Import Drillhole Data in Target

During drilling, the geologist acquires and integrates data from different sources and formats. The Target system automatically detects the type of data that is being imported, including:

- Drillhole (collar) locations
- Surveys
- Point Data
- From to Data

There are two ways to define drillholes and add data to your project in Target:

- Import data already stored in CSV/text or XLS/database data format. A common example is a geochemical assay file, which is commonly delivered to you on disk or via email by an assay laboratory in Excel XLS format. Depending on project needs, you may also initially have geological data, collar data or survey data in text or data files.
- Manually enter data. If you are performing a grassroots exploration project, you may only have one or two holes to work with initially. In this case, you may just want to add some basic collar location or projected survey information to your project.

This how-to guide will explain the differences between these four types of data, as well as the procedures for importing already stored data types. For information on entering or editing data, see the How-to Guide "How to Edit Data in Target" found in our online technical documentation repository: http://www.geosoft.com/support/downloads/technical-documentation.

Drillhole Data Types

The Target system detects whether your data is drillhole (collar) data, survey, from-to, or point data based on the way your database is set up. In the following section, we will run through an example of each kind of data.

Collar Data

Collar information must contain unique Hole ID, Easting (X), Northing (Y), Elevation (Relative Level) and Total Depth (EOH). The X, Y and Depth must all be in the same units. Note that in the data example below, the Azimuth and Dip are also included in the collar file.

Hole_ID	East	North	RL	EOH	Dip	Azimuth
AXE001	10600	12400	367.7	38	-60	90
AXE003	10700	12400	367.6	60	-60	90
AXE005	10800	12400	367.5	60	-60	90
AXE007	10900	12400	368.1	60	-60	90
AXE009	11000	12400	368.3	52	-60	90
AXE011	11100	12400	368.9	54	-60	90
AXE013	11200	12400	369.7	37	-60	90
AXE014	11200	12200	369.9	33	-60	90
AXE015	11100	12200	367.9	52	-60	90

Survey Data

(Optional) Hole deviation information in Hole ID, Depth, Azimuth, Dip format or Hole ID, Depth, Easting, Northing, Elevation format. Note that a survey file is only required if a hole has actually been surveyed and the dip and azimuth change at depth.

Hole_ID	Depth	Azimuth	Dip		
AXRC008	60	86.38	-58.66		
AXRC008	65	86.27	-58.83		
AXRC008	70	85.7	-58.95		
AXRC008	75	85.28	-59.24		
AXRC008	80	84.91	-58.57		
AXRC008	85	84.52	-58.74		
AXRC008	90	83.58	-58.96		
AXRC008	95	82.98	-58.82		
AXRC008	100	82.4	-58.82		

From - To Data

From-To data is data acquired over specified depth intervals down the hole. For example, at a 1 m interval with a measurement starting at 0 m and extending to 139 m. From-To data must include the Hole ID, Depth From, Depth To and some data values.

Hole_ID	Sample	From	To	Au ppm	As ppm
AXE005	49040	50	54	-0.01	15
AXE005	49041	54	58	-0.01	25
AXE005	49042	58	60	0.04	20
AXE007	49043	0	2	0.01	15
AXE007	49044	2	6	-0.01	15
AXE007	49045	6	10	-0.01	15
AXE007	49046	10	14	-0.01	10
AXE007	49047	14	18	-0.01	20
AXE007	49048	18	22	-0.01	15
AXE007	49049	22	26	-0.01	25

Point Data

Point data is data acquired in discrete measurements made at a specific depth, for instance 85.6 m. It must include the Hole ID, Depth and some data values. In this example, a Geophysical property log (borehole geophysics) in Single Point data format is shown.

Hole_ID	Depth	Dip	Azimuth	Mag
AXE001	0	-60.2	357.8	48838.7
AXE003	2.5	-60.2	358.6	48843.8
AXE005	3	-59.9	358.6	48849.9
AXE007	4.5	-59.6	359.5	48856.5
AXE009	5	-59.1	0.4	48863.1
AXE011	6.5	-59.2	0.3	48870.1
AXE013	7	-59.4	0.9	48876.2
AXE014	7.5	-59	2.2	48881.1
AXE015	9	-59.4	2.5	48881.5
AXE016	10.5	-59.8	2.5	48885.3

Import using CSV/Text Format Data

The Drillhole system enables the import of data stored in CSV/text data format. The *Drill Hole Import Wizard* guides you through the import process, and automatically displays your data in a Spreadsheet window. The spreadsheet window is similar to Excel in appearance with specialized Earth Science capabilities, including built-in data manipulation tools.

Importing Collar Data

When entering data in the Drillhole system, you must start with collar data. The system creates a unique collar database that you can use to view all drillholes in the project at a glance. You can also plot an initial plan map showing all holes for review purposes. A collar file must exist before survey or assay data can be imported, and before plans and sections can be created. The Target system enables the import of data stored in CSV/text or XLS/database data format.

⚠️ *The steps below show how to import collar data in ASCII format.*

To Import Collar Data

1. On the *DH-Data* menu, click *Import* select **Text File**.
   The *Drill Hole – ASCII Import* dialog is displayed
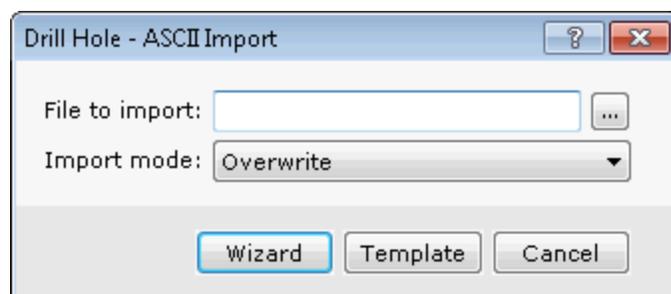
2. Using the *Browse* button, select the collar data (.csv) file from your working directory.

