GEOSOFT

Target How-To Guide

Creating Maps in Target

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I shall forthwith discontinue use of the Licensed Program(s), on the day Termination shall occur and agree not to resume such use in the future without written authorization from GEOSOFT.

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In no event shall GEOSOFT be liable for any damages arising from performance or non-performance of the Licensed Program(s), or for any lost profits, lost savings or other consequential damages, even if GEOSOFT has been advised of the possibility of such damages, or for any claim against me by any other party.

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The provision of this Agreement shall be binding upon me and GEOSOFT and my respective successors and permitted assigns.

This Agreement will be governed by the laws of the Province of Ontario and applicable laws of Canada.

11. YEAR 2000:

The Licensed Programs have been tested to conform to DISC PD2000 1:1998 Year 2000 Conformity Requirements (www.bsi.org.uk/disc/year2000/2000.html), with the exception of clause 3.3.2, paragraph b. Section 3.3.2 paragraph b) requires that inferences for two-digit year dates greater than or equal to 50 imply 19xx, and those with a value equal to or less than 50 imply 20xx. The Licensed Programs will recognize all two digit years as 19xx. This is to prevent errors importing historical data that pre-dates 1950. All dates that follow 1999 must use four digit dates in the Licensed Programs

Finding Help Information

Target provides help information through two different interfaces: the Online Help System and Technical Documentation. The Online Help System, which can be access by clicking the **Help** button on the individual dialogs or by selecting the **Help|Help Topics** menu, can be used to locate context sensitive (GX) information, as well as access **Contents**, **Search** and **Favorites** tabs. For new users we recommend that you read the Getting Ready to Work with Target How-to Guide, which will introduce you to the main concepts of Target.

The How-to Guides, Tutorials, and Technical Notes system, accessed through **Help|Manuals and Tutorials** menu contains full-length PDF documents that can be printed. The most up-to-date How-to Guides, Tutorials and Technical Notes can be downloaded from the Geosoft website at (http://www.geosoft.com/support/downloads/tecchnical-documentation).

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About the 3D Viewer

The 3D Viewer has been redesigned to streamline your workflow and enhanced usability. The 3D Viewer provides all of your 3D-mapping tools, functions and settings in one integrated 3D environment. The Drill3D map viewer unique to Target includes drillhole traces and attributes, voxels, grids, image files, Isosurfaces and map surrounds.

When you display a 3D view, either by using the **3D|Open 3D Viewer** menu option, or by selecting (doubling-clicking) a 3D view in the *View/Group Manager Tool*, or by simply double-clicking a 3D view in an open map file, the 3D view will be displayed in the 3D Viewer.

What can I do in the 3D Viewing Window?

The following interactive viewing buttons are provided on the toolbar directly above the 3D Viewing window.

The parameters available in the *3D Tools* window are dependent on the type of 3D group currently selected. Each group enables you modify different aspects of the 3D view within the 3D Viewer.

What information is available on the Status Bar?

The status bar across the bottom of the 3D Viewer, displays helpful navigation hints, along with the current 3D view's coordinate system, the shadow cursor location, the view's inclination, declination and look-at point (centre of rotation).

To modify or edit 3D views requires a licensed version of Oasis montaj or Target.

You can begin creating a 3D view once all the appropriate project information has been imported into your drillhole databases; collar, survey, assay, and any other data that you are using in your drillhole project.

Drill 3D Tool

The Drill3D Tool developed for Geosoft's Target Surface and Drillhole Mapping applications enables you to display drillhole, surface and other data types in an interactive three-dimensional environment. Drillholes are displayed in their "true" three-dimensional location and can have up to two different data types plotted along their trace. You can begin creating a Drill3D view once all the appropriate project information has been imported into your drillhole database.

Grids created in "sectional" views (e.g., from Target, Interactiv IP or Extracted from Voxel grids) can be displayed directly into the 3D view, in their correct orientation, using Geosoft's "on-the-fly" technology. Other grids and images (including bitmaps and jpegs) can be opened and easily located in any specified orthogonal plane.

3D Voxel grids can also be displayed in a 3D drillhole map and modified using the 3D Tool. 3D Voxels can be created in Target using the **Voxel|3D Gridding** menu item.

Using the 3D Tool you can interactively control the transparency of the individual planes (groups), enabling the data to be displayed with a cumulative (light-table) effect. Data such as MapInfo tables and 2D DXF files can be imported directly into the 3D environment and drawn on any surface displayed in the current 3D view.

The **View|Group Manager Tool** enables you to toggle on/off individual groups in the 3D view, enabling changes to the displayed data, without having to recreate 3D maps.

All data in the Target environment is dynamically linked; from the database through cross-section and map through to the 3D environment.

Creating a 3D Map

3D maps provide a new perspective to traditional drillhole data. You can now view borehole traces and gridded data from different angles—in 3 dimensions, making it easier to spot the relationship between surface and sub-surface features.

