Current Affairs
A Window on Software Engineering

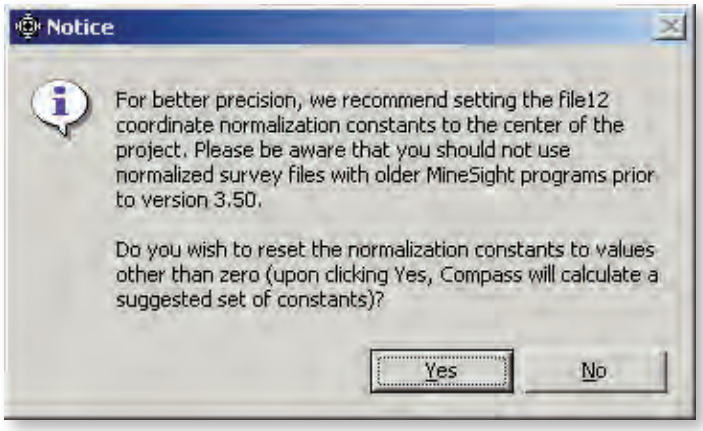
Normalization in MineSight®

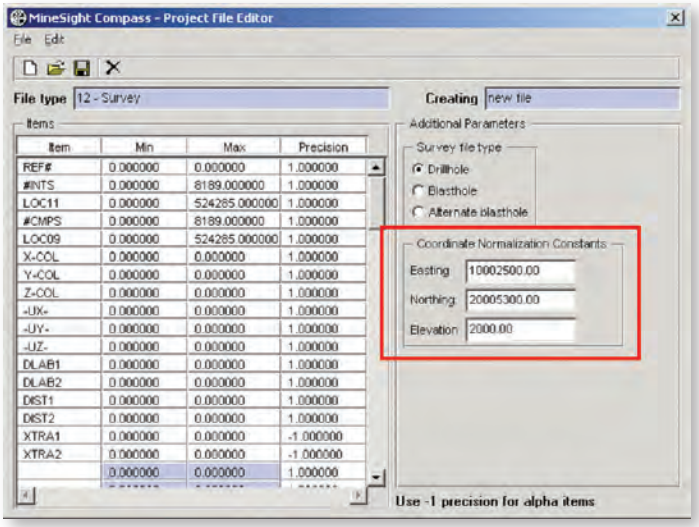
In version 3.50-00, MineSight® has been fully enabled to use large [e.g., Universal Transverse Mercator (UTM)] coordinates. UTM coordinates can require more than 10 significant digits, especially if you want to keep several positions after the decimal point. In UTM, drillhole survey coordinates, model limits, the rotation origin, and project extents are stored as floating point numbers with the precision limited to six significant digits. This means that there could be precision problems if coordinates are used "as is".

The purpose of minimums in the project settings in MineSight® 3-D, is to serve as normalization constants. When you change the project settings in MineSight® 3-D to small values, the drillholes, geometry objects, model views, etc., are recalculated to large, rounded numbers. Hence, you can loose data precision. The same thing happens when data is shifted by 1,000,000 ft; the precision of the data is lost. Your data should never be too far from the MineSight® 3-D project minimums.

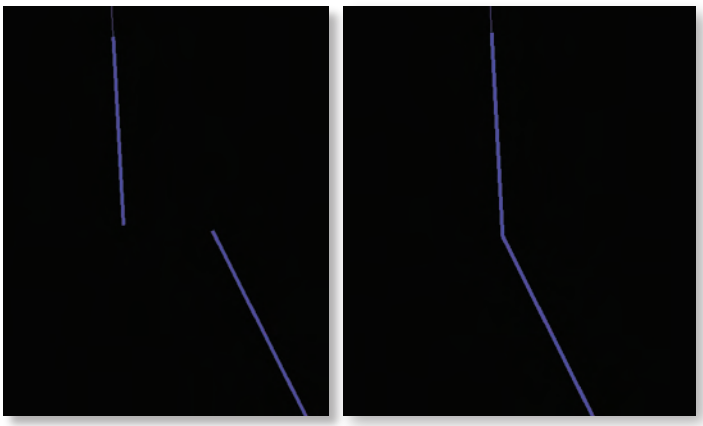
Initializing a Survey file (file 12)

When you initialize a survey file (MineSight® survey file 12) via the **Project File Editor** in MineSight® Compass™, or via procedure **`p10211.dat`**, you now have the option to set coordinate normalization constants. If the normalization constants are zero when you are creating a new File 12, you are presented with the option to use calculated default values based on the PCF limits. We recommend using values for the normalization constants that would fall in the center of your project.





File 12 creation dialog in the Project File Editor



These pictures show a zoomed-in view of the same drillhole at a survey break. The view on the left shows the data un-normalized, whereas in the view on the right, the data is normalized. In the un-normalized view (on the left), the drillhole appears to be broken, but in reality it isn't.

Caution: Do not use normalized survey files with MineSight® programes prior to version 3.50. Normalized survey files will not work with earlier versions of MineSight® (ms3d, ms3dacqdss,compass, and the MineSight® programs).

