GeoInfo Tools Database User's Manual

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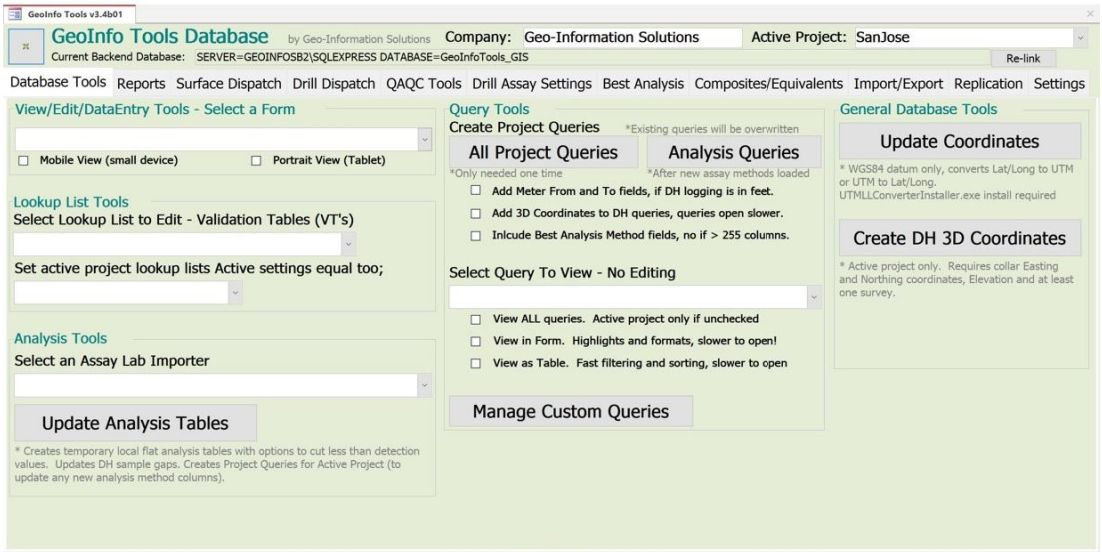
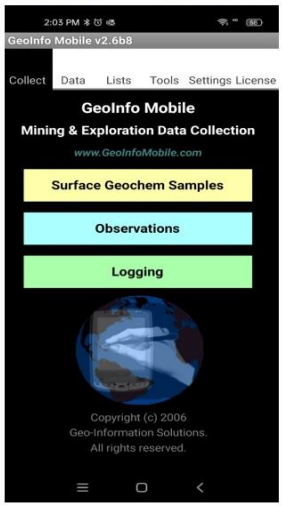
GeoInfo Tools Database



GeoInfo Mobile

Mobile Field Database Software

www.GeoInfoMobile.com



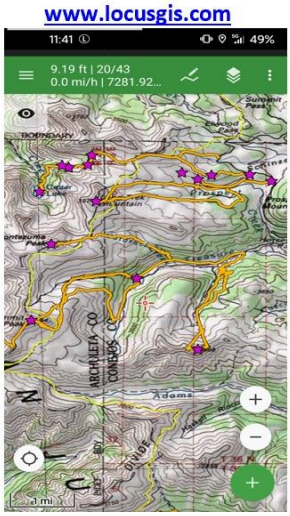
Integrated Data System

GIS, Mine Modeling, And Other Software

Locus GIS

Mobile GIS GPS Mapping Software

www.locusgis.com



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What Is the GeoInfo Tools Database?

GeoInfo Tools is a corporate or personal database solution for the mining and mineral exploration industry. Surface geochemistry samples, field observations, drill/trench/blast hole/underground log data and assay lab and XRF analysis data are managed in the GeoInfo Tools database, and tools are provide to analyze the data.

The complete information system offered by Geo-Information Solutions involves collecting field data using GeoInfo Mobile software (www.GeoInfoMobile.com) on tablet and handheld mobile computers, importing this data into the GeoInfo Tools database, and then importing assay results into the database to complete the data collection. The GeoInfo Tools database is then used to manage and facilitate analysis of the data. Each software solution can be used independently but the complete system provides a start to finish data management solution.

Database tools include;

- **Query views** - queries present the data as needed for presentation and analysis, and direct linking via ODBC to these queries is supported by most 3rd party GIS, mine modeling and statistical software packages. Queries can be exported to Access, Excel or CSV format files. Queries are the foundation of work with your data.
- **GeoInfo Mobile field data collection importers** – field data collected using GeoInfo Mobile software (www.GeoInfoMobile.com) on tablet and handheld computers is directly imported into the database.
- **Lookup list validation tables** – data stored in the database is validated against lookup list validation table values providing integrity to each piece of information stored in the database. An Active field setting for each value in a lookup list allows users to customize visible lists by project. Lookup lists are exported then imported into GeoInfo Mobile so integrity rules are enforced in the field at the rock interface.
- **Assay lab importers** - assay lab importers exist for most assay labs (and new ones are easily added) and portable XRF devices. Assays are loaded directly from assay lab files and each analysis is stored with sample number, element, unit, preparation, digestion, analysis method, fraction, batch, lab, load date and load file name.
- **Assay results processing** – assay result tables are created for each project and users have the option of cutting less than detection values to the industry standard half the detection level, and also have the option to cut less that detection values to half the lowest detection level if multiple detection values exist for a single element-analysis method-digestion.
- **View/Edit tools** – forms for geochemistry samples, field observations, drill hole logs, blast hole logs, trench logs, and underground working logs can be used to create, review and edit data.

- **Coordinate re-projection** – coordinates stored in WGS84 datum are automatically converted to and from Latitude/Longitude (native GPS) and UTM.
- **3D coordinates** – coordinate pairs for the start, end and center of each logged data interval in the database can be created from the collar coordinate and a survey log. A companion tool has been programmed for ArcGIS to allow creating attributed line segment intervals on maps using the 3D coordinates.
- **Reports** – project reports for drill hole data are built-in, and a custom report tool allows users to create custom drill hole/trench reports with any data they choose to include. Reports can be printed or saved to PDF format.
- **Sample dispatch** – dispatch is managed by the database and Excel spreadsheets and reports are automatically created to provide to the lab. Users have the option of randomizing samples for dispatch and analyses at the lab.
- **QAQC tools** – QAQC data is stored in the database and tools are available for working with this data, which include QAQC reference value plot tools, randomized data plots, reanalysis tool, queries to compare the results, and automatic logging insertion settings.
- **Drill assay settings** – analysis result order, decimal places and highlight values are set for each element of interest. Highlight settings provide highlighted assays in log forms and reports.
- **Best analyses** – best analyses can be set up for each element in a project. Best analyses fields present the best available analysis for an element where more than one analysis/digestion method exists for the same sample. Unit of measure is set and calculations to that unit are automatic. Users have the option of setting a Cut Value limit if desired. Best analyses are where over limit results are assured of being used!
- **Drill hole composites and equivalents** – elements for inclusion, highlight values, and equivalent element, metal price and recovery values are set so the user can log composite intervals after assay results have been loaded into the database. The log composite creation tool is interactive so users can play “what if” and see calculated results immediately. An auto-composite tool creates/logs composites for holes automatically based on user specified criteria.
- **Export** –queries can be exported by project, prospect, area, drill hole, or query. Exports can be to Access, Excel or CSV format.
- **Database replication** – can be setup to allow automatic network or internet synchronization of multiple disconnected databases.

Data is managed by project so each project can have independent settings.

GeoInfo Tools is the foundation of a company’s data system; it serves data to other analysis software tools.

Hardware/Software Requirements

GeoInfo Tools requires Microsoft Access 2007 or later, which can run on Windows XP through Windows 11. A free runtime version of Microsoft Access can be used with GeoInfo Tools it will just have limited use beyond the tools provided in GeoInfo Tools (so no customization possible). Free Access 2016 runtimes can be downloaded and installed from here https://www.microsoft.com/en-us/download/details.aspx?id=50040 .

SQL Server is required for the SQL Server backend version. The free SQL Server Express version can be used with GeoInfo Tools databases less than 10 gigabytes; which is normally plenty of space for companies with multiple project. The free version has limited performance but GeoInfo Tools is designed to limit this issue as much as possible.

Some of the database tools require significant processing so a good computer is recommended; most important is hard drive speed. Database size is generally 0.5 to 6 gigabytes (SQL Server backend) so hard drive size in not too important. The database has been tested and works on lesser computers (and even low power Windows tablets) if needed, but it will be a little slower to work with.

Installation

GeoInfo Tools is split database consisting of two databases.

The front-end application database, *GeoInfoTools_Application.accdb*, contains all the application tools; this is the application that users work with. No original data is stored in the front-end application database, only temporary data tables, queries, forms and tools.

The backend database contains all the raw data tables and is only used to store data. The backend database can be either an Access database; *GeoInfoTools_Backend_CompanyName.mdb*, or an SQL Server database; *GeoInfoTools_CompanyName.* **This is the data and should be backed up regularly!** The backend data tables are linked to the front-end application database so the backend is transparent to the users who work solely in the front end application. The backend database DOES NOT and SHOULD NOT be opened by users; the GeoInfo Tools front end application manages the backend.

Install Microsoft Access

GeoInfo Tools frontend application requires Microsoft Access be installed. Users can use a full version of Access, 2007 to 2016 (also part of Office 365), or if users do not have Office installed a free runtime version of Access 2016 can be downloaded and installed here; https://www.microsoft.com/en-us/download/details.aspx?id=50040 .

Install GeoInfo Tools

Download and install the GeoInfo Tools Application, like *GeoInfoToolsInstaller_v3.4b02.exe*. This installs the GeoInfo Tools application (into the *C:\GeoInfoTools* directory), add-ins (Coordinate Converter and Access Imagine), ODBC drivers, creates a program files shortcut to run GeoInfo Tools, and creates some required directories in the *C:\GeoInfoTools* directory.

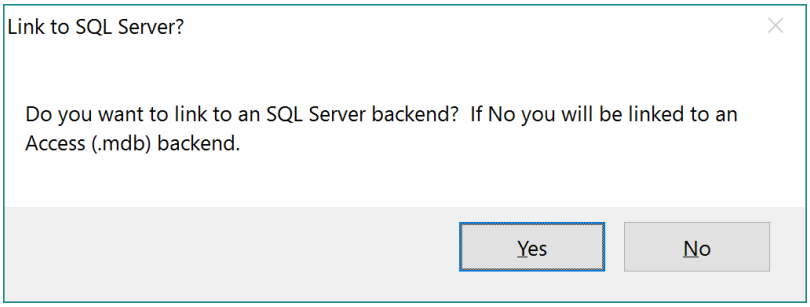
Upgrade GeoInfo Tools

After the latest version of the GeoInfo Tools Installer is installed as described above, minor updates are distributed as a single file upgrade. Download the latest GeoInfo Tools application (like *GeoInfoTools_Application_v3.4b03.zip*), unzip the *GeoInfoTools_Application.accdb* file from the download, and replace *C:\GeoInfoTools/GeoInfoTools_Application.accdb* with the new updated application.

Access Backend Setup

Copy the provided GeoInfo Tools backend database, like *GeoInfoTools_Backend_CompanyName.mdb*, to the *C:\GeoInfoTools_Management\Backend* directory.

Open GeoInfo Tools from the Windows Program Files list (Pin to Start Menu for easy access). If prompted to "Link to SQL Server" select **No**. If not prompted click the Re-link button in GeoInfo Tools. In the file chooser dialog locate the backend database that was just copied to the *C:\GeoInfoTools_Management\Backend* directory.



MaxLocksPerFile Registry Edit – Access Replicated Database Only

Replicated database synchronization errors related to **MaxLocksPerFile** are not an indication of a corrupt database. Registry settings need editing. Computers with replicated database need to edit the MaxLocksPerFile setting. MaxLocksPerFile errors usually shows up after a significant amount of assay data has been loaded into the database (lots of locks required), or if a user has not synchronized in a long time.

Change the registry as follows;

- Change **all** MaxLocksPerFile setting values (default 9500) to 200,000 in your Registry as per this Microsoft support article http://support.microsoft.com/kb/815281 , method 1. Note 64 bit OS system. Make sure to change **all** the MaxLocksPerFile entries in your registry not just the one Microsoft indicates. Use menu Edit-Find tool (starting at the top) in the RegEdit program to find and change all MaxLocksPerFile values. Edit values in Decimal not Hex.

  **note; to start regedit.exe in Windows, click the Windows Start (windows 7) or the search button (windows 10) then type regedit.exe in the search box at the bottom.*

SQL Server Backend Setup

Install SQL Server

If you are running the GeoInfo Tools SQL Server backend on a server with multiple users connected directly to a single backend database on the server (not replicated) then you will want to install SQL Server Enterprise or Standard on the server. There is no need to install SQL Server on the client computers as they will be linking to the server version of SQL Server.

If you are running GeoInfo Tools on a stand-alone computer, you will want to install SQL Server Express (follow the instructions below to install SQL Server Express on a client computer).

If you are running the GeoInfo Tools SQL Server backend as a replicated backend database, then you will need SQL Server Enterprise or Standard installed on the replication host server and SQL Server Express installed on each client computers.

GeoInfo Tools SQL version runs on SQL Server version 2012 and later. SQL Server Express is a free version of SQL Server that can run GeoInfo Tools for most databases except very large ones (greater than 10 gb).

If you are going to use database replication, then you have to install the same or up to one lower version of SQL Server locally as the version on the publisher server, so ask the publisher for the server version.

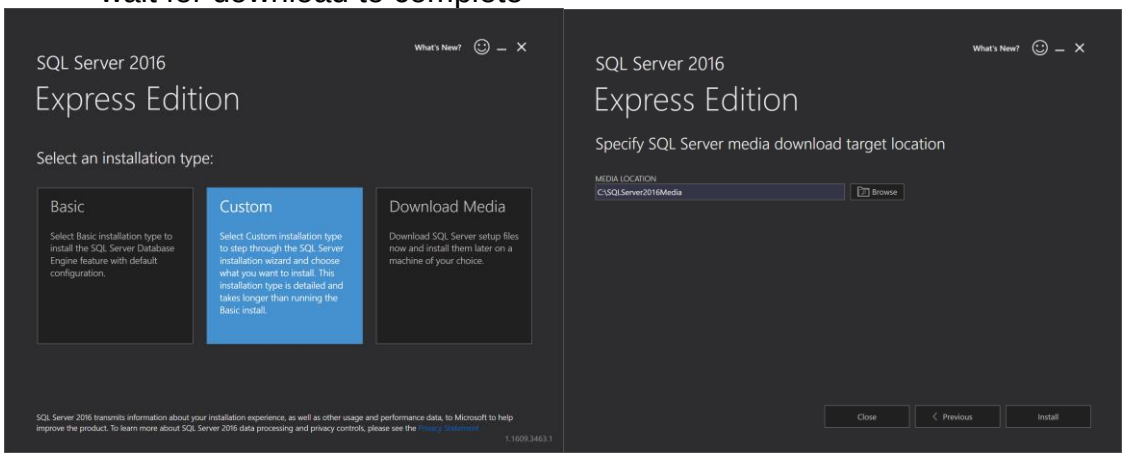
Example for Installing SQL Server Express on a client computer;
Download and install the SQL Server Express.

- SQL Server Express 2016 can be downloaded here; Download Microsoft® SQL Server® 2016 Service Pack 2 Express from Official Microsoft Download Center. Download and Install Express (SQLEXP) as you do not need Express Advanced (SQLEXPADV).
- SQL Server Express 2014. Download and install the SQL Server Express and Tools version;
    - ExpressAndTools 64BIT\SQLEXPRWT_x64_ENU.exe for 64 bit Windows
    - ExpressAndTools 32BIT\SQLEXPRWT_x86_ENU.exe for 32 bit Windows.
    - SQL Server Express 2014 can be downloaded here; https://www.microsoft.com/en-us/download/details.aspx?id=42299.
- SQL Server Express 2012. Download and install the SQL Server Express and Tools version;
    - ENU\x64\SQLEXPRWT_x64_ENU.exe for 64 bit Windows
    - ENU\x86\SQLEXPRWT_x86_ENU.exe for 32 bit Windows.

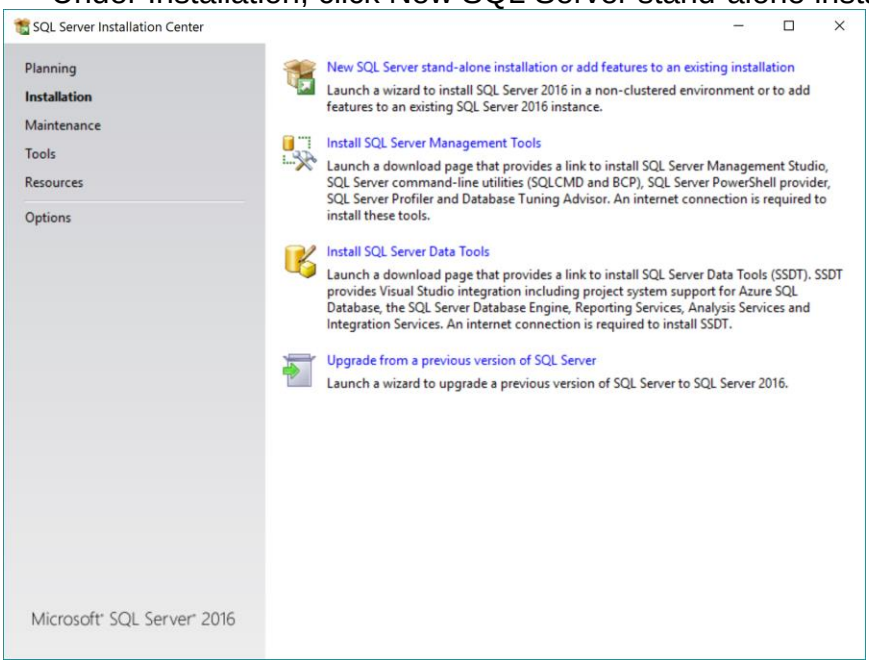
- SQL Server Express 2012 can be downloaded here; https://www.microsoft.com/en-us/download/details.aspx?id=29062.

