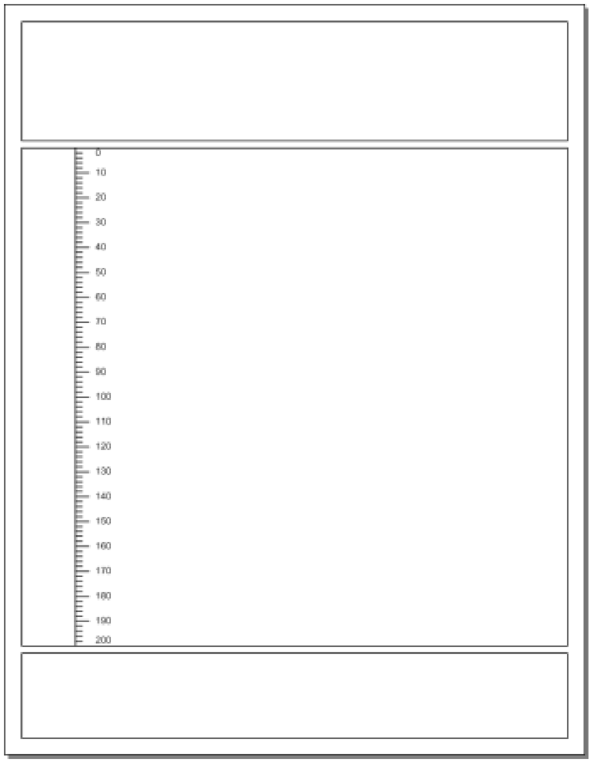
1. Click the **Log | Create Log | Depth** command.
2. Click on the left side of the log pane, where you want the depth log to be located.
3. In the **Open** dialog, make sure that *Depth* is selected in the *Use Open Table* option and in the *File name* box.



Select the Depth table in the Use Open Table section and make sure it is selected in the File name box.

4. Click *Open*.

The depth log is created with the default properties.



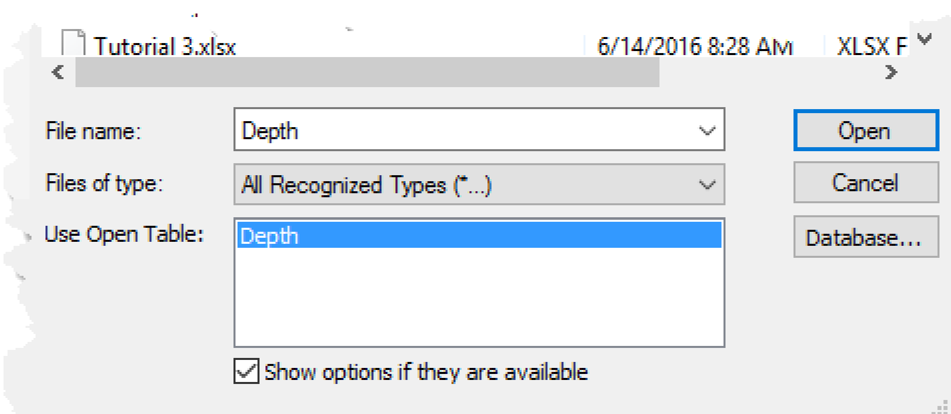
The depth log is created where you clicked on the screen.

Creating a Line/Symbol Log - Tutorial

Line/symbol logs display table data vertically at a depth value and horizontally at a data value. Lines, symbols, or both lines and symbols can be displayed.

To create a line/symbol log:

1. Click the **Log | Create Log | Line/Symbol** command.
2. Click in the log pane in the location you want the line/symbol log drawn. For this tutorial, click near the center of the log pane. You will position the log item more exactly later.
3. In the **Open** dialog, make sure that *Depth* is selected in the *Use Open Table* option and in the *File name* box.

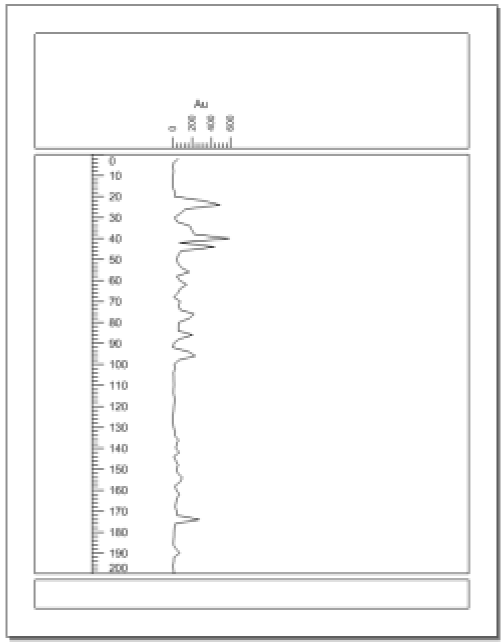


Select the Depth table in the Use Open Table section and make sure it is selected in the File name box.

4. Click *Open*.

The line/symbol log is created with the default properties.

Note that a scale bar appears in the header pane. The default option for line/symbol logs is to always create a scale bar. The scale bar shows the range of values for the variable being displayed. If scale bars are not desired by default, click the **File | Options** command. Uncheck the box next to the *Auto Create Scale Bar* option in the **General** section.



The borehole view should look similar to this, after adding the line/symbol log. Both the depth log and line/symbol log are shown, with the scale bar above the line/symbol log.

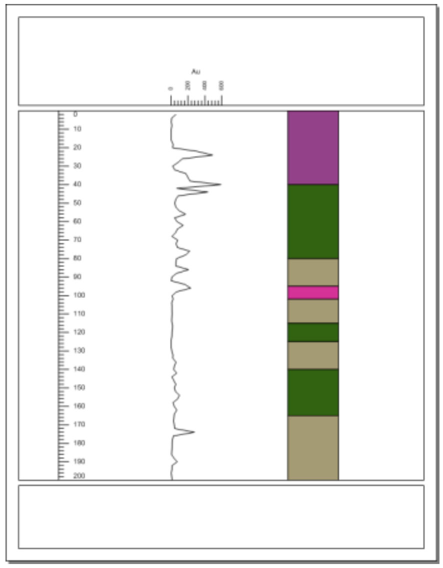
Creating a Zone Bar Log - Tutorial

Zone bar logs can display a variety of well log information, such as lithology or layer information. Zone bar logs include two columns of depth data, normally labeled as *From* and *To.* Because of this, each row contains data that represents conditions in a depth range.

To create a zone bar log:

1. Click the **Log | Create Log Zone Bar** command.
2. Click in the log pane to the right of the line/symbol log.
3. In the **Open** dialog, select the *Tutorial 1.xls* file from the Samples folder and click *Open*.
4. In the **XLS Import Options** dialog, select the *Lithology* sheet and click *OK*.
5. In the **Specify Worksheet Column Definitions** dialog, check the box next to *Specify Column Header Row* option to set the contents of row 1 as the header row.
6. Click *Next.*
7. In the **Specify Data Type and Column Positions** dialog, verify that *Hole ID*, *From*, and *To* have the appropriate columns selected. The rest of the columns are not mapped to one of the remaining predefined columns but will be imported into the table.
    a. Set *Hole ID* to the *Hole ID* column.
    b. Set *From* to the *From* column.
    c. Set *To* to the *To* column.
    d. Set Hole Inclination and Hole Azimuth to [Unspecified].
    e. Set Data to [Auto].
8. Click Finish.

The zone bar log is created with the default properties. An interval table named *Lithology* is created with the data from the selected sheet.

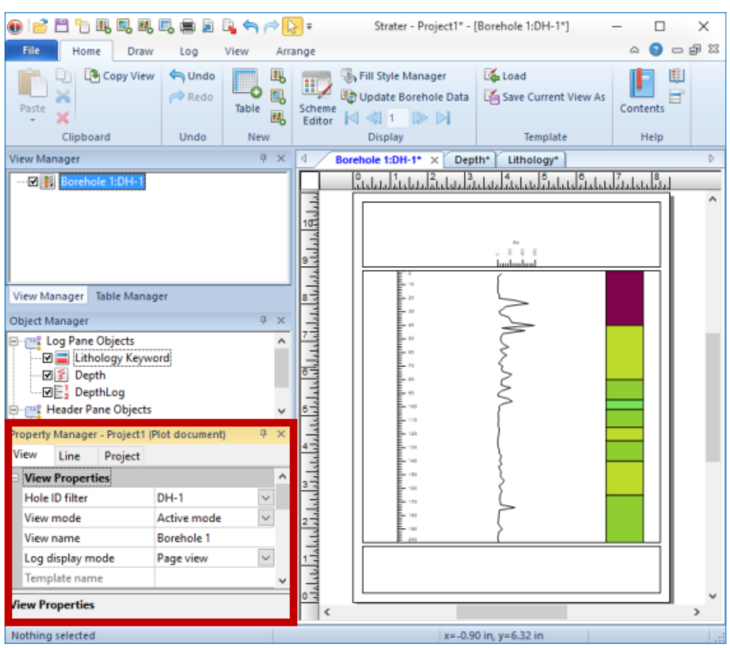


The zone bar is added to the existing borehole view.

Lesson 3 - Changing Properties

The properties of an object are edited by clicking on the object and changing the properties in the **Property Manager**. The **Property Manager** is displayed by default on the lower left side of the **Strater** window. If the **Property Manager** is not visible, click the **View | Managers | Property Manager** command. A check mark appears next to **Property Manager** if it is visible.

When an object is selected, its properties are displayed in the **Property Manager**.



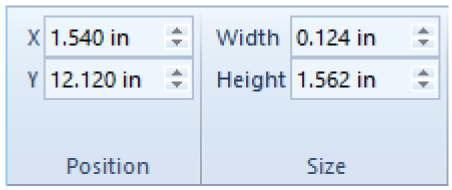
*The **Property Manager** is displayed in the lower left corner of the **Strater** window, by default.*

Editing Log Item Position and Size - Tutorial

The easiest way to position or size a log is to click on the log in the **Object Manager** or in the log pane and drag it to a new location or size. However, items can be more accurately positioned with commands.

To accurately position and size the line/symbol log:

1. Click on the line/symbol log named *Depth* in the **Object Manager** or log pane to select it.
2. In the **Arrange | Position | X** field on the ribbon, highlight the number next to *X* and type in 2.0.



Highlight the existing value in the X box and type the new location.

3. Press ENTER on the keyboard and the line/symbol log is moved in the borehole view so its left edge is two inches from the left edge of the paper.
4. Highlight the number next to *Width* and type 1.5.
5. Press ENTER on the keyboard and the line/symbol log and its linked scale bar are sized so that the log is one and a half inches wide.
6. Click the *DepthLog* depth log object in the **Object Manager**, hold CTRL, and then click the *Lithology Keyword* zone bar log object
7. Click the **Arrange | Size Objects | Specify Width** command.
8. Type 1.5 in the Width of Multiple Objects dialog.
9. Click *OK*.

All of the logs in the log pane are now 1.5 inches wide, and the line/symbol log's horizontal position is 2 inches left.