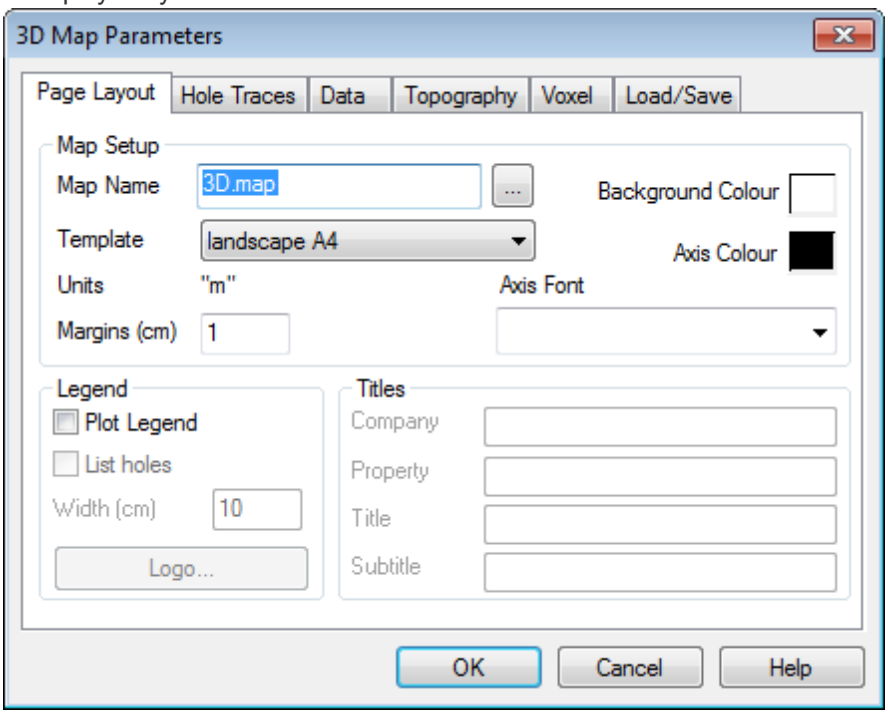
You can also now create a 3D Voxel grid, using the 3D Kriging gridding method, and display the Voxel grid in a 3D section map.

Before you can start creating your 3D maps you first must select the drillholes you want to view in your section.

The 3D map options are provided in easy-to-use tab dialogs, enabling quick access to all the settings from a single dialog. The dialog includes sensible defaults; enabling easy creation of your 3D map.

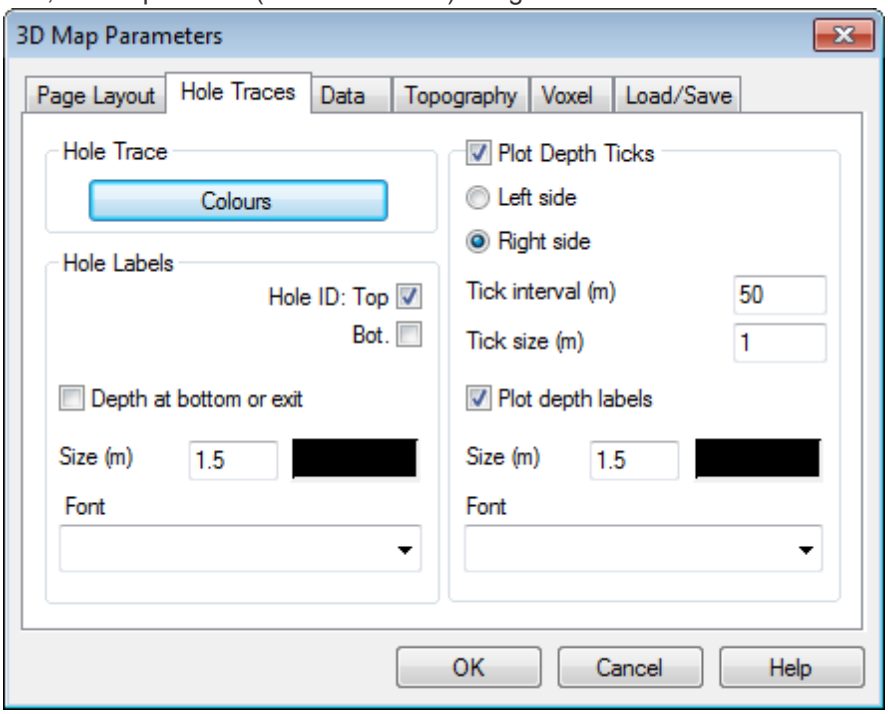
To Create a 3D Map

1. On the **DH-Plot** menu, select **3D map**. The Page Layout tab, on the *3D Map Parameters* dialog, is displayed by default.

