

## Working with Geosoft Databases in Target

The purpose of this How-To Guide is to give you a general overview of how to create and edit Geosoft Databases (\*.GDB).

One of the fundamental technologies in Target is its unique database architecture. This architecture is designed to let you rapidly create and import data of many kinds (ASCII and binary) into high-performance Geosoft databases. After data is imported into a database, you have numerous options for editing, visualizing, processing and performing other tasks.

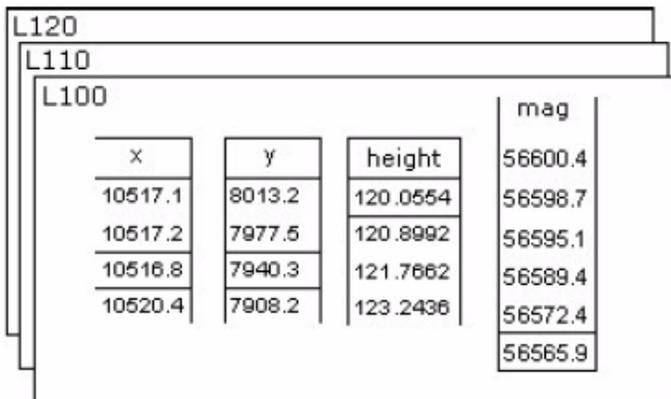
The “window” to the database in Target is a specialized earth science spreadsheet that appears automatically when you create a new database. This spreadsheet provides access to a wide variety of data management, data and profile viewing, and processing capabilities.

### The Geosoft Database

The Geosoft database is based on a proprietary binary database architecture that stores spatial data in a format that enables rapid access, processing and analysis of high volume data (tested up to 10 gigabytes).

#### Database Lines/Groups

Organized in lines (or groups), columns and elements, the database stores all data values of a particular type in individual columns or channels. This enables stand-alone processing of columns and eliminates the need to write results to interim storage areas and then re-write them after processing.



x	y	height	mag
10517.1	8013.2	120.0554	56600.4
10517.2	7977.5	120.8992	56598.7
10516.8	7940.3	121.7862	56595.1
10520.4	7908.2	123.2436	56589.4
			56572.4
			56565.9

The result is a significant increase in processing efficiency. This Geosoft file structure provides additional advantages including:

- Ability to process any number of lines/groups
- Ability to handle lines/groups with unlimited columns
- Ability to handle very large datasets (tested up to 10 gigabytes)

Each database “line” has a line number, version number, line type, flight number (only required for airborne data), survey date and selection status.

A “group” is a special kind of line. It also stores data in channels, but instead of using a name based on line number, version number, line type and flight number, it can be named using any alpha-numeric string (with some exceptions).

Each database “group” line has an optional “CLASS” name. Like a regular line, it has a selection status.

While all the channels in a database are accessible inside a regular line, a group line can restrict the available, displayable channels to a smaller subset, excluding those not relevant to the group’s data.

A database may contain any number of lines and/or groups. If your survey data has not been collected on a line basis (i.e. is random), or cannot be organized conveniently into groups that can be thought of as lines (such as drillhole or UXO target data), you can store all data in a single "line".

 *An additional benefit of the Geosoft database structure is that since columns are stored separately, this file format is capable of storing and manipulating data with different end point and sample intervals.*

