DrillXS

Drillhole Plotting Software

Version 3.4 March 2024

Quick Start

1. Download CheckSystem.accde from the drillxs.com website.
2. Follow instructions on the form, email the text string as the subject line to admin@drillxs.com.
3. A free trial database will be emailed to you, install it in the same directory as CheckSystem.accde.
4. Open the database, enter the password supplied to you, AutoCAD should also open at the same time.
5. Click on the red PLOT button, a plot of the trial data should appear in AutoCAD.
6. Configure AutoCAD according to your preferences, but probably a white background is best (set in preferences), a 3D modelling workspace is best, and select conceptual or realistic in the view. Enter rotate 3D to view the plot in 3D.
7. You can scroll to 11 different example plots highlighting DrillXS features.
8. How to set up your data is detailed below.

Introduction

Drills is a Microsoft Access database using a combination of the Microsoft Access and Autocad VBA object libraries to plot drill cross sections, plans and point data in Autocad when linked to a drilling database. The name is derived from drill X=cross S = section XS also sounds like Access.

Drillxs can in 3d plot:

- Drill hole traces with any number of related attributes as values, colored values, colored bars, histograms, line graphs, cylinders and hyperlinks.
- Structural data as planes and dip symbols.
- Points in eight different formats.
- A grid in plan or cross section view, or a grid cage.
- A scalebar, title box, and legend.

Plotted data is in true 3d and can be viewed from any angle, rendered or sliced using the existing features of Autocad. Multiple cross sections or plans can be batch produced.

These explanatory notes are purposefully short, it assumes you have DrillXS working and can scroll through the plot examples. Access the yellow colored help controls in DrillXS for an explanation of individual features.

Using DrillXS for the first time

Software requirements

1. Windows 10 or higher
2. Any current version of AutoCAD, preferably AutoCAD map 3d, but not AutoCAD LT. (Available only as a subscription, with a one-month free trial)
3. Microsoft Access 2013 of higher.
4. DrillXS also works on earlier versions of AutoCAD-see (9) below for details.
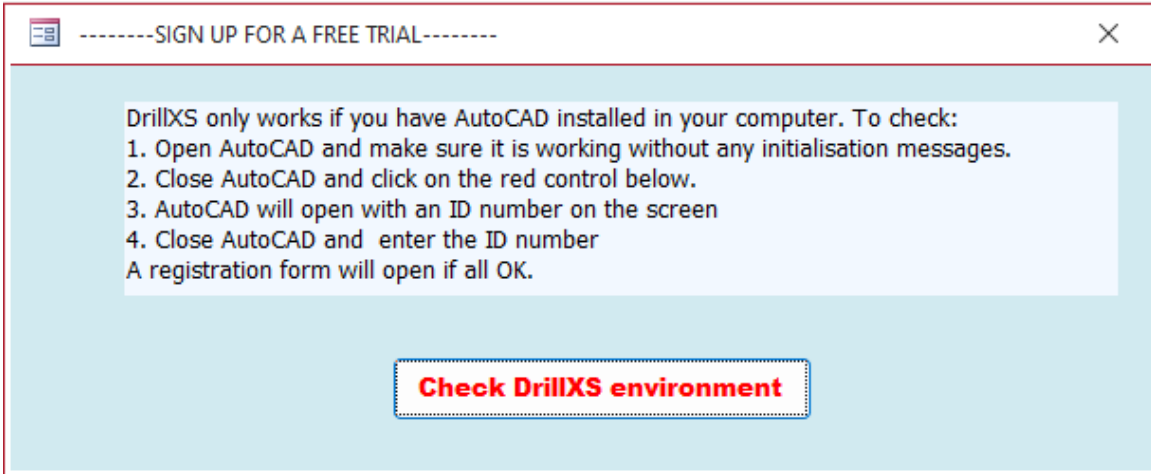
Hardware requirements

A computer with the same system requirements as AutoCAD, especially a good graphics processor. A two-screen setup is preferable, so that Drillxs can be displayed on one screen and Autocad on the other, although it will still work on one screen.
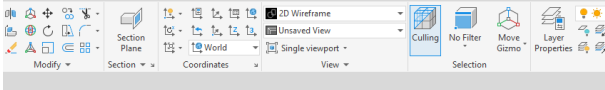
Installation