⚠️ *The Import Mode enables either a previously created database to be overwritten (Overwrite) or new and/or updated Drillhole information can be added to a previously created database (Append/Merge). For more information, click the **Help** button.*

3. Click the **Wizard** button. The *Drill Hole Import Wizard* is displayed.
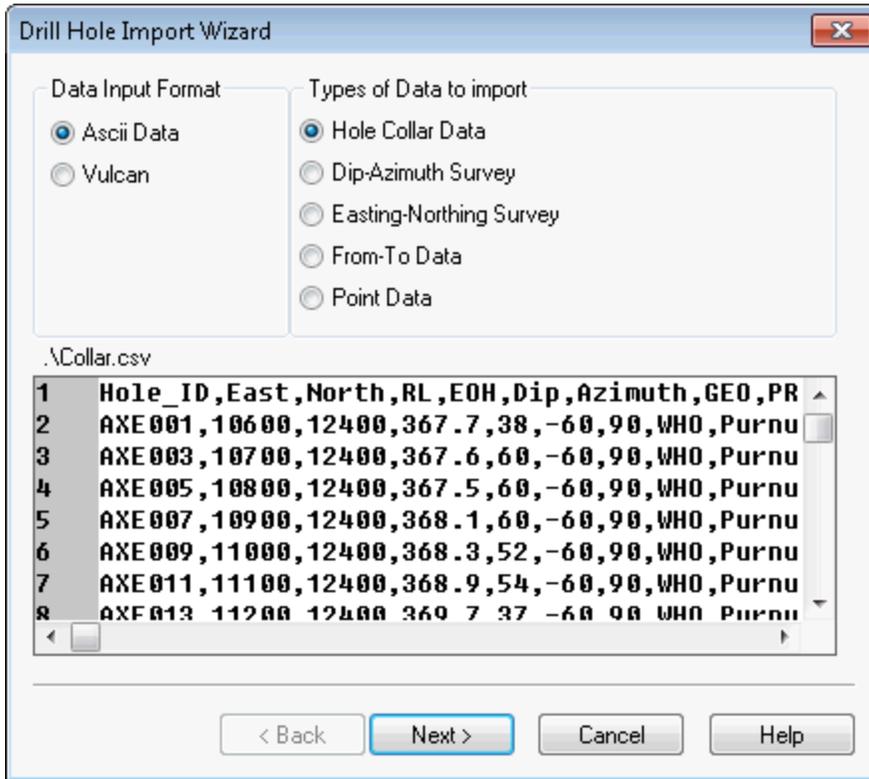

⚠️ *Note that the system will determine your Data Input format as Ascii Data and intuitively predict the Types of Data to import as Hole Collar Data.*

💡 *The Target Drill Hole Import Wizard enables you to easily import data from any ASCII spreadsheet or data file. The Import Wizard supports both Delimited and Fixed Field ASCII files. The Import Wizard also imports Microsoft Excel Comma Separated Value (CSV), Comma Delimited, White Space Delimited and Tab Delimited data files. The window at the bottom of the dialog box shows the file that is being imported. For more information about the Drill Hole Import Wizard settings click the **Help**button on the individual Wizard dialogs.*

4. Use the horizontal scroll bar to see all of the fields in the file or simply click the **Next>** button. The system displays the second dialog box in the *Drill Hole Import Wizard*.
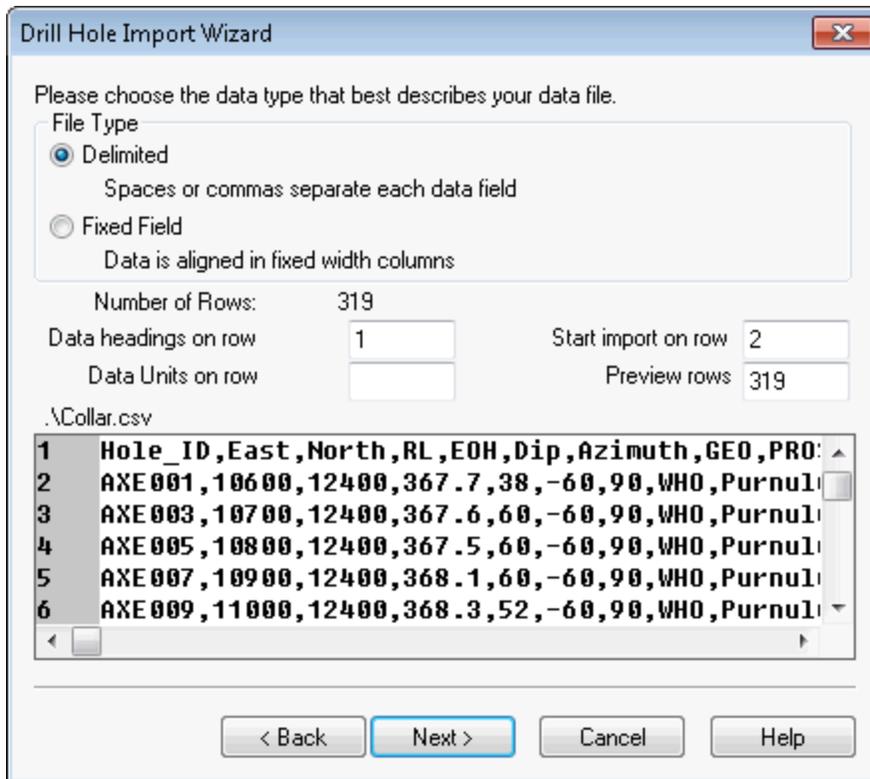
5. In the four fields in the middle of the dialog box, specify which line in the file contains the data headings (i.e. channel names), data units ("m" or "ft" etc.), which line to begin importing data and the number of lines to display in the preview window.