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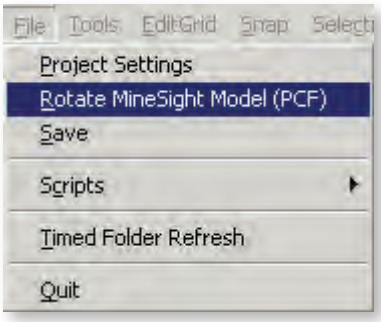
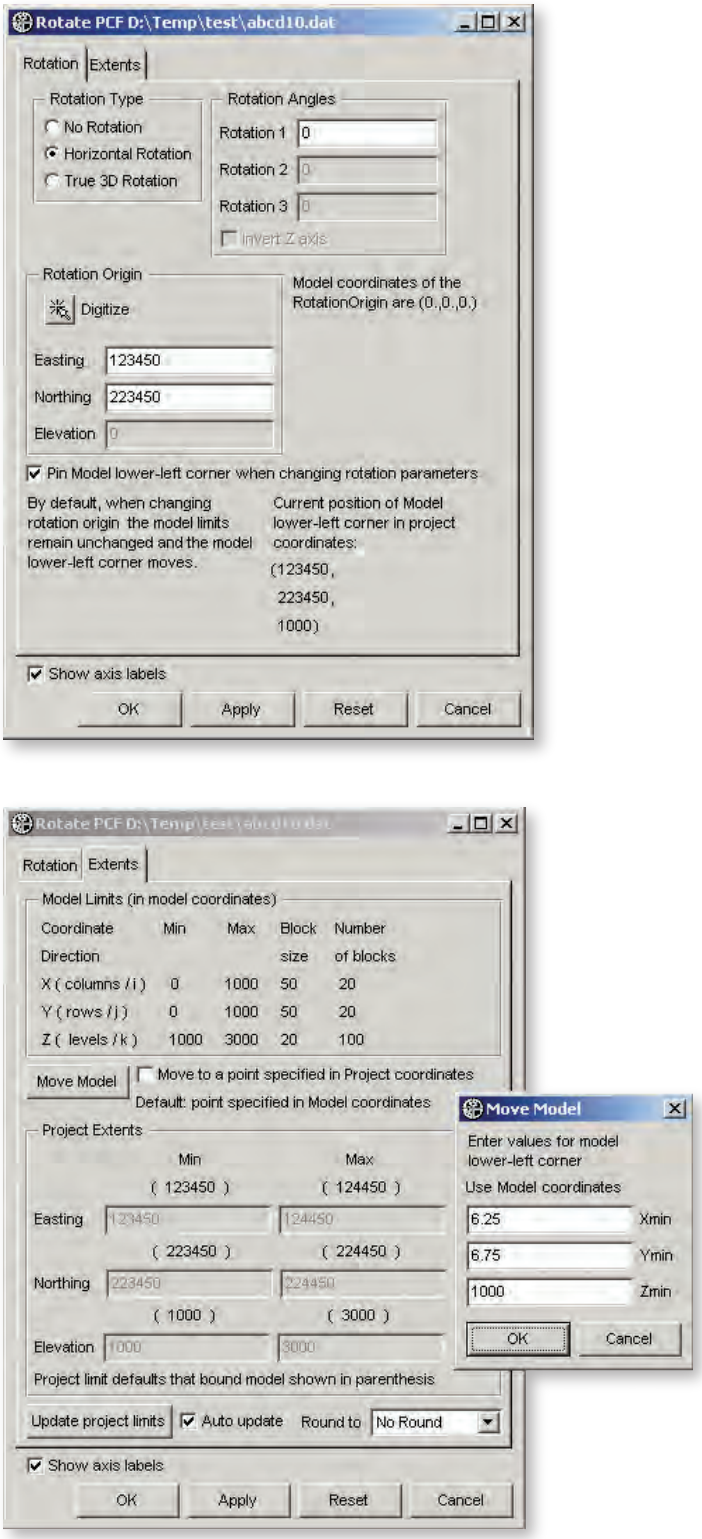
Note: when editing an **`m102v1`** run-file, the parameter values for the survey file normalization constants are PAR35 (Easting), PAR36 (Northing), and PAR37 (Elevation). You can reset normalization constants in a survey file using **`m210v1`**. If the survey file (file12) already contains data, **`m210v1`** will recalculate the stored values to preserve actual survey coordinates. Note also, if the coordinates are big, using **`m210v1`** to set normalization after the data was already loaded would not correct the precision. To take advantage of the new option, load data into a Survey file that has normalization constants already defined.

Models in UTM coordinates

When you are using UTM coordinates and would like to specify model limits to more than six significant digits, you can use model rotation to normalize model coordinates. In MineSight® 3-D, go to **File | Rotate MineSight Model (PCF)**. Then choose the PCF from the file chooser window.



The following example uses UTM coordinates for the project limits. This shows how to specify model limits to more than six significant digits (e.g., Minimum Easting = 123456.25, Minimum Northing = 223456.75). Using model rotation to normalize model coordinates, select **Horizontal Rotation** and input "rounded" coordinates for the rotation origin. Use 0º for the rotation angle (e.g., Rotation Easting = 123450.00, Rotation Northing = 223450.00), and on the **Extents** page dialog, move the model lower-left corner to the desired position using the **Move Model** button. In this example, the model limits in "normalized" model coordinates will have Xmin = 6.25 and Ymin = 6.75.



PCF rotation dialogs in MineSight® 3-D