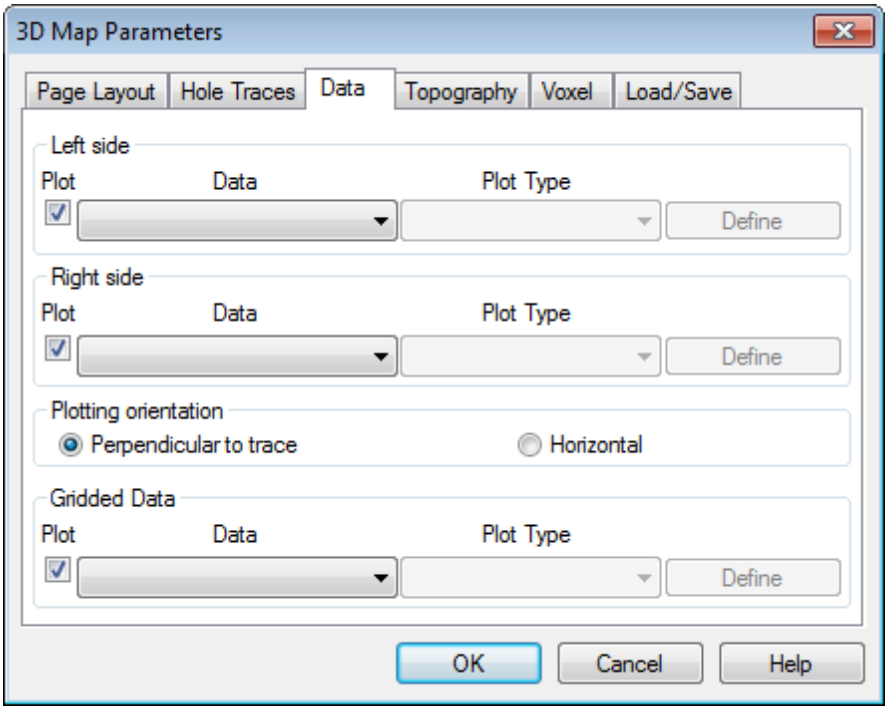


2. Control the following page layout parameters from this tab; the Background Colour of the 3D view, the Axis Colour and Font used for annotating the 3D view, selecting to Plot Legend (right side of map), including company Logo (image file) and specifying the map Titles.
3. Select the **Hole Traces** tab. This tab dialog includes the following drillhole trace parameters; the Colour of the Hole Trace, the Hole Labels including location, annotations, text size, colour and

font, and Depth Ticks (annotations etc.) along the hole trace.



4. Select the **Data** tab. The Data and Plot types are selected from dropdown lists, just as you would select data for your Plans or Sections to be plotted.

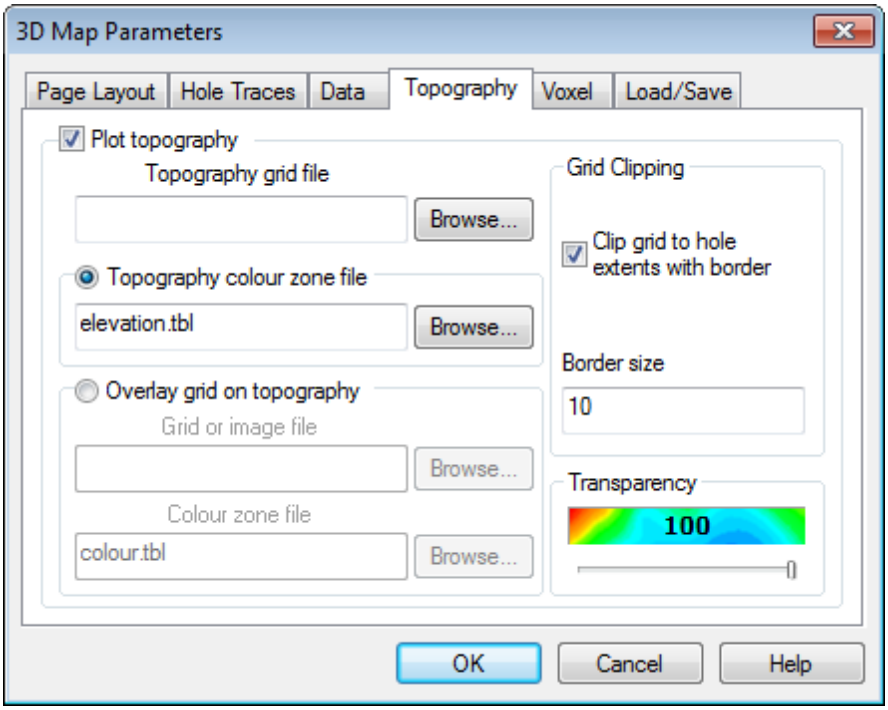


⚠ *In 3D only two sets of data can be plotted down hole along the trace (Left side and Right side). When these data appear in the 3D Viewer, the point-of-view will always remain the same, no matter how the image is rotated, panned or zoomed.*