SQL Server 2016 Example;

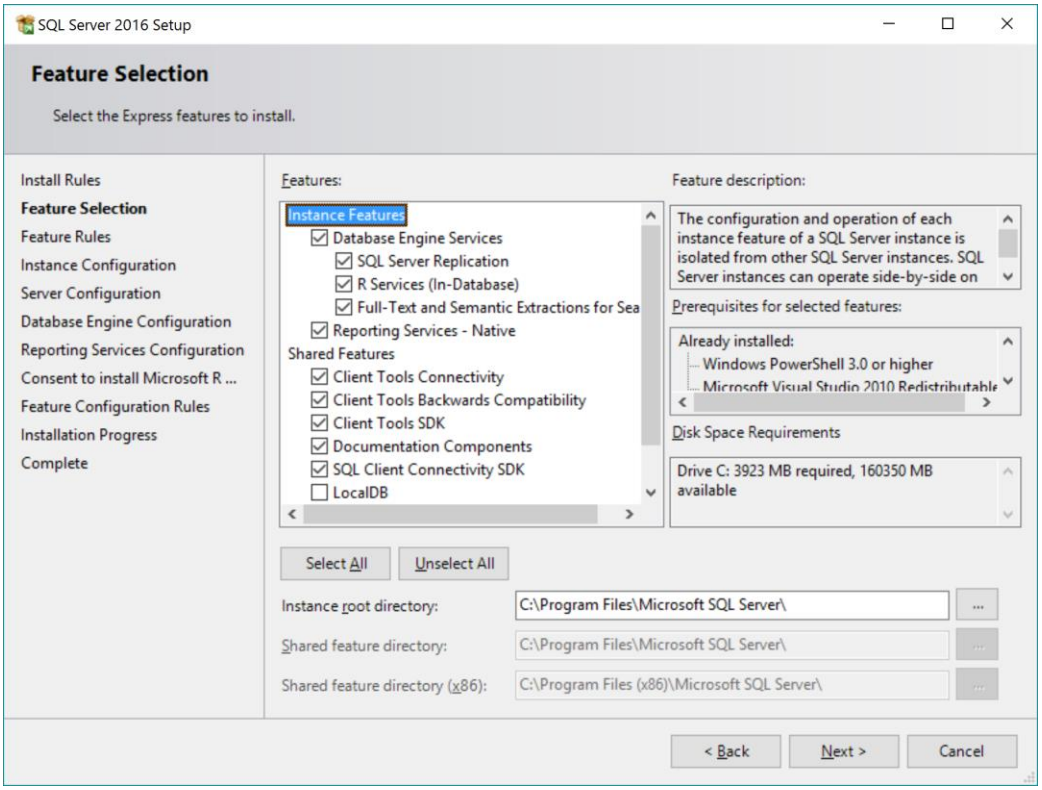
- Start the SQL Server Express installer, *SQLServer2016-SSEI-Expr.exe*.
- Choose Custom installation type. Use default media location, click install, wait for download to complete



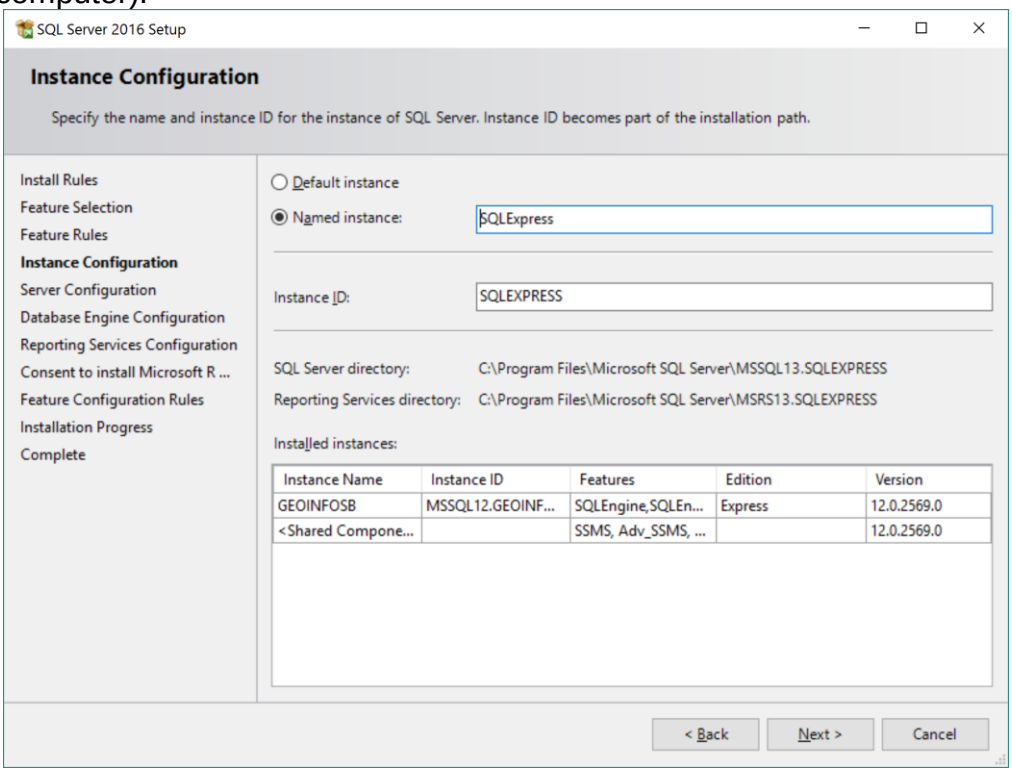
- Under Installation, click New SQL Server stand-alone installation



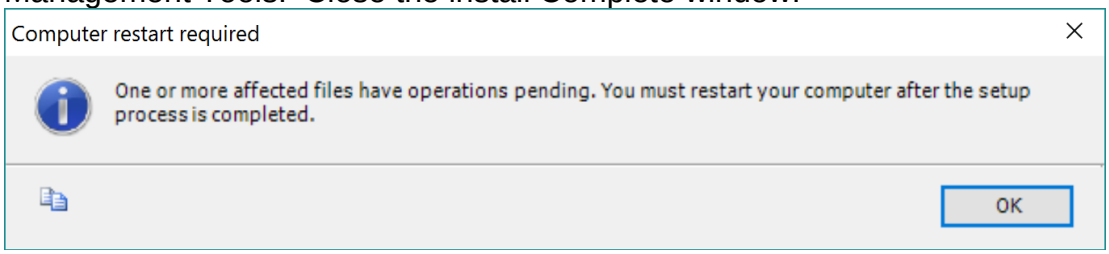
- Accept License terms, include updates, click Next after Install Rules.
- Feature Selection – defaults as shown below are good;


SQL Server 2016 Setup
Feature Selection
Select the Express features to install.
Install Rules
Feature Selection
Feature Rules
Instance Configuration
Server Configuration
Database Engine Configuration
Reporting Services Configuration
Consent to install Microsoft R ...
Feature Configuration Rules
Installation Progress
Complete
Features:
Instance Features
Database Engine Services
SQL Server Replication
R Services (In-Database)
Full-Text and Semantic Extractions for Sea
Reporting Services - Native
Shared Features
Client Tools Connectivity
Client Tools Backwards Compatibility
Client Tools SDK
Documentation Components
SQL Client Connectivity SDK
LocalDB
Feature description:
The configuration and operation of each instance feature of a SQL Server instance is isolated from other SQL Server instances. SQL Server instances can operate side-by-side on
Prerequisites for selected features:
Already installed:
Windows PowerShell 3.0 or higher
Disk Space Requirements
Drive C: 3923 MB required, 160350 MB available
Select All
Unselect All
Instance root directory:
C:\Program Files\Microsoft SQL Server\
Shared feature directory:
C:\Program Files\Microsoft SQL Server\
Shared feature directory (x86):
C:\Program Files (x86)\Microsoft SQL Server\
< Back
Next >
Cancel

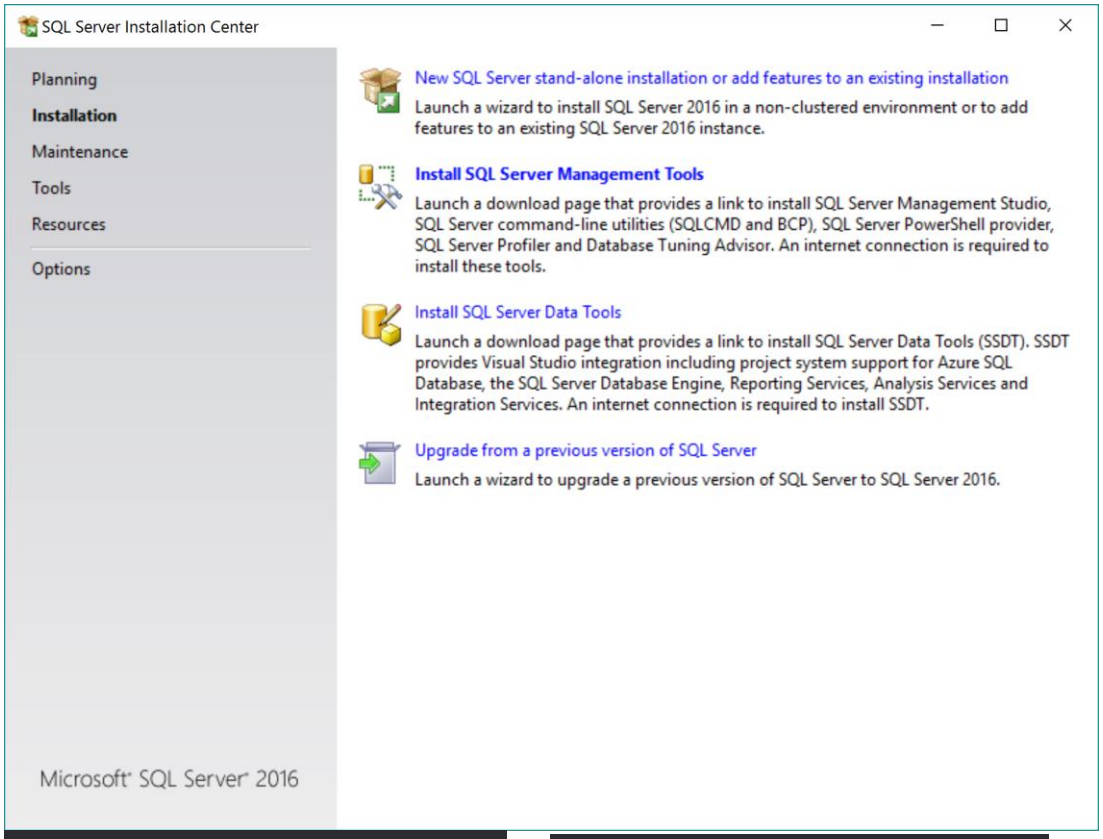
- **Instance Configuration** – choose **Named** instance, use default name SQLExpress or any other you choose (maybe the same name as your computer).

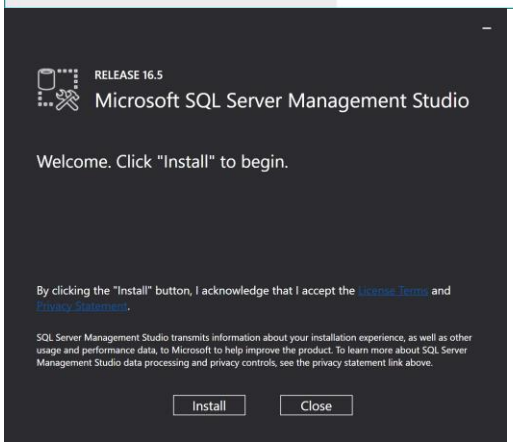


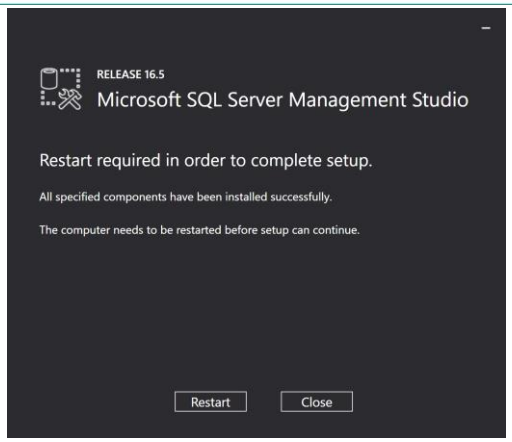
- Use defaults for Server Configuration, Database Engine Configuration, Reporting Services Configuration, Accept install Microsoft R Open and Feature Configuraton Rules. Click Next through these accepting the default settings. Wait for the install to complete.
- When the install is complete you may need to reboot your comuter to complete the install, but wait untill you after finishing installing SQL Server Management Tools. Close the install Complete window.



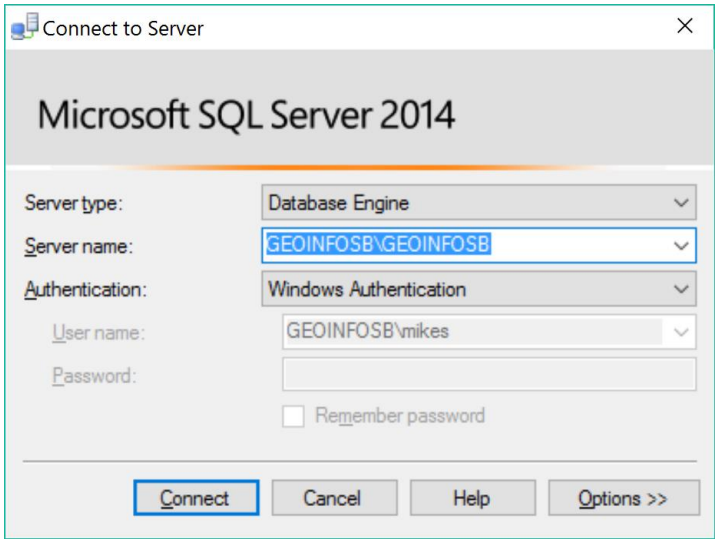
- Back at the initial installation screen, select Install SQL Server Management Tools (some versions already have installed it for you). From the download page download the GA release for production use. When the download is complete, Run the setup file, *SSMS-Setup-ENU.exe*. After the install is complete, click Restart to complete the installation. This all that is required to install SQL Server for GeoInfo Tools.





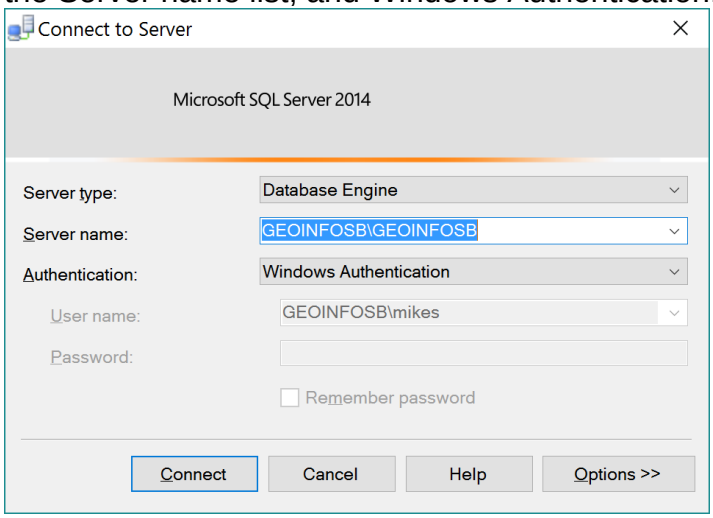


***If replicating your database.** Once SQL Server is installed send your database administrator the name of your SQL Server instance so setup scripts can be created for your computer. The SQL Server instance follows this format \\YourComputerName\YourSQLServerInstanceName, like \\GEOINFOSB\SQLEXPRESS. To get the instance name open SQL Server Management Studio and in the Connect to Server dialog look for the server name. You may need to browse for your installed server name if it does not show initially.

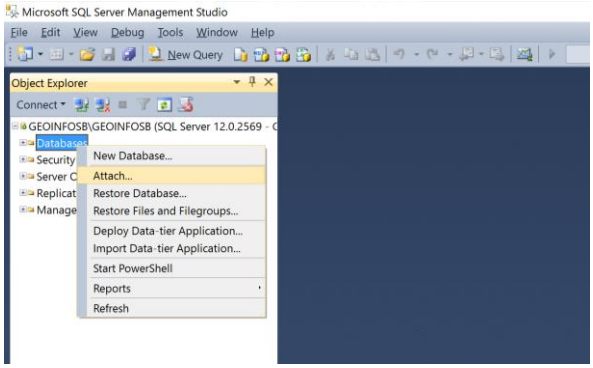


Non Replicated SQL Server Backend Database Setup

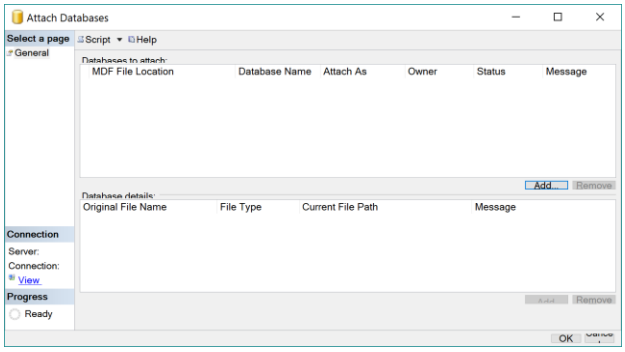
- Copy the provided GeoInfo Tools database files, *GeoInfoTools_XXXXXXXXXXX.mdf* and *GeoInfoTools_XXXXXXXXXXX.ldf*, to the *C:\GeoInfoTools_Management\Backend* folder.
- Open SQL Server Management Studio.
- When prompted to connect to a server, select your installed instance from the Server name list, and Windows Authentication. Click Connect.



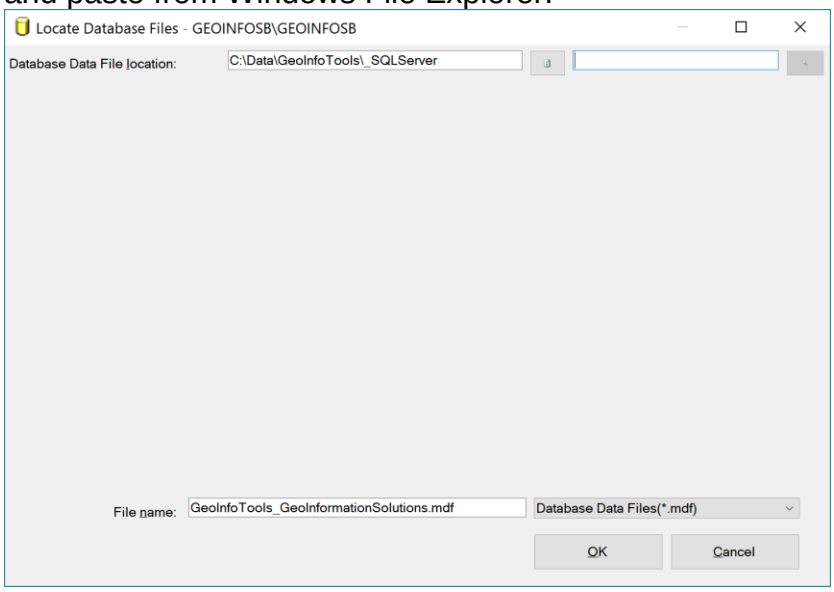
- In the object browser of SQL Server Management Studio right click on Databases and select Attach.