1. Download CheckSystem.accde from the DrillXS website (www.drillxs.com) and place it in your working directory, which will also be the working directory for DrillXS . The database which will be sent to you is hard wired to this directory and will not work in any other directory.
2. As for all .accde files you will get a security warning about macros when you open the file. If so, right click on file properties and in the general tab click on unblock.
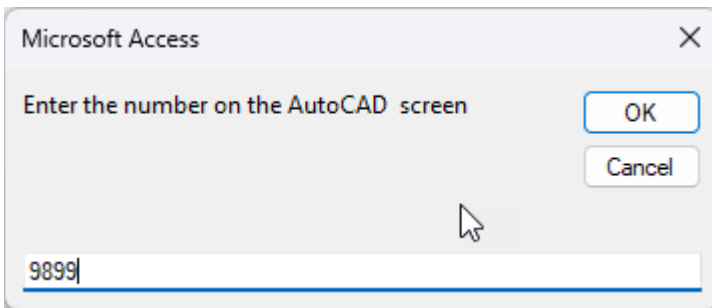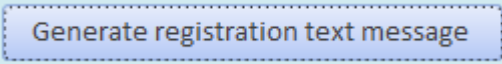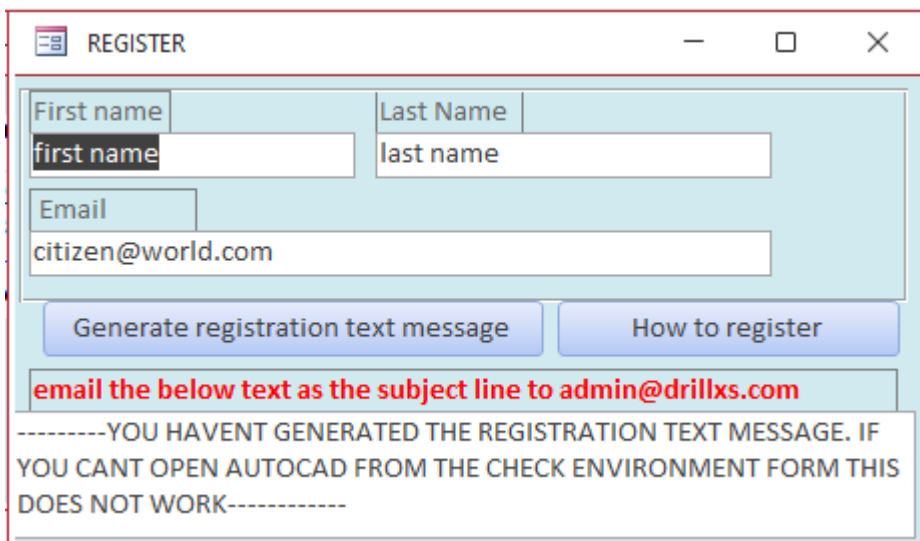
3. Follow the instructions on the form.

┌───┐
│ ▣ --------SIGN UP FOR A FREE TRIAL--------   ✕ │
├───┤
│   │
│ DrillXS only works if you have AutoCAD installed in your computer.   │
│ To check: │
│ 1. Open AutoCAD and make sure it is working without any   │
│   initialisation messages.   │
│ 2. Close AutoCAD and click on the red control below.   │
│ 3. AutoCAD will open with an ID number on the screen   │
│ 4. Close AutoCAD and enter the ID number   │
│ A registration form will open if all OK.   │
│   │
│   │
│   ┌─────────────────────────────┐   │
│   │ Check DrillXS environment │   │
│   └─────────────────────────────┘   │
│   │
└───┘

4. If you have AutoCAD installed, AutoCAD will open and the following message will appear:

YOU HAVE SUCCESSFULLY OPENED AUTOCAD.
ID=
9899

┌───┐
│ Microsoft Access   ✕ │
├───┤
│   │
│ Enter the number on the AutoCAD screen   │
│   ┌────────┐ │
│   │   OK   │ │
│   └────────┘ │
│   ┌────────┐ │
│   │ Cancel │ │
│   └────────┘ │
│   │
│ 9899   │
│ _____ │
└───┘

5. Enter the number then a registration form will appear, Fill in the details in the top part of the form.

6. Click on [Generate registration text message] and a registration text string is generated.

7. Copy and paste this to the subject line in an email and send to admin@drillxs.com.

8. A trial database, drillXS.accde will be sent to your email address. Download and install it in the same directory as CheckSystem.accde. You may need to unblock the file, as per the directions in (2) above.

9. If you don't have the latest version of AutoCAD then email drillxs.com. The application works on old versions of AutoCAD back to the 2016 version, but it needs to connect to an older version of the type library. The connection can be changed on request, because drillXS is a compiled acccde file this can only be done by software support.