Spacing Objects

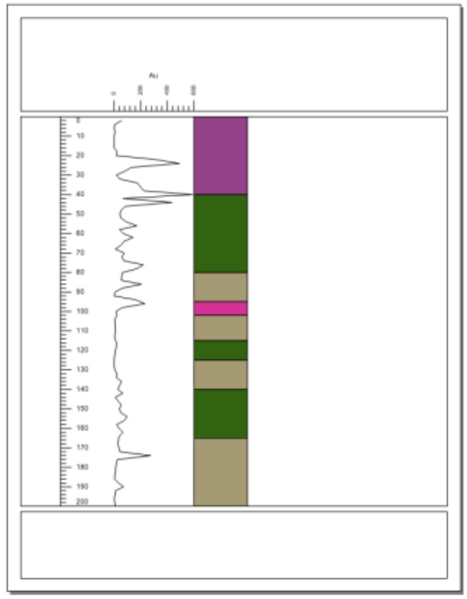
Log items can be positioned relative to one another with the **Arrange** tab commands.

To position the depth log relative to the line/symbol log:

1. The line/symbol log should be to the right of the depth log before completing the next section. If the line/symbol log is to the left of the depth log, click on the depth log. Hold down the left mouse button and drag the depth log to the left of the line/symbol log.
2. Select both the depth log and the line/symbol log. There are two ways to select multiple items in the log pane:
   - Click on the depth log in the borehole view window. Press the SHIFT key on the keyboard. While holding the SHIFT key down, click the line/symbol log in the borehole view window.
   - In the **Object Manager** click the name of the depth log, *DepthLog*. Press the CTRL key on the keyboard. While holding the CTRL key down, click the name of the line/symbol log, *Depth*.
3. When both logs are highlighted, click the **Arrange | Space Objects | Left to Right** command.

The line/symbol log remains in the fixed location. The depth log is moved so that the right edge of the depth log bounding box is at the same location as the left edge of the line/symbol log bounding box.

The **Arrange | Space Objects | Right to Left** command can be used when selecting the line/symbol log and the zone bar log to move the zone bar log to the immediate right of the line/symbol log.



*The **Right to Left** and **Left to Right** commands remove the spaces between adjacent objects to maximize the space available in the view window.*

Editing Line / Symbol Log Properties

Each object has unique properties that can be changed. Line/symbol logs can change the column that is being displayed, the scaling, the line, fill, and symbol properties, add labels, and add a background grid behind the line/symbol log.

To change the line/symbol log line properties:

1. Click on the line/symbol log in either the **Object Manager** or in the log pane to select it.
2. In the **Property Manager**, click on the **Line** tab.
3. Click the ⊞ next to *Log* to open the log curve properties section.
4. Click the ⊞ next to *Line Properties* to open the line properties section.
5. To increase the line thickness, highlight the value next to *Width* and type a new value, such as 0.02 inches.
6. Press ENTER on the keyboard to make the change.

To change the line/symbol log fill properties:

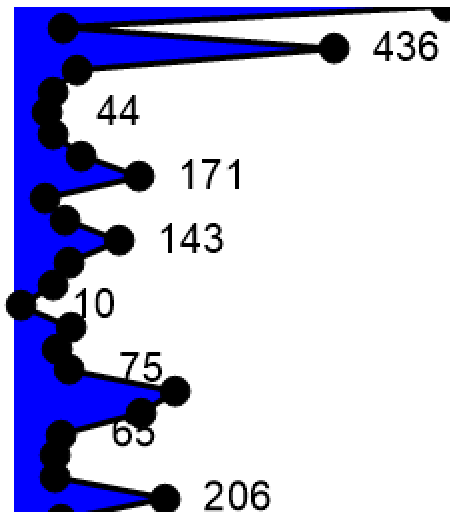
1. Click the **Fill** tab in the **Property Manager** to open the log fill properties.
2. Click the ⊞ next to *Log* to open the log curve properties section.
3. To open the log fill properties section, click the ⊞ next to *Log Fill*.
4. To fill the curve to the left of the line with a blue color, make sure that the *Fill log on* option is set to *Left*.
5. Click the ⊞ next to *Fill Properties* to open the fill properties section.
6. Click the current *Style* selection, *None*, to open the fill palette.
7. Scroll to the top of the palette and click *Solid*.
8. Click the ⊞ next to *Layer 1 (Solid)* to open the layer properties section.
9. Click the *Black* selection in the *Color* property field and select *Blue* from the color palette.

To change the line/symbol log symbol properties:

1. Click the **Symbol** tab in the **Property Manager** to open the log symbol properties.
2. Click the ⊞ next to *Log* to open the log curve properties section, if necessary.
3. Click once on the up arrow next to *Frequency*. The frequency value changes to 1, and symbols are displayed at each data point on the log curve.

To change the line/symbol log label properties:

1. Click the **Label** tab in the **Property Manager** to open the log label properties.
2. Click the ⊞ next to *Log* to open the log curve properties section, if necessary.
3. Change the *Show label* property to *Data* by clicking on the current option, *None*, and selecting *Data* from the list.
4. Click the ⊞ next to *Layout* to open the label layout section.
5. To reduce the number of labels, highlight the number next to *Label frequency* and type 3.
6. Press ENTER on the keyboard and every third label is displayed.
7. Click the word *Center* next to *Offset method* and select *User defined* from the list.
8. Highlight the value next to *X offset* and type 0.250 inches.
9. Press ENTER on the keyboard and the labels are moved to the right side of the symbols and offset by 0.250 inches from the center of the symbol.



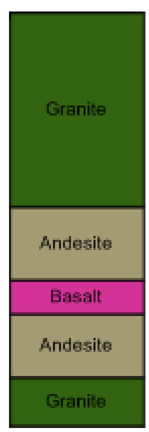
Display fill, symbols, and labels on the line/symbol log.

Editing Zone Bar Properties - Tutorial

Zone bar logs can change the column that is displayed, add labels, change line and fill properties, and add grid lines behind the log. Normally, the fill is controlled by a scheme, which is discussed in the next section.

To edit the zone bar log:

1. Click on the zone bar log in the **Object Manager** or in the log pane to select it.
2. Click on the **Label** tab in the **Property Manager**.
3. To display the name of the lithological layer in each zone on the zone bar, change the *Show label* option to *Show label with fill*. The labels are added to the display.



Display labels and colors in the zone bar log.

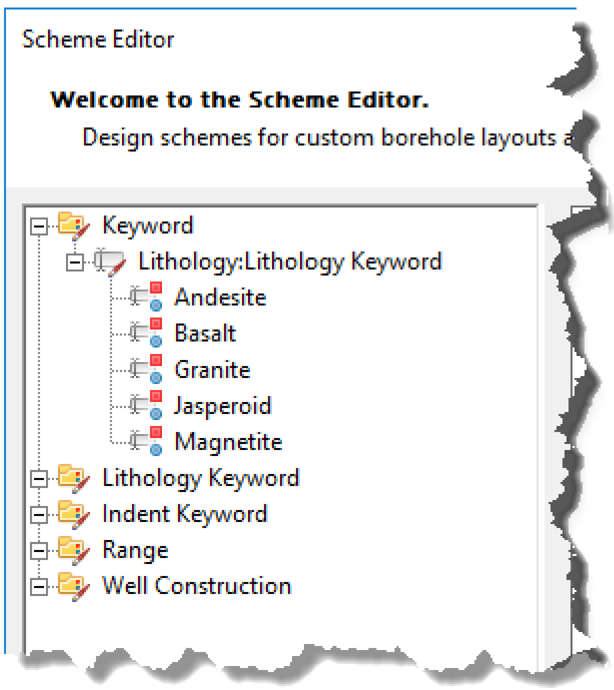
Editing Schemes - Tutorial

Schemes are an important part of **Strater**. Schemes provide a mechanism to define drawing properties, such as line, fill, symbol, and text properties, from a table value. Once a scheme is created, it can be used in many logs, cross sections, and other projects. This avoids the need to duplicate work.

Schemes are not used in all log types, but they are used in several, including the zone bar log. Schemes are required for lithology, percentage, and well construction logs. Schemes are optional for bar, classed post, post, and zone bar logs. Scheme properties can be edited from any view by clicking the **Home | Display | Scheme Editor** command.

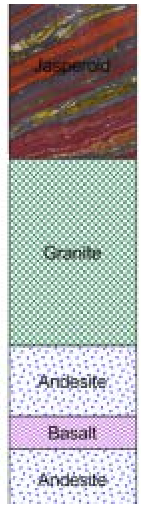
A zone bar log uses a keyword scheme to relate data table information to interval block properties, such as fill color or fill pattern. When this log was created, **Strater** automatically created a basic, default scheme to fill the log with random colors. To edit the scheme connected with the zone bar log:

1. Click the **Home | Display | Scheme Editor** command to open the **Scheme Editor**.
2. On the left side of the **Scheme Editor**, click the ⊞ next to *Lithology: Lithology Keyword*. The five scheme items are displayed below the scheme name.



Expand a scheme to view all scheme items. You can select each item to set its properties.

3. Click the *Jasperoid* item. The item properties are displayed on the right side of the **Scheme Editor.**
4. Set the fill properties to any desired pattern and color you wish. For instance, you may click next to *Style* and select the *BIF* image.
5. Select the *Granite* item on the left side of the dialog.
6. Set different fill properties. For instance, change the *Style* to *Diagonal Cross* and change the *Foreground color* to *Dark Green*.
7. Continue changing the properties for each of the remaining items until the fill properties for all five items have been changed.
8. Click *OK* and the **Scheme Editor** closes. The scheme properties are automatically applied to the zone bar log.



Change the fill properties for each item in the scheme.

Note that by default the scheme item names are case-sensitive. If you were to change *Granite* to *granite* in one cell in the table, the scheme item properties would not be displayed for that interval. The scheme item associations can be made case insensitive by changing the *Scheme is case sensitive* option in the **General** page of the **Options** dialog.

Lesson 4 - Creating and Editing Drawing Items

The header and footer panes typically contain information about the company, borehole, etc. Most of this information is static, and some of the information can change depending on data changes. You can create a variety of objects such as rectangles, lines, and text to display information anywhere in the view window.

This tutorial lesson creates a text object, creates multiple linked text objects, and aligns the text. A legend is also added to the view.

Creating Text - Tutorial

The **Draw | Shape | Text** command is used to create text anywhere in the view window.

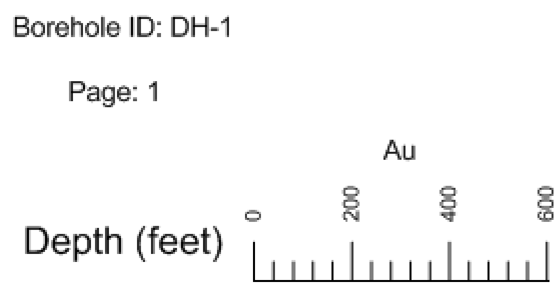
To add text to the borehole view:

1. Click the **Draw | Shape | Text** command.
2. Move the cursor into the borehole view. Click the left mouse button when the cursor is above the depth log in the header pane.
3. The **Text Editor** opens. Type *Depth (feet)*.
4. Click *OK* and *Depth (feet)* appears in the location where the mouse was clicked.
5. Press ESC on the keyboard to end drawing mode.
6. Click on the text. A bounding box appears. You can click and drag the text to move the text to the desired location.
7. With the text selected, highlight the number next to the *Points* option in the *Font* section of the **Property Manager**.
8. Type a new size value, such as 14, and press ENTER on the keyboard to increase the size of the text.

Creating Linked Text - Tutorial

Linked text shows information that changes with the borehole being displayed, such as location information, depth, driller name, or page number. Linked text is derived from a table or borehole view property setting. So, when the data changes, the text automatically updates.