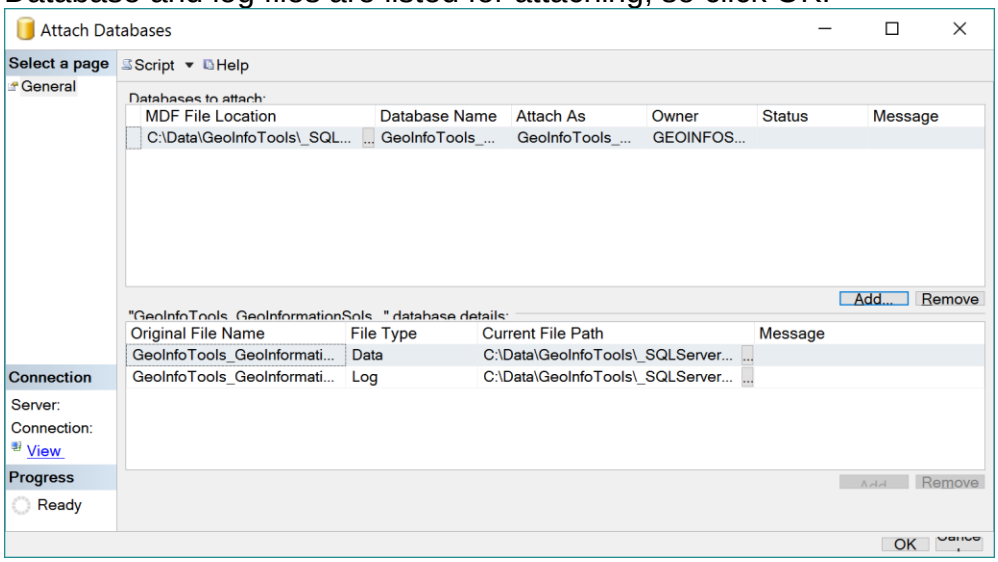
- In the Attach Database form click Add.



- In the Locate Database Files form enter the location (*C:\GeoInfoTools_Management\Backend*) of the GeoInfo Tools database files and the File name, *GeoInfoTools_XXXXXXXXXXX.mdf.* Click OK. Sometimes the file picker does not work here so you might need to copy and paste from Windows File Explorer.

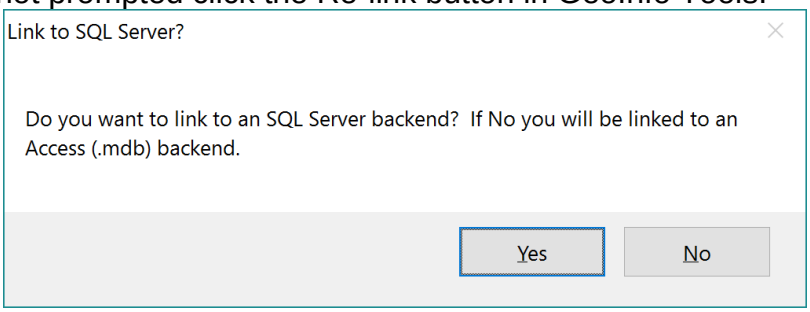


- Database and log files are listed for attaching, so click OK.

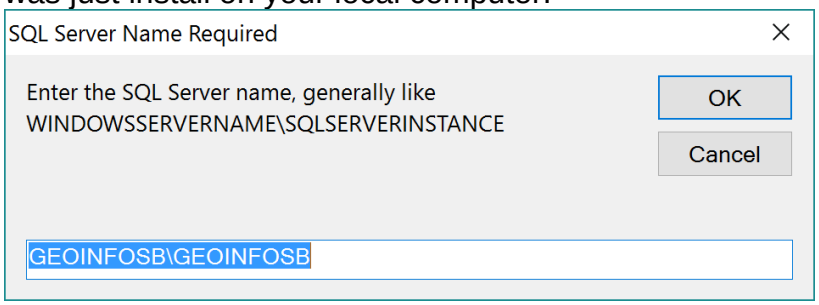


- Close SQL Server Management Studio

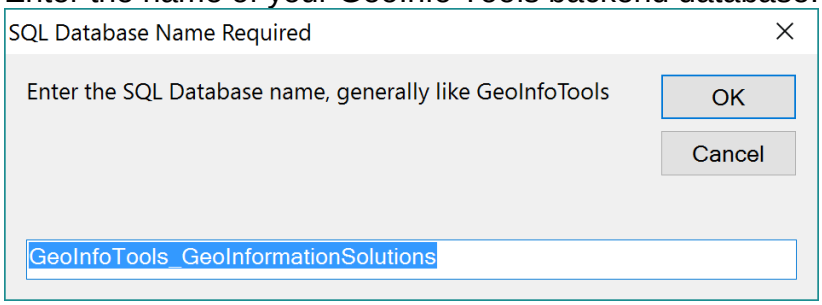
- Open GeoInfo Tools from the Windows Program Files list (Pin to Start Menu for easy access). If prompted to “Link to SQL Server” select **Yes**. If not prompted click the Re-link button in GeoInfo Tools.



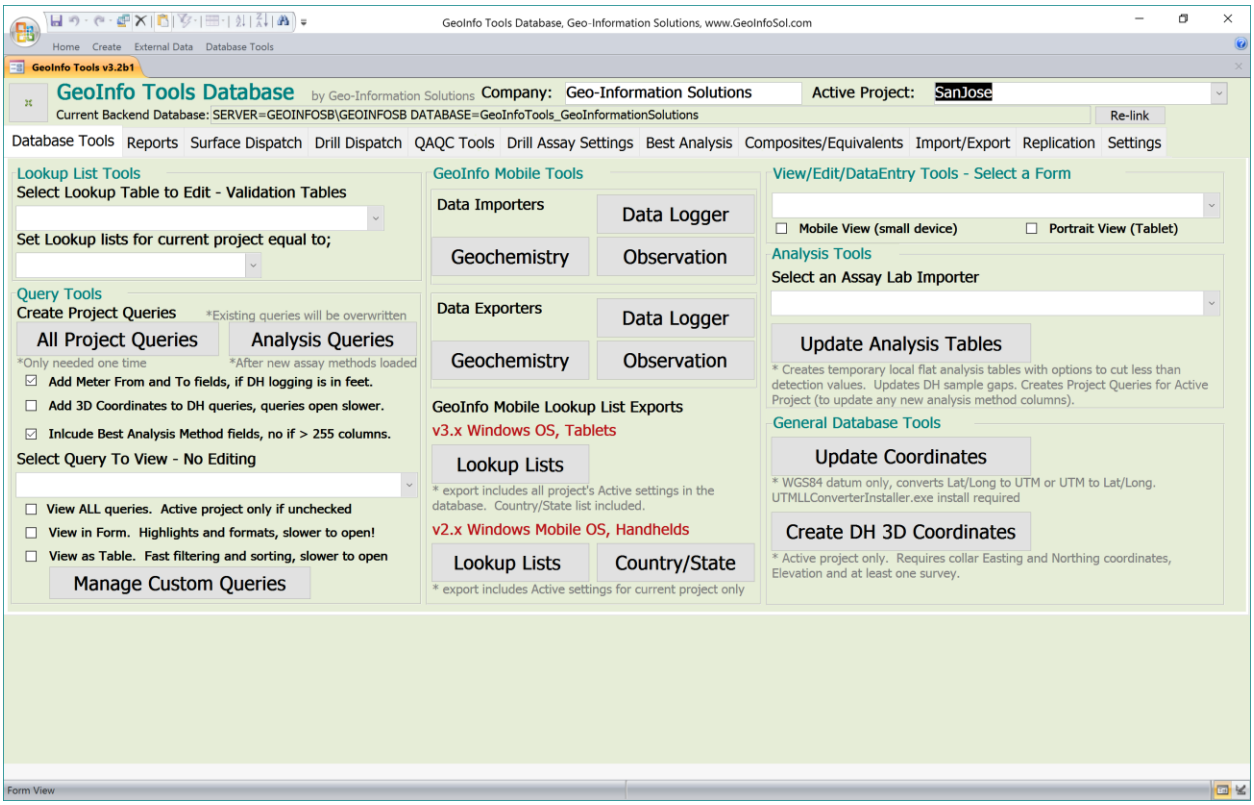
- In the SQL Server Name field enter the SQL Server instance name that was just install on your local computer.



- Enter the name of your GeoInfo Tools backend database.



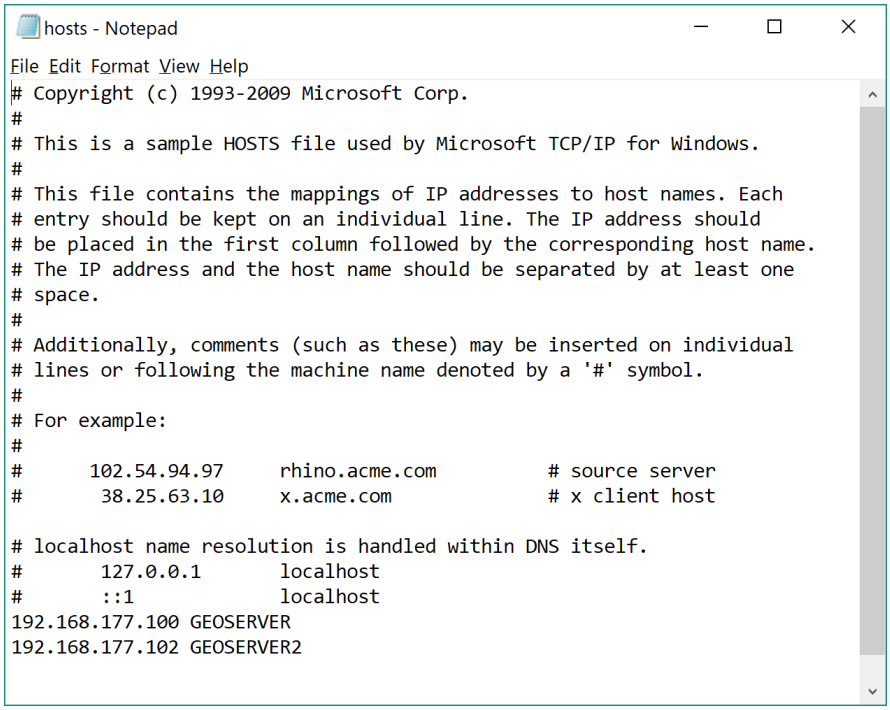
- The GeoInfo Tools Application will link to your SQL Server backend database and open the main application screen when it is complete. Select an Active Project, or edit the VT_Project lookup tablet to all available projects.



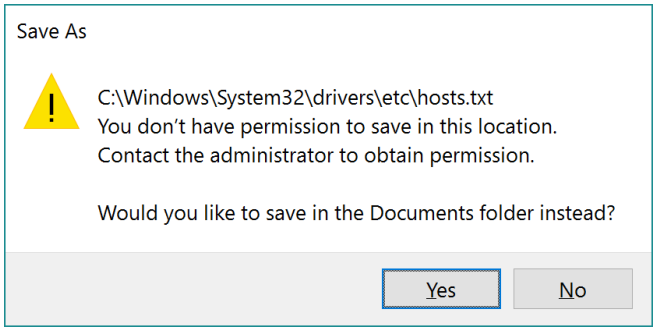
Replicated SQL Server Backend Database Setup

Edit Hosts File

Add IP and server name of the publication server, like 192.168.177.102 GEOSERVER2, to your local *hosts* file, *C:\Windows\System32\drivers\etc.* Locate the *hosts* file, right click and click Open with, select Notepad. Add a host like 192.168.177.102 GEOSERVER2 to the bottom of the file.



When you Save the file, Windows will not let you for security reasons, so save it to the Documents folder instead as prompted. Save without the .txt extension, with no extension.



Then copy the new host file in the *C:\Windows\System32\drivers\etc* directory replacing the existing one.

**if you are having problems replacing the hosts file it is likely being blocked by your anti-virus software, change its setting to allow it.*

Subscribe to GeoInfo Tools Replicated Database

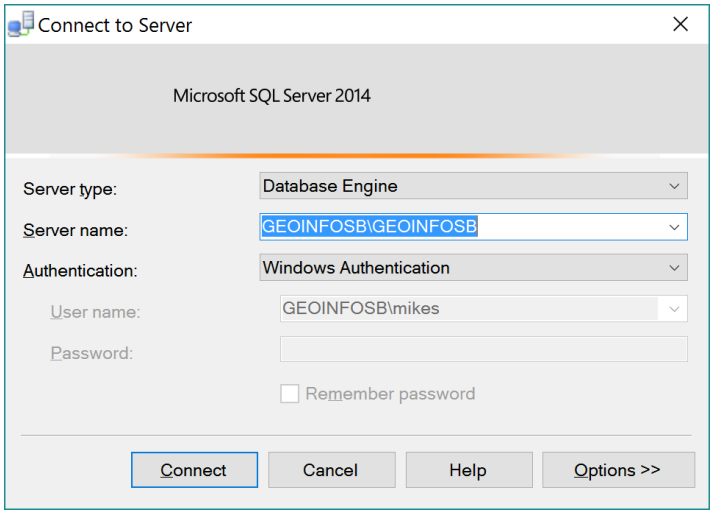
Copy the *1_NewSubscription_XXXXXXXXXXX_GeoInfoTools_XXXXXXXXXX.sql* setup file provided by the database administrator to the *C:\GeoInfoTools_Management\Scripts* directory.

A replicated database is not attached to SQL Server like a non-replicated database. Instead, a subscription is made to the SQL Server publication, hosted in a company office or by Geo-Information Solutions. A subscription will copy/pull the database to your computer and attach it to your instance of SQL Server.

The GeoInfo Tools database administrator should provide each user with a SQL script, like *1_NewSubscription_XXXXXXXXXXX_GeoInfoTools_XXXXXXXXXX.sql*, that can be run in SQL Server Management Studio. Running this script will create the GeoInfo Tools database and create a merge subscription to the GeoInfo Tools database publication.

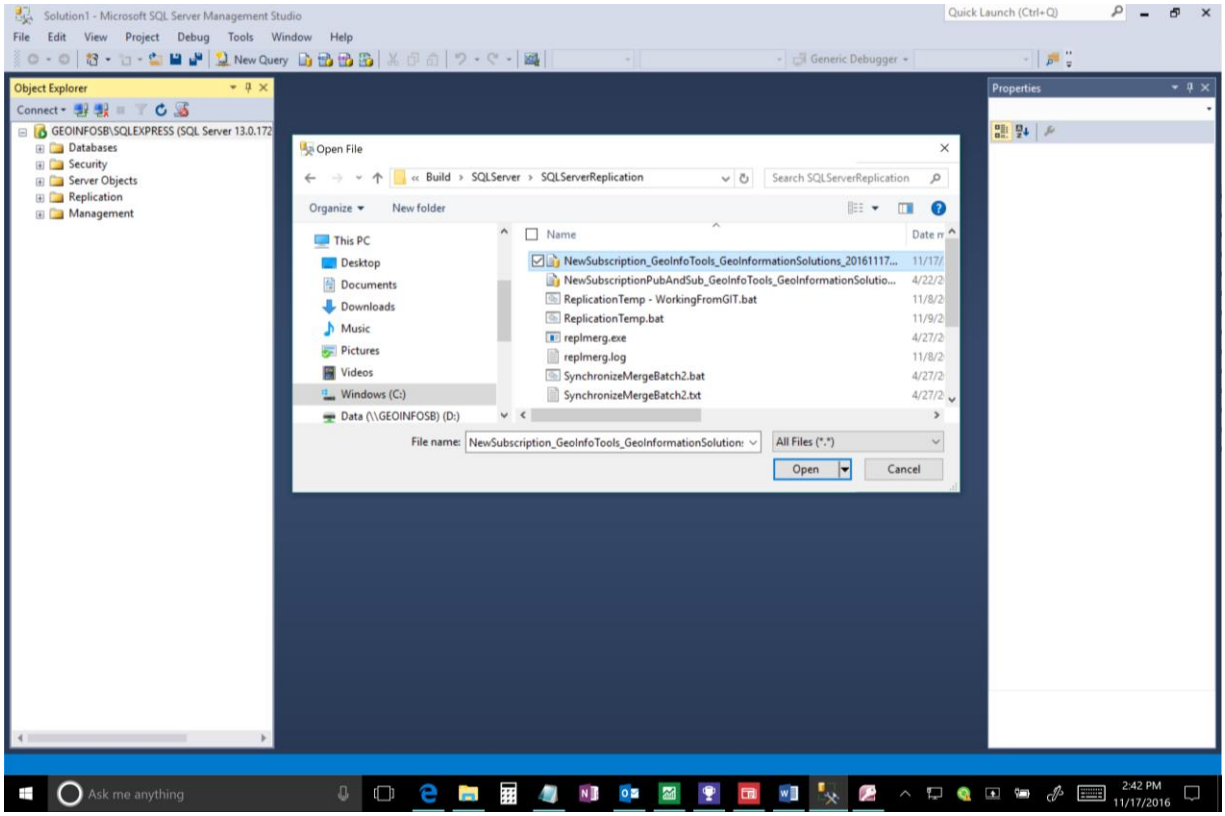
Either double click *1_NewSubscription_XXXXXXXXXXX_GeoInfoTools_XXXXXXXXXX.sql* from Windows File Explorer or Open SQL Server Management Studio on your local computer.