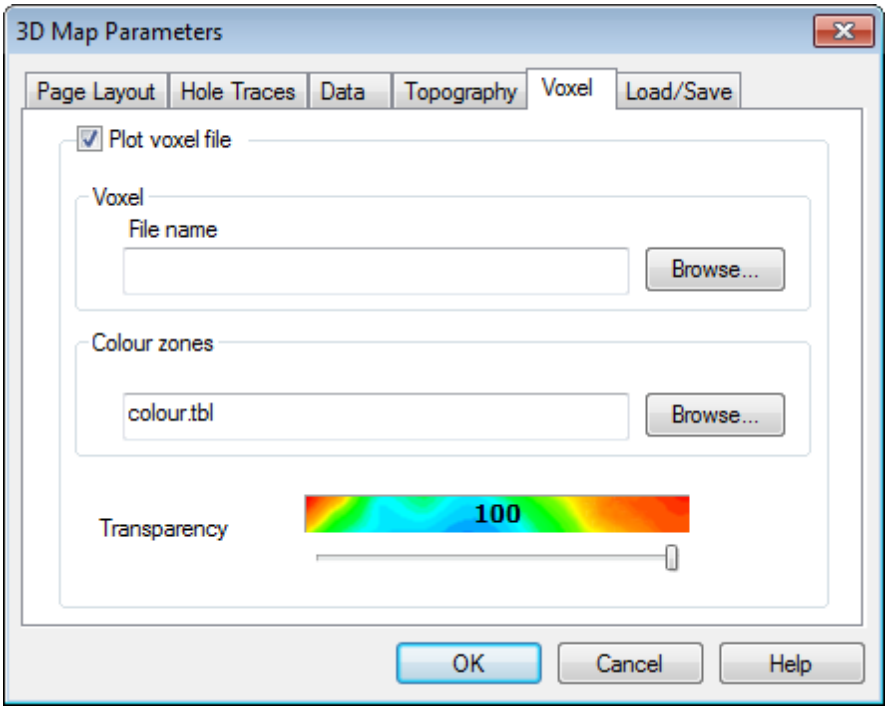
5. In the Plotting Orientation section, select to plot your data as Perpendicular to trace or Horizontal to the hole trace.
6. Plan oriented gridded data can be created from this tab. The three available gridding methods are Minimum curvature, Kriging and a TIN based technique. To define the gridded data parameters, click the **Define** button. The specified *Gridding* dialog will be displayed.
7. The Data channel (column) to be gridded is displayed. You can add a File name tag to the grid; this is useful when distinguishing between grids created using different gridding parameters. The Cell size can be left to the "intelligent" default, which is one quarter the average data separation based on a statistical average.
8. The Colour zone file can also be left to the default file, or your own zone file (*.itr, *.tbl, *.zon) can be selected.
9. The Location section of the tab enables you to specify the Relative Level (elevation of grid) and the Averaging Interval (data within this elevation interval will be used to create the grid. Note that the data values are averaged for this thickness).
10. The Multiple Grids section enables you to specify the Number of grids to create and at what Increment. (For example, 3 grids with a Relative Level of 225 and an Increment of 50 downwards,

you will create grids at 225RL, 275RL and 325RL).

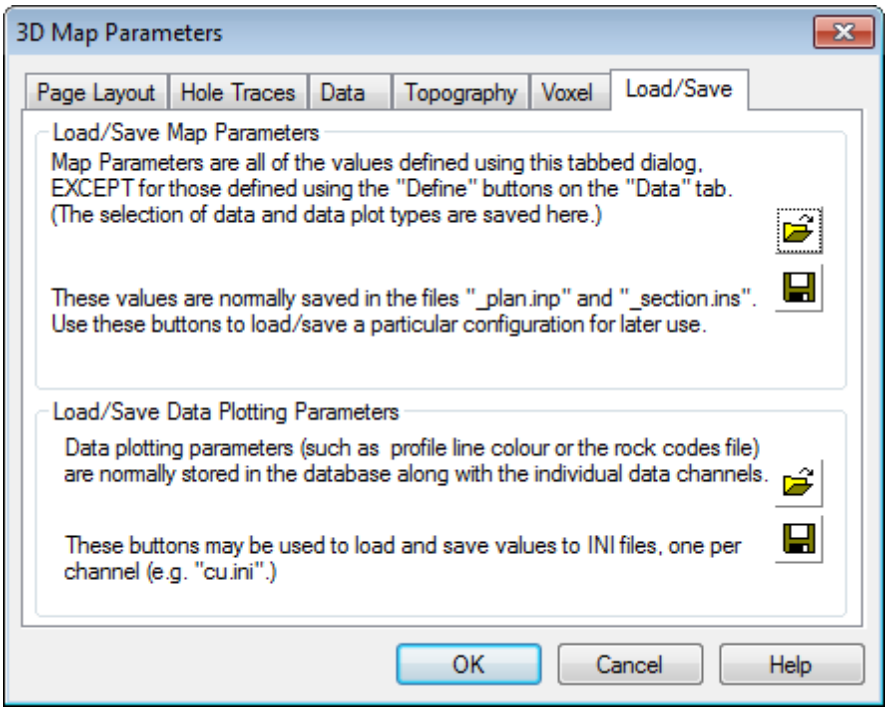
11. To specify additional gridding parameters, such as Log options etc., click the **Advanced gridding options…** button. The *"Gridding" – Advanced Options* dialog is displayed. For detailed technical information, click the **Help** button. When you are satisfied with your selections, click the **OK** button on the *Advanced Options* dialog.
12. The final parameter on the *"Gridding" parameters* dialog is Transparency. Using the slider you can control the level of transparency of the gridded data in the 3D view. Click the **OK** button on the *"Gridding"* dialog to return to the *3D Map Parameters* dialog.
13. Select the **Topography** tab and check the Plot topography box to enable the topography parameters. Then, using the **Browse** buttons, locate the Topography grid file and the Overlay grid on topography file.



14. To enable the Grid Clipping check the appropriate box, and specify the Border size in ground units. Then, using the Transparency slider set the transparency of this plane.
15. Select the **Voxel** tab. Check the Plot voxel file box to enable the voxel parameters and using the **Browse** button, locate the Voxel grid file. Using the **Browse** button, locate a Colour zone file. (Note that, the default Geosoft *.tbl files can be located in the '…\Oasis montaj\tbl' directory.) Then, using the Transparency slider set the transparency of the Voxel.



16. Select the **Load/Save** tab. This tab is used to save the map and data parameters to a file for either sharing with other users or so these particular map settings can be used at a later date.