1. Click the **Draw | Shape | Linked Text** command.
2. Near the top left of the header section, click to add linked text. The default linked text object, the *Hole ID*, appears.
3. Click a second time below the *DH-1* text. Another *DH-1* appears.
4. Press ESC on the keyboard to end drawing mode.
5. Click on the first *DH-1* text in either the **Object Manager** or in the header pane.
6. In the **Property Manager**, click on the **Label** tab.
7. Click the ⊞ next to *Label Format* to open the label format section.
8. Next to *Prefix*, type *Borehole ID:* with a space after the colon.
9. Press ENTER on the keyboard and the text appears to the left of the borehole ID number.
10. Click on the second *DH-1* text in either the **Object Manager** or in the header pane.
11. Click on the Linked Text tab in the Property Manager.
12. Click the *Hole ID* text next to the *Linked Text Type* option and select *Current Page* from the list. The page number is displayed.
13. Click on the **Label** tab.
14. Next to *Prefix,* type *Page:* with a space after the colon.
15. Press ENTER on the keyboard and the contents of the linked text box changes.



Before the text is aligned, it may look something like this, with the text appearing at the locations where you clicked on the screen. It is often desirable to move the text to a specific location.

Aligning Text - Tutorial

There are several ways to position objects, including text boxes, in **Strater**.

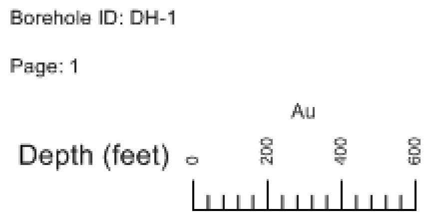
- Click and drag objects to new locations.
- Click the **Arrange | Align** commands to automatically position objects relative to other objects.
- Click the **Arrange | Space Objects** command to control spacing between objects.
- Use the **Arrange | Position** toolbar to manually and precisely position objects.

To align the text and linked text:

1. Select the first linked text box by clicking on the *Linked Text 1* object in the **Object Manager**.
2. Press and hold the CTRL key on the keyboard.
3. In the **Object Manager**, click on *Linked Text 2*.
4. Click the **Arrange | Align | Left** command. The text blocks are now horizontally aligned along the left edge of the text.
5. Click on the *Text 1* object in the **Object Manager**.

6. Press and hold the CTRL key on the keyboard.
7. Click on the *Depth - Au* object in the **Object Manager**.
8. Click the **Arrange | Align | Middle** command.

The depth text and the scale bar are now vertically aligned. The two linked text objects are horizontally aligned.



Align text to create a more organized layout for your borehole.

Creating a Legend - Tutorial

Legends can be added to explain information contained in a log, such as the zone bar log. To add a legend:

1. Click on the zone bar log to select it.
2. Click the **Log | Add | Legend** command.
3. Click on the borehole view where the legend should be located. The legend can appear in any of the panes. After clicking, the legend automatically appears.
4. Press the ESC key on the keyboard to end drawing mode.

The legend can be edited in the **Property Manager** to show fill properties, symbol properties, or both. The options can appear in multiple columns and with the text on the left or right side. Refer to the Advanced Tutorial *Editing Legends* lesson for additional information about formatting the legend.

Add a legend to explain items displayed in the borehole view.

Lesson 5 - Changing Boreholes

It is very easy to change boreholes in **Strater**. As mentioned earlier, the tables can contain data for more than one borehole and the project can reference more than one table.

Changing All Logs to a New Borehole

In our example, the *Lithology* and *Depth* tables both contain DH-1 and DH-2 in the *Hole ID* column. You can easily change the borehole from DH-1 data to DH-2 data. To change the borehole:

1. Click the **View | Display | View Properties** command, click in the white space in the log pane, or click on the *Borehole 1: DH-1* view name in the **View Manager**.
2. Click the **View** tab in the **Property Manager**.
3. Click *DH-1* next to *Hole ID filter* and select *DH-2* from the list. The borehole log items and linked text change to reflect the DH-2 data.

Changing One Log to a New Borehole

To change only one log to a different borehole:

1. Click on the log that should be changed, such as the zone bar log.
2. In the **Property Manager**, click on the **Log** tab.
3. Click the well name next to *Hole ID filter* and select the appropriate borehole name, such as *DH-1*. The zone bar log automatically updates to show the new borehole's data.

When changing only a single log, only the selected log changes to the new data. In this case, the depth log, line/symbol log, and linked text continue to show DH-2 data. Only the zone bar log shows the DH-1 data. The borehole view tab and the *Hole ID Filter* in the **View** properties show -*Multi*- to indicate that multiple logs are displayed in this borehole view.

Lesson 6 - Creating a Map View

A map view represents each of the wells in a collars table as a symbol on a map. Each well in the collars table is displayed as a separate symbol. Wells can be edited as a group or individually. The map also contains a set of four axes, that can be edited individually. Base layers, additional well layers, and well selector lines can be added to maps.

Opening a New Map View

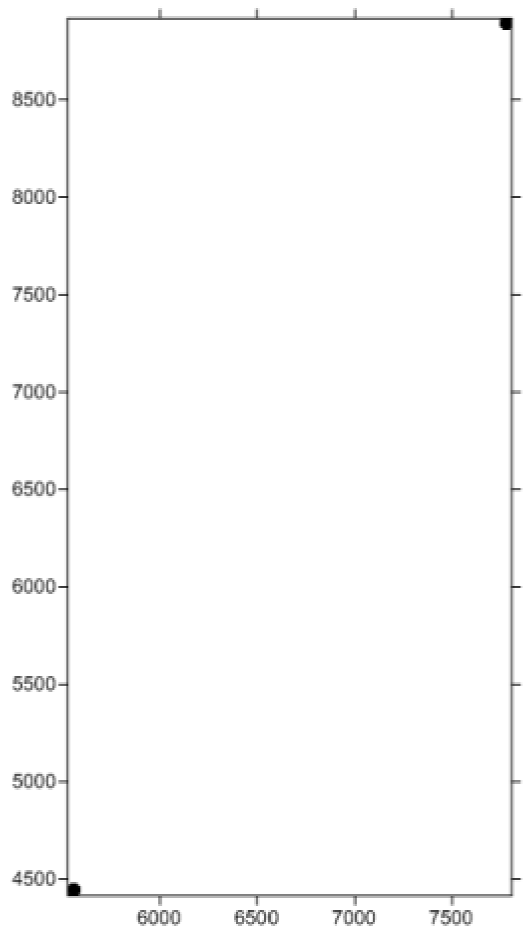
New map views in an existing project are created by clicking the **Home | New | Map View** command or clicking the  button.

Displaying the Well Locations - Tutorial

In the new map view, wells can be displayed based on information in the collars table. A collars table can be opened using the **File | Open** command or can be opened when creating the well map.

1. Click the **Map | Create | Well Map** command.
2. In the **Open Collars File** dialog, select the *Example Data.xls* file and click *Open*.
3. In the **XLS Import Options** dialog, select the *Collars* table and click *OK*.
4. In the **Specify Worksheet Column Definitions** dialog, make sure that *Specify Column Header Row* is checked and click *Next*.
5. In the **Specify Data Type and Column Positions** dialog, set the *Hole ID, Starting Depth, Ending Depth, Elevation, Easting,* and *Northing* columns to the appropriate columns and click *Finish*. The two wells appear on the map.

The well map is displayed with the default properties. Because only two wells are visible, the wells are located at the corners of the map.

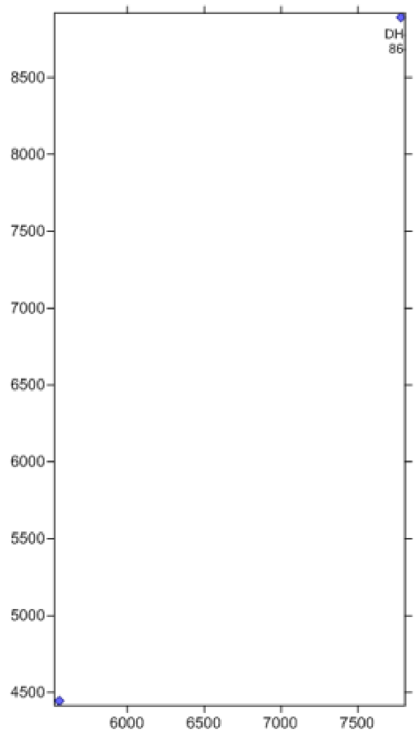


The two wells are shown at the top right and bottom left corners of the map.

Changing the Well Properties - Tutorial

All of the well properties can be edited. To make changes to the well symbol and add well labels:

1. Click on the *Wells 1* map layer in the **Object Manager**.
2. In the **Property Manager**, click on the **Label** tab.
3. Next to the *Label 1* option, click on *[None]* and select *Hole ID* from the list. By default, the name appears below the symbol.
4. Next to the *Label 2* option, click on *[None]* and select *Elevation* from the list. This displays the elevation of the well below the well name.
5. Currently, a scheme is used to display wells, but all symbols can be the same. To not use a scheme, click on the **Wells** tab in the **Property Manager**.
6. Uncheck the box next to the *Use keyword scheme for symbols* option.
7. Click on the **Symbol** tab.
8. Change the *Symbol* by clicking on the existing symbol and select any desired symbol from the list.

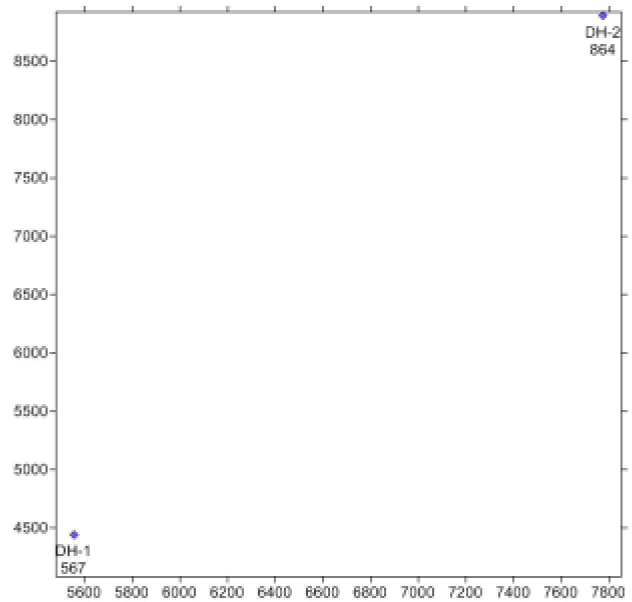


The wells are changed to use a uniform symbol. Labels are also displayed below the wells.

Changing the Map Properties - Tutorial

The map properties control the size of the map and the symbol, line, and font properties for all of the objects in the map. To change the limits and scale of the map:

1. Click on the *Map 1* object in the **Object Manager**.
2. In the **Property Manager**, click on the **Scale** tab.
3. To use different scales in the X and Y directions, uncheck the box next to *Proportional XY Scaling*.
4. Set the *Length (Page Units)* to 7 inches for both the *X Scale* and *Y Scale* by highlighting the existing value and typing 7.0.
5. Press ENTER on the keyboard to make the change. Creating a map that fits nicely within the page boundaries is important if you are going to insert the map view in a borehole view or cross section view because the entire map view page boundary is inserted.
6. Click on the **Limits** tab to set the size of the map.
7. Check the box next to *Use Data Limits* to have the limits controlled exactly by the objects in the map.
8. Click the *Fit All* button to expand the limits to include all of the text associated with the wells.