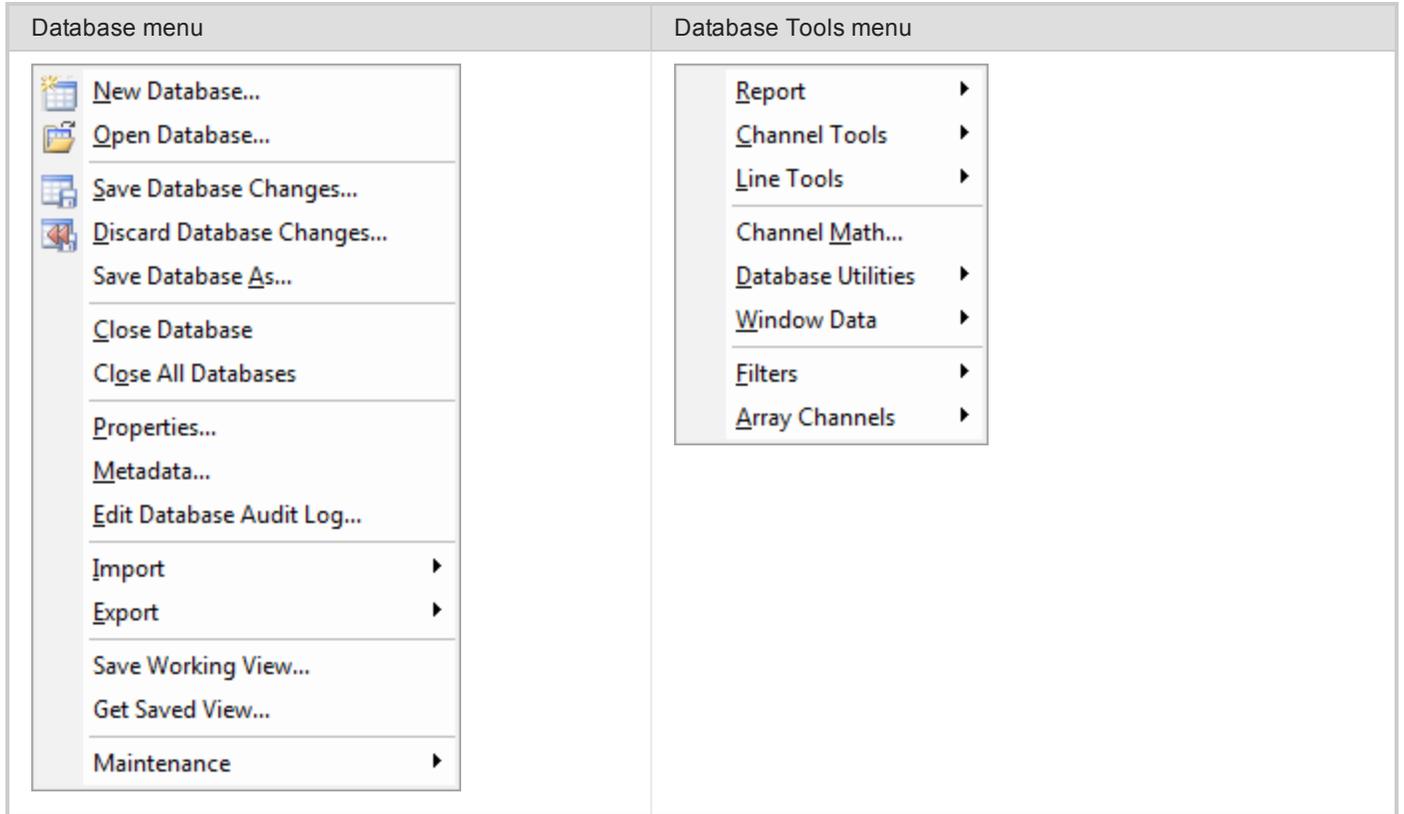
## Target Supported Data Formats

Target provides seamless access to both original spatial data and processed information (grids, images and vector plots).

Spatial Data Import Formats	Processed Data Import Formats
<ul style="list-style-type: none"> <li>➤ AMIRA format files</li> <li>➤ ASCII data files, CSV</li> <li>➤ ASEG GDF files</li> <li>➤ Blocked binary data files</li> <li>➤ Database table files (single or all tables)</li> <li>➤ Excel Spreadsheets</li> <li>➤ Flat archive data files</li> <li>➤ Geosoft binary data files</li> <li>➤ Geosoft XYZ data files</li> <li>➤ ODBC data files</li> <li>➤ Picodas PDAS data files</li> <li>➤ RMS data files</li> <li>➤ RMS DAARC 500 binary file formats</li> <li>➤ USGS data files</li> </ul>	<ul style="list-style-type: none"> <li>➤ ArcView shape files (SHP)</li> <li>➤ AutoCAD DXF (DXF)</li> <li>➤ DATAMINE (DM)</li> <li>➤ Geosoft plot (PLT)</li> <li>➤ Geosoft map files (MAP)</li> <li>➤ Grid and image formats</li> <li>➤ MapInfo TAB files</li> <li>➤ Maxwell Plate files</li> <li>➤ Microstation DGN files</li> <li>➤ Surpac (STR, DTM)</li> <li>➤ GoCad (VO)with rotation</li> <li>➤ UBC (MOD, MSH, DEN, SUS)</li> <li>➤ LAS files (LAS)</li> </ul>
Common Grid Formats (GRD) including	Common image formats (IMG) including
<ul style="list-style-type: none"> <li>➤ DEM formats (GLOBE, ETOPO5, USGS)</li> <li>➤ EOSAT Fast Format</li> <li>➤ ER Mapper grid (ERS)</li> <li>➤ ESRI Binary Raster (FLT)</li> <li>➤ Landmark ZMAP (DAT)</li> <li>➤ Geopack (GRD)</li> <li>➤ Geosoft grid files (GRD)</li> <li>➤ Geosoft Hypergrid (HGD)</li> <li>➤ Grid eXchange Format (GXF)</li> <li>➤ Surfer grid file (GRD)</li> <li>➤ Texaco Startrax (GRD)</li> <li>➤ USGS (DDF, DEM)</li> <li>➤ World Geoscience (H)</li> </ul>	<ul style="list-style-type: none"> <li>➤ EOSAT MSS (Old 4 Band BIL)</li> <li>➤ ER Mapper algorithm (ALG)</li> <li>➤ ER Mapper compressed (ECW)</li> <li>➤ GeoTIFF Image (TIF)</li> <li>➤ GIF (GIF)</li> <li>➤ IMG Image (IMG)</li> <li>➤ JPEG 2000 (J2K and JP2)</li> <li>➤ JPEG File Interchange Format (JPG)</li> <li>➤ Landsat MSS (4 band BSQ) and Landsat TM</li> <li>➤ PCIDSK Format (GIX)</li> <li>➤ Portable Network Graphics Format (PNG)</li> <li>➤ Tagged Image File Format (TIFF)</li> <li>➤ Targa Image (TGA)</li> <li>➤ Uncompressed PC Paintbrush (PCX)</li> <li>➤ Windows Bitmap (BMP)</li> </ul>