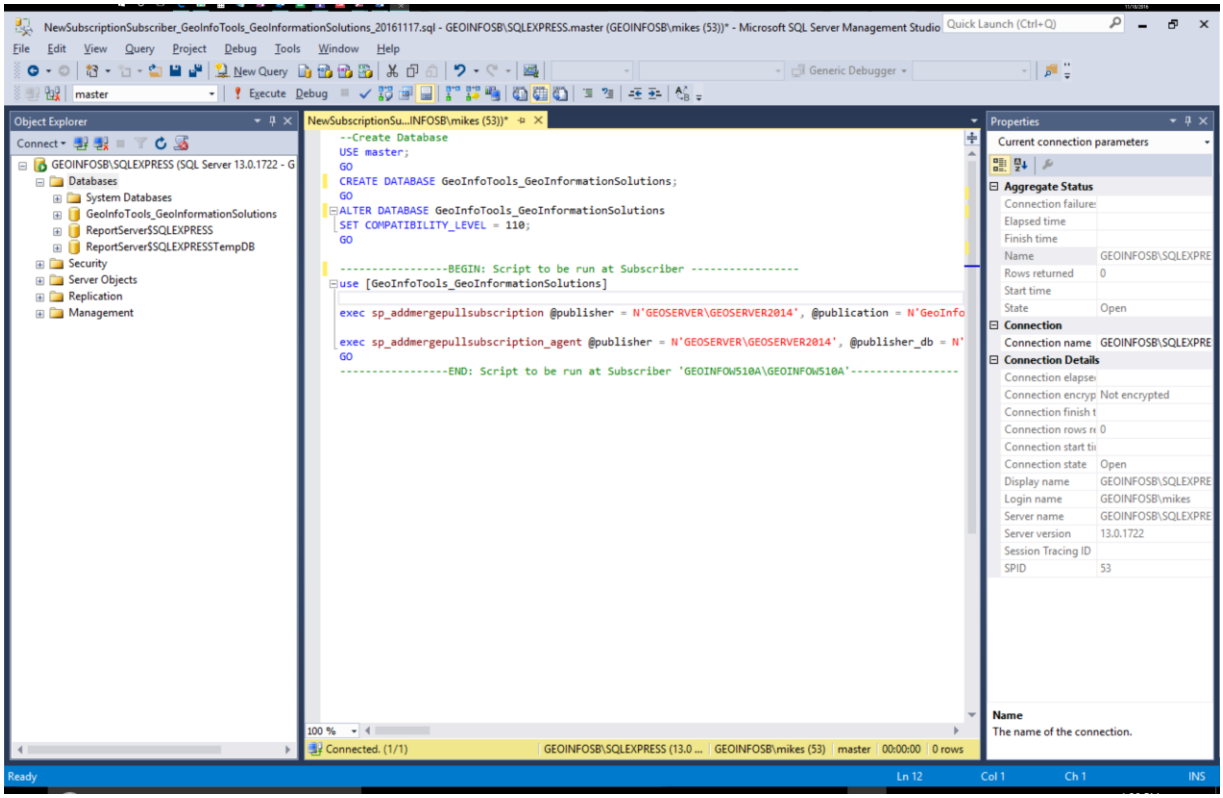
- Connect SQL Server Management Studio to your local SQL Server instance.



- If the sql script does not open automatically (double clicked from Windows File Explorer), in SQL server Management Studio click File – Open – File. Navigate the provided script file, like *1_NewSubscription_XXXXXXXXXXX_GeoInfoTools_XXXXXXXXXX.sql*. When the sql script is open click the Execute icon to create the GeoInfo

Tools database and replication subscription. When complete the "Command(s) completed successfully" message appears, you can then close SQL Server Management Studio.

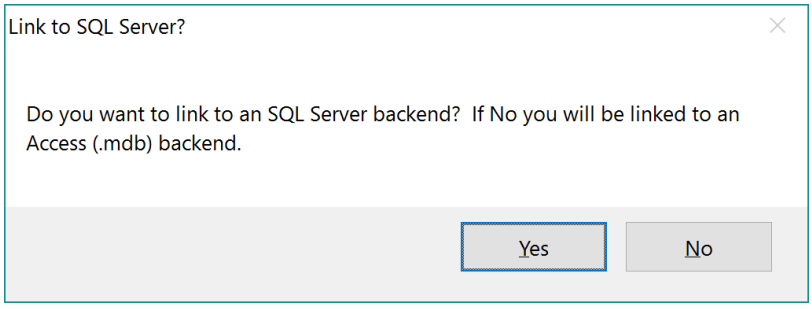




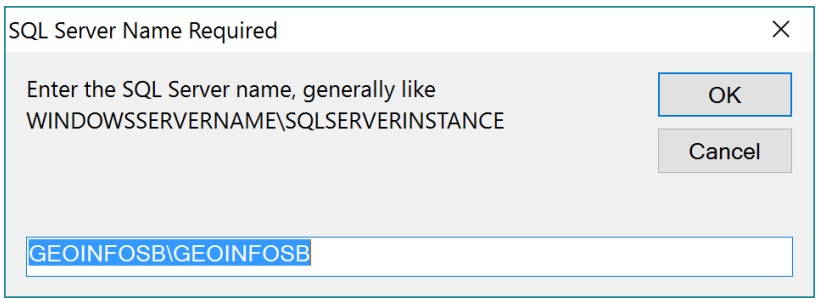
Initialize Subscription

Connect to your publication server VPN account (provided by your database administrator).

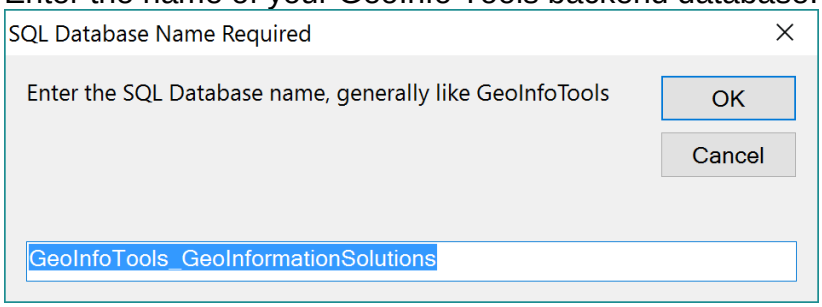
Open GeoInfo Tools from the Windows Program Files list. If prompted to “Link to SQL Server” select **Yes**. If not prompted click the Re-link button in GeoInfo Tools.



In the SQL Server Name field enter the SQL Server instance name that was just installed in your local computer.

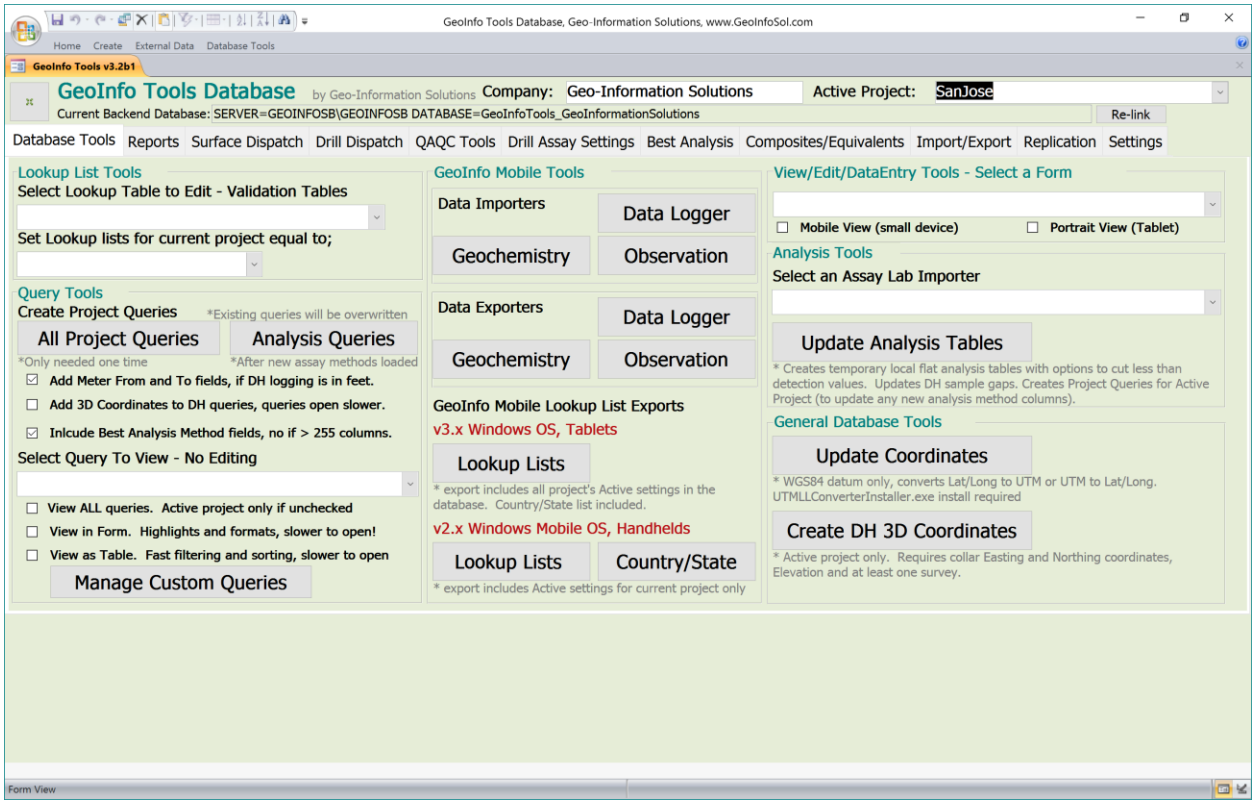


Enter the name of your GeoInfo Tools backend database.

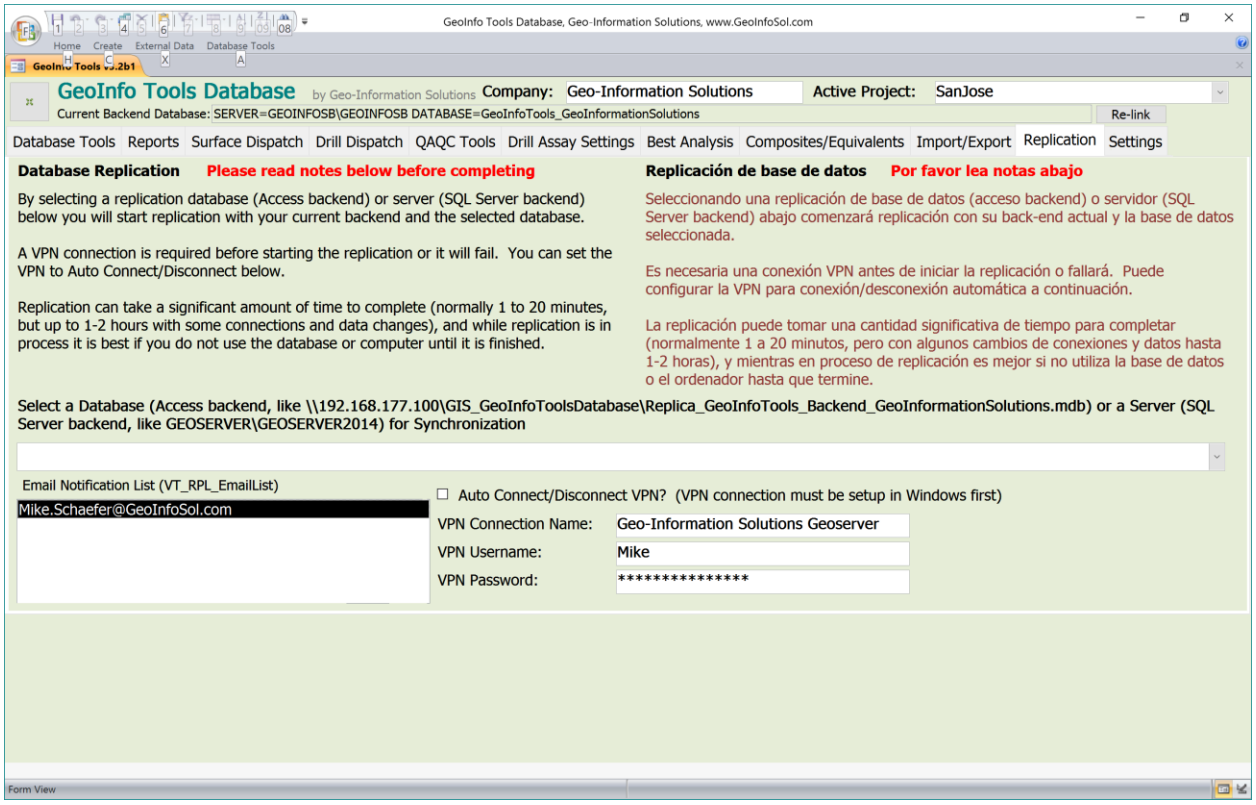


You may need to license GeoInfo Tools at this point if it has not already been licensed.

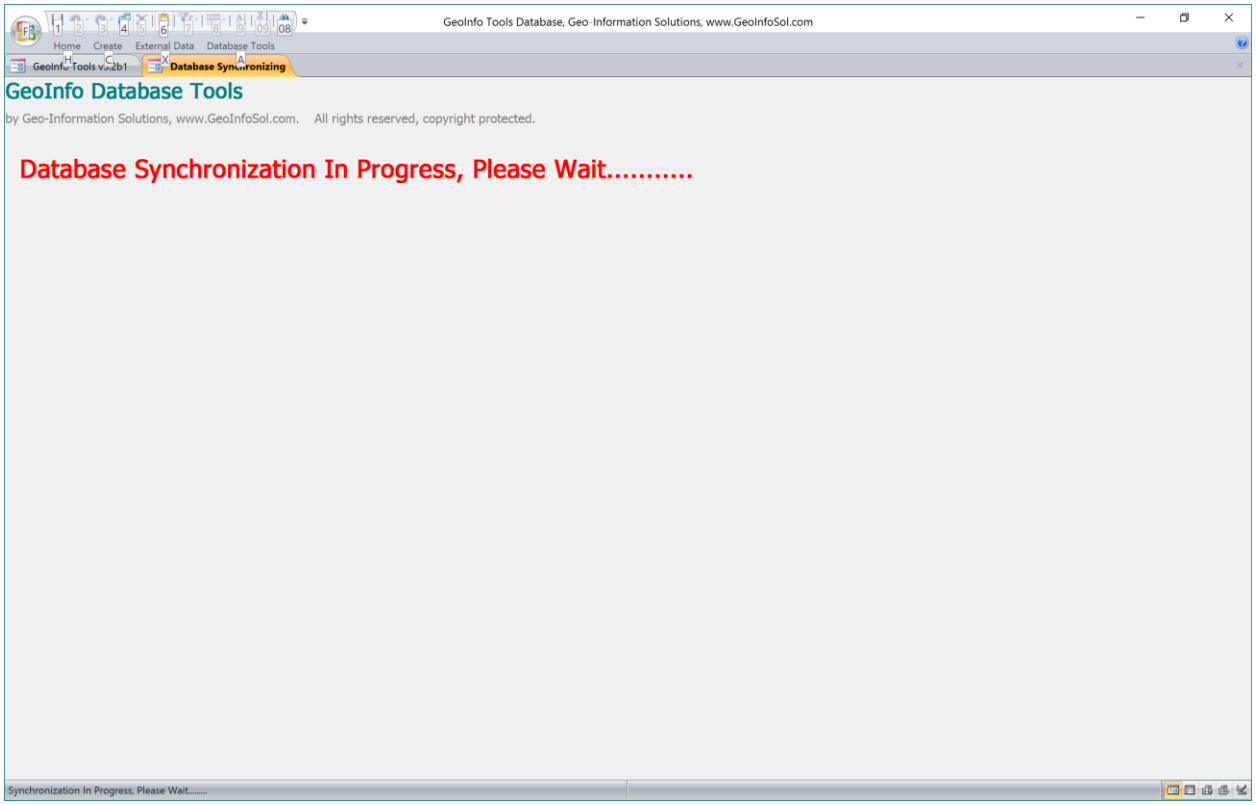
The GeoInfo Tools Application will link to your SQL Server backend database and open the main application screen when it is complete. Select an Active Project, then click on the Replication tab.



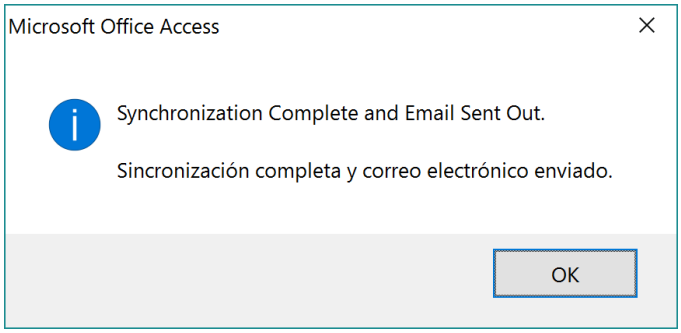
You can check the Auto Connect/Disconnect VPN option and enter the VPN Connection Name (exact Windows name), Username and Password. The VPN connection needs to be setup in Windows before using this option.
GeoInfo Tools sends email notifications upon completing synchronization. It is a good idea to include all users of the database in the Email Notification List so that all users know when new or modified data is available. Edit the lookup table VT_RPL_EmailList to add email addresses. Click the Select a Database pick list and select the publishers SQL Server from the list.



After selecting from the Select a Database pick list, synchronization starts. Wait until it completes. The first time you sync is called an initialization and can take 30-60 minutes depending on your internet speed (if it only runs for a few minutes there is a problem), after initialization sync's that are done frequently should only take 2-5 minutes. It is best to not interfere too much with your internet connection so the synchronization can complete without interruption.



When synchronization is complete a message is presented and emails are sent out.



Windows 10 Spring Creators Update Bug (winver 1703)

A bug appeared in Windows 10 Creators update that most users received in summer of 2017 (type winver in the Windows search, open the app and look for version 1703). This bug was fixed in the Fall Windows 10 Creators update that most users received in early 2018 (winver version 1709).

The problem is that the very last script to run in the initialization is running into a timing or usage issue and is failing the first time. To solve this problem, run the sync a second time (likely faster this time) and it will complete without problems and your database should be ready.

Contact your database administrator if you are unsure of the initialization completion as the progress is logged on the server, however synchronizing 2 times the first time works with all computers.

All future synchronizations will be much faster (2-5 minutes) and are completed within GeoInfo Tools – Replication tab.

** if you are not using Automatic Connect/Disconnect option, make sure to close your VPN connection.*

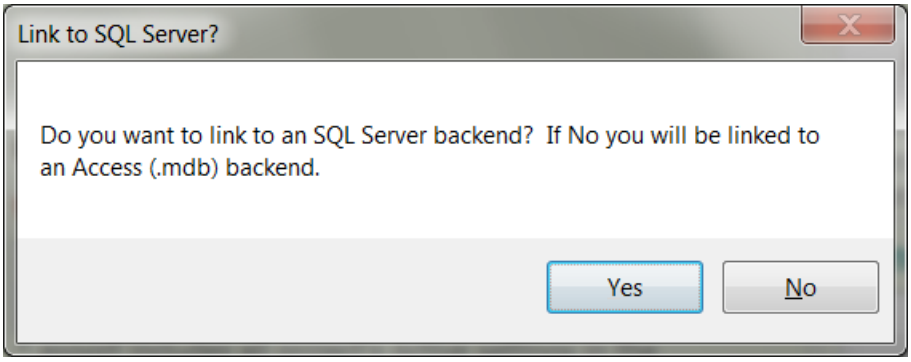
Opening – Initializing

GeoInfo Tools is opened by opening the front-end application, *GeoInfoTools_Application.accdb*.