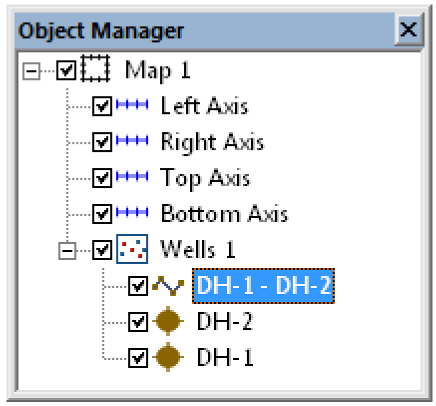
Reset the size and limits to show all of the information for both wells in the map.

Adding a Well Selector Line - Tutorial

A well selector line can be used to create a cross section or to show multiple wells connected on the map. Wells are selected in the order that they should appear in the cross section with the furthest left well in the cross section selected first on the map. To connect wells:

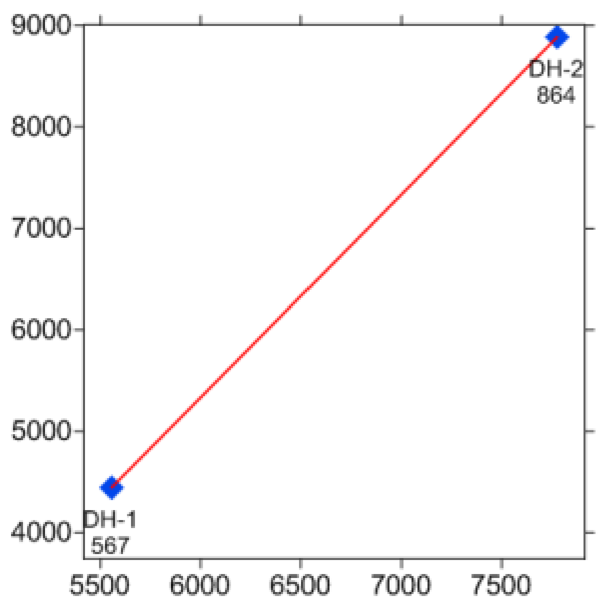
1. Click the *Map 1* map object or any of the layers or objects in the map.
2. Click the **Map | Add | Well Selector** command or right-click on the map and choose **Add | Well Selector**.
3. The cursor changes to . As the cursor approaches a well, the well name appears in a floating box. This makes selecting the right well easier. Click on the first well, *DH-1*, to select it.
4. Click on each additional well in the order that the logs will appear in the cross section. Click on *DH-2* next.
5. Press the ENTER key on the keyboard or double-click on the last well to end the current well selector line.
6. Press ESC on the keyboard to end selector mode.

The order the wells will be displayed in the cross section is shown in the **Object Manager** by the well order in the name for the well selector line. DH-1 appears first in the well selector name, so it will appear on the left side of the cross section. DH-2 appears last, so it will appear on the right side of the cross section. Had the wells been selected in the reverse order, DH-2 would be on the left side in the **Object Manager** name and in the cross section.



The cross section will have two wells:
DH-1 on the left side of the cross section
and DH-2 on the right side of the cross section.

The wells are connected with a line. This line connects the wells that will be displayed in the cross section.



The well selector line is added to
the map, connecting the wells.

Lesson 7 - Creating a Cross Section View

A cross section can be created displaying lithology and zone bar logs or displaying line/symbol logs. Wells can be connected with layers, representing lithologies or zones in the data. Layers can be edited or manually created.

Opening a New Cross Section View

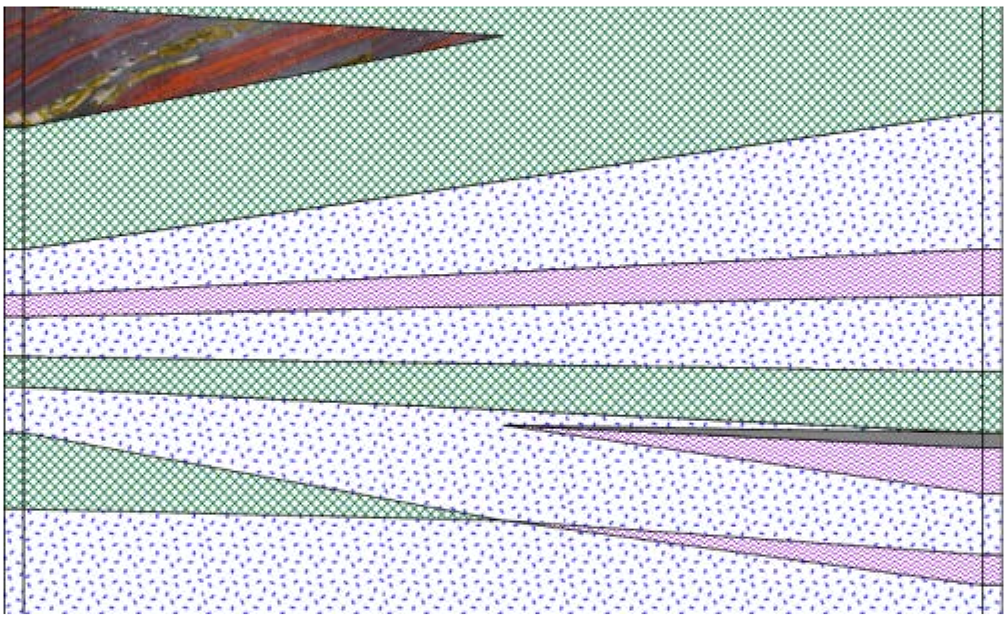
New cross section views in an existing project are created by clicking the **Home | New | Cross Section View** command or clicking the  button.

Displaying Wells in the Cross Section View - Tutorial

To add the wells to the cross section view:

1. Click the **Cross Section | Create / Add | Create Cross Section** command.
2. On the right side of the **Create Well Selector** dialog, select the order the wells should be displayed in the cross section. The *Wells in selector* should show DH-1 and then DH-2.
3. Click *OK*.
4. To create the cross section from lithology or zone bar logs, set the *Cross section log type* to *Lithology/Zone bar log* in the **Import Cross Section Data** dialog.
5. Since the *Table* and *Data Column* are already defined for both logs, click *OK*.

The default cross section is created, displaying zone bar logs for both wells and connected lithologies.

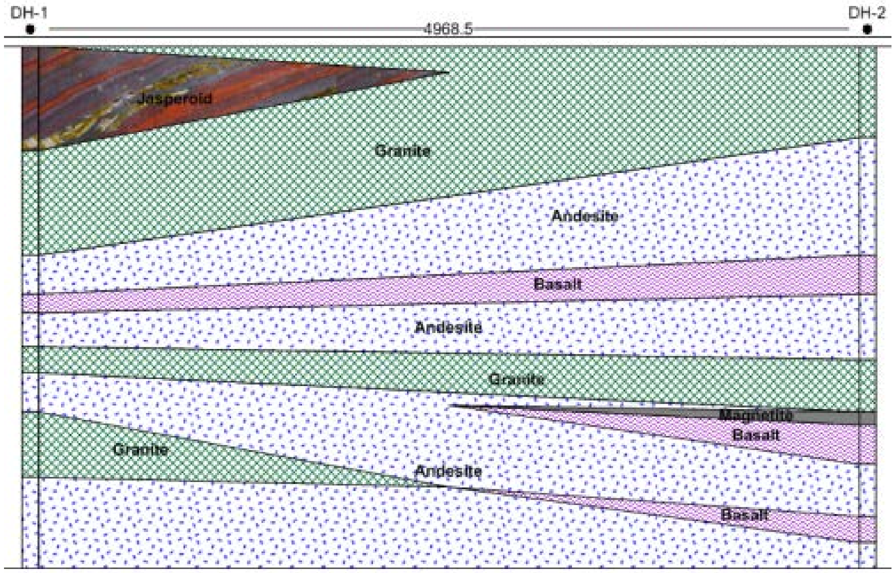


The default cross section is created from the wells in the order they were selected in ***Create Well Selector*** *dialog.*

Editing Cross Section Properties - Tutorial

Some properties that can be controlled for the cross section include adding layer labels, well headers, and distances between wells.

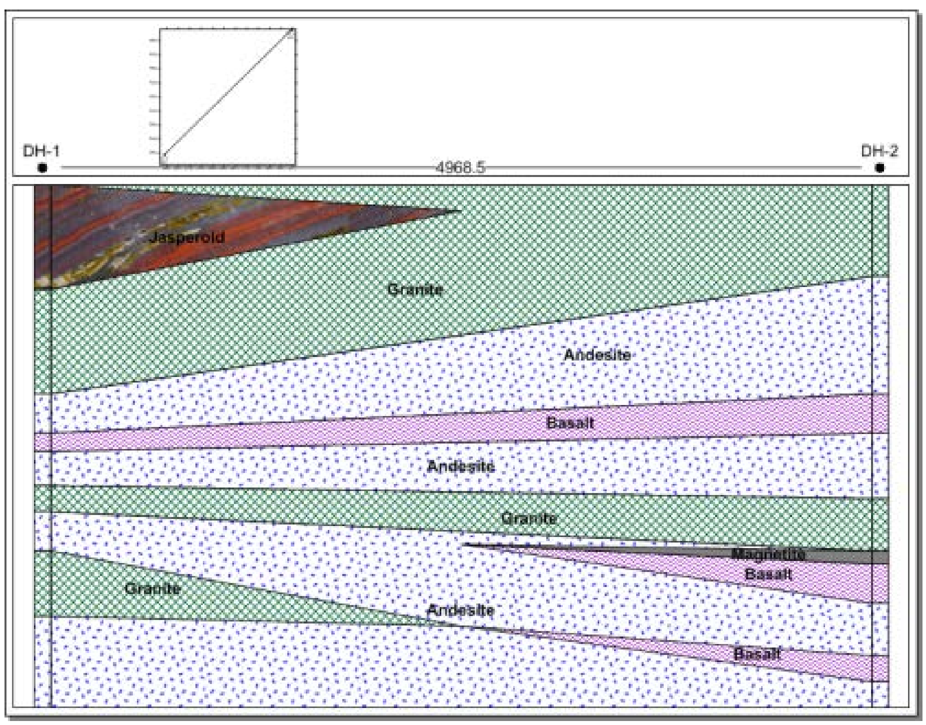
1. To add layer names, click on the *Layers* object in the **Object Manager**.
2. In the **Property Manager**, click on the **Label** tab.
3. Check the box next to *Show layer labels* and the layer names are automatically displayed.
4. To add well headers, click the **Cross Section | Create / Add | Add Well Headers** command. The well name and symbol are automatically added to the header section.
5. To display distances between wells, click the *Well Header 1* object in the **Object Manager**.
6. In the Property Manager, click on the Well Header tab.
7. Check the box next to *Show distance*. The distances are displayed between wells in map units.



The cross section can be updated to include labels for each layer and well header information.

Inserting the Map View - Tutorial

The map view can be inserted into the cross section by clicking the **Log | Add | Map View** command. After the map view appears, you can click on it and drag it to the desired location. To edit the inserted map view, edit the original map view. The inserted map automatically updates.



The inserted map view can be added to any location in the cross section view, as a reference to where the wells in the cross section are located.