6. Click the **Next>** button. The system displays the third dialog box in the *Drill Hole Import Wizard*.
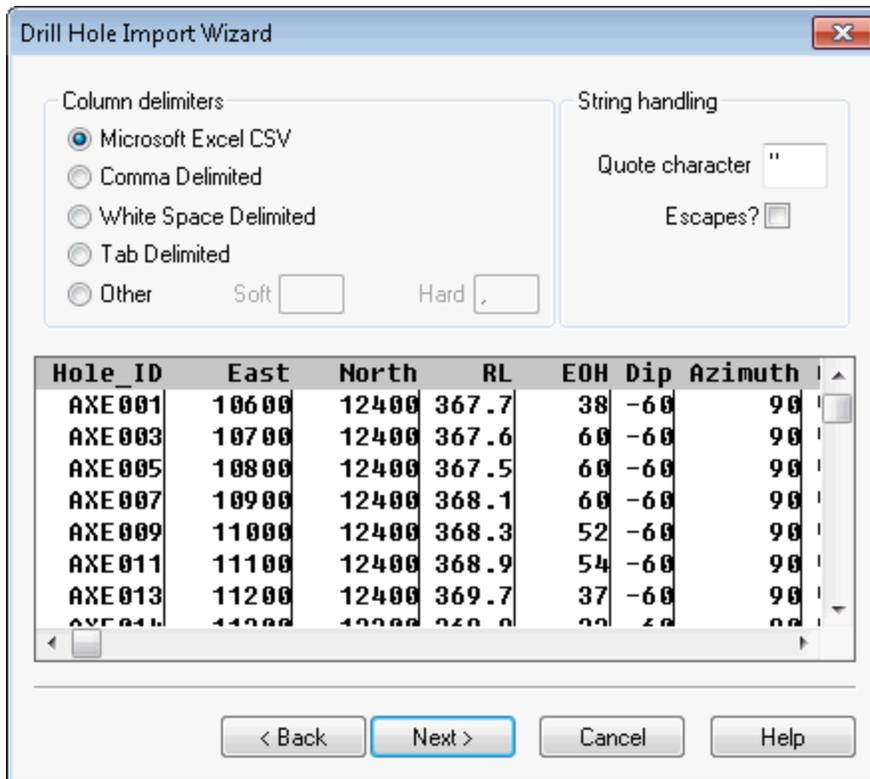
7. Specify the Column delimiters as **Microsoft Excel CSV** for the type of character used to separate the column text.

8. Click the **Next>** button to continue. The system displays the fourth and final dialog box in the *Drill Hole Import Wizard*.
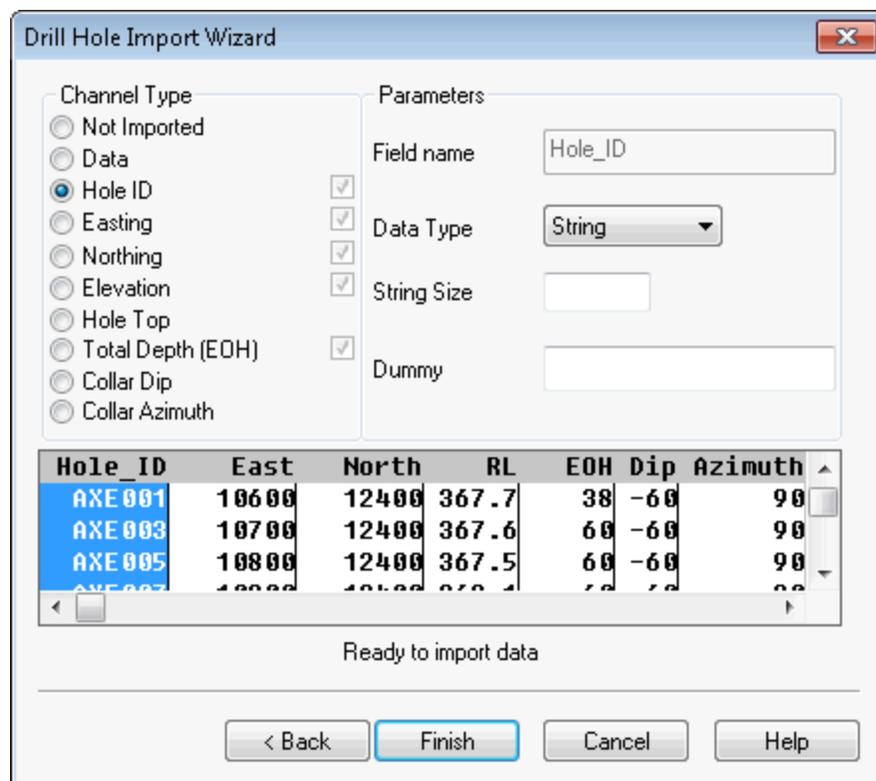
9. The *Import Wizard* has scanned your data and determined the type of data with which you are working (i.e. Channel Type). It is always good practice to review your data to ensure that the wizard has selected the correct columns. The Parameters area in the dialog box shows the name and type of data of the column highlighted in the preview window.

⚠️ *In the Parameters section, the Data Type for channels that contain alphanumeric data (for example, sample numbers, rock codes etc.) must be classified as* **String**.

10. Click the **Finish** button. The system imports the collar data and displays it in the spreadsheet window.

Importing Survey Data

Various types of surveys (acid, gyroscope, magnetic orientation, etc.) can be used to record hole depth (depth measured from the drillhole collar at the surface). For Target, you can use survey data in one of two forms:

| Hole	Depth	Azimuth	Dip	
Hole	Depth	Easting	Northing	Elevation

Before importing data, you must make sure that you have all fields as shown in one of these configurations (i.e. these fields are required on import).

By convention:

- Depth is the distance measured into the hole from the collar, increasing from zero.
- Azimuth is in degrees, increasing positively in a clockwise sense from North (i.e. N is 0 degrees, E is 90 degrees).
- Depth, Easting, Northing and Elevation are in the same units as default units set in the *Oasis montaj Default settings* dialog (*GX|Global Settings|General*).