The Configure and Plot Form

On opening drillxs.acccde the main form will appear and AutoCAD will open at the same time.
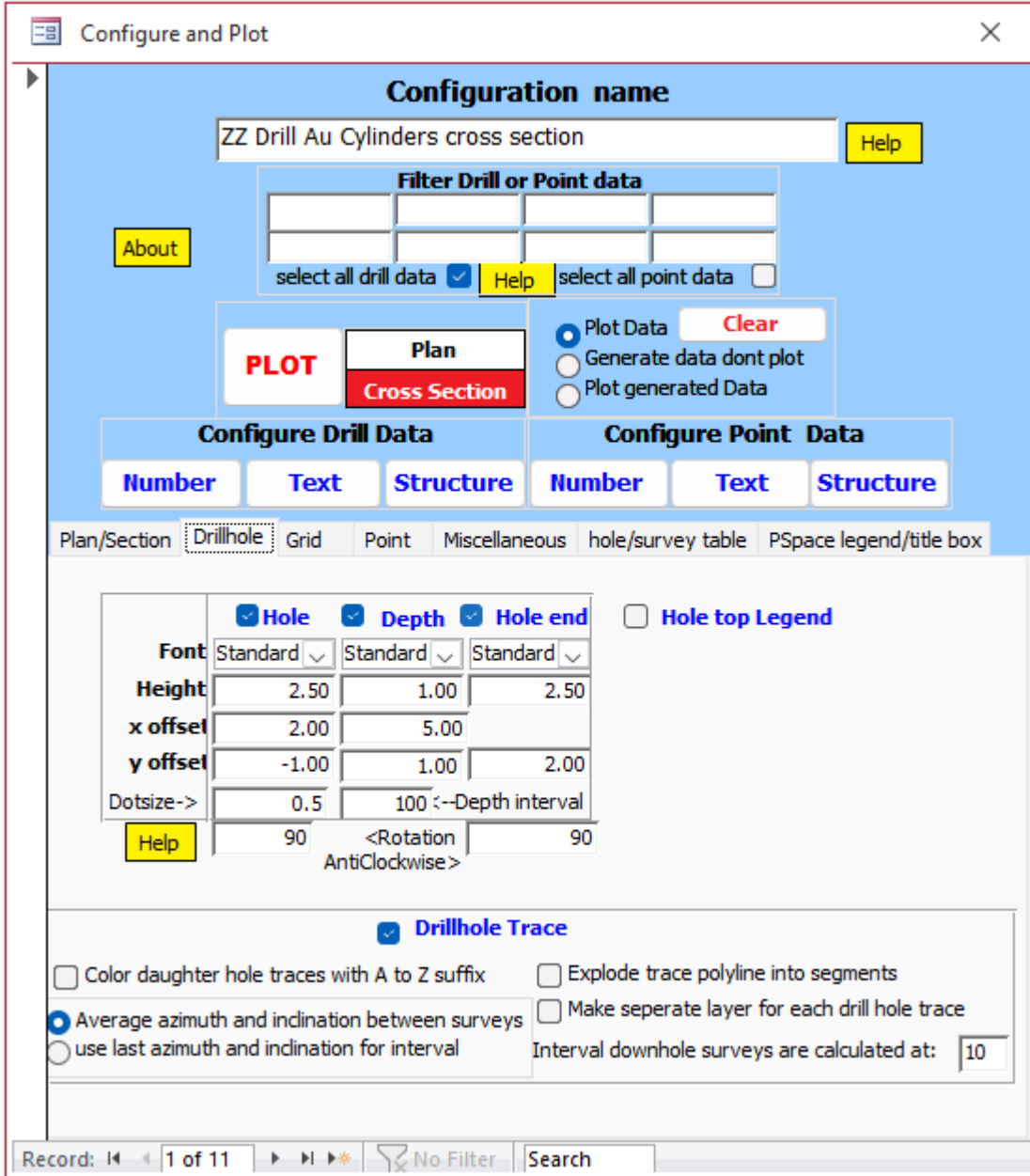
If you have more than one version of AutoCAD installed at the one time, for example AutoCAD, AutoCAD Map3d, AutoCAD Civil3D, then the last version closed will be opened.
If you have a two-screen setup then move DrillXS to one screen and Autocad to the other.

Plotting Options

From the top of the form down the following controls the plot in Autocad.

You can have many configuration names, each one has its own set of configurations in the other controls below:

▶	Configuration name	
	ZZ Drill histograms and colored bars	Help

How to filter:

Filter Drill or Point data			
BSD53%			
select all drill data ☐	Help	select all point data ☐	

Plot in plan or cross section and accumulate data:

PLOT	Plan	○ Plot Data Clear
	Cross Section	⦿ Generate data dont plot
		○ Plot generated Data

Select and configure which data to plot:

Configure Drill Data			Configure Point Data		
Number	Text	Structure	Number	Text	Structure

And other options:

Plan/Section	Drillhole	Grid	Point	Miscellaneous	hole/survey table	PSpace legend/title box

Select the yellow help controls in each section for more information.

Additional explanation is probably needed for the following:

Cross section or plan

Select Cross Section or Plan options are automatically changed to suit the view. Text is also rotated to suit the view, but both options are still plotted in 3D.