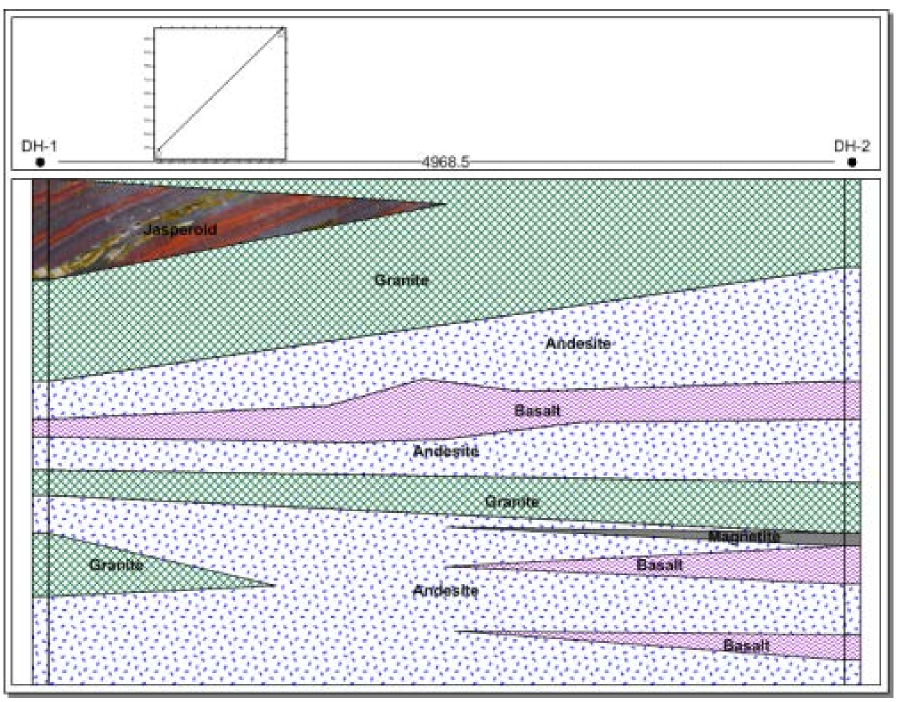
Reshaping the Cross Section Connections - Tutorial

The layers connecting wells in the cross section can be individually edited. After selecting a layer in the cross section view window, click the **Draw | Tools | Reshape** command to enter reshape mode. All the nodes that make up the layer polygon are viewable. Although all of the reshape commands are applicable, there are a few key functions that make reshaping cross section layers easier:

- Click on a node to select it and move it to a new location.
- Delete a node by selecting it and pressing DELETE on the keyboard.
- Add a new node by pressing and holding the CTRL key on the keyboard when clicking.
- If a node is shared (it affects more than one layer), you can separate it by holding the SHIFT key down and then moving the node. This may be useful when editing pinchout nodes, or when moving nodes that connect the layer to the log.
- Press the ALT key to link a node to a node in another layer so that the nodes move together.

Currently, two pinchouts are shown connecting toward the bottom of the cross section. To separate these layers:

1. Click on the *Granite* pinchout on the left side of the cross section to select it.
2. Click the **Draw | Tools | Reshape** command.
3. Because the *Granite* and *Basalt* pinchouts share a common central node, you can separate the two pinchouts by using the SHIFT key. Hold the SHIFT key down on the keyboard and drag the right-most node toward the left side of the cross section.
4. Click on the *Basalt* pinchout on the right side of the cross section.
5. Hold down the SHIFT key on the keyboard and drag the left most nodes toward the right side of the cross section. Holding down the SHIFT key separates the upper *Basalt* pinchout from the *Magnetite* pinchout.
6. Let's assume that we know that the basalt layer near the center of the cross section has a thick section in the middle. Click on the *Basalt* layer in the cross section view window to select it.
7. Hold down the CTRL key on the keyboard. Click several points above the *Basalt* area to create a curved area at the top of the layer.
8. Continuing to hold down the CTRL key on the keyboard, click several points below the *Basalt* area to create a curved area at the bottom of the layer.
9. Press ESC on the keyboard to end reshape mode when all edits have been made.



The final cross section displays all edits made to the pinchouts and the central Basalt layer.

Refer to the *Editing Individual Layers on a Cross Section* for additional layer editing information. Refer to *Lesson 12 - Creating a Cross Section from Line/Symbol Logs* for information on manually picking layer tops or other cross section editing methods.

Lesson 8 - Saving Information

When you have completed the project, you can save the file to a **Strater** file or a template file. **Strater** files save the schemes, data, and all view windows to the file. Templates can save a single borehole or cross section view window or the entire project, but without the actual data. If you are using the demo version, the save command is not available. To save the file:

1. Click the **File | Save As** command or click the button.
2. Set the *Save as type* to *Strater Files (*.sdg)* or to *Strater Template Files (*.tsf)*. Saving a template in this manner saves the entire project to the template.
3. Type a File name.
4. Click *Save* and the file is saved.

Congratulations, you have completed the **Strater** tutorial!

Advanced Tutorials

Lesson 9 - Editing Legends

In Lesson 4, a legend was created. Many of the properties of the legend can be edited, including the text that is displayed, whether symbols or filled rectangles are displayed, and how many columns are displayed. Legends are for any log type that uses a scheme.

If you have completed lesson 4 and the borehole view is available, click on the *Borehole 1* tab. You can then continue to the next lesson.

If you do not have a borehole view available with a legend:

1. Create a new borehole view by clicking the **Home | New | Borehole View** command or clicking the button.
2. Create a zone bar log by completing the steps on the *Creating a Zone Bar Log* tutorial page.
3. Add a legend by following the steps on the *Creating a Legend* tutorial page.

The default legend displays symbols and fill boxes. This can be changed to be more meaningful for the zone bar log.

Now that a log and legend exist, we are ready to edit the legend properties.

Editing Legend Properties - Tutorial

To edit the legend, click once on the legend to select it in either the view window or the **Object Manager**. Once the legend is selected, all the properties of the legend are available in the **Property Manager**.

Changing Sample Layout

To change the sample layout:

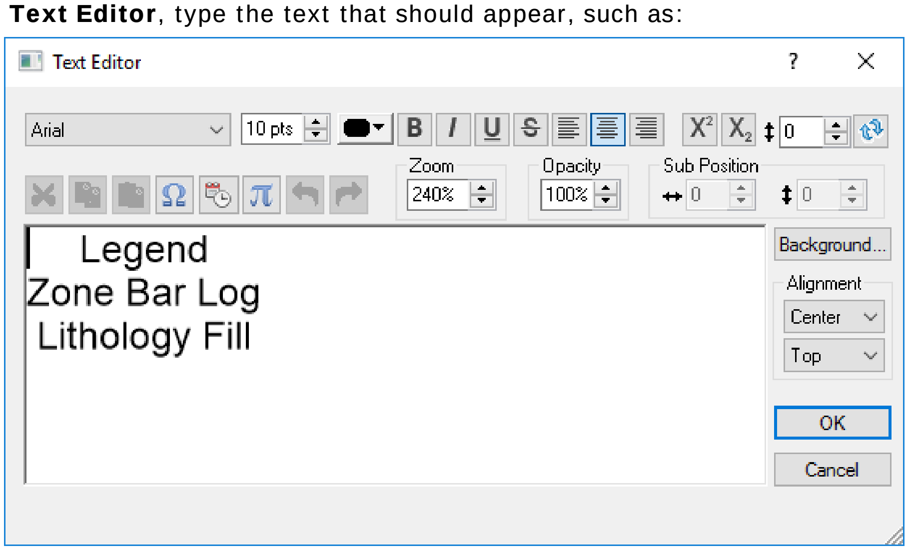
1. Click on the **Legend** tab in the **Property Manager.**
2. The *Number of columns* contains the number of columns that should appear in the legend. Highlight the 1 and type 2. Press ENTER on the keyboard to make the change. Two separate columns appear.
3. The *Sample options* describe what should appear for each sample. Click on *Both* and select *Rectangle* from the list. The symbols are removed and only the filled rectangles remain.
4. To remove the spaces between rows of the legend, uncheck the *Space Between samples* option.

The legend appears with two columns without spaces between rows.

Changing Title Options

To change the title of the legend:

1. To change the title, click on the **Label** tab in the **Property Manager**.
2. Expand the *Legend Title* section by clicking the ⊞ next to *Legend Title.*
3. Expand the *Text Properties* section by clicking the ⊞ next to *Text Properties.*
4. Click the button in the *Text* field.
5. In the **Text Editor**, type the text that should appear, such as:



*Type the text in the **Text Editor** that should appear as the legend title.*

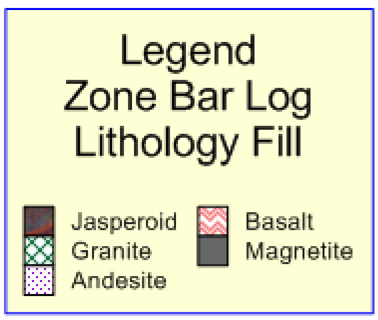
5. Click *OK* in the **Text Editor** and the legend title appears.

6. To change the size of all of the text in the title, open the *Font Properties* section by clicking the ⊞ next to *Font Properties*.
7. Highlight the 10 next to *Size (points)* and type 18.
8. Press ENTER on the keyboard to make the change.

Changing Frame Options

Legends can also include a frame with line and fill properties. A frame line must be specified before any fill properties will be displayed. To set the line and fill style for the area behind the samples and text:

1. Click on the **Line** tab.
2. Next to *Frame Style*, click the word *None* and select *Rectangle* or *Rounded Rectangle* from the list. The *Rounded Rectangle* option rounds the corners of the rectangle.
3. Click the ⊞ next to *Line Properties* to open the frame line properties.
4. Increase the line thickness by highlighting the value next to *Width* and typing a new value, such as *0.02*.
5. Change the line color by clicking the color next to *Color* and selecting a different color from the palette.
6. Click on the **Fill** tab.
7. Click the ⊞ next to *Fill Properties* to open the frame fill properties.
8. To fill the area, click on the *None* next to *Style* and select the desired fill style from the palette, such as *Solid*.
9. To change the frame background color, click on the color next to *Color* and select the desired color from the color palette.



Legend properties are edited in the Property Manager.

Lesson 10 - Design Mode and Activating Boreholes

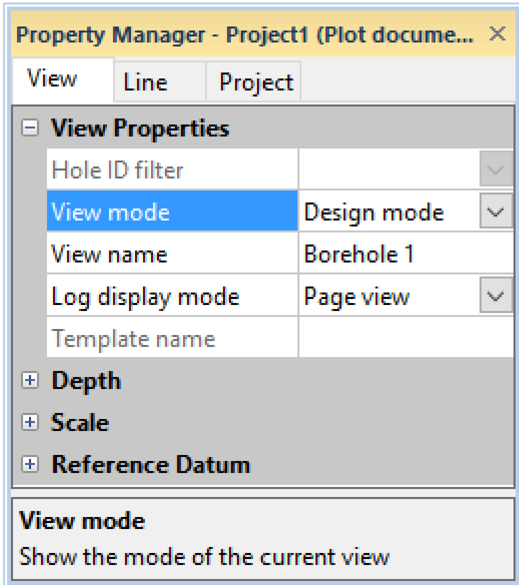
This is an optional, advanced topic in **Strater** that shows how to work in design mode and then attach data to the design.

There are two "modes" in the borehole view and cross section view: design mode and active mode. Design mode is used to create placeholders for graphics without attaching them to data. Design mode is useful when designing complex logs and designing templates when you do not want to import any data. After loading a template and importing data, you can switch between design mode and active mode.

Before proceeding with this lesson, open a new **Strater** project by selecting **File | New Project** or clicking the button. If you are prompted to save the existing project, save it if desired.