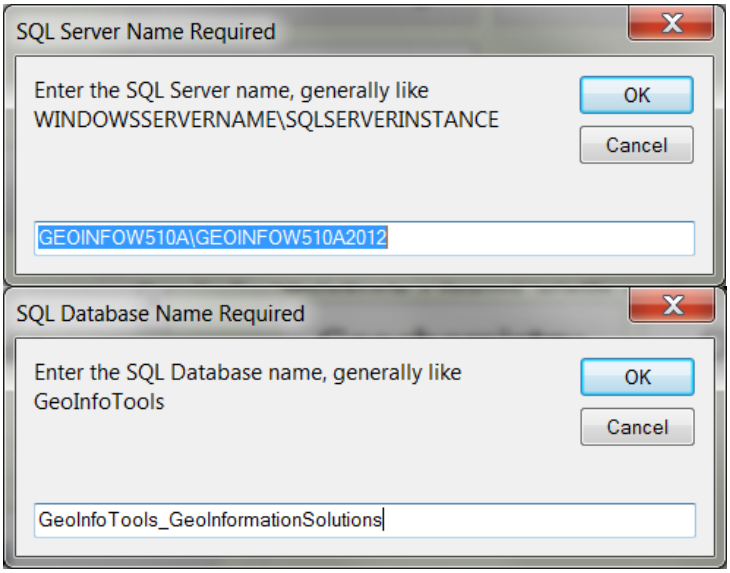
Initialization of GeoInfo Tools establishes a link from the front-end application to the backend database and will occur if and when;

- You are opening the database for the first time
- After receiving an application update from Geo-Information Solutions
- After moving the backend database (which is not recommended, especially for replicated databases)

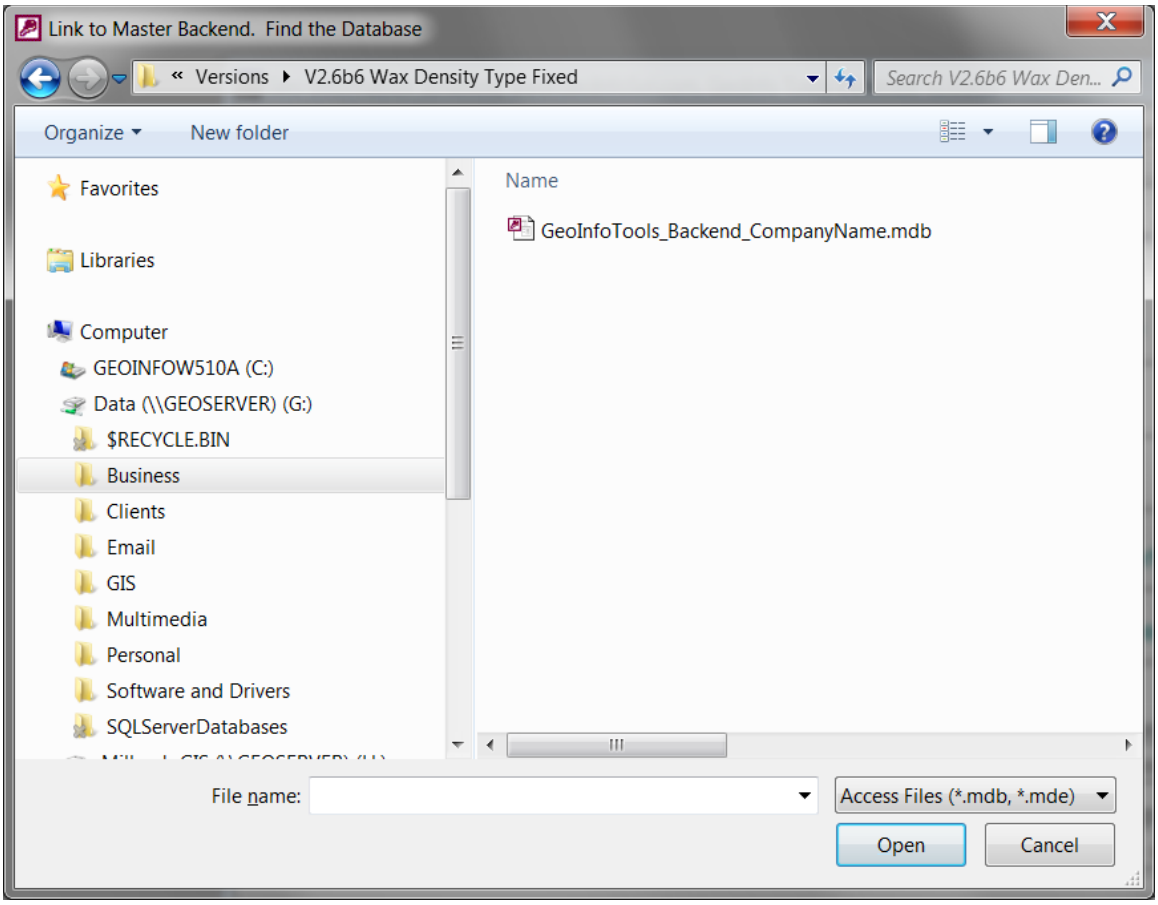
Initialization will prompt the user as to whether the backend is in SQL Server or Access format.



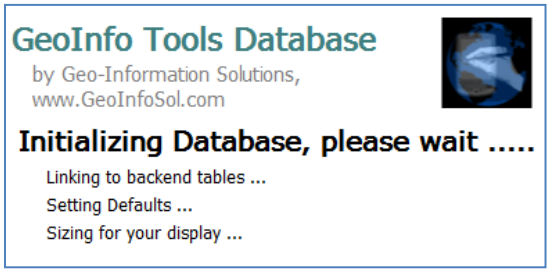
If the backend is SQL Server two input boxes will appear where the user inputs the SQL Server name and then the database name.



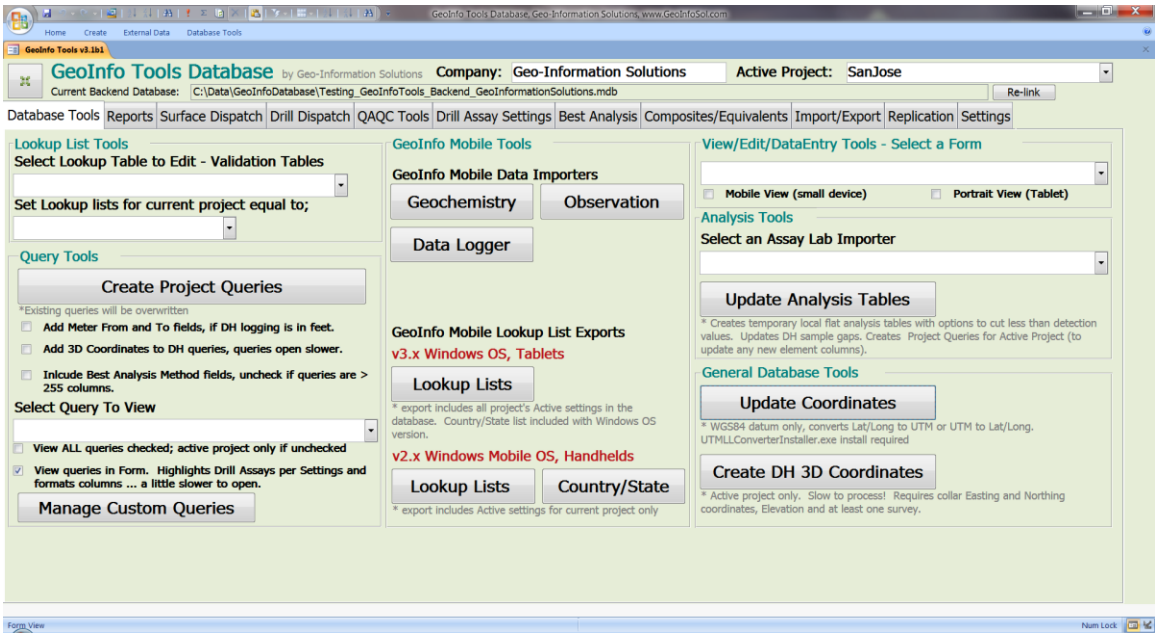
If the backend database is Access a file browser window will prompt the user to locate the backend database. Navigate to the location of your backend, select it and click **Open**.



An initialization splash screen will inform the user the initialization is in progress, this generally takes just a few seconds.



Once a link to the backend database is established the main GeoInfo Tools application opens. The location of the backend database is displayed at the top. It is possible to **Re-link** to a different backend data base if needed. All the database tools are accessed from this main form.



If this is the first time you have added data to your backend database, then you should type a **Company Name** in the box provided at the top. Company name is used in report titles.

You should also select an **Active Project** from the list. If you have not set up the project lookup list for your projects, you will need to set that up as described in the Lookup List Tools section.

You need to run the Create Project Queries tool;

- If this is the first time you have opened the database
- After receiving an application update from Geo-Information Solutions
- After creating a new project

This creates all the queries needed by the user and the database for your specific project.

You will have to run the Update Analysis Tables tool;

- If this is the first time you have opened the database, if you have assay data in the database for your project
- After receiving an application update from Geo-Information Solutions
- If you have added new assay data to the database.
- If you have modified Composite or Best Analysis settings

This tool can be slow to run (2 to 10 minutes) when you have significant amounts of assays data so it is best run when you have time.

Database Tools

Tools are grouped by tabs just below the company and active project fields;

- Database Tools
- Reports
- Surface Dispatch
- Drill Dispatch
- QAQC Tools
- Drill Assay Settings
- Best Analysis
- Composites / Equivalents
- Import / Export
- Replication
- Settings

Several commonly used tools are provided from the Database Tools tab.

Lookup List Tools

Select a lookup table to edit or view. Lookup tables provide pick list values for data entry fields on the Geochem Sample Card, Log and Observation forms and are exported for import into GeoInfo Mobile for field data collection pick lists.

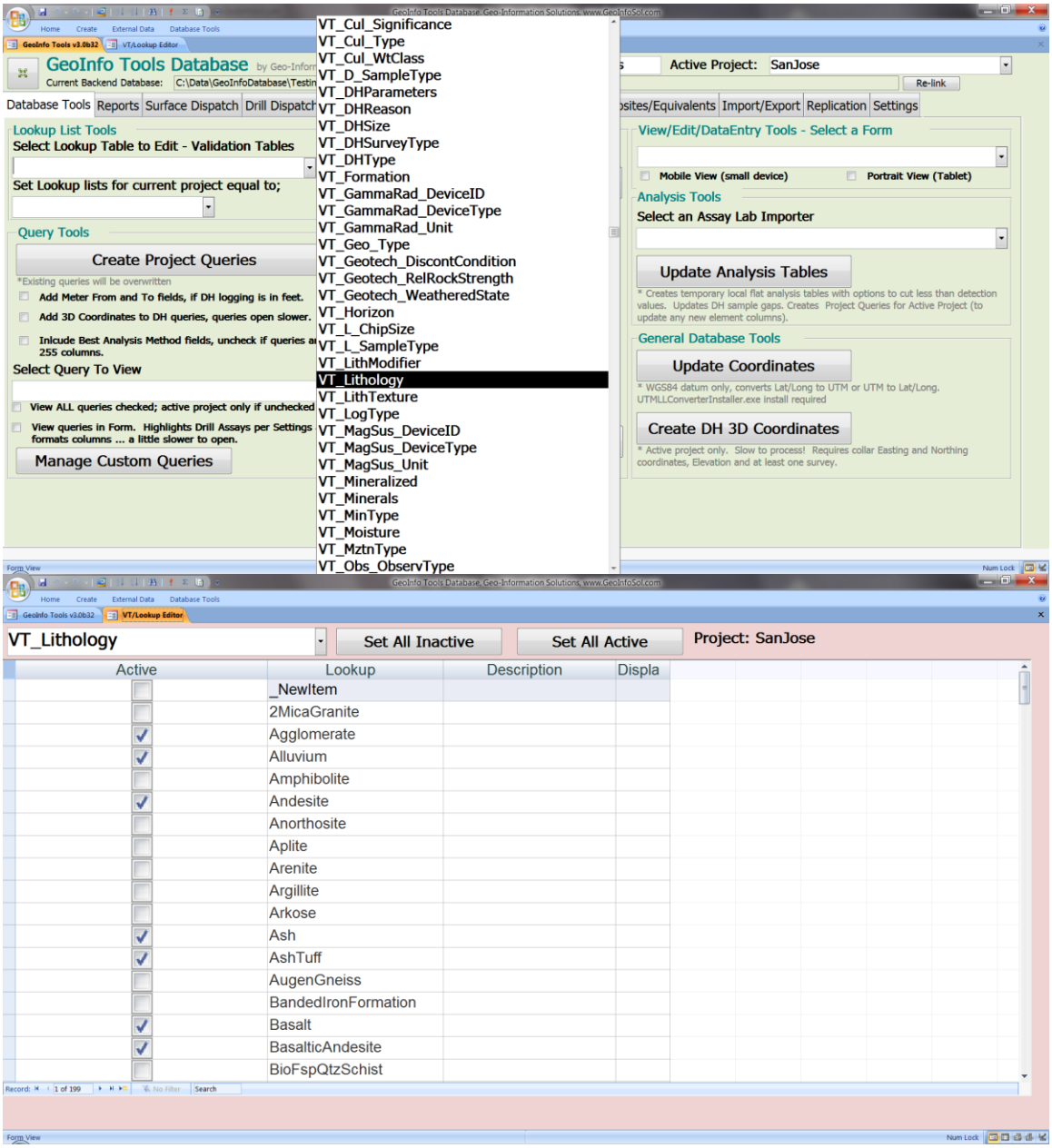
Lookup tables are validation tables with referential integrity in the database model which means they not only provide pick lists for easy data entry but they also restrict the data that can be entered into the database fields. A value is required in a lookup table before data values for that field can be entered into the database. The database model provides integrity such that if a data field value needs to be changed, a typo or value change, the user can change the value in the lookup list and it will automatically change all values in the database tables that are the same. A lookup list value can only be deleted if no data in the database uses that value. If the user tries to delete a lookup value that is in use in a database table the database will not allow it and a warning message will be generated.

Lookup lists are a very important setup and maintenance task for building a good database. Do not put the same characteristic in a list spelled two different ways, and keep your lists appropriate for that lists data type. Limit your lists to select well thought out values as your database is only as good as your lookup lists.

Lookup lists in GeoInfo Tools database forms and GeoInfo Mobile are presented to the user alphabetically so some lists are worth special naming so they order or group properly; for example alteration intensity, 1_Weak, 2_Moderate, 3_Strong, and lithology modifier, GrainedFine, GrainedMedium, GrainedCoarse. Use

words without spaces (some software struggles with spaces or special characters) and in title case (proper case) for ease of reading. All capital words take too much space on small mobile device screens and are difficult to read.

The Active checkbox limits the items that are displayed in GeoInfo Tools and GeoInfo Mobile pick lists. The active setting in lookup lists are managed by project in the database. The idea is that the complete master database lookup lists do not need to be visible for all projects in the database, so users can edit the active setting to show only the appropriate values for their project. Why would Kimberlite be a lithology for a Porphyry project?

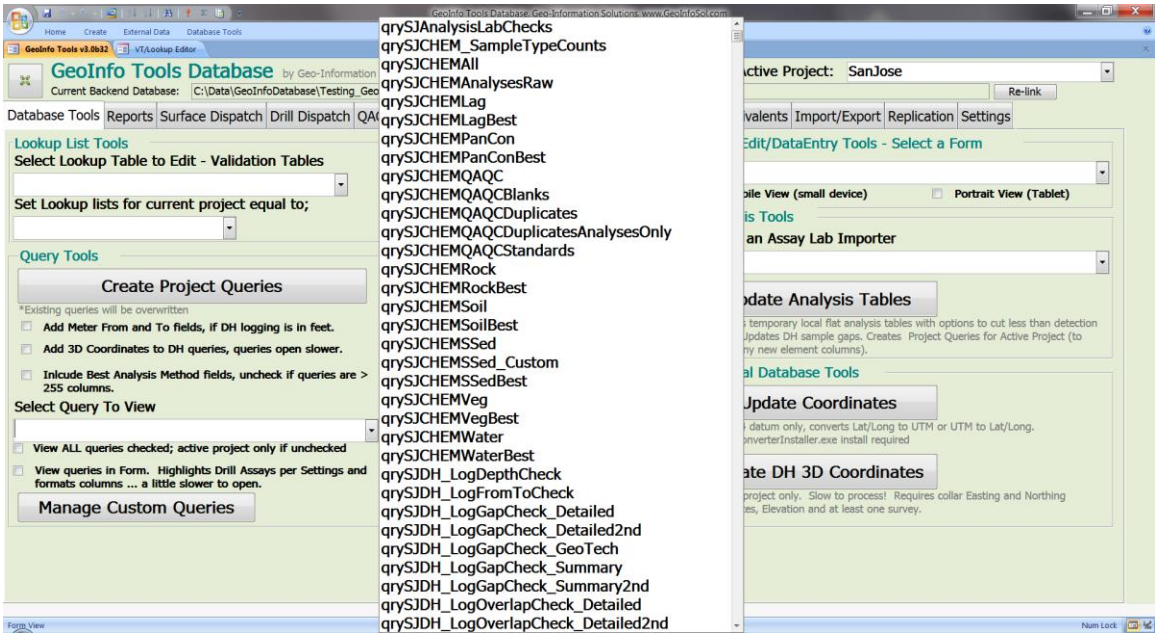


Create Project Queries

This tool creates a base set of queries for the active project. Run this tool after;

- A new project is added to the database.
- New analysis method/digestion results (not just new results) have been loaded into the database.
- Edits are made to the Best Analysis for the active project.
- Edits are made to the Drill Hole Composites settings for the active project.
- An update of GeoInfo Tools Database is being used for the first time.
- New data types are added to the database. Only queries with data are created so as new data is added to your database you will see new queries created to present that data.

GeoInfo Tools by default contains a set of queries that present views of all the data in the database. These queries are labeled *qryALL**. Project queries created by users are labeled *qryXXX** where XXX is the 2-3 letter project code assigned in the *VT_Project* lookup table for your project. Queries are further classified by information category; surface geochemistry sample data query names are *qryXXXCHEM** , drill hole/trench/blast hole/underground working log data query names are *qryXXXDH**, and field observation data query names are *qryXXXOBSV**.