17. Click the **OK** button and the 3D map will be created and display in your 3D Viewer.

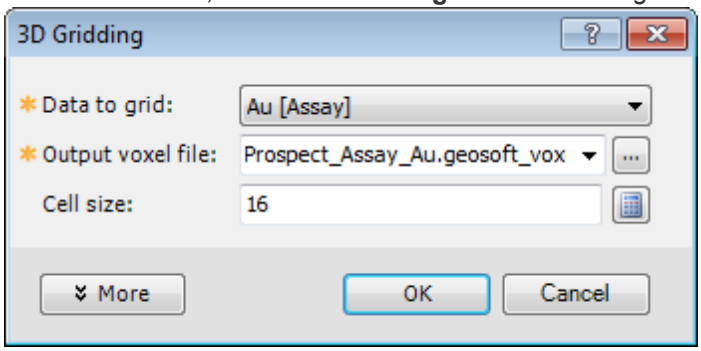
To help in viewing all of the data, open the 3D Tool (right-side of 3D Viewer window) and select the Voxel tab. Make sure the Transparency slider is set to approximately 50%. You can also modify the X, Y, Z and Data sliders. Modifying the Data slider (moving the left side towards the right) is the same as windowing the lower values of your data, enabling easier viewing of all of your 3D data.

Create a 3D Voxel Grid

You can easily create a 3D Voxel grid (**3D|3D Gridding**), using the 3D Kriging gridding method, and display it in a Target 3D section map. Additional Voxel tools are provided enabling you to, report and modify Voxel information including, statistical and coordinate system information, create new Voxels based on mathematical expressions or clipped (windowed) areas, copy and convert Geosoft Voxels into a number of other data formats (and visa versa). Users are also provided with the tools to extract section grids, plan grids, and Isosurface (contours) from a Voxel and plot them to a Target 3D map.

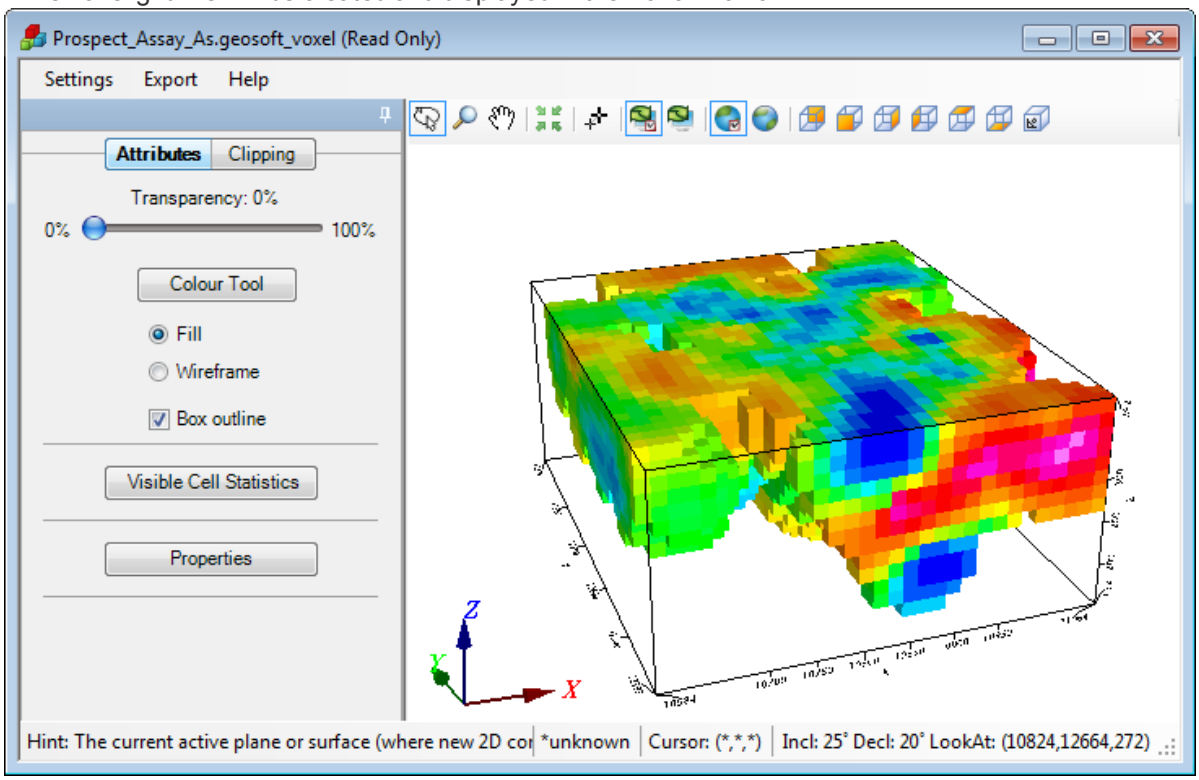
To create a Drillhole 3D Voxel Grid:

1. Select the holes you would like included in your 3D Voxel grid using one of the **DH-Plot|Select holes** menu items.
2. Select (highlight) the project database containing the data you want to use to create the 3D Voxel.
3. On the **3D** menu, select **3D Gridding**. The *3D Gridding* dialog is displayed.



4. Using the Data to grid dropdown list, select the data channel to grid. The Output voxel file box will then automatically be updated with a default file name. Note that the extension (.geosoft_voxel) is also added to your voxel name.
5. To determine the default Cell size click the **Calculate** ( ) button, which calculates the default cell size for your data, based on the spatial extents of the data.
6. To access advanced gridding parameters, click the **More** button. However, you can leave these parameters to the intelligent default values and click the **OK** button.