## Database Menus

There are two main database menus, *Database* and *Database Tools*, as shown below:



## Drag and Drop Geosoft Database Files

Target includes the ability to drag Geosoft database files (\*.GDB) from Windows Explorer and drop them into an open project.

The ability to drag Geosoft file formats directly from Windows Explorer and drop them into Target for display is also available including grid files (\*.GRD) and map files (\*.MAP). Users can also drag XYZ files and drop them into an open database file (\*.GDB). Items displayed in the Project Explorer window may also be dragged and dropped into the main Target workspace.

## Creating a Geosoft Database

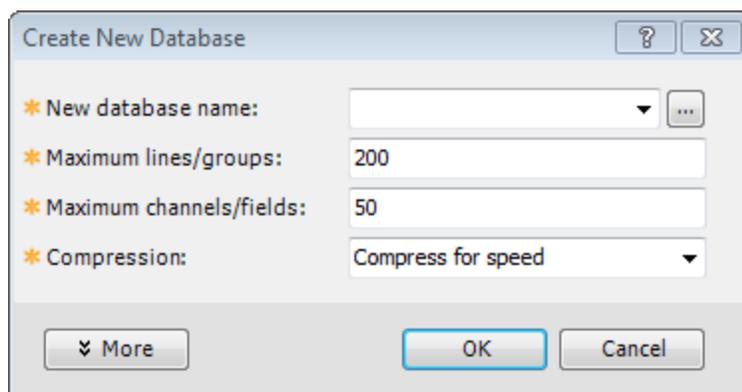
The *Create New Database* dialog enables you to create and define a new database for Target. The dialog options enable you to set the initial size of the database and the database page size.

We recommend that you specify a *Maximum Line/Group* and *Maximum Channel/Field* number that is representative of the final estimated project size. This strategy ensures that you have enough space available in your project while not consuming excessive storage space. The size can be changed later via the *Maintenance* menu option from the *Database* menu, should your project expand in scope.

Additional parameters available from the **More** button control the database "page size", which is the smallest unit of memory that is read/written and stored on the database. In almost all cases, the default page size (1024 bytes) should be sufficient since this will support a total database size of up to 4 Terabytes in size and will enable individual channels on a line to hold up to 64 Megabytes of data.

### To Create a New Database

1. On the *Database* menu, select **New Database**. The *Create New Database* dialog appears.



2. Specify a *New database name*.
3. Specify the *Maximum lines/groups* and *Maximum channels/fields*. The defaults are 200 and 50.
4. From the **Compression** drop-down list, choose the compression method.



You can choose either **Compress for speed**, **Compress for size** or **No compression**. This depends on which type better suits your needs. For example, you would more than likely compress for speed if you have a lot of hard drive space available. However, if space is limited, you may wish to compress for size.

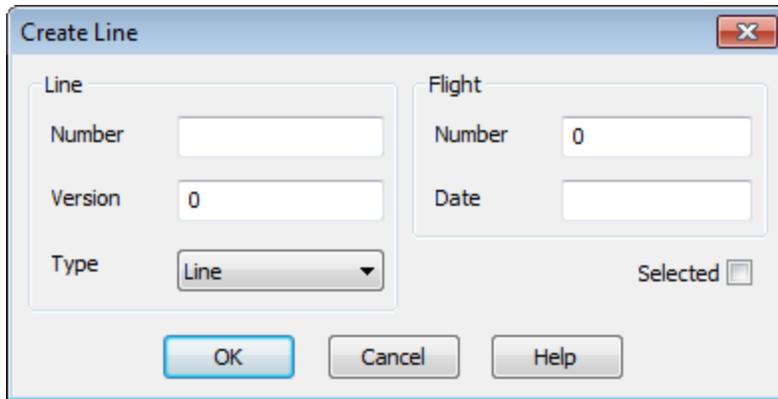
5. Click **More** to specify the way Target works with data in the database file.
6. Click **OK**. The system creates a new database with the database name that you specified with a (\*.GDB) extension and opens a Spreadsheet window with empty Channel Header Cells and Data cells.