Three Create Project Queries checkbox options exist for drill/trench data;

1. **Add Meter From and To Fields** should be checked if logging is in feet and you want meter Depth, From and To fields included in your queries.
2. **Add 3D Coordinates to DH Queries** should be checked if you want to include 3D coordinates to your drill data queries. The Create DH 3D Coordinates tool must be run before 3D coordinate data will be available in your queries. * Note; adding 3D Coordinates to your queries can make opening large project queries much slower to open so only include 3D Coordinates if you need them.
3. **Include Best Analysis Method Fields** should be checked if you want a column for each Best Analysis indicating the method of each result. * Note; adding Best Analysis Method Fields can add many extra columns to your drill analysis queries sometimes creating more than 256 columns to your data query (a software limit) making it unreadable. Also these extra columns make opening the queries slower, so only include Best Analysis Methods if you need them.

Only queries with data are created so as new data is added to your database you will see new queries created to present that data.

The list of base project queries is always changing as client requests are being added. Please review this list frequently for new query views of your data. Contact Geo-Information Solutions with new query requests; they can be added permanently for all projects.

Select Query to View

This tool opens queries that have been created for a project. Queries are used to view the data in the database. Queries are exported to use in other programs or linked to via ODBC directly to other software.

Two Select Query to View checkbox options exist;

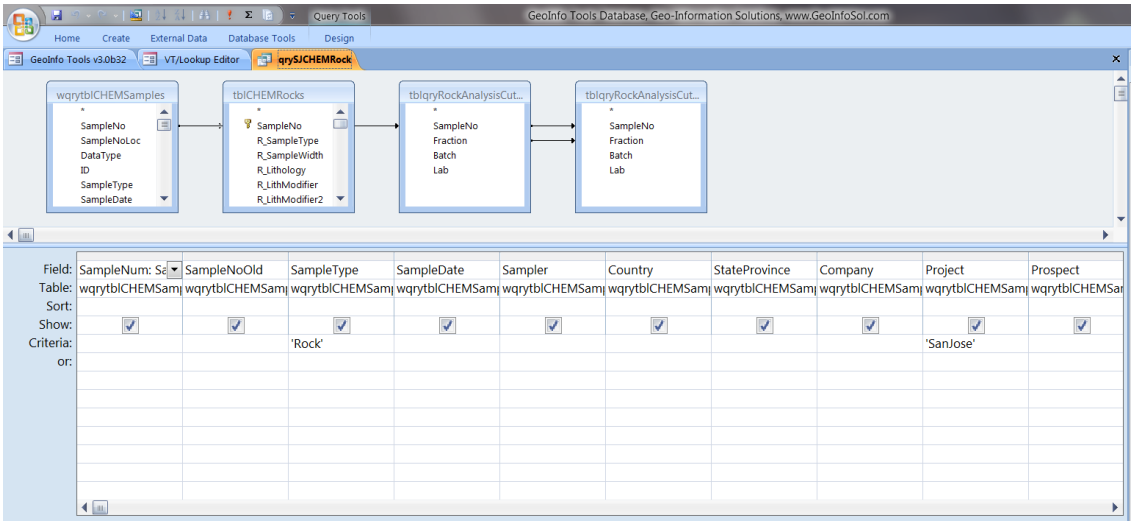
1. **View all Queries** shows the ALL queries as well as the active project queries. ALL queries, *qryALL**, present data for the complete database; all projects. Un-checking this box will list only the active project queries.
2. **View Queries in Form**. Query data is presented in a form allowing better control on formatting. Column widths are set to the data width so data is better visible, and drill data highlight and decimal setting are shown. * Note; queries are a bit slower to open in a form.

Users generally do not work with raw table data (*tbl**) as the database tables are normalized and not really that useful except for data storage.

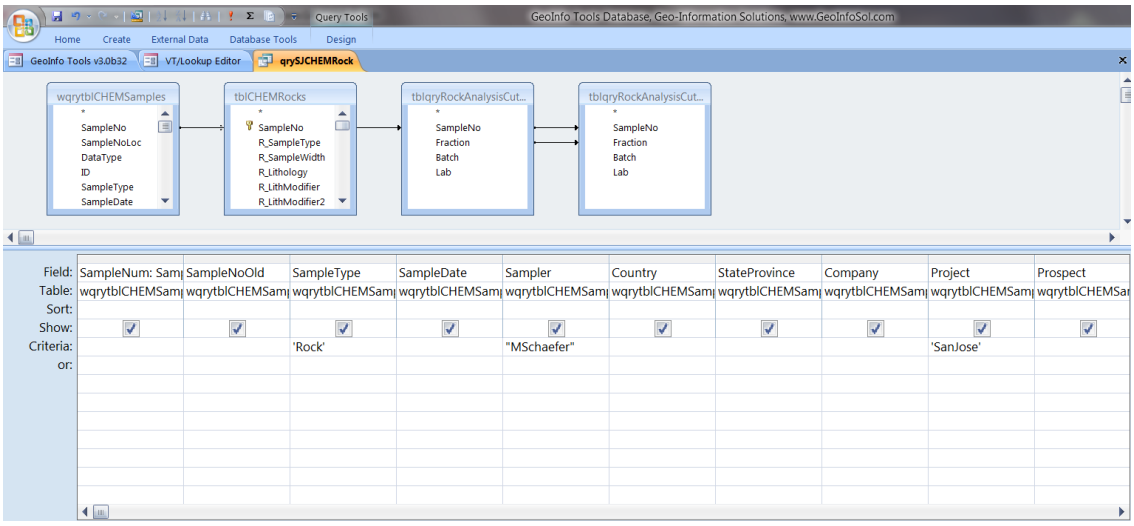
Manage Custom Queries

Custom queries can be created to present specific data in the database; a little knowledge of Access is all that is needed to create custom queries. Generally, it is best to start with one of the base GeoInfo Tools created queries and modify it to further meet your criteria.

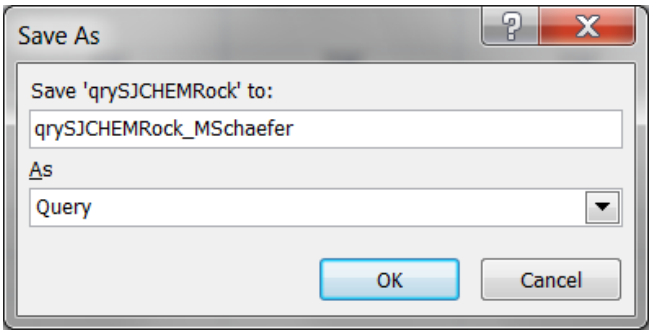
For example, let's say you want to show all rock samples collected by MSchaefer. Opening the query qryXXXCHEMRock shows all rock samples for your project. Right clicking on the tab header and selecting Design View allows editing of this query.



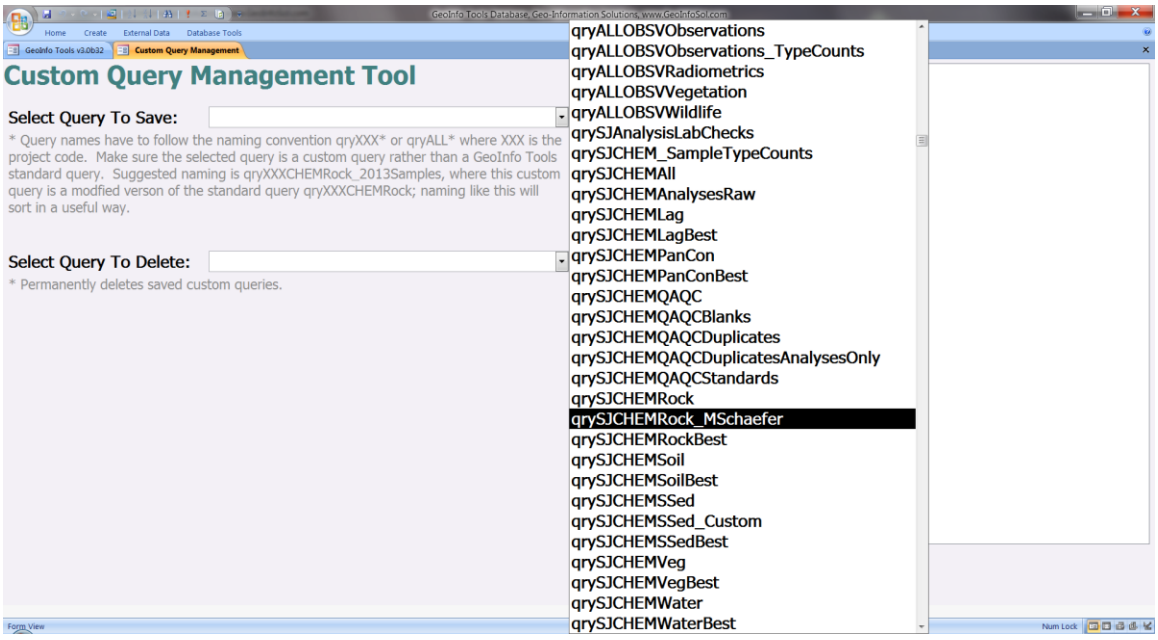
Adding "MSchaefer" to the Criteria under Sampler changes this query to only present rock samples for your project collected by MSchaefer.



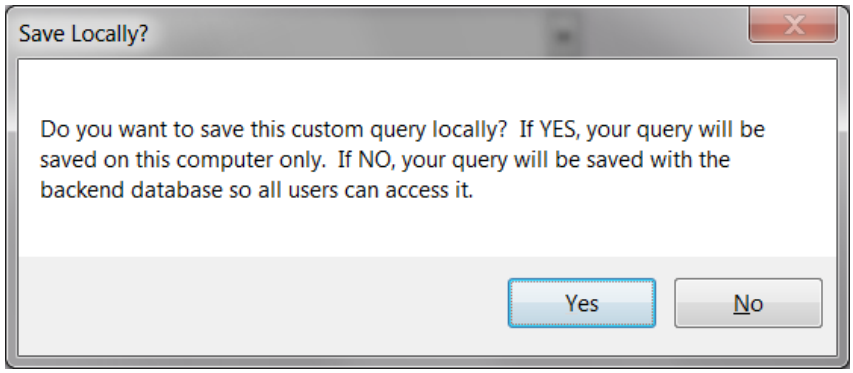
Once a base project query is edited it should be saved with a different name or the next time you run the Create Project Queries tool this custom query will be overwritten by the standard version. Click the *Office* button in the upper left Access window, then *Save As*, then *Save Object As*. Save all custom queries in the same format as the base project queries, qryXXX* (so they will appear in the Query to View pick list and can later be saved permanently), so for our example a good name would be *qrySJCHEMRock_MSchaefer* ;



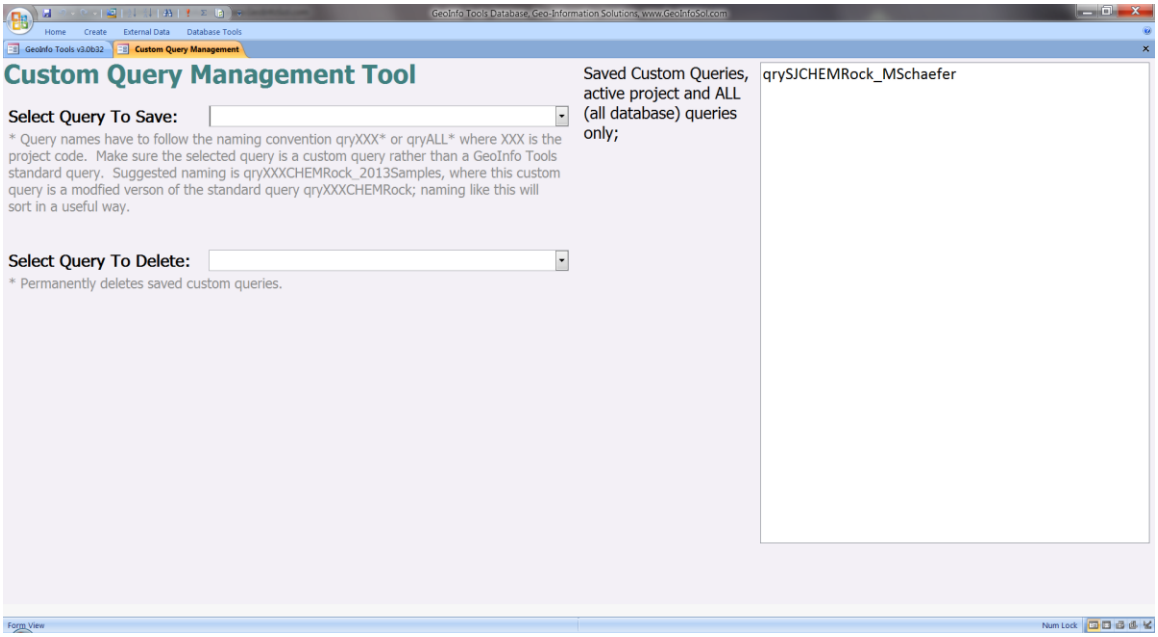
Once saved this custom query can be opened or link to as needed. However if you receive an update of the GeoInfo Tools Application and have not saved custom queries using the Manage Custom Queries tool you will lose your custom queries as they are not initially saved in the backend database or your local setting database.



The Custom Query Management tool allows you to save custom queries either locally to your setting database or to the backend database where all users will have access to the query.



Once saved custom queries will show in the Manage Custom Queries tool list. The next time you run the Create Project Queries tool saved custom queries will be created in addition to the base project queries provided by GeoInfo Tools for all projects.



GeoInfo Mobile Tools

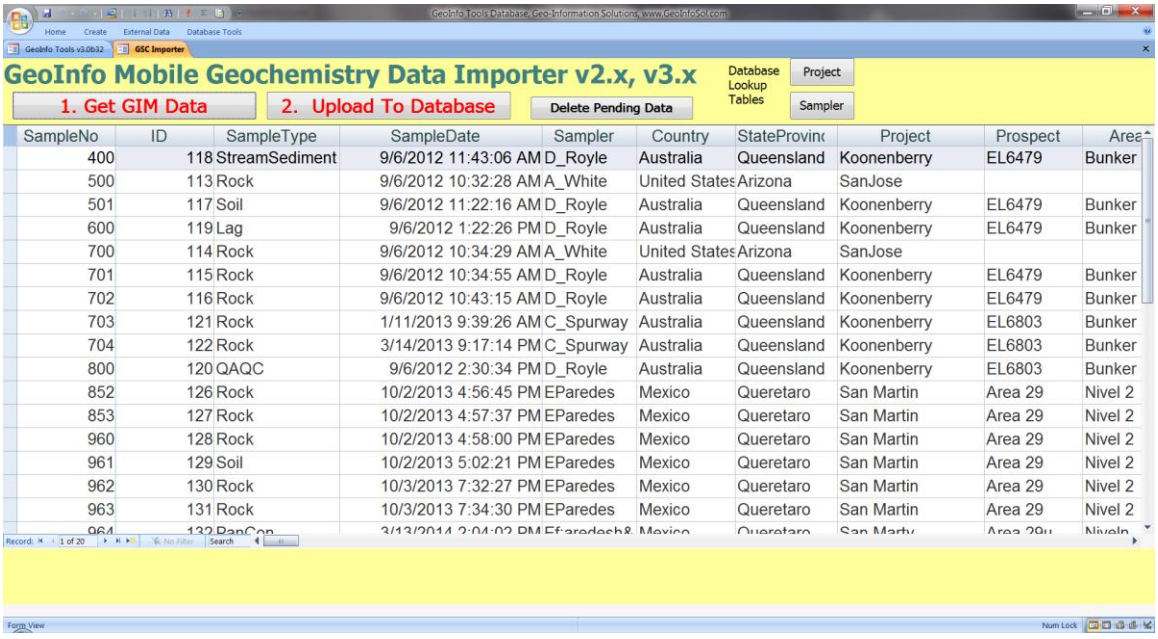
GeoInfo Mobile Importers import field data collected using GeoInfo Mobile software (www.GeoInfoMobile.com) on rugged handheld computers or tablets into the database.

Validation table lookup lists managed in the GeoInfo Tools database can be exported to a text file that is then imported into GeoInfo Mobile on a mobile data collector to facilitate field data collation using pick lists and rules of the GeoInfo Tools database.

Geochemistry Importer

The Geochemistry Importer imports data collected and exported from the GeoInfo Mobile Geochemical Sample Card.

1. Get GIM Data. Use the file browser to locate the GeoInfo Mobile export text file you want to import into the database. The file format is *GeochemSC_DeviceID_YYYYMMDD.txt*. The GeoInfo Mobile data is loaded into the importer data window, this data is a temporary copy of the export file data and any edits made here will not change the original export file. The data in the importer window should be reviewed and can be edited if needed.



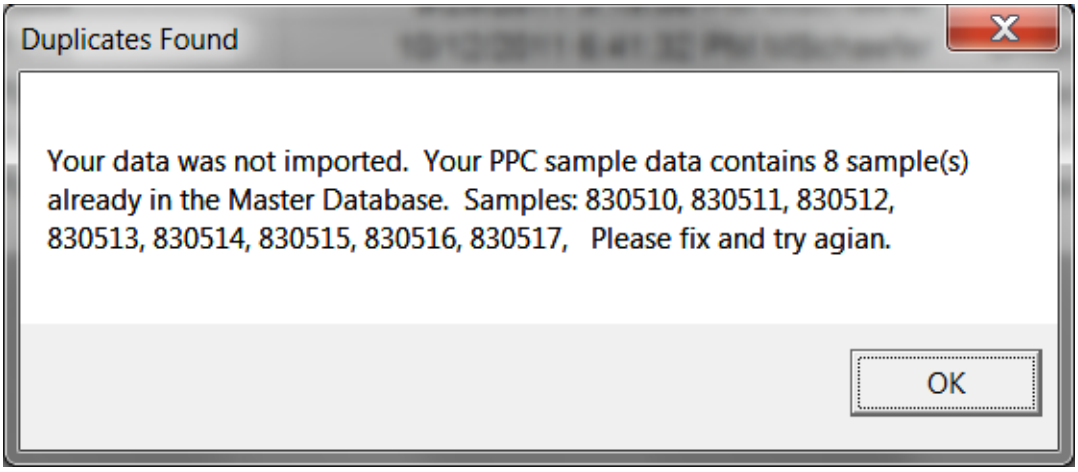
SampleNo	ID	SampleType	SampleDate	Sampler	Country	StateProvinc	Project	Prospect	Area
400	118	StreamSediment	9/6/2012 11:43:06 AM	D_Royle	Australia	Queensland	Koonenberry	EL6479	Bunker
500	113	Rock	9/6/2012 10:32:28 AM	A_White	United States	Arizona	SanJose		
501	117	Soil	9/6/2012 11:22:16 AM	D_Royle	Australia	Queensland	Koonenberry	EL6479	Bunker
600	119	Lag	9/6/2012 1:22:26 PM	D_Royle	Australia	Queensland	Koonenberry	EL6479	Bunker
700	114	Rock	9/6/2012 10:34:29 AM	A_White	United States	Arizona	SanJose		
701	115	Rock	9/6/2012 10:34:55 AM	D_Royle	Australia	Queensland	Koonenberry	EL6479	Bunker
702	116	Rock	9/6/2012 10:43:15 AM	D_Royle	Australia	Queensland	Koonenberry	EL6479	Bunker
703	121	Rock	1/11/2013 9:39:26 AM	C_Spurway	Australia	Queensland	Koonenberry	EL6803	Bunker
704	122	Rock	3/14/2013 9:17:14 PM	C_Spurway	Australia	Queensland	Koonenberry	EL6803	Bunker
800	120	QAQC	9/6/2012 2:30:34 PM	D_Royle	Australia	Queensland	Koonenberry	EL6803	Bunker
852	126	Rock	10/2/2013 4:56:45 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2
853	127	Rock	10/2/2013 4:57:37 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2
960	128	Rock	10/2/2013 4:58:00 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2
961	129	Soil	10/2/2013 5:02:21 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2
962	130	Rock	10/3/2013 7:32:27 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2
963	131	Rock	10/3/2013 7:34:30 PM	EParedes	Mexico	Queretaro	San Martin	Area 29	Nivel 2

2. Upload to Database. This uploads the data to the database. If an error is returned it will describe the problem, usually missing values in a lookup table or

duplicate sample numbers. Data will not load until it is error free. Fix errors in the importer data window and try again.