Accumulate Data

Except for drill hole traces, which are polylines, all other data to be plotted is first generated as blocks and then stored in tblPlotData before being plotted. There are three options to plot the data:

Plot data option – plot data directly to Autocad, including drill hole traces if this option is selected. If there is no Autocad available you will get the following message:

Microsoft Access

There is no connection to Autocad so plotting cannot continue, but the data has been generated anyway and can be found in tblPlotData.Do you want to view this data?

Yes   No
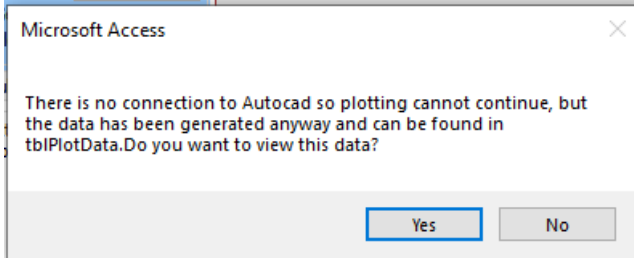
And tblplotdata will open. All previous data is deleted when you use this option.

Generate data don't plot option- generate data and store in tblplotdata, when complete you will get the following message:

Microsoft Access

The data has been generated and can be found in tblPlotData. Do you want to view this data?

Yes   No
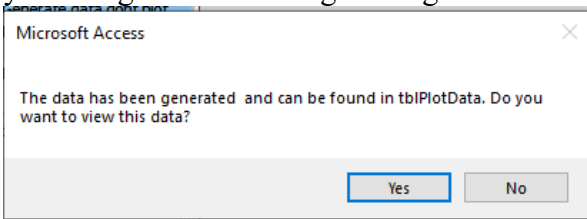
And tblplotdata will open.

This data will be added to any previously plotted data unless you delete the previous data using the   **Clear**   button. You can also add new data by repeating this option as mant times as you want. Drill hole traces are not stored.

Plot generated data option- you can plot the generated data stored in tblplotdata.

Configure Drill and Point Data

Click on the blue controls to open the relevant form or forms (see below) You can open and work interactively with these forms while plotting or close them if you have a more permanent plot configuration.

For each record in the *configure and plot form* you can have any number of drillhole data connections but they all must have the same survey and drillhole table in common. Or for the point data the same coordinates in common.

A typical example of tables used in the database is shown below. The tables can be actual tables in the database or linked to external tables using the links available in *MSAccess linked table manager.* So for example you can link to another Access database, an SQL server database or excel spreadsheets. You do not need to have any relationships between tables, but, as for MS Access in general it is a lot better if you do. Also, the lookup and assay tables can be incorporated within the table they are linked to.

For point data types instead of hole, from and to fields in the tables substitute ID, X,Y and Z fields.

Drill number data can be plotted as histograms, line graphs, colored bars, colored numbers or just numbers, with the color dependent on the value range and the histogram or cylinder scale dependent on the value if you select the option in miscellaneous options.

Point number data can be plotted as colored values, circles or squares with the color dependent on the color range and the circle or square scale dependent on the value and in a similar fashion to the drill data. Also if you select the option in miscellaneous options then, in 3D the circles are plotted as spheres and the squares are plotted as boxes.

Drill text data can be plotted as colored bars, colored cylinders, colored text, text or as a hyperlink.

The color of the text is defined in the relevant lookup table, see for example in qryLithology.

Point text data can be plotted as colored circles, colored squares or colored text or just text. As for drill text data the text color can be defined in the relevant lookup table, or just plotted as text.

Structure data in both drill and point options can be plotted as dip symbols or as planes, which are colored according to the relevant lookup table in a similar fashion to text data, see for example in qryStructure.