To Import Survey Data:

1. On the *DH-Data* menu select *Import*, and then select the **Text file**.
   The *Drill Hole – ASCII Import* dialog is displayed.
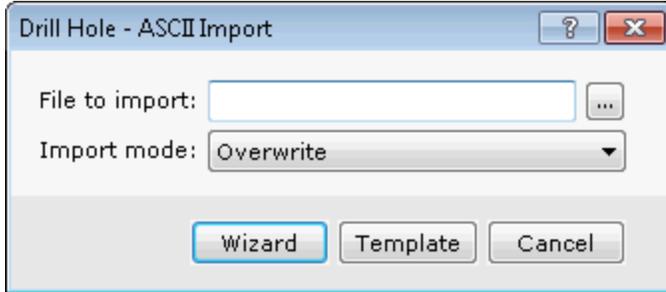
2. Using the *Browse* button, select the survey data file from your working directory and click the **Wizard** button.
   The system scans the file and displays the first of four dialog boxes from the *Drill Hole Import Wizard*.
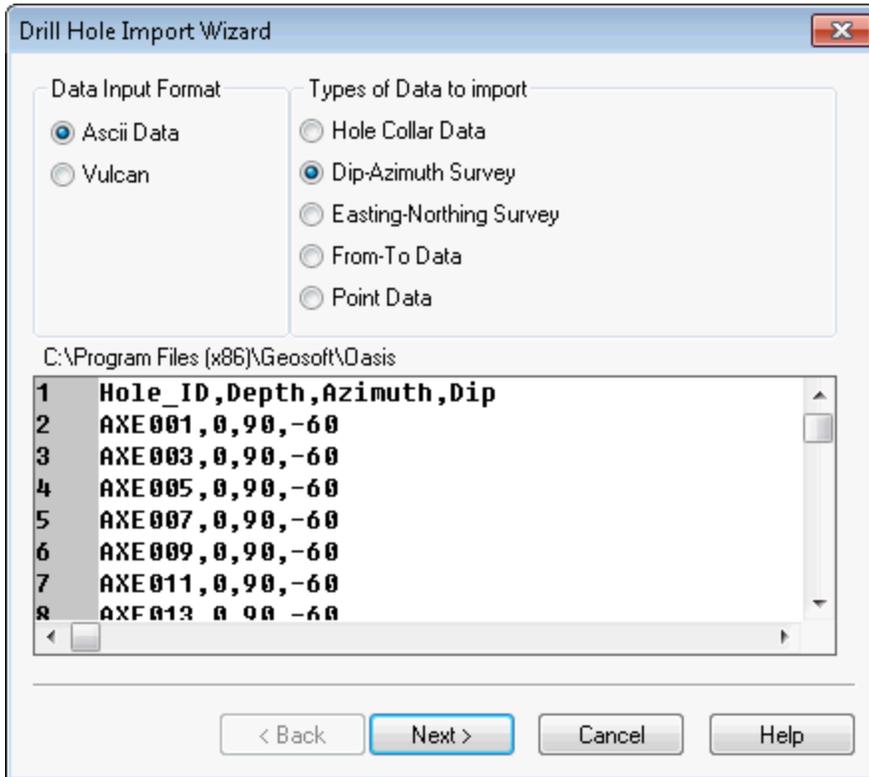
3. Select the Data Import Format as well as the Types of Data to import, if your data hasn't defaulted to the right selection.

4. Click the **Next>** button to display the second *Drill Hole Import Wizard* dialog.
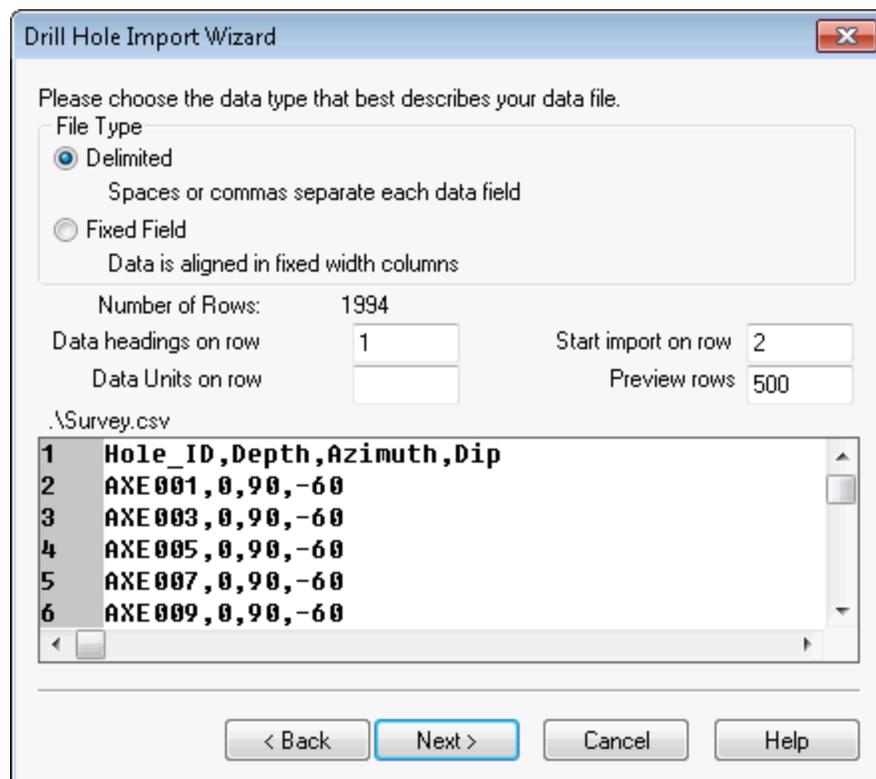
5. Select the File Type and fill in the row properties. You can view the rest of your data in the preview window if desired.