Entering Design Mode - Tutorial

To enter design mode, click the **Log | Display | Design Mode** command, press F4 on the keyboard, or change the *View Mode* in the **Property Manager** on the **View** tab. When changed, the *View Mode* should indicate *Design Mode*.



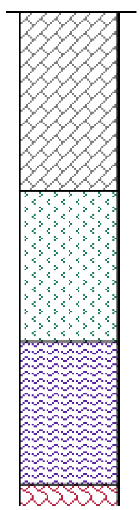
*The borehole **View Properties** indicate if you are in Design Mode or Active Mode.*

Creating a Design - Tutorial

Design mode is useful when creating complex boreholes, creating templates, and when creating more complex log items like lithology or well construction logs. We will create only a single log item, a lithology log, for this lesson.

To add a lithology log in design mode:

1. Click the **Log | Create Log | Lithology** command.
2. Click in the log pane to position the lithology log. A lithology log place holder appears.



The patterns in design mode are placeholders only.

3. Notice that you are not prompted for data when creating log items in design mode.

Opening Data - Tutorial

Since you are not prompted for data in design mode, data needs to be added to the project. To open existing data files into new tables:

1. Click the **File | Open** command or the  button.
2. In the **Open** dialog, click on *Tutorial 1.xls* in the Samples folder and click *Open*.
3. In the **XLS Import Options** dialog, select *Lithology* and click *OK*.
4. In the **Specify Worksheet Column Definitions** dialog, check the box next to *Specify Column Header Row* and click *Next*.
5. In the **Specify Data Type and Column Positions** dialog, select *Lithology* as the *Data type.*
6. Verify the columns are selected correctly and click *Finish*.

The data appears in a new table named *Lithology*. You can now attach the opened data to the design you previously created.

Attaching a Table to the Design - Tutorial

Once a table is opened, you can assign data to the lithology log in the borehole view. First, switch back to the borehole view by clicking the appropriate *Borehole* tab or by clicking the *Borehole 1* object in the **View Manager**.

To assign data to the lithology log:

1. Click on the lithology log in either the view window or the **Object Manager**.
2. In the **Property Manager**, click on the **Log** tab.
3. The *Lithology table* field is blank. Click in the blank box and select *Lithology* from the list. This is the table that was just opened.
4. Next to the *Lithology keyword column* option, click in the blank box and select *Lithology Keyword*.
5. Next to the Indent percentage column option, click on [Unspecified] and select Indent Percentage.
6. Next to the Indent keyword column option, click on [Unspecified] and select Indent Keyword.
7. Next to the Indent line scale column option, click on [Unspecified] and select Indent Line Scale.

At this point, the log is ready to be activated.

Activating the Borehole - Tutorial

Once the lithology log properties are assigned, you can activate the borehole by selecting a borehole name. When a borehole name is selected, the data are linked to the borehole design. If there are multiple items in the borehole, each of the items must have tables and columns specified before activating the borehole.

To activate the borehole:

1. Click the **View | Display | View Properties** command.
2. In the **Property Manager**, click on the **View** tab.
3. Next to the *Hole ID Filter* option, click on the word *-Empty-* and select *DH-1* from the list.
4. Activate the borehole by changing the *View mode* to *Active mode* in the **Property Manager**. You may also click the **Log | Display | Design Mode** command or press F4 on the keyboard.

The borehole is active, and the log displays empty fill patterns for each block. This is because fill patterns have not yet been set for the lithologies.

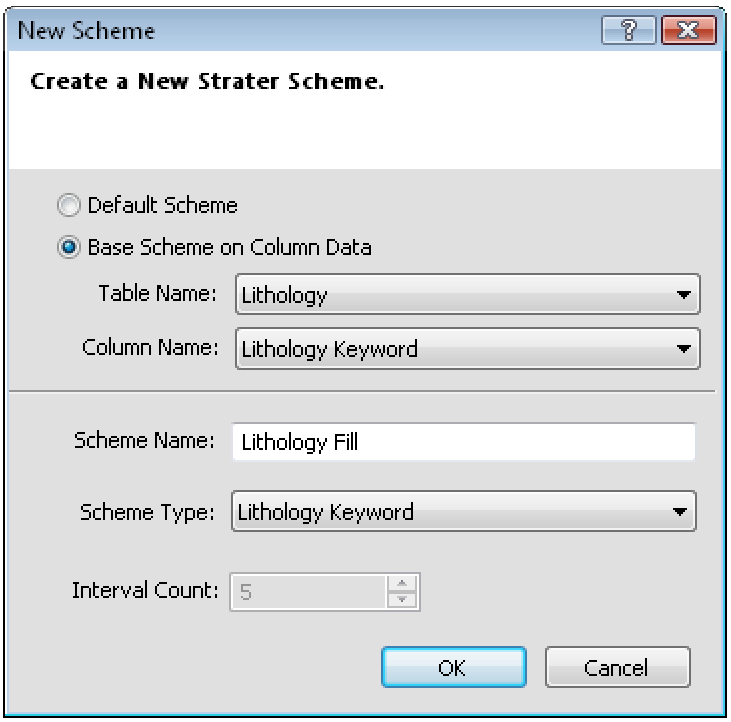
Creating a Lithology Scheme - Tutorial

This tutorial assumes you have completed the *Editing Schemes* lesson. You will now create a lithology scheme and link it to the lithology log you have created.

Creating the Scheme

To create a new lithology scheme:

1. Click the **Home | Display | Scheme Editor** command.
2. Click the button at the bottom of the dialog to create a new scheme. The **New Scheme** dialog opens.
3. In the **New Scheme** dialog, select the *Base Scheme on Column Data* option.
4. Select Lithology as the Table Name.
5. Select Lithology Keyword as the Column Name.
6. Enter the text Lithology Fill as the Scheme Name.
7. Select Lithology Keyword as the Scheme Type.



*The **New Scheme** dialog lets you quickly create schemes based on a column.*

8. Click *OK*. The new scheme appears in the **Scheme Editor** under the *Lithology Keyword* section.
9. Edit the scheme item properties if desired, and then click *OK*.

Editing the Scheme Properties

The new *Lithology Fill* scheme appears under the *Lithology Keyword* scheme types. Click the next to *Lithology Fill* to open the list of the scheme item names. These scheme item names match the keywords in the table's *Lithology Keyword* column. You can click on each scheme item name and edit the properties for the item.

Applying the Scheme

After creating the scheme, you can assign the lithology log to use the scheme in the **Property Manager**. To apply the scheme:

1. Click on the lithology log in the view window or **Object Manager**, if it is not already selected.
2. Click the **Log** tab In the **Property Manager**.
3. In the Data section, select Lithology Fill as the Lithology scheme.

Lesson 11 - Creating Logs from LAS Files

LAS Files contain curve information about a well. To display an LAS curve in just a few steps:

1. Create a new project by clicking the **File | New Project** command or the button.
2. Click the **Log | Create Log | Line/Symbol** command.
3. Click in the log pane area where the line/symbol log should appear.
4. In the **Open** dialog, select the *SB16.LAS* sample file and click *Open*.
5. In the **LAS Import Options** dialog, set any desired options and click *Import*.

The LAS data was opened into a new table and a line log was created using the first variable in the LAS file. You can change the variable the line log displays.

1. Click on the line/symbol log in the view window or **Object Manager**.
2. In the **Property Manager**, click on the **Log** tab.
3. Click *Edit* in the *Edit variable columns* field. The **Select Columns** dialog opens.
4. Move the columns you wish to display into the *Selected Columns* list.
5. Click *OK*. The line/symbol log automatically updates to display the new data.

To create additional logs using the same LAS file:

1. Click the **Log | Create Log | Line/Symbol** command.
2. Click in the log pane area where the line/symbol log should appear.
3. In the **Open** dialog, select the existing *SB16* table from the *Use Open Table* list and click *Open*. The new curve is created from the existing table.

Lesson 12 - Creating a Cross Section from Line/Symbol Logs

Creating a Cross Section from Line/Symbol Logs - Tutorial

This is an optional, advanced topic in **Strater** that shows how to create cross sections from line/symbol logs and manually create the layers.

Opening a New Project

Before proceeding with this lesson, open a new **Strater** project by clicking the **File | New Project** command or clicking the button. If you are prompted to save the existing project, save it if desired.

Downloading and Opening the Data - Tutorial

For this tutorial, let's use real world data, downloaded from the United States Geologic Survey (USGS). Some good sample data is available at http://energy.cr.usgs.gov/OF00-200/WELLS/WELLIDX.HTM. The location information displayed in the table has been copied to the **Strater** samples directory. This information will be used for the collars table.

Click on *Tunalik 1*, *Kugrua 1*, *Walakpa 2*, and *Walakpa 1* well names. After clicking on each well name, click the *LAS Format Log Data* link. On the new page, right-click on the *LAS File* name link to download the LAS data. Save all the LAS files to the same directory.

Opening the Data

Once the data is downloaded, open the location collars information into a new **Strater** table and open the LAS data into a single depth table. Use these steps:

1. Click the **File | Open** command.

2. Select the *LAS Collars.xlsx* file from the **Strater** Samples directory and click *Open*.
3. Select the *Collars* sheet and click *OK*.
4. In the **Specify Worksheet Column Definitions** dialog, check the box next to the *Specify Column Header Row* option and click *Next*.
5. In the **Specify Data Type and Column Positions** dialog,
    a. Set the Data type to Collars.
    b. Set the Hole ID to Well Name.
    c. Set the Starting Depth to Datum, Kelly Bushing, ft.
    d. Set the Ending Depth to Total Depth, ft.
    e. Set the Elevation to Datum, sea level, ft.
    f. Set the Easting to Longitude.
    g. Set the Northing to Latitude.
    h. Click *Finish*.
6. Click the **Home | New | Table** command.
7. Set the *Table Name* to *LAS Data* and the *Base Table Type* to *Depth Table* in the **Create New Table** dialog and click *Create*.
8. Click the **File | Import** command. In the **Import Data** dialog,
    a. Browse to the directory where the LAS files have been saved.
    b. Click on the first LAS file in the directory.
    c. Hold down the SHIFT key on the keyboard and click on the last LAS file in the directory.
    d. The *KG1.LAS, TU1.LAS, WA1.LAS,* and *WA2.LAS* files should be selected.
    e. Click *Open*.
9. In the **LAS Import Options** dialog,
    a. Check the box next to *Import Well Data* option.
    b. Click the *Create Table* button.
    c. Type *LAS Information* in the **Select Name** dialog and click *OK*.
    d. Check the box next to the Use same settings for subsequent LAS files option.
    e. Click *Next*.
10. In the **Import Data Into Current Table** dialog,
    a. Click the Create Columns from Source button.
    b. Click on Depth in the Current Table Mapped Columns list.
    c. Select M_DEPTH in the Import Source Data Columns list.
    d. Click the > button and the *M_DEPTH* is mapped to the *Depth* column.
    e. Click *Import* and the data is loaded into two tables, an *LAS Data* table and *LAS Information* table.