You can also plot **hyperlinks** to drill core or point data. **Drill hyperlinks** are related to a drill interval, for example core photos, petrology samples etc. These are plotted as a trace. Ctrl-click on the trace to connect to the hyperlink. **Point hyperlinks** are related to the text field on the plotted point. Ctrl-click on the text to connect to the hyperlink, which could be for example an outcrop photo or a petrology report. Text with hyperlinks is highlighted.
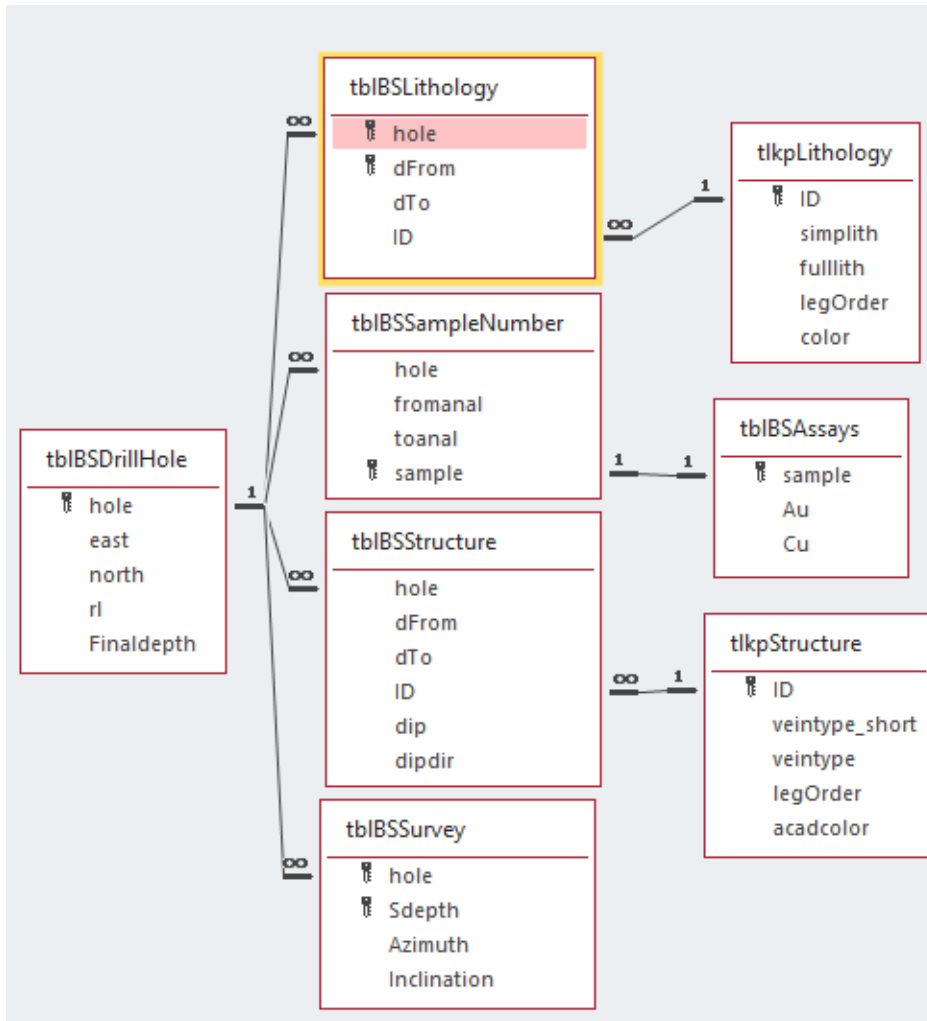
Configure String Data

This is data that has a starting point then a distance, azimuth and inclination to the next point. Two tables are required, a starting point table (default name *tblDrillHole* in this database) and survey table (default name *tblSurvey* in this database). Usually this is drillhole data but it can be anything, for example tunnel data or trench data. If you use the default names then when you go to a new record you will still be connected to these tables, for example if you want to have a new type of plot using the same survey and drillhole data. If you want to change to a new drillhole and survey table then open the hole/survey table page and follow the instructions in the yellow control (see below).

The drillhole trace, Hole number, Depth, End of hole and hole top legends are all plotted as string data. Options are shown in the Drillhole page (see below).
For the Drillhole Trace options:

- **Average azimuth and inclination between surveys** averages this data at intervals shown in the interval downhole surveys are calculated at control. As a guide, for a typical drillhole if you select 1 then the error in plotting will be about 1m for a 2000m drillhole. The trace will be split up into a polyline with 1m segments and other data will be plotted with similar accuracy, but for normal porposes probsbly a 10m calculation interval is acceptable, and the plot will be faster.
- **Use last azimuth and inclination for interval** can be used where the trace is not a curve but changes at each survey point, for example in a tunnel.

Connecting to Data.