6. Click the **Next>** button to display the third *Drill Hole Import Wizard* dialog.
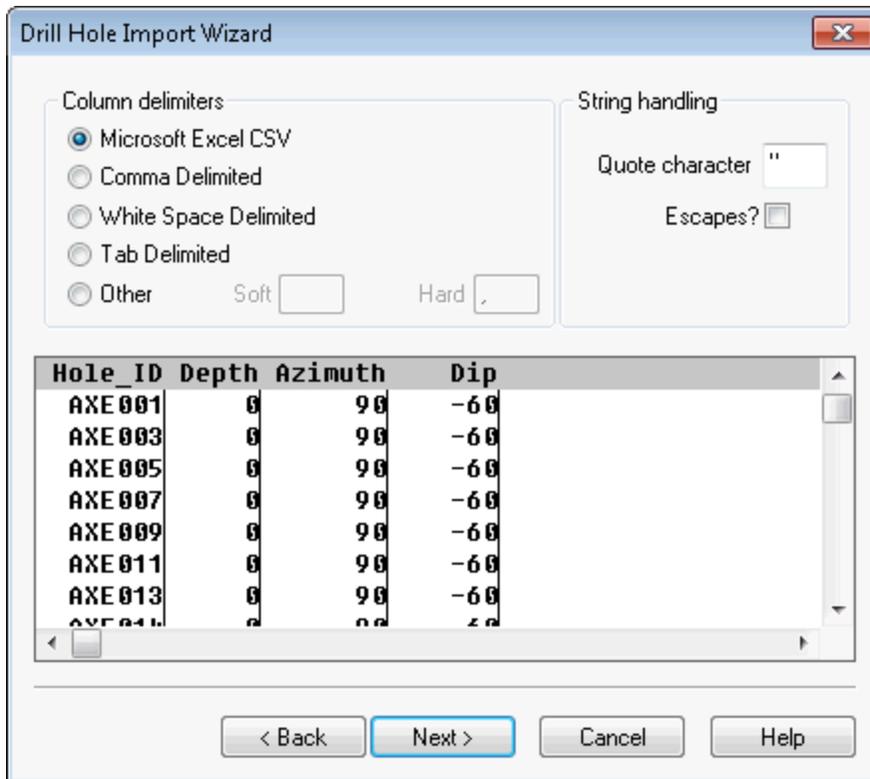
7. Select the type of character or white space used to separate the column text.
8. Click the **Next>** button to display the final *Drill Hole Import Wizard* dialog.
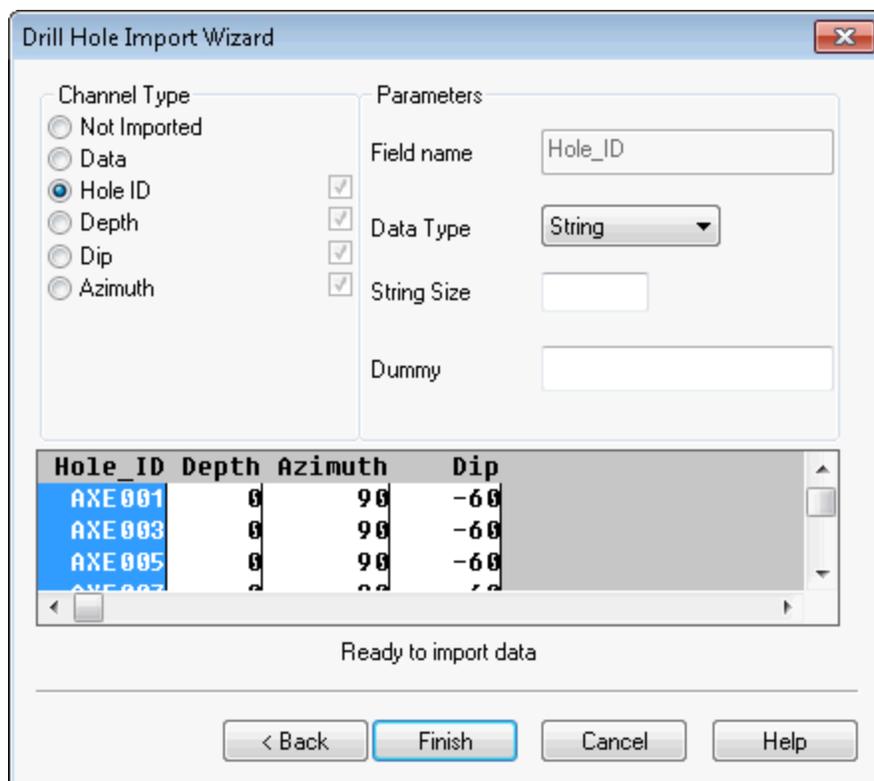
9. Select the Channel Type and Parameters for each of the channels you would like to edit. You may switch the channel you are editing by clicking on it in the preview window.

10. Click the **Finish** button. The system imports the data and displays it in the spreadsheet window.

Import using XLS/Database Format Data

Target provides the capability to read directly from common database formats. The *Drill Hole Import Wizard* guides you through the import process, and automatically displays your data in a Spreadsheet window. The spreadsheet window is similar to Excel in appearance with specialized Earth Science capabilities, including built-in data manipulation tools.

The following lists the typical ODBC drivers that come installed with a Microsoft Windows system:

- Microsoft Access Driver (*.mdb)
- Microsoft Excel Driver (*.xls)
- Microsoft dBase Driver (*.dbf)
- Microsoft Paradox Driver (*.db)
- Microsoft FoxPro VFP Driver (*.dbf)
- Microsoft Visual FoxPro Driver

Importing From - To Data

From-To data is data acquired over specified depth intervals down the hole. For example, at a 1 m interval with a measurement starting at 0 m and extending to 139 m. Two examples of From - To data are; geochemical assay data and geological rock codes.

To Import From – To Data:

1. On the *DH-Data* menu, click *Import*, and then click **XLS|Database**.
   The *Drill Hole – Import External Database* dialog is displayed.

2. Using the *Browse* button, select the file from your working directory and click the **Open** button. The system returns you to the *Drill Hole – Import External Database* dialog box and displays the file name you wish to import.

3. The system scans the file and displays the first of three *Drill Hole Import Wizard* dialog boxes. Note that the system has determined that the Types of Data to import are From-To Data.

4. Click the **Next>** button to display the second dialog box in the *Drill Hole Import Wizard.*

5. The *Import Wizard* has scanned your data and determined the Channel Type for each of the Database Fields. It is always good practice to review your data to ensure that the wizard has selected the correct columns.

   ⚠️ *When importing Assay data all elements are assigned the Class 'Assay' (Channel Type). Standards and Duplicates are also identified, enabling Geochemistry users to extract the information using the normal Geochemistry tools.*

6. Click the **Next>** button to display the third dialog box in the *Drill Hole Import Wizard*.

7. The purpose of this dialog box is to enable you to specify a unique name or description for your data. The name chosen will be appended to the corresponding holes in the database for easier access and recognition of your data.

8. Specify a Data Name for this data and click the **Finish** button. The system imports the assay data and displays it in the spreadsheet window.

Importing Point Data

Point data is data acquired in discrete measurements made at a specific depth, for instance 85.6 m.

To Import Point Data:

1. On the *DH-Data* menu click Import, and then click **XLS|Database**. The *Drill Hole – ImportExternal Database* dialog is displayed.