7. The voxel grid file will be created and displayed in the *Voxel Viewer*.



*The Voxel Viewer provides all your voxel settings, functions, and tools in one integrated 3D environment. The Voxel Viewer consists of an interactive dialog, with three main menus (**Settings**, **Export** and **Help**), a Voxel Viewing window and a Properties window.*

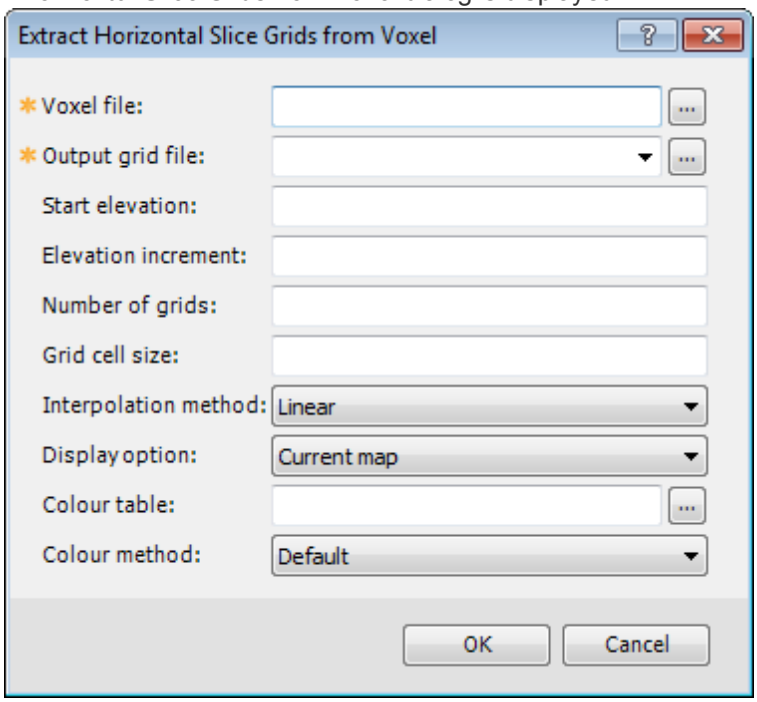
8. Display a voxel, either from the **3D|Open Voxel** menu or by selecting (double-clicking) a voxel in the *Project Explorer* window, it will be displayed in the *Voxel Viewer*.

Extract a Plan Grid (Horizontal Slice)

A “Plan Grid” (or horizontal slice) can be easily extracted from a Voxel using the **Add to 3D|Grids|Level Plan Grid(s) Extracted from Voxel** option. Users can select the start elevation, the elevation increment and the number of grids to extract. (e.g., 225RL, 275RL and 325RL).

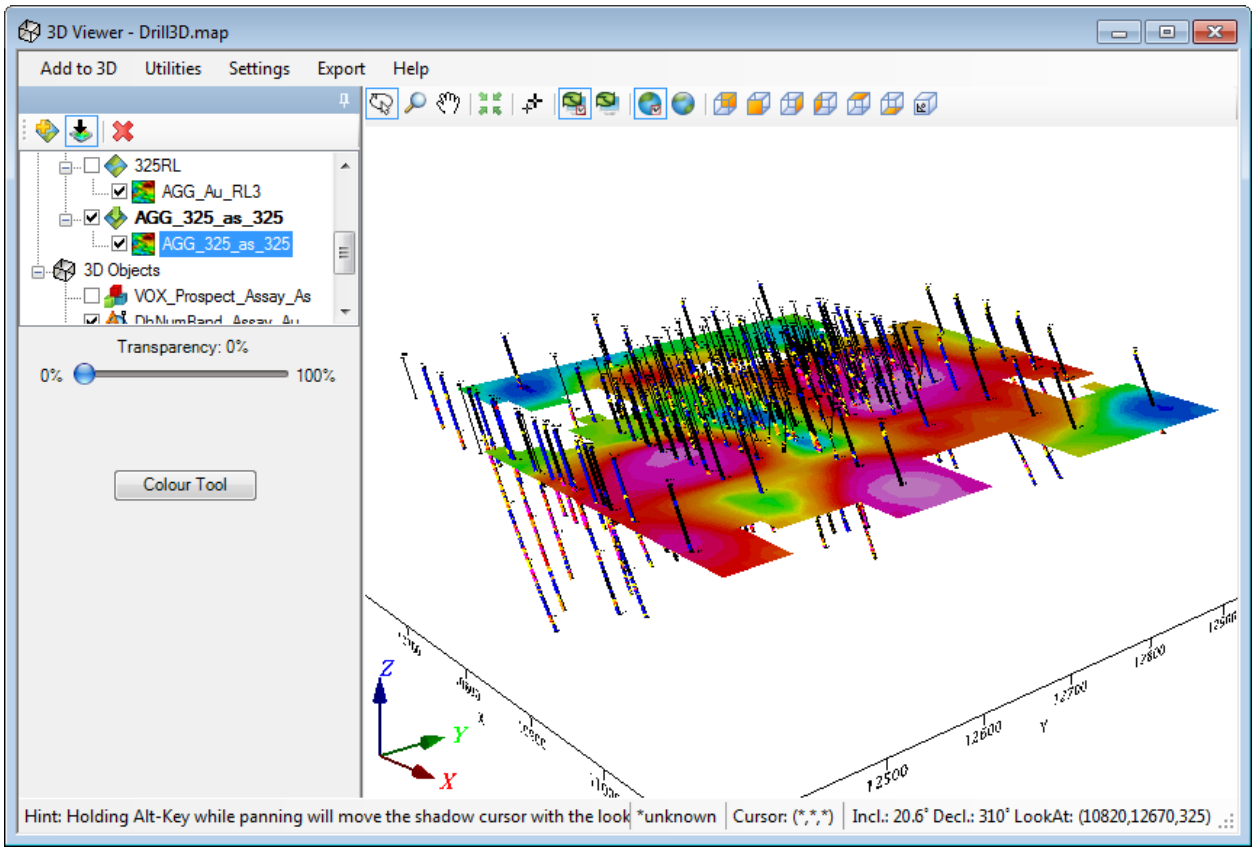
To Extract a Plan Grid:

1. On the **Add to 3D** menu, select **Grids|Level Plan Grid(s) Extracted from Voxel**. The *Extract Horizontal Slice Grids from Voxel* dialog is displayed.



2. The voxel file should be selected by default, if not use the **Browse** button to locate the file in your current working directory.

3. Specify the remaining fields, leaving values blank if you wish and click the **OK** button when you're done.The “Plan Grid” will be extracted from the voxel and displayed in the *3D Viewer*, as shown below.



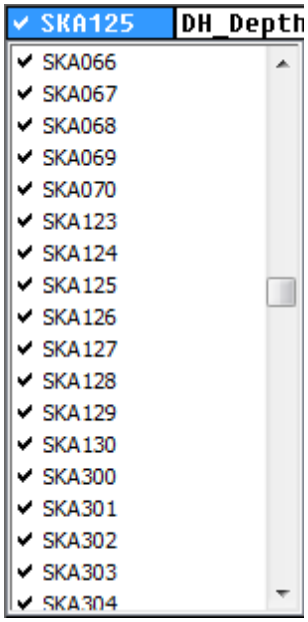
Extract a Section Grid (Vertical Slice)

Target includes the ability to extract vertical slices of a voxel grid as “Section Grids” and horizontal slices of a voxel grid as “Plan Grids”.

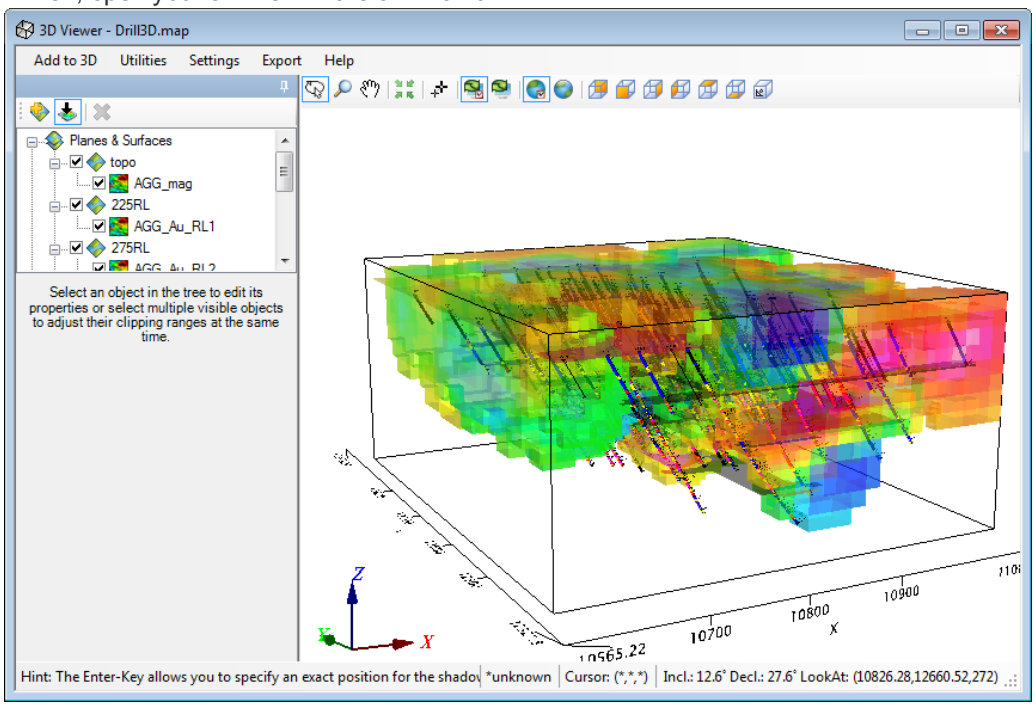
A “Section Grid” (or vertical slice) can be easily extracted from a Voxel using the **Add to 3D|Grids|Section Grid(s) Extracted from Voxel** option. The Section grid can be extracted using the voxel database or interactively from a displayed map. To use the interactive map method, you should first have a “Plan Map” open and selected in your project, you will be prompted to interactively select a profile line from the open Plan map.