To plot the data, you need first to connect to the data. Click on the relevant blue control in the configure and plot form, for example drill number, which opens the drill number data selection form, then click on the blue make data control which opens the make data form. Follow the instructions in the yellow control in a similar fashion to connecting to the drillhole and survey tables outlined above.
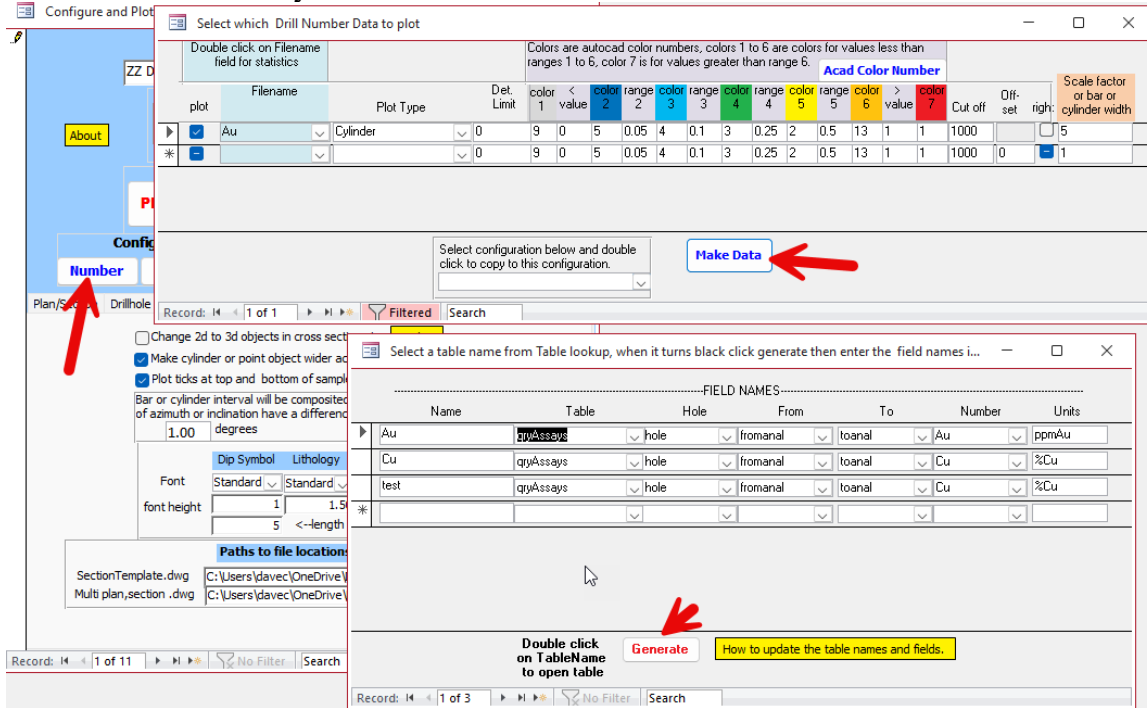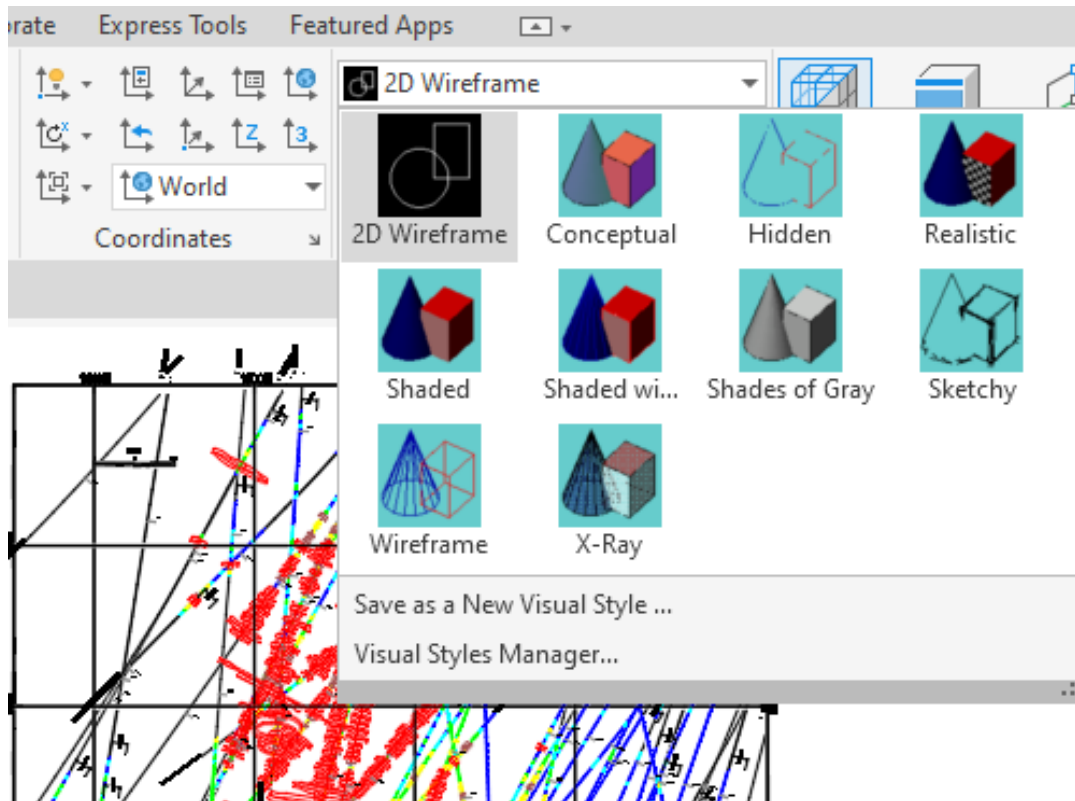