2. Using the *Browse* button, select the file from your working directory and click the **Open** button. The system returns you to the *Drill Hole – Import External Database* dialog box and displays the file name you wish to import.

3. Click the **OK** button. The system scans the file and displays the first of three *Drill Hole Import Wizard* dialog boxes. Specify that the Types of Data to import as Point Data.

4. Click the **Next>** button to display the second dialog box in the *Drill Hole Import Wizard*.

5. The *Import Wizard* has scanned your data and determined the Channel Type for each of the Database Fields. It is always good practice to review your data to ensure that the wizard has selected the correct columns.

⚠️ *When importing Assay data all elements are assigned the Class 'Assay' (Channel Type). Standards and Duplicates are also identified, enabling Geochemistry users to extract the information using the normal Geochemistry tools.*

6. Click the **Next>** button to display the third dialog box in the *Drill Hole Import Wizard*.

7. The purpose of this dialog box is to enable you to specify a unique name or description for your data. The name chosen will be appended to the corresponding holes in the database for easier access and recognition of your data.

8. Specify a Data Name for this data and click the **Finish** button. The system imports the assay data and displays it in the spreadsheet window.

## Importing Geochemistry Drillhole Data

Geochemical assay data are typically acquired by obtaining core or rotary drill samples over specific depth ranges (From-To ranges) and sending samples to an assay laboratory. Numerical results are typically returned from the laboratory in electronic format and can be imported quickly into the system. Before import, you must make sure that your data files contain the following information – HOLE ID, FROM, TO and a series of ASSAY results.

To Import Geochemical Data

1. On the *DH-Data* menu, click *Import* and then select **Text File**.
   The *Drill Hole – Ascii Import Wizard* dialog is displayed
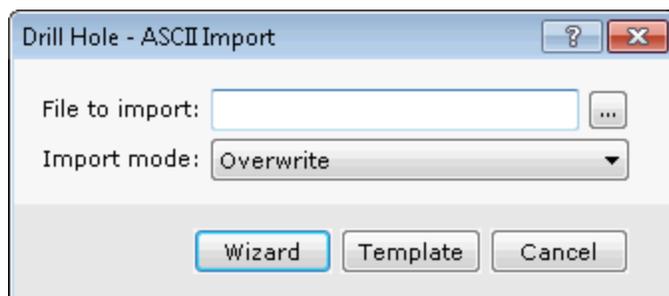
2.

3. Using the **Browse** button, select the geochemical assay file from your working directory.

4. Click the **Open** button. The system returns you to the *Drill Hole – ASCII Import Wizard* dialog box and displays the file name you wish to import.

5. Click the **OK** button. The system scans the file and displays the first of five dialog boxes from the *Drill Hole Import Wizard*. Here the system has determined that the *Data Input Format* is ASCII Data. The *Types of Data to import* should default to From-To Data, based on the information you have provided.
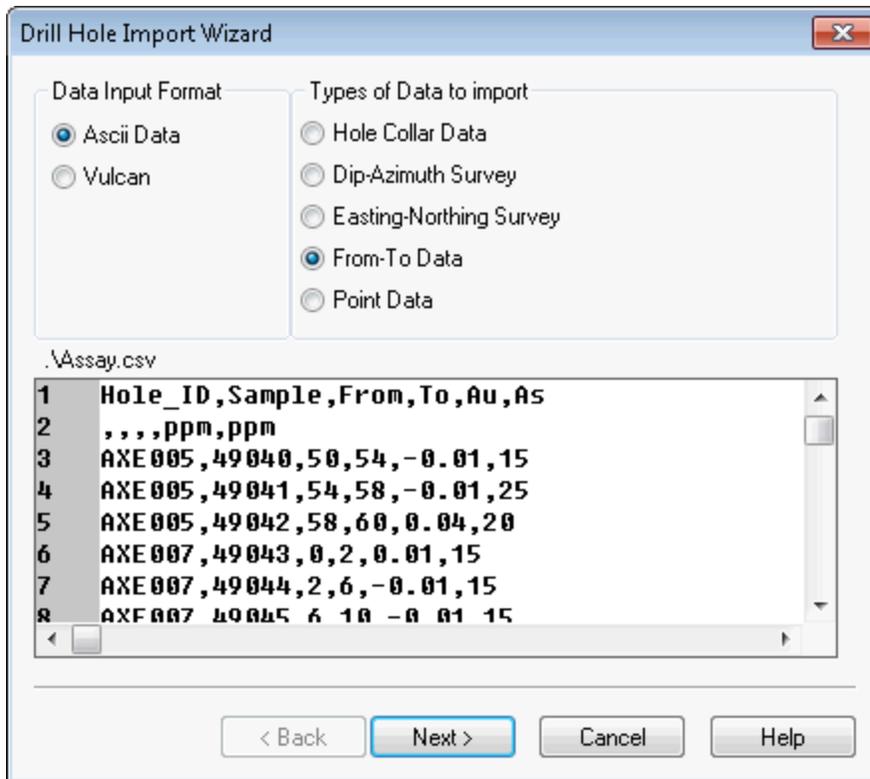
6. Click the **Next>** button. The system displays the second dialog box in the *Drill Hole Import Wizard*.
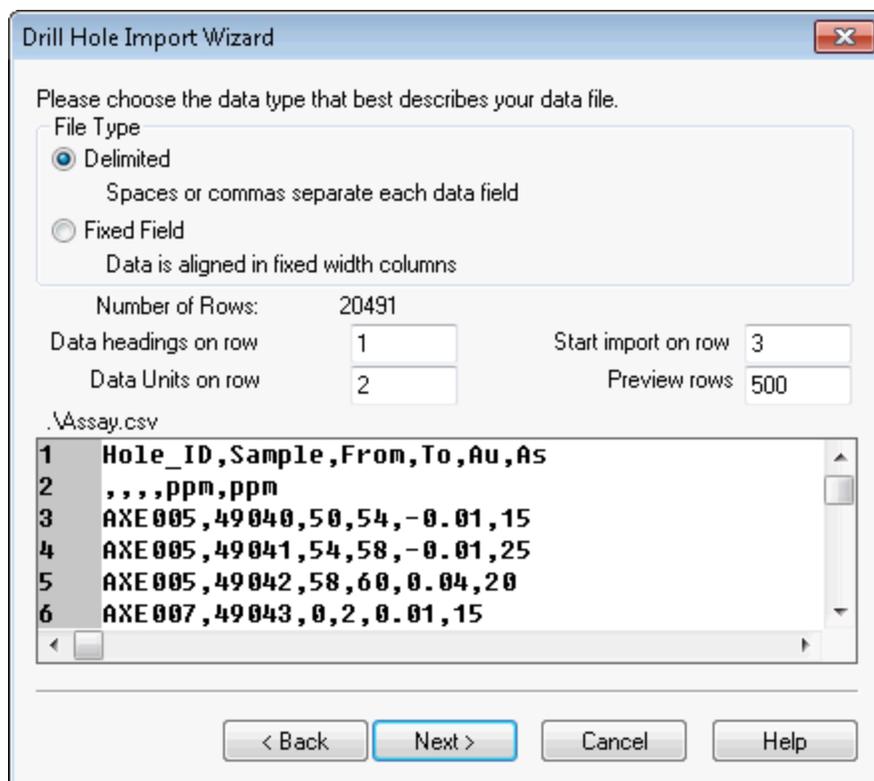
7. In the four fields in the middle of the dialog box specify which line in the file contains the data headings (i.e. channel names), data units ("m" or "ft" etc.), which line to begin importing data and the number of lines to display in the preview window.