Errors are generally not present if users are using updated lookup lists exported from the database and imported into GeoInfo Mobile. In general users cannot type new values in GeoInfo Mobile, except in a few fields like Project and Sampler, so any new typed values will need to be either added to the database validation lookup tables (*VT_** tables) or edited in the importer data window to match a value already in the database validation table lookup list.

An error occurs if a sample already exists in the database. This occurs when GeoInfo Mobile data is loaded to the database and the data is not cleared out of the GeoInfo Mobile database, and then the user collects more data. The next time data is imported a duplicate error is generated. The duplicate samples are listed and will need to be deleted in the importer data window (highlight the grey box left of the data, you can select multiple records at one time, and press the delete key on your keyboard or click the Access toolbar delete icon). Sorting by sample number or date (right click on the field name and sort A..Z) can sometimes group all duplicates and make them easy to find and delete.



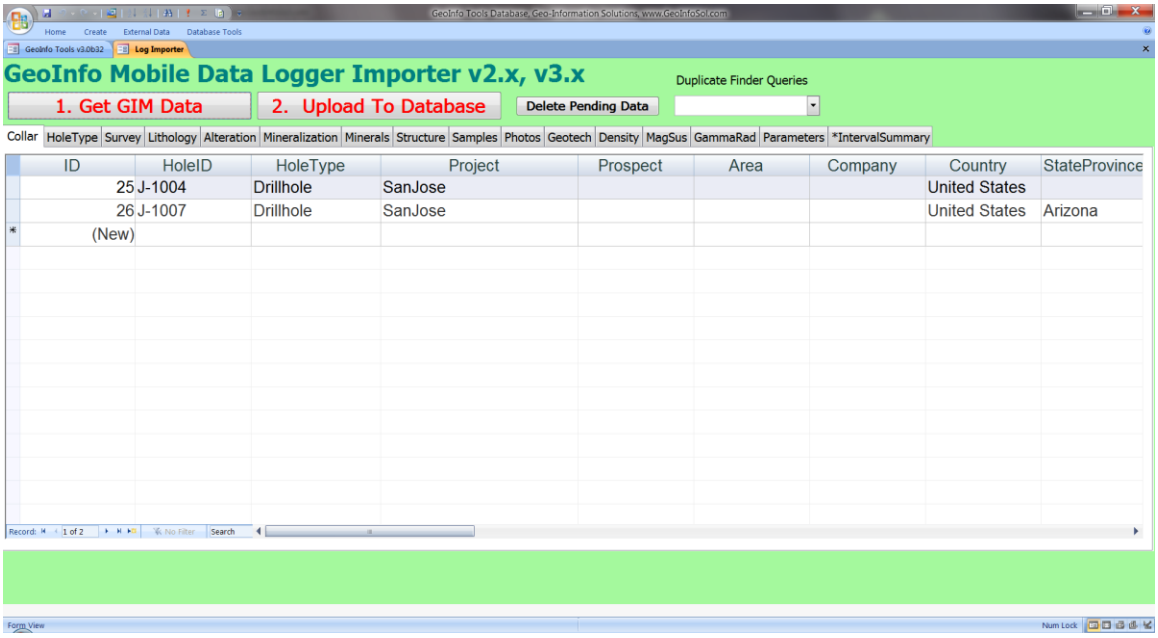
After data is loaded successfully a message appears and the temporary data in the importer data window is deleted. If the importer is closed without completing the upload to the database the temporary data is deleted.

Observation Importer

The Observation Importer imports data collected and exported from the GeoInfo Mobile Observation Database. The importer functions like the Geochemistry Importer so review that section for details. The file format is *Observations_DeviceID_YYYYMMDD.txt.*

Data Logger Importer

The Data Logger Importer imports data collected and exported from the GeoInfo Mobile Data Logger. The importer functions like the Geochemistry Importer so review that section for details; however, this importer has some important differences worth noting.



Log data from GeoInfo Mobile is not exported to a single file, but one file for each log type that contains data. The file format is *Log_DeviceID_YYYYMMDD_LogType.txt*. The importer has a data tab for each log type.

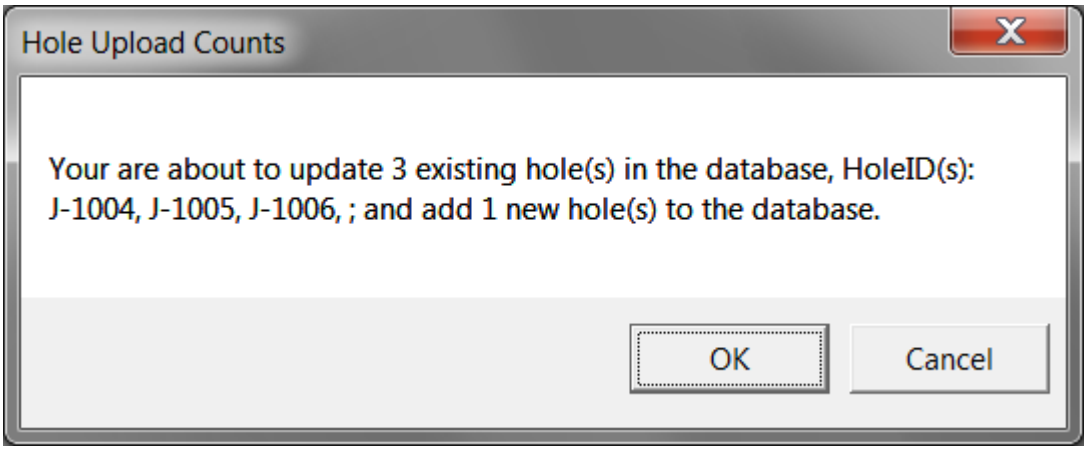
When running the **Get GIM Data** tool the user only need locate the collar file and all the other associated files will be recognized and loaded into the appropriate data tab.

The **Upload To Database** tool has a bit more functionality than the Geochemistry and Observation importers, mainly in that is not only appends data but it will also allow users to update existing data. Data that already exists in the database in the Geochemistry and Observation importers has to be removed before uploading; in the Data Logger Importer existing data can be updated or ignored. This is required as logging can occur over long periods of time where some of the data might be needed in the database before the hole is complete. Also it is common to have more than one GeoInfo Mobile data collector logging a hole, maybe a geologist logging lithology, alteration, mineralization, minerals, and structure, and a technician logging samples, photos, magnetic susceptibility, density and geotech.

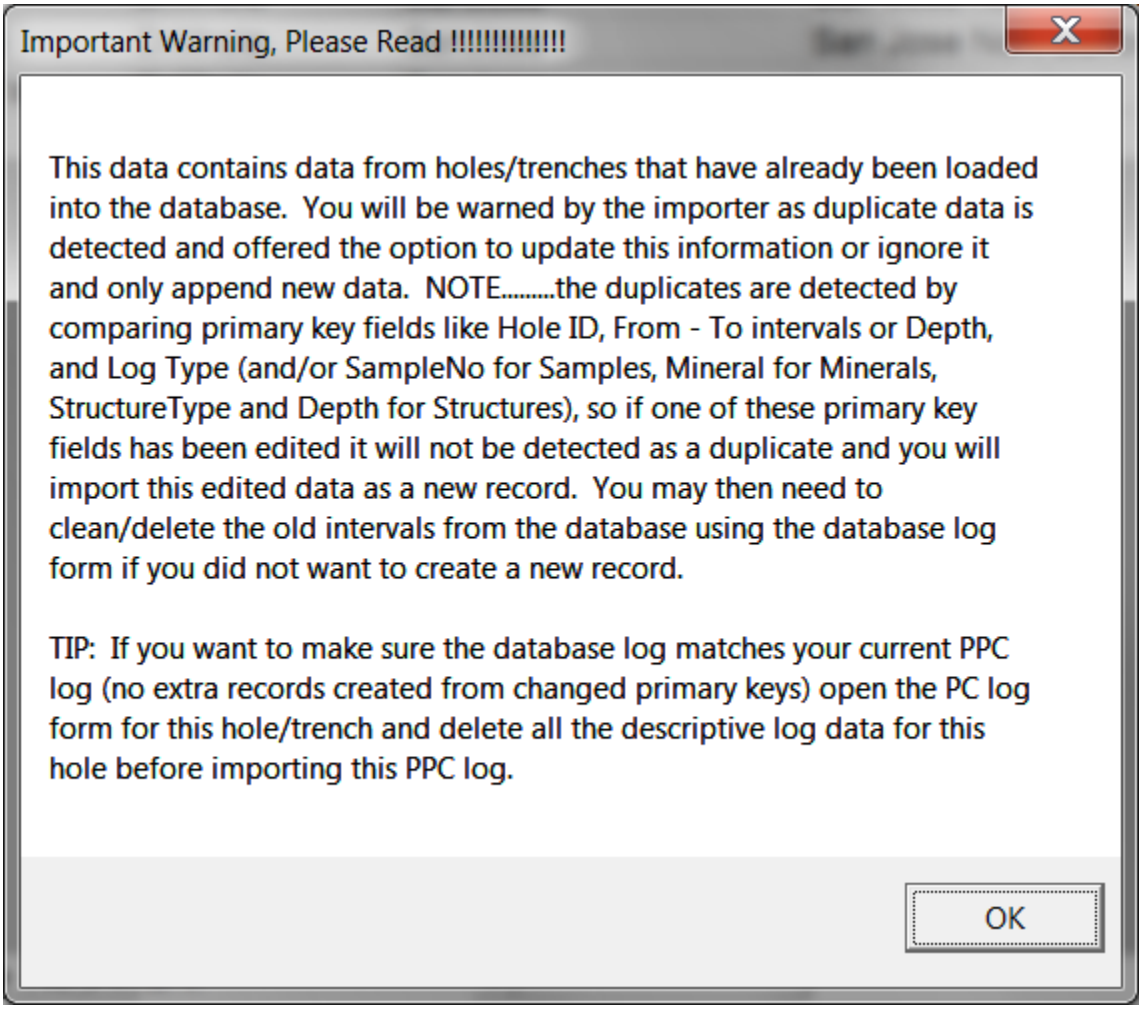
The importer looks for duplicates in the file to be uploaded and will report errors if found; these duplicates need to be removed before the data can be loaded. The duplicate finder queries in the pick list in the upper right corner of the importer help find the intervals that are duplicated if you get this error message.

The **Upload To Database** tool provides several messages as data is loaded, more messages if a hole has been previously loaded into the database.

The first message will always appear, it states how many holes are being appended (new holes) and how many are being updated. This message is designed to give the user a chance to catch a Hole ID error when more than one GeoInfo Mobile data collector is being used to log the same hole. If a geologist logs hole J-1004 and loads the data in the database this message should state *"You are about to append one new hole to the database"*, if the geologist then starts to load a technicians log data for the same hole and the message states the same *"You are about to append one new hole to the database"* the import should be canceled because the hole names might not match as this hole should be being updated. If loaded with a different name, even J1004 versus J-1004, the database will treat the data as two different holes. Common Hole ID mistakes involve using spaces and special characters in names, like J 1004, J-1004, and J1004. If you do catch an error in a Hole ID and need to change it, you need only change it in the collar tab and all the descriptive data Hole ID values will be changes as well.



The second message will appear only when data is being updated. It discusses possible issues with updating primary key values. Read this message and understand it, it is important.



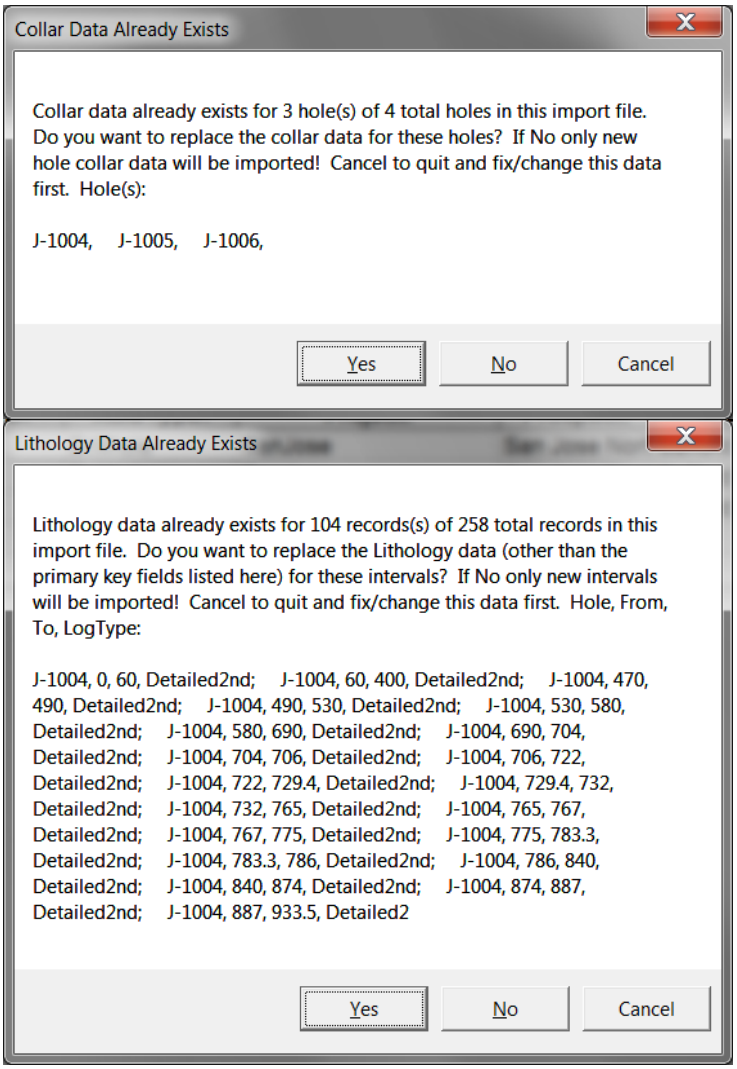
An example: If you load a lithology interval for hole J-1004 at 23.5 to 45.9 as Andesite and then later change Andesite to BasalticAndesite in GeoInfo Mobile and then load the log data again the update will be fine, Andesite for this interval will be replaced by BasalticAndesite. However, if you change the interval to 23.5 to 62.5 and load this data into the database, since From and To values are part of the primary key (the tables unique record identifier), this new record will not be treated as a duplicate for updating, but rather a new record that is appended to the database. This creates an overlap for lithology in the database!

A query in the database has been designed to find these problems, in this case an overlap (*qryXXXDH_LogOverlapCheck*), and can be used to locate problems that can be fixed, but it is always best to catch problems before loading data.

A few operating procedures can alleviate this issue

- Only load your log data into the database once when it is complete.
- Log without editing From, To, Depth, Sample Numbers, Log Type, Mineral Type, or Structure Type if you plan to load the log data multiple times.
- After loading a log into the database multiple times as the hole is being logged, when the hole is complete you can deleted the hole from the database and then load it one last time complete without gaps or overlaps. The idea being that the GeoInfo Mobile data collector contains the master log while logging a hole and then once the hole is complete and a final clean upload is completed to the database, the database is now the master. The GeoInfo Mobile log data should then be deleted.

The next message, a series of similar messages one for each data type that might need updating, asks the user what to do with intervals that already exist. New data will always be appended but the user has the option to update or ignore existing data. Generally a user would say Yes and update existing data if the protocol is the master log is in the field until the log is complete.



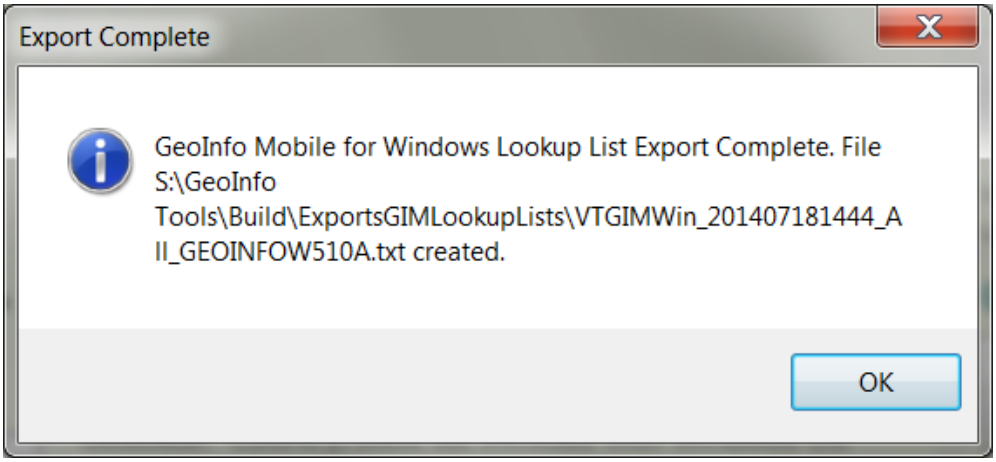
Lookup List Exports

The Lookup List Export tool creates a .txt file of all the validation table lookup lists and settings from your GeoInfo Tools database. This file is then imported into GeoInfo Mobile so its pick / validation lists match the database.