Plotting

For the first time use an example dataset is provided. This dataset is derived from a selection of real data but has been extremely modified and should only be used for illustration purposes with this database. There are 11 example plot configurations provided, which you can scroll to using the record control at the bottom of the configure and plot form. These can be deleted if not needed by clicking on the bar on the left side of the form.
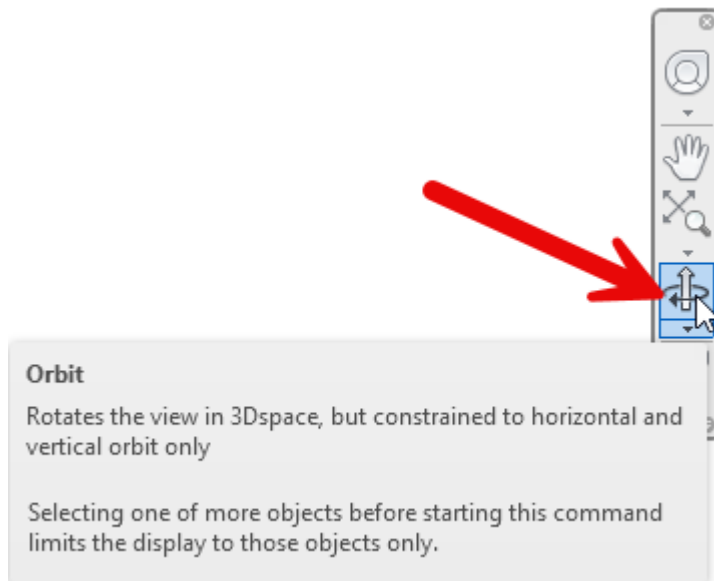
 To get started select a plot configuration and click on the **PLOT** button. Enter the password supplied to you, then a cross section or plan should automatically appear. Depending on how good your graphics processor is it may take some time for the plot to complete, but you can see progress in the messages and the progress bar at the bottom of the screen.

For plot configurations with cylinders the data is plotted as a 2D wire frame, selecting conceptual or realistic in the autocad visual styles options results in strikingly beautiful graphics.

Select orbit from the navigation bar display to rotate the drawing, you can also turn of or on any layers you don't want to view, for example the grid front and left in the grid cage.

Orbit

Rotates the view in 3Dspace, but constrained to horizontal and vertical orbit only

Selecting one of more objects before starting this command limits the display to those objects only.

Multiple cross sections.

Apart from plotting sections and plans, data generated in tblPlotData is used to generate multiple cross sections or plans. Because the trace data is not stored traces cannot be plotted in this option.

However, you can create a fake trace- as an example see qryFakeTRace which plots a fake lithology, essentially duplicating a trace but visible in the multiple sections or plans. Refer to the yellow help controls for more information.

The cross-section grid is oriented at right angles to the viewing angle, starting at the minimum easting and northing you enter, with a length according to what you enter.

Multiple cross sections are generated from the position of the first grid and slices are selected at right angles to this grid according to the spacing and number of sections you want. Objects lying in the boundary between selections are selected twice.

The grid and scalebar are included in the multiple cross sections, but no paper space objects (legend, title box, surrounding box) are included. Multiple cross sections are named according to the origin name, if for example the viewing angle is 180 degrees, and the distance between cross sections is 25m then the first cross section will be named "minimum north"N.dwg, the next "minimum north+25"N.dwg. Drawings generated can be found in the default directory you define - see the *miscellaneous* page.

Multiple plans are generated in a similar way, from the top down.

Beyond DrillXS.

Drawing a cross section or a Level plan.