Creating the Cross Section - Tutorial

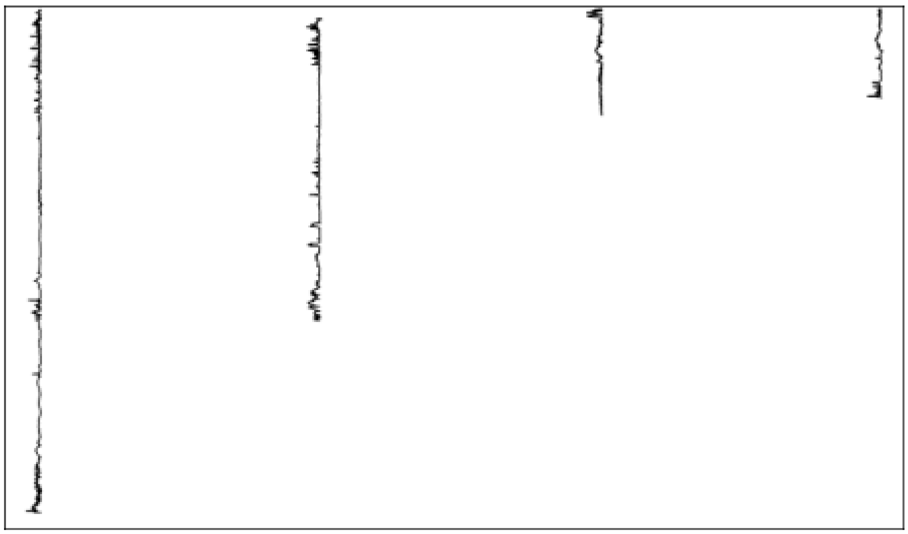
New cross section views in an existing project are created by clicking the **Home | New | Cross Section View** command or clicking the button.

Creating the Cross Section

1. Click the **Cross Section | Create/Add | Create Cross Section** command.
2. In the **Create Well Selector** dialog, click the *Minimum* button to remove all but two wells from the list.
3. On the left side of the dialog,
    a. Select the *Tunalik 1* well and click *Add*.
    b. Select *Kugrua 1* and click *Add*.
    c. Select *Walakpa 2* and click *Add*.
    d. Select *Walakpa 1* and click *Add*.
4. On the right side of the dialog,
    a. Select *Awuna 1* and click *Remove*.
    b. Select East Simpson 2 and click Remove.
    c. The well order on the right side is the order the wells should be displayed in the cross section. The *Wells in selector* should show *Tunalik 1*, *Kugrua 1*, *Walakpa 2*, and

Walakpa 1, in this order. If the wells are not in this order, click on the well name and drag the wells so that the order is the same as listed here.

5. Click *OK*.
6. Click *Yes* in the warning dialog.
7. In the **Import Cross Section Data** dialog,
    a. To create the cross section from line/symbol logs, set the *Cross section log type* to *Line/symbol log.*
    b. Since the *Table* is set to *LAS Data*, the table is defined correctly.
    c. Set the *Data Column* for each well to *SP.*
    d. Click *OK* and the line logs are displayed for each well.



The line logs are displayed for each well.

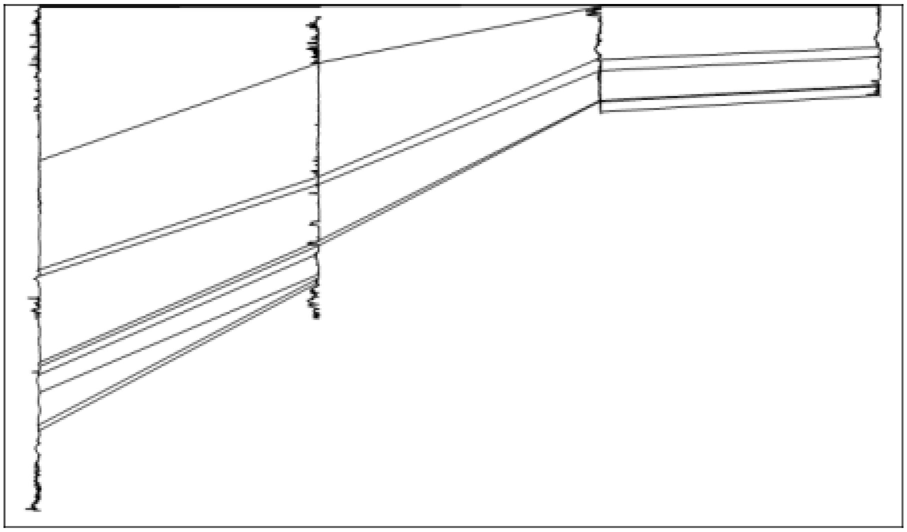
Importing and Filling Layers - Tutorial

To add the layers, you can either click on each log at the top or bottom of each layer or you can import a table of top or bottom values.

<u>Adding the Layers</u>

Since the USGS already determined the top values for several layers in each of these logs, we will import the layer tops.

1. Click on the *Cross Section* object in the **Object Manager** to select it.
2. Click on the **Cross Section | Layer Marks | Import** command.
3. In the **Import Layer Marks** dialog, select the *LAS Collars.xlsx* file.
4. Select the *Tops* sheet and click *OK*.
5. In the **Specify Worksheet Column Definitions** dialog, check the *Specify Column Header Row* box and click *Next*.
6. In the Specify Data Type and Column Positions dialog,
    a. Set the Data type to Depth (Single Depth).
    b. Set the *Hole ID* to WELL NAME.
    c. Set the *Depth* to DEPTH, feet.
    d. Click *Finish*.
7. In the **Select Layer Mark Column** dialog, select ROCK UNIT as the *Column Name* and click *OK*.
8. Click *Yes* in the warning dialog and the layer lines are displayed.

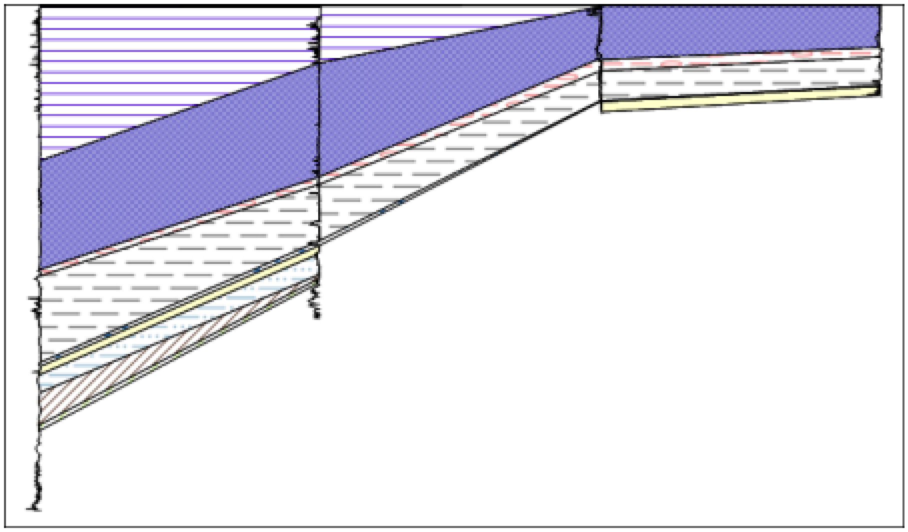


The logs are connected with the layer marks from the Tops table.

Filling the Layers

To fill the layers, a scheme will need to be created and the layer fill property will need to be activated.

1. Click the **Home | Display | Scheme Editor** command.
2. Click the button at the bottom of the **Scheme Editor** dialog.
3. In the **New Scheme** dialog,
   a. Select Base Scheme on Column Data.
   b. Set the Table Name to Tops.
   c. Set the *Column Name* to ROCK UNIT.
   d. Type a name for the scheme, such as *Cross Section Units.*
   e. Click *OK*.
4. Click the next to the new scheme name.
5. Click on each scheme item and set the properties for that layer on the right side of the dialog.
6. Click *OK* to exit the **Scheme Editor**.
7. Click on the *Layers* object in the **Object Manager**.
8. In the **Property Manager**, click on the **Layers** tab.
9. Next to *Keyword Scheme*, click on the existing scheme name and select the *Cross Section Units* scheme from the list.
10. Check the box next to *Fill between Layer Lines* to fill the layers with color.
11. Click *Yes* in the warning dialog and the layers are filled with the colors, as determined by the scheme.



The layers are filled with the information from the scheme.

Lesson 13 - Displaying Deviated Boreholes in Maps and Cross Sections

Strater can create boreholes as vertical or as deviated. To display boreholes as deviated in both the map view and the cross section view, the deviation information is required. This data can be in a deviated survey table, a collars table, or in a depth or interval table.

Opening the Data

Before creating a map or cross section, we will open all the data tables first. There is an easy way to open multiple sheets from an Excel file in a **Strater** table. So, we will use this method to open all the required sheets for this tutorial.

1. Click the **File | New Project** command or click the  button to open a new blank project.
2. Click the **File | Open Multiple Data Files** command.
3. In the **Open Data** dialog, click on *Tutorial 3.xlsx* file and click *Open*.
4. In the **Multi-Sheet Selection** dialog, leave all three sheets selected and click *OK*. Because the sheets are opened in the order listed, you will step through the next steps for each sheet.
5. For the *Collars* sheet:
   a. In the **Specify Worksheet Column Definitions** dialog, make sure *Specify Column Header Row* is checked and set to 1. Click *Next.*
   b. In the **Specify Data Type and Column Positions** dialog, make sure that the *Data type* is set to *Collars* and all of the columns are defined correctly. Click *Finish*.
6. For the *Survey* sheet:
   a. In the **Specify Worksheet Column Definitions** dialog, make sure *Specify Column Header Row* is checked and set to 1. Click *Next.*
   b. In the **Specify Data Type and Column Positions** dialog, make sure that the *Data type* is set to *Survey* and all of the columns are defined correctly. Click *Finish*.
7. For the *Stratigraphy* sheet:
   a. In the **Specify Worksheet Column Definitions** dialog, make sure *Specify Column Header Row* is checked and set to 1. Click *Next.*
   b. In the **Specify Data Type and Column Positions** dialog, make sure that the *Data type* is set to *Lithology* and all of the columns are defined correctly. Click *Finish*.

Now that all of the data tables are opened, the map and cross section can be created.

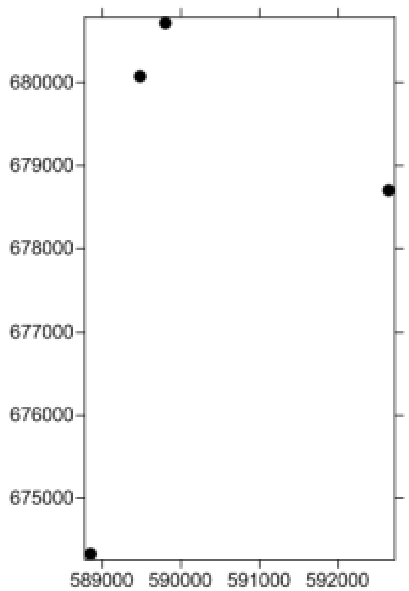
Creating Deviated Boreholes in a Map View - Tutorial

To create the deviated boreholes in the map view, a new map view must be created with the wells map layer. The properties of the wells layer are then edited to display the deviations from the survey table.

Creating the Map

1. Click the **Home | New | Map View** command or click the  button to open a new map view.
2. Click the **Map | Create | Well Map** command to create a new well map layer.

The wells map is created, showing a point at each well location on the map.



The map is created with the well locations for each well in the collars table.