⚠️ *When importing Assay data all elements are assigned the Class 'ASSAY' (Channel Type). Standards and Duplicates are also identified, enabling montaj Geochemistry users to extract the information using the normal Geochemistry tools.*

8. Click the **Next>** button. The system displays the third dialog box in the *Drill Hole Import Wizard.*
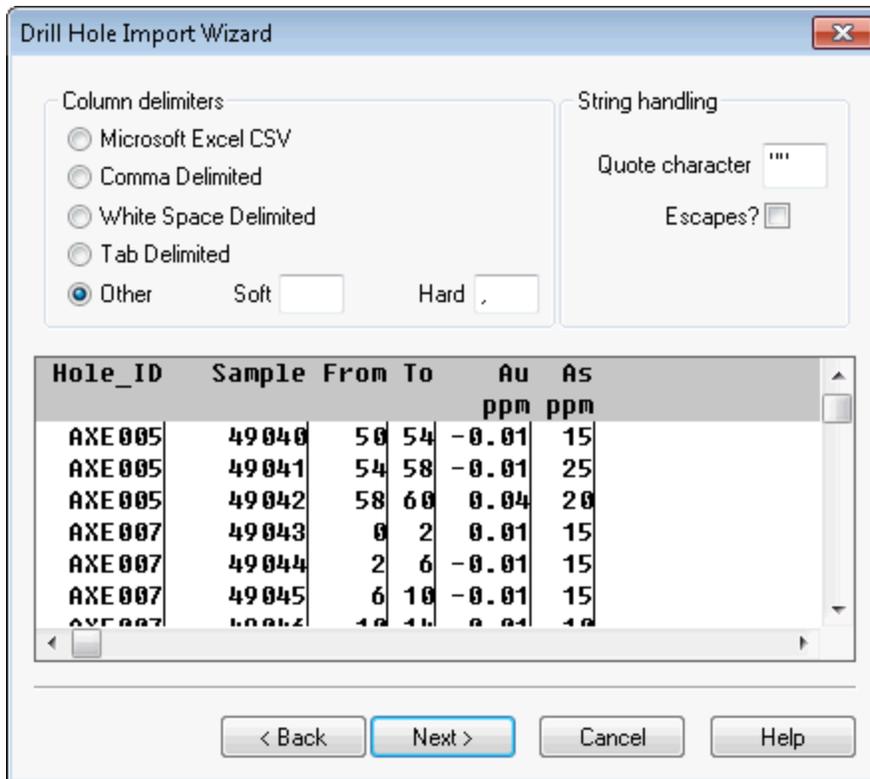
9. Specify the Column delimiters for the type of character used to separate the column text.

10. Click the **Next>** button. The system displays the fourth dialog box in the *Drill Hole Import Wizard.*
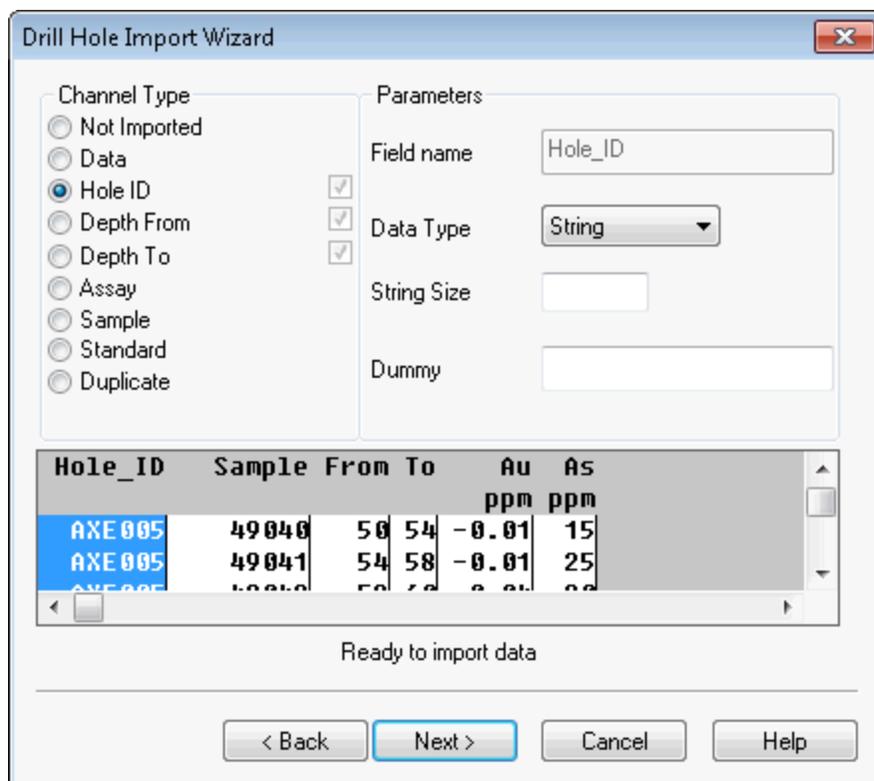
11. Highlight a channel by clicking on it and specify the *Channel Type* and *Parameters* for each channel you would like to edit.