If you plot a cross section or plan with a grid, the grid is centered halfway through the cross section or at the average of the minimum and maximum elevations in the level plan. On plotting the UCS in AutoCAD is set to world.
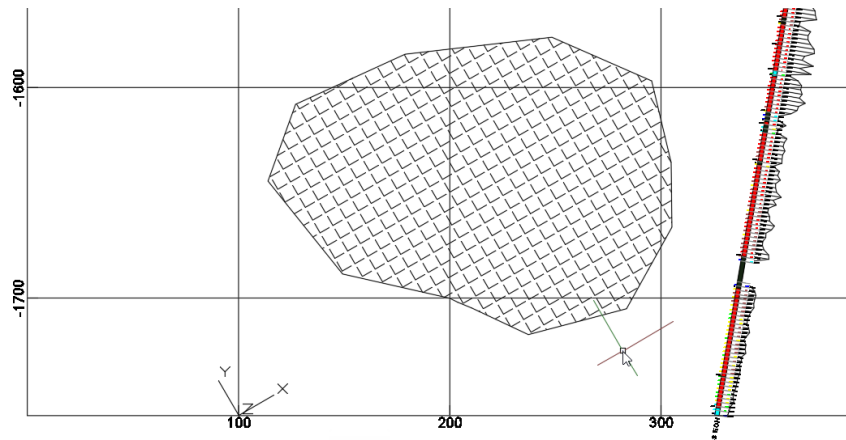
To plot on the grid type UCS, ob for object, then select one of the grid lines. The UCS is now aligned with the grid and you can draw on the grid. Type UCS select world to go back to the normal UCS.
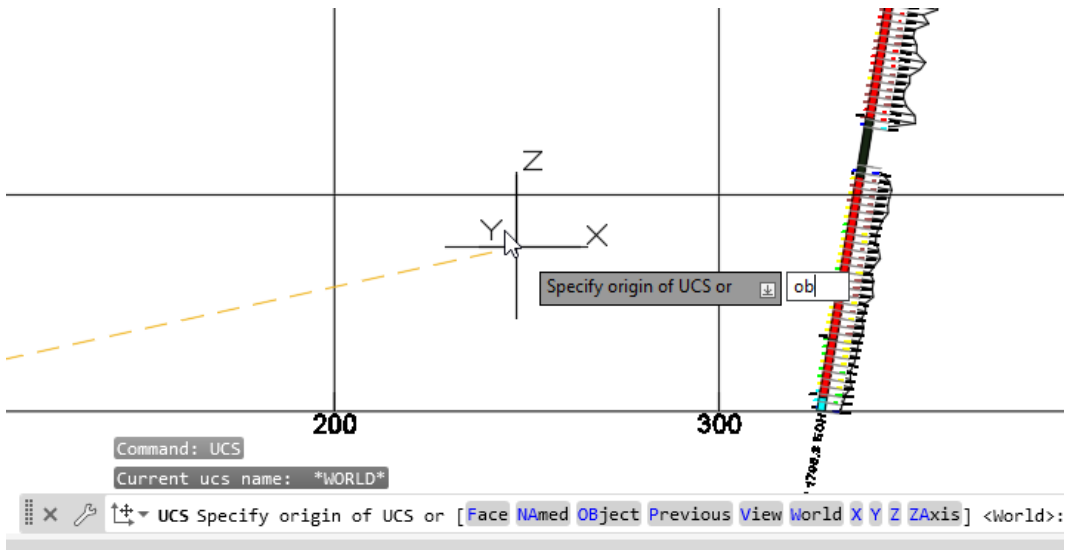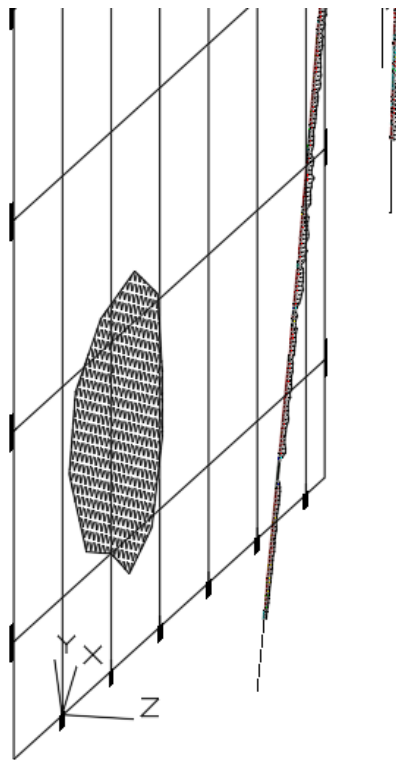

Type UCS select ob for object
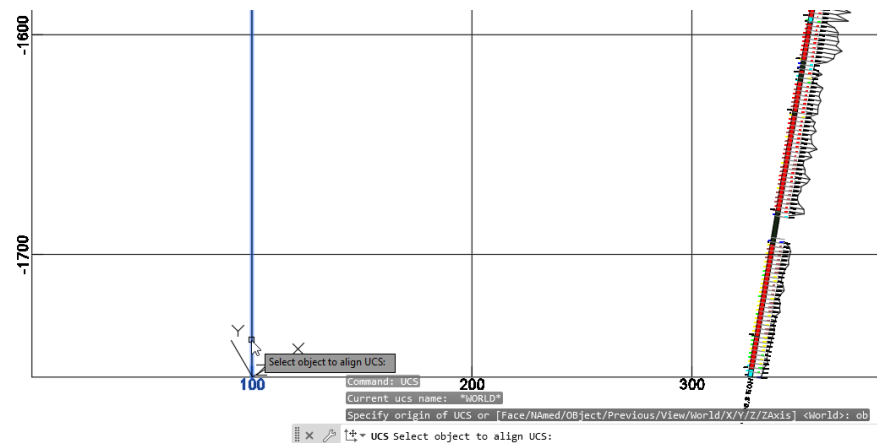
Then snap onto one of the grid lines

You can now draw on the grid. Rotated view below.

Integrating with AutoCAD Map 3D

AutoCAD Map has a very wide range of GIS features that can be added to the drawing you create.

- Connection to raster images in a wide range of formats
- Connection to ARC GIS
- An additional range of point plotting options