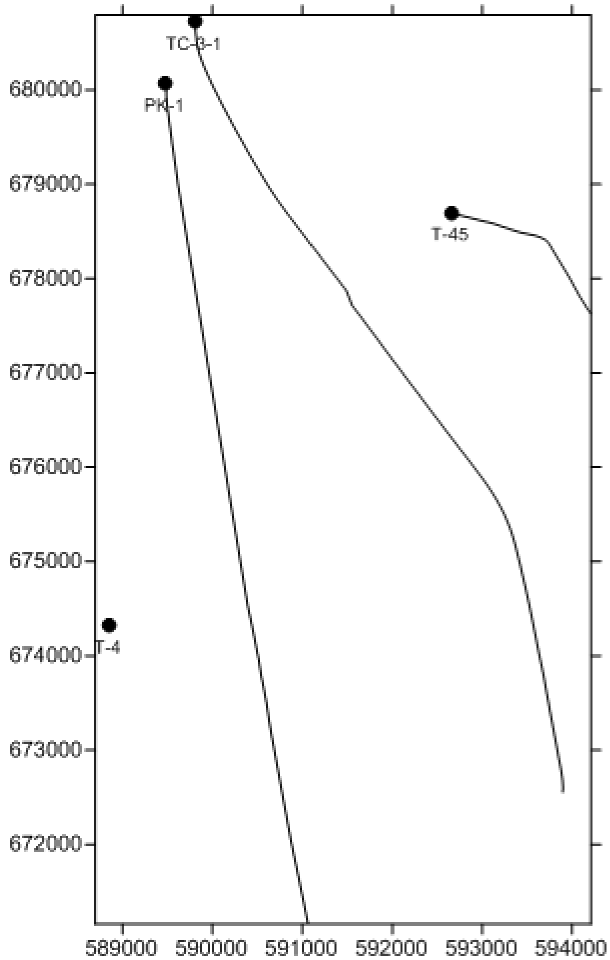
Displaying the Map with Deviated Wells

Once the map is created, the wells layer can be edited to show the deviations.

1. Click on the *Wells 1* layer in the **Object Manager** to select the well map layer.
2. In the **Property Manager**, click on the **Wells** tab.
3. Check the box next to the *Show Deviation Path* option.
4. Click the empty box next to *Deviation Table* and select *[Survey Table]*.
5. To show the well labels, click on the **Label** tab.
6. Click on the *[None]* option next to *Label 1* and select *Hole ID*. The borehole names are added to the map.

The wells map updates to show the deviation on the two center wells. The far right T-45 well's deviation path is outside the limits of the map. To update the limits,

1. Click on the *Map 1* object in the **Object Manager** to select the entire map.
2. Click on the **Limits** tab in the **Property Manager**.
3. Click the *Fit All* button next to the *Fit All* command. All of the wells and their deviations are displayed.



The well locations and deviation paths are displayed in the map view.

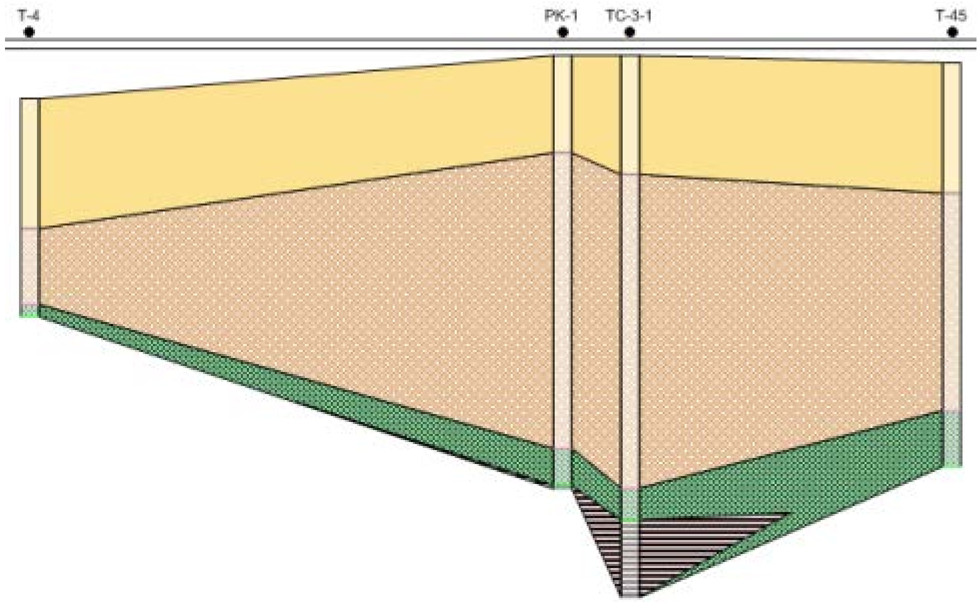
Creating Deviated Boreholes in a Cross Section View - Tutorial

To create the deviated boreholes in the cross section view, a new cross section view must be created with the wells to be displayed. The properties of the cross section are then edited to display the deviations from the survey table.

Creating the Cross Section

1. Click the **Home | New | Cross Section View** command or click the button to open a new cross section view.
2. Click the **Cross Section | Create / Add | Create Cross Section** command to create a new cross section.
3. In the **Create Well Selector** dialog,
    a. Click on the T-4 well in the *Wells in selector* list. Click and hold the left mouse button and drag the T-4 well to the top of the list.
    b. Click on the T-45 well in the *Wells in selector* list. Click and hold the left mouse button and drag the T-45 well to the bottom of the list.
    c. Click *OK*.
4. In the **Import Cross Section Data** dialog, notice that *Lithology/Zone bar log* is selected and that each *Hole ID* has a *Table* and *Data Column* defined. Click *OK*.
5. To show the well labels, click the **Cross Section | Create / Add | Add Well Headers** command.

The cross section is created, showing a lithology log for each well and the connecting layers between wells.



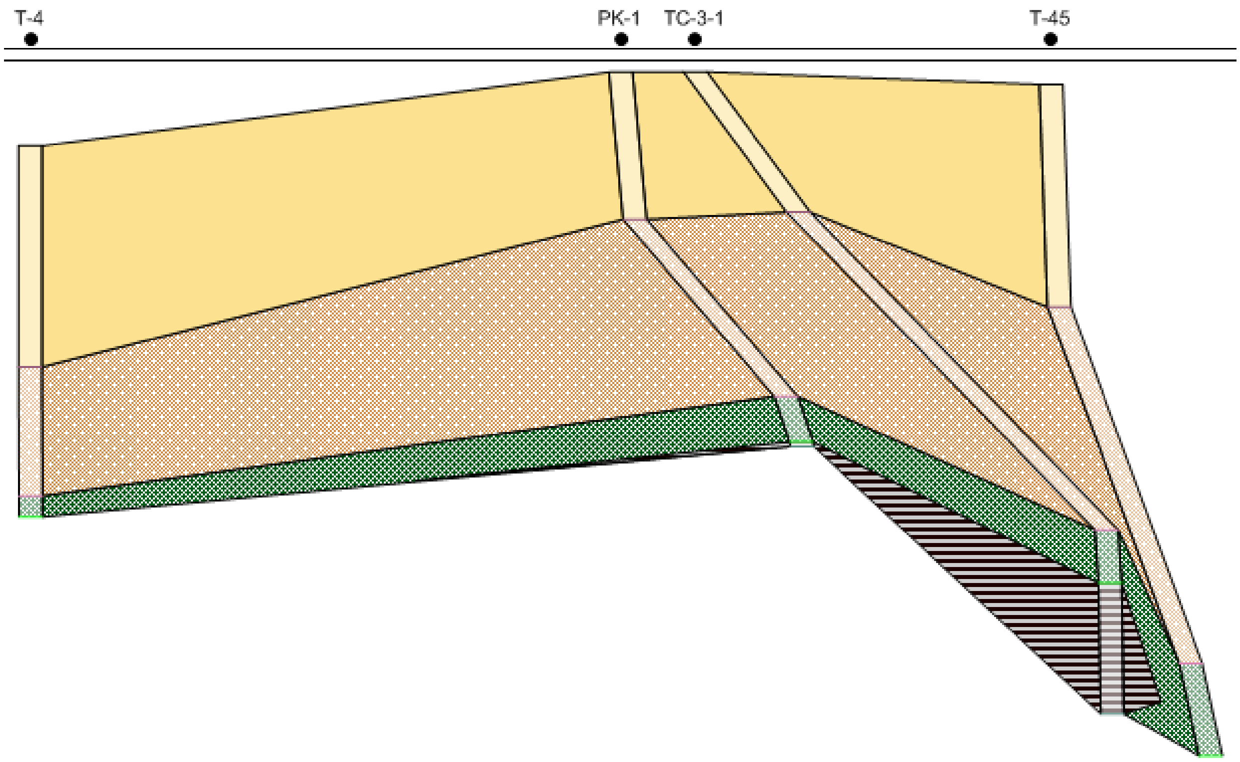
The original cross section is created with the wells displayed as vertical.

Displaying the Cross Section with Deviated Wells

To change the wells so that the deviation paths are displayed, the *Logs* layer, *Cross Section* object, and cross section View properties need to be edited.

1. Click on the *Logs* item in the **Object Manager**.
2. In the **Property Manager**, click on the **Logs** tab.
3. Set the Hole Inclination Column to [From survey table]: Survey.
4. Notice that the *Hole Azimuth Column* automatically changes to the survey table.
5. Click on the *Cross Section* object in the **Object Manager**.
6. On the **Cross Section** tab, check the box next to the *Display Logs As Deviated* option.
7. If desired, click *Yes* in the dialog so that the *Depth Method* is automatically set to *True Vertical Depth*. Alternatively, click *No* and set the *Depth Method* manually.
    a. Click the **View | Display | View Properties** command.
    b. Click on the **View** tab in the **Property Manager**.
    c. Set the Depth Method to True Vertical Depth.
8. If prompted to recreate the cross section, click *Yes* and the deviated wells are displayed in the cross section view.

The cross section is updated showing the deviations for the wells.



The wells in the cross section are updated to show the deviations.

Congratulations! You have now completed all of the advanced tutorial lessons.

Chapter 3 - Data and Data Tables

Tables

There are several table types in **Strater**: collars, depth, interval, and text item. There are also a few specialized table types based on the four main table types: lithology, project settings, survey table, and well construction. Most of these table types contain required columns. For example, interval tables require *From* and *To* depth or elevation columns.

Creating New Tables

To create a new table select **Home | New | Table** or click  . The **Create New Table** dialog opens. You can add data to the new table by clicking its tab and selecting **File | Import**.

Data Organization

The data to be represented in boreholes needs to be in column and row (record) format.

Columns

Each column contains three properties: a name, description, and units. The description and units are optional for every column.

If a column is required for a particular table type, for example the *To* column in an interval table, the column name cannot be changed. However, optional column names can be changed. If the *Column Name* has a gray background in the **Column Editor**, the column is required and the name cannot be changed.

Columns can be added and deleted by either selecting **Data | Edit | Append** or selecting a row, right-clicking, and selecting *Append Column*.

Rows

Typically, each row in the data is devoted to a depth or an interval in the borehole. Rows can be added by clicking the **Data | Edit | Insert** command, right-clicking and selecting the *Insert Rows* command, or by typing data into a new row.

Schemes and Tables

Strater uses schemes when "linking" the data in a table to a borehole design. A scheme associates information from the data table (such as text entries (keywords) or number ranges) with fill properties, line properties, font properties, etc. When **Strater** locates a keyword or number range in the column, the borehole is assigned the keyword or number range properties for the depth, interval, or well construction item. Scheme item names can be automatically created with **Table | Table | Create Scheme**.

Data Selection

Use the cursor to drag and select any number of conterminous cells and rows.

File Formats

Strater can read numerous file formats such as data files (including Excel spreadsheets and ASCII text files), databases, and LAS files. **Strater** can also link to virtually any database system installed on your computer using the Data Link Source.