Export text files are saved to the *ExportsGIMLookupLists*\ directory under the location of the GeoInfo Tools application.

Two versions of GeoInfo Mobile are supported. **Version 3.x**, the newest version of GeoInfo Mobile, runs on Windows 8.1 tablets and the exported lookup lists included Active settings for all project in your GeoInfo Tools database. **Version 2.x** runs on rugged handheld Windows Mobile OS devices and each lookup list export includes settings for the active project only, multiple exports will be needed if more than one projects lookup lists are required in GeoInfo Mobile v2.x.

It is important to keep your GeoInfo Mobile pick lists in sync with your GeoInfo Tools database lists as this eliminates almost all errors when loading data into the database.

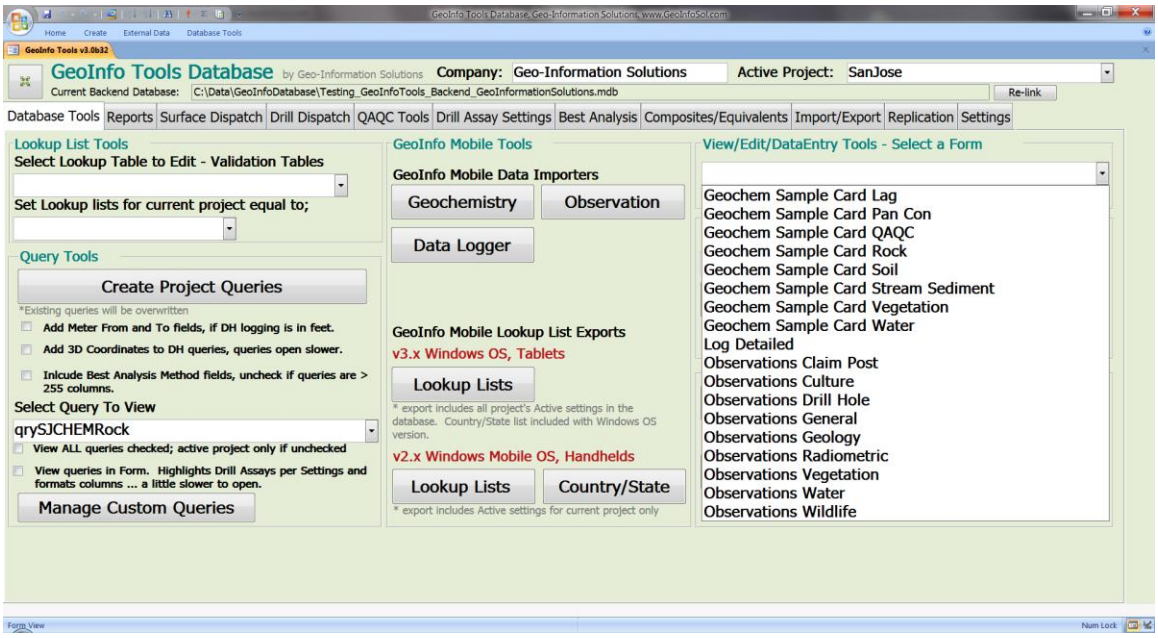


Country/State/Prov Export

Version 2.x has a separate export for the large Country State Province lookup list. Similar to the Lookup List Export tool, the Country/State/Prov export tools creates a validation table lookup list export for GeoInfo Mobile v2.x. In this case only the Country/Stat/Prov lookup list is included and since the whole world is already in the database this update is rarely needed.

View/Edit/Data Entry Tools

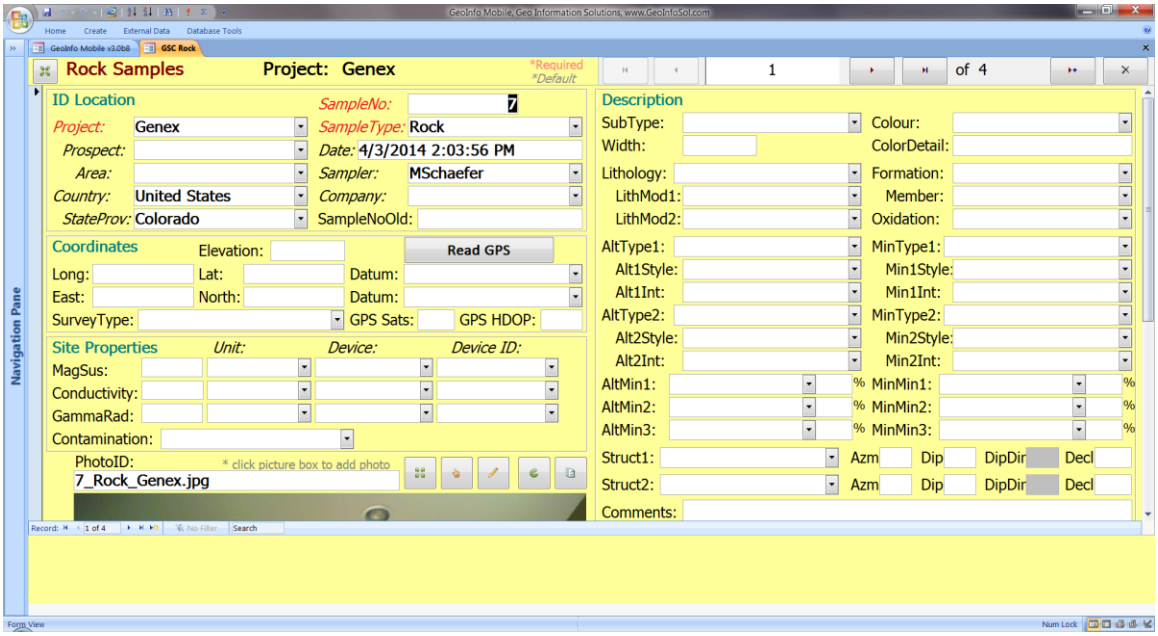
The **Geochem Sample Card** forms (yellow), **Observation** forms (cyan) and **Log** form (green) are opened from the View/Edit/DataEntry Tools pick list. All edits, additions and deletions to data should be completed using these forms as they automatically handle database primary key requirements. A form exists for each surface sample type, observation type and log and more than one form can be open at one time. The following forms are provided;

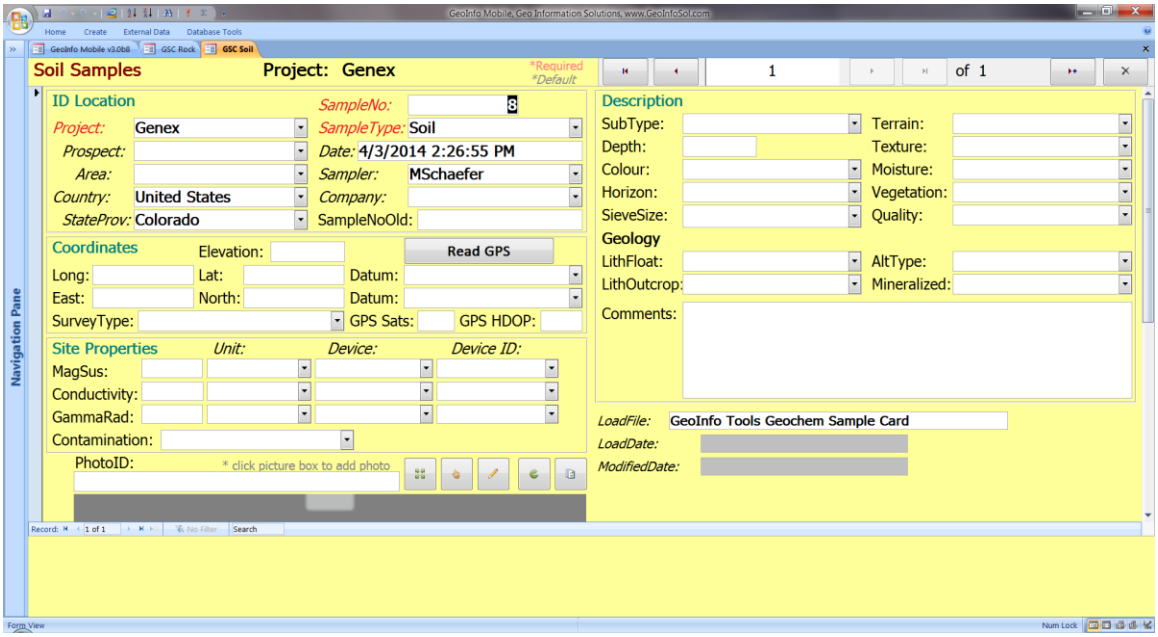


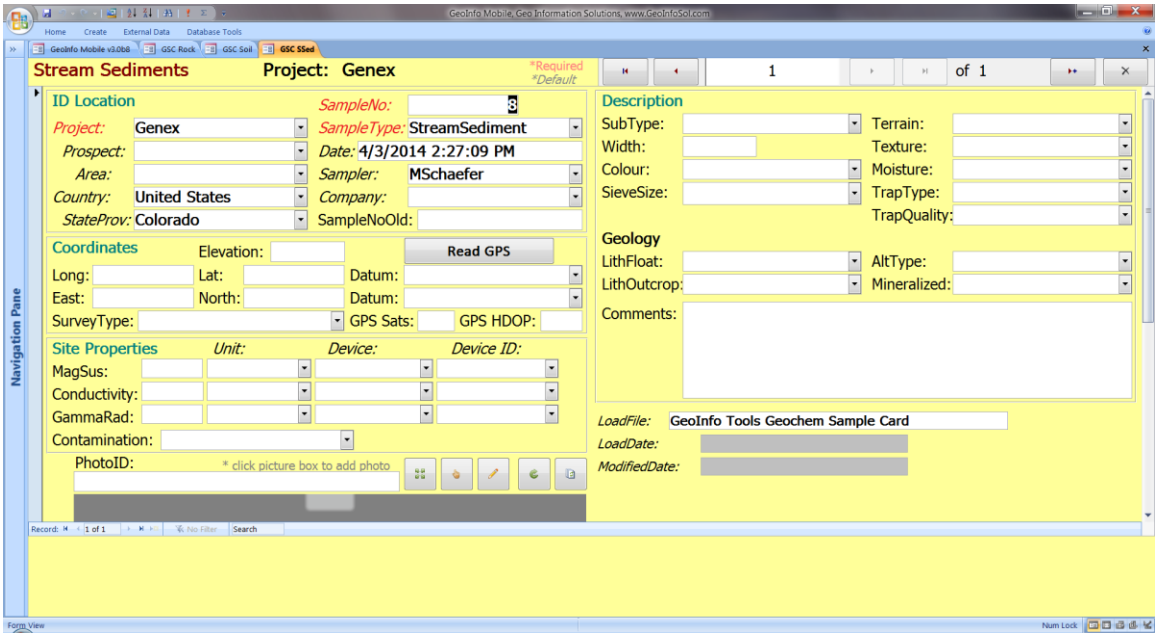
Forms like queries can be used to review data in the database, but have the added functionality to create new data and edit existing data. Replicated backend databases are particularly susceptible to corruption if primary key edits, like sample numbers, are not completed properly (both SampleNo and ID have to be edited independently to match or problems can occur). Similarly improper edits to primary keys could cause some tools like the assay importers to report problems. Using the database forms to edit data alleviates corruption problems and simplifies data entry, edits and deletions.

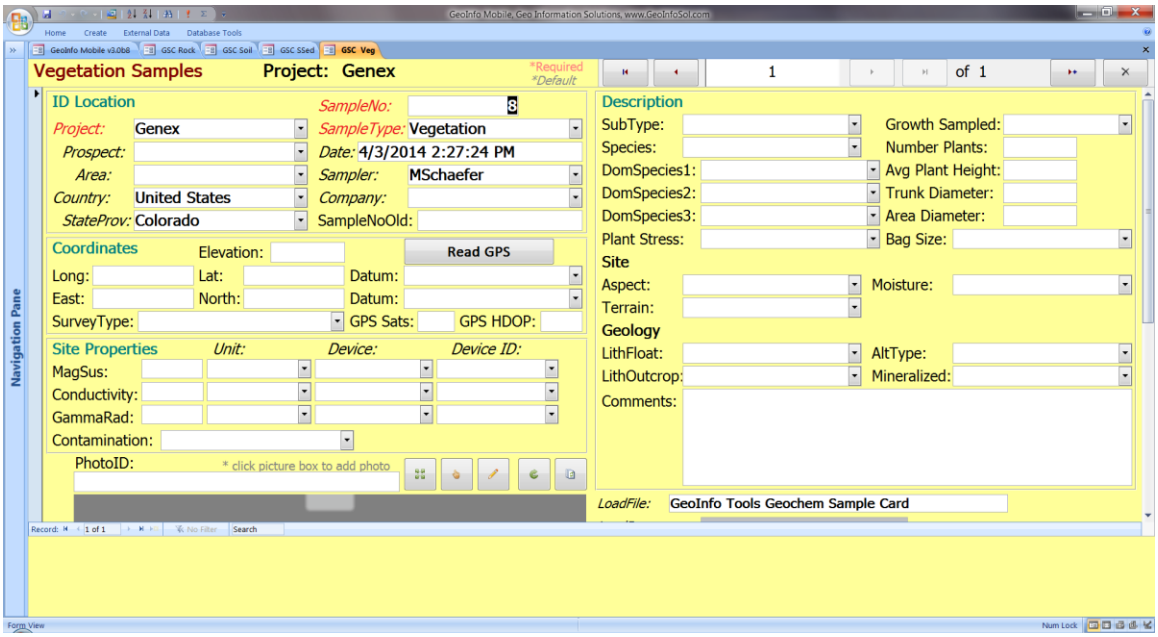
Geochem Sample Card Forms

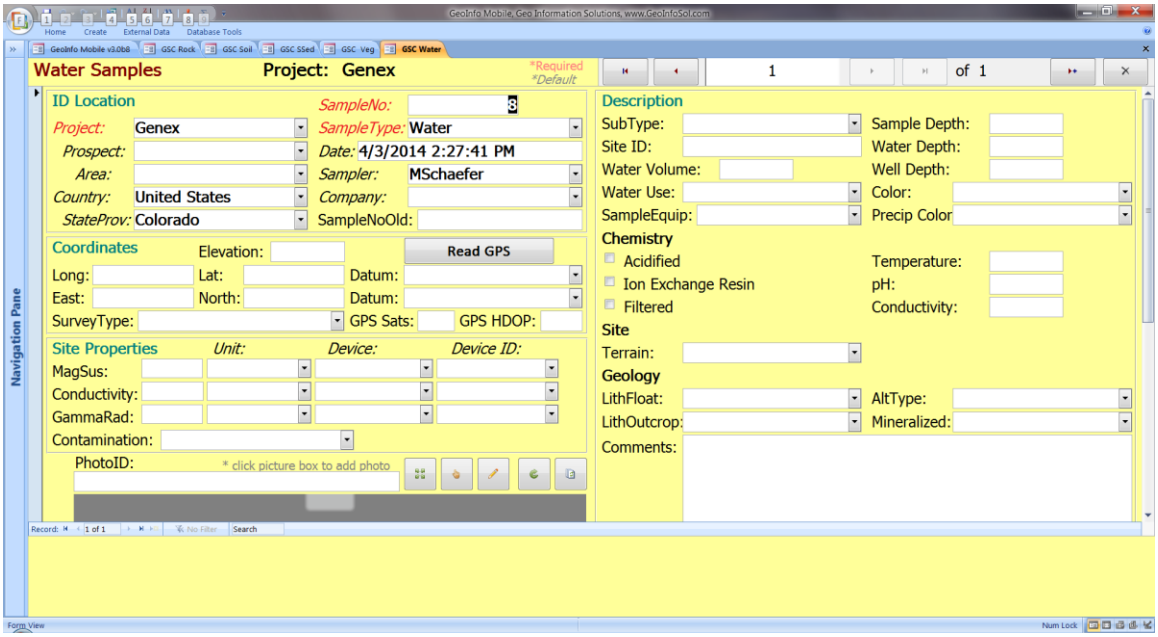
All sample types share some basic common information (left half of form) and each sample type has specific unique description fields based on the sample type (right half of form).

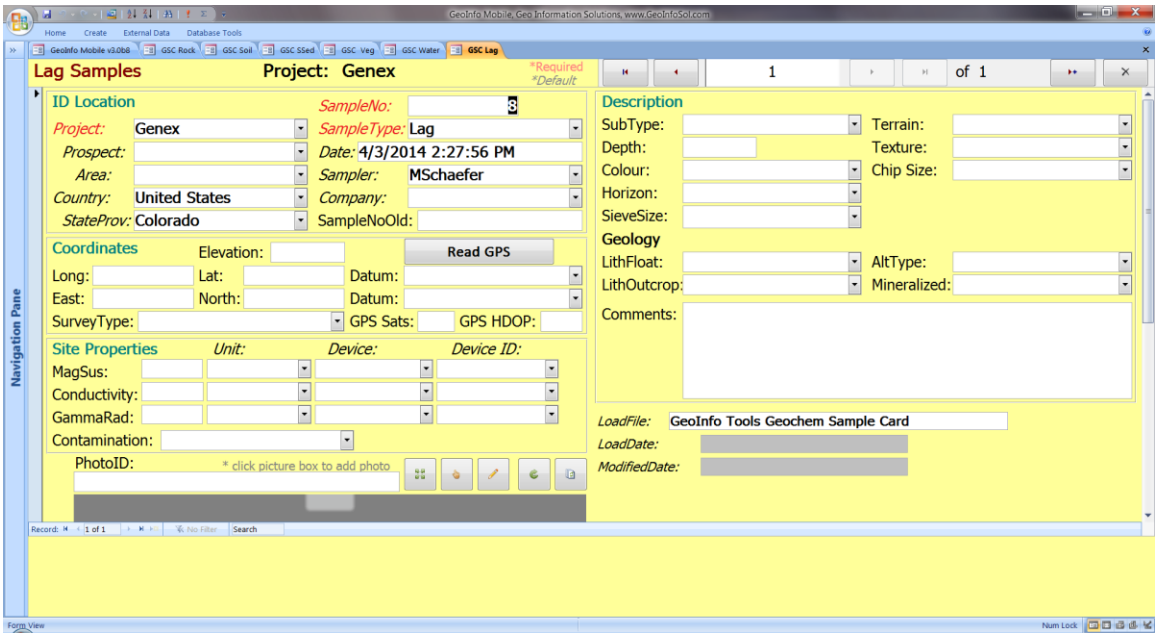