### Create a New Line or Group

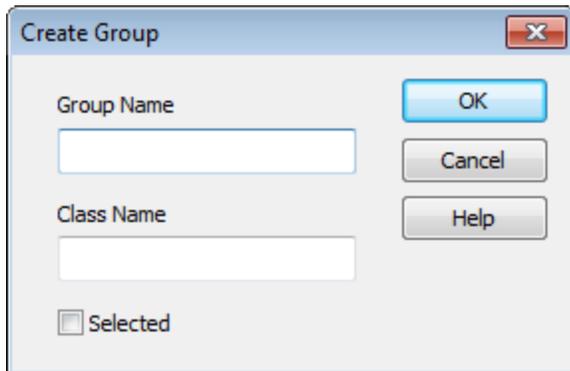
Creating a new Line or Group is easy with the *Database* pop-up menu.

#### To Create a New Line or Group

1. From the current database, select the *Line* or *Group* header cell (top left cell).
2. Right-click and select **New Line** or **New Group** from the pop-up menu.
3. The *Create Line* or *Create Group* dialog appears.



4. Enter the parameters as required and click **OK**.



The new Line (or Group) will be created in your current database.

### Line Types

- > Line
- > Base line
- > Tie line
- > Test line
- > Trend line
- > Special line
- > Random line

## Edit Geosoft Database Lines and Groups

Use the *Edit Line* dialog to edit a database line.

 *To edit multiple lines, select **All Selected Lines**.*

### To Edit a Line

1. From the current database, select the *Line* header cell.
2. Right-click and select **Edit...** from the pop-up menu.  
The *Edit Line* dialog appears.

3. Specify the *Line Number* and *Line Version*.
4. From the drop-down list select the *Line Type*.
5. Specify the *Flight Number* and *Flight Date*. By default, it is the import date.
6. Check the *Selected* box to select the line, if desired.
7. Click **OK** when done.

### Edit a Group

Use the *Edit Group* dialog to edit a database line.

### To Edit a Group

1. From the current database, select the *Group* header cell.
2. Right-click and select **Edit...** from the pop-up menu. The *Edit Group* dialog appears.

3. Specify the *Group Name* and *Class Name*.

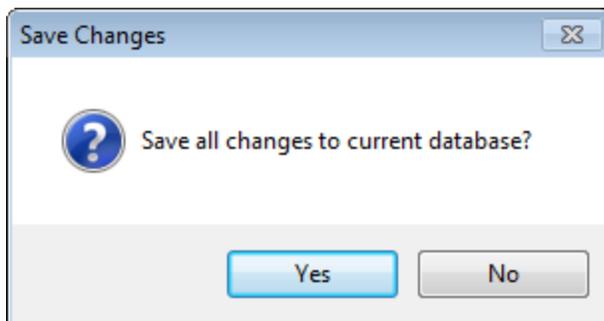
4. Check the **Selected** box to select the group, if desired.
5. When satisfied with group edits, click **OK**.

## Save Changes to Databases

Another advantage of the Geosoft database format is that the user can decide whether to discard or save any changes to data in a database without having to close and reopen the database.

### To Save Changes to Your Database

1. On the *Database* menu, select **Save Database Changes**.  
The *Save Changes* dialog appears.



2. Click **Yes** to confirm the save. The system updates your database and the changes are now saved.

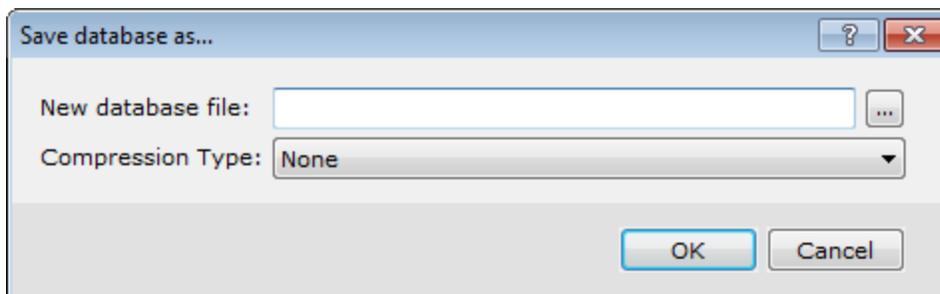


To undo changes, click the **Discard Database Changes** option on the *Database* menu. This will revert your database to the point where it was last saved.

### To Save Database As

You may want to save your database with a different name.

1. On the *Database* menu, select **Save Database As...**. The *Save database as...* dialog appears.



2. Specify the name of the database (\*.GDB file) and then select the Compression Type (None, Speed or Size).
3. Click **OK** to confirm the save. The system saves your database with the new database name.

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