To Extract a Section Grid:

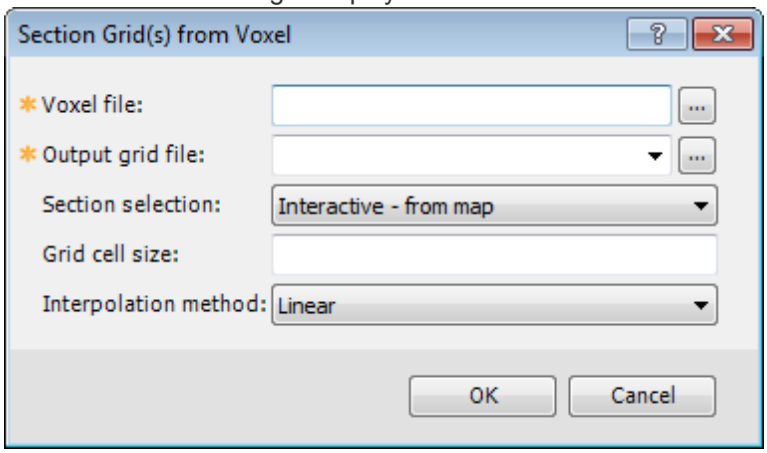
1. Open and select the project database file that was used to create the voxel. Then, right click on your drillhole name header cell and select **List**. using the Line/Group Header Cell dropdown list, select a drillhole.



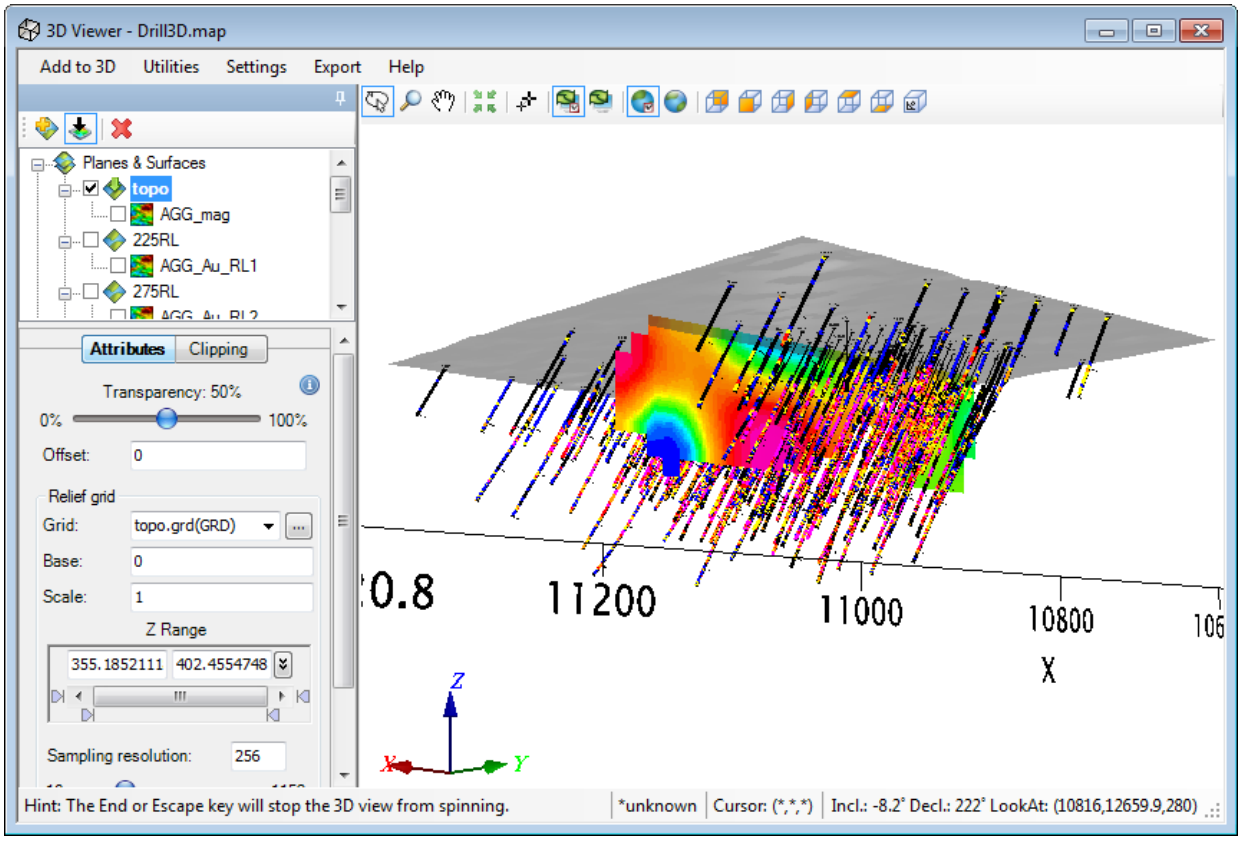
2. Then, open your 3D view in the *3D Viewer*.



3. On the **Add to 3D** menu, select **Grids|Section Grid(s) Extracted from Voxel**. The *Section Grids from Voxel* dialog is displayed.



4. The Voxel file should be selected by default. If not, use the **Browse** button to locate the file in your current working directory. In the Output grid file box specify a name for your output grid.
5. Using the Section selection dropdown list, select the method you would like to use to choose your section and we will leave the Grid cell size to the default value.
6. Specify the Grid cell size and Intropolation method and click the **OK** button. The “Section Grid” will be extracted from the voxel and displayed in the *3D Viewer*, as shown below.



You will need to hide (uncheck) some of the 3D groups displayed in the 3D Viewer to clearly see the extracted section grid.