12. Before the import is complete, the system displays a fifth dialog box. The purpose of this dialog box is to enable you to specify a unique name or description for your data. The name chosen will be appended to the corresponding holes in the database for easier access and recognition of your data.
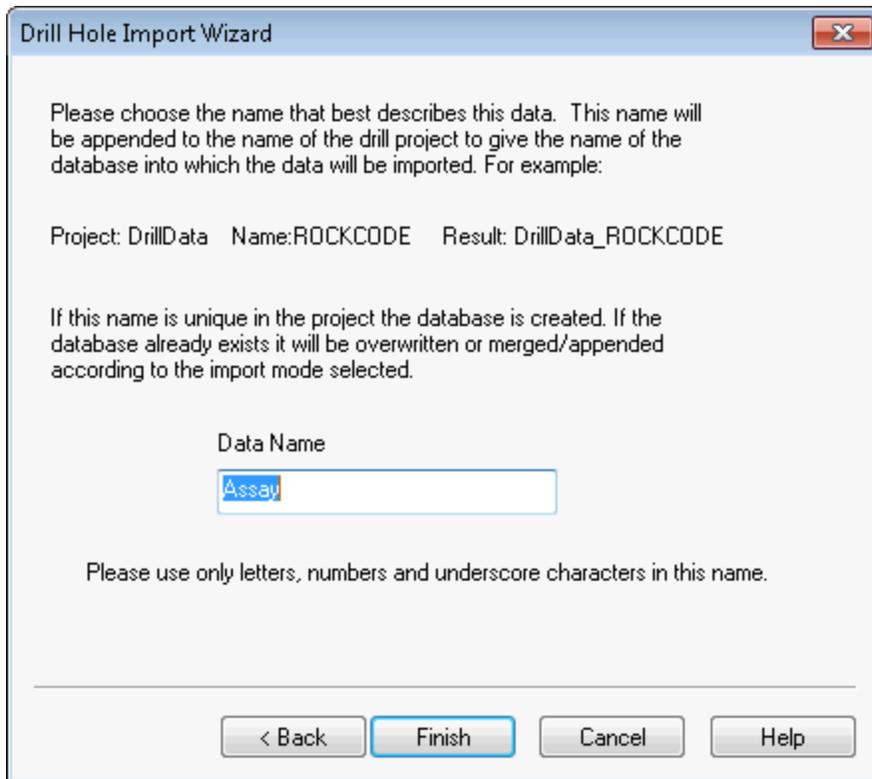
13. Specify a *Data Name* for this data (e.g. Assay) and click the **Finish** button. The system imports your data and displays it in the spreadsheet window.

💡 *At this point, the Geochemistry extension tools can be used for users with this license. Refer to the* **Help** *for more information.*

Creating a Composite Database

The Drillhole system provides the ability to create a composite database from an input From-To assay database. The composite database will include all the selected holes from the input database and the From, To, Mask channels and all the assay channels from the input database.

The From and To channel data values are determined by the interval method and values selected. The Mask channel data values in the output database are set to 1. All assay channel data are composite values determined by the composite From/To data and the input assay channel data as well as any reject options applied

The composite method ensures that the integrated value in the output database matches the integrated value over the equivalent interval in the input database (apart from those cases where a weighting channel is used).

**To Create a Composite Database**

1. On the *DH-Data* menu, click **Composite Database**.
   The *Drill Hole Composite Database* dialog is displayed.
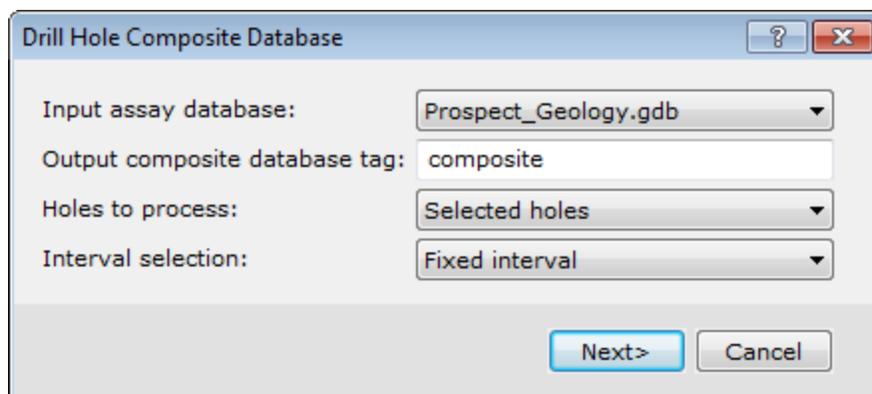
2. Using the Input assay database dropdown list, select the input "assay" database and continue specifying or selecting the dialog parameters that best suits your data. Click the **Next>** button to move to the next dialog.

3. Click the **Finish** button to create the composite From-To assay database. For more information on the Drillhole Composite Database dialog parameters click the **Help** button.

GIS Import

The Target system also includes a wide range of GIS import formats as shown on the *Surface Mapping | GIS Import* menu below:
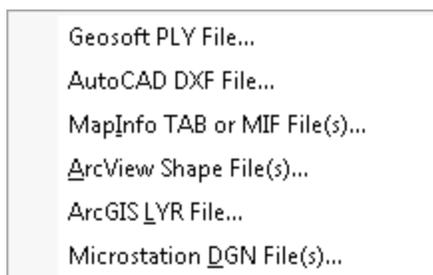
⚠️   *For detailed information on these GIS Import formats, click the **Help** button on the individual dialogs.*

Save a Database

It is always a good habit to save changes you make to your databases, including new databases.

To Save your Databases

1. Select (highlight) the database to be saved, and click the **Save Database Changes** button on the main Standard Bar. The database will be saved in your current working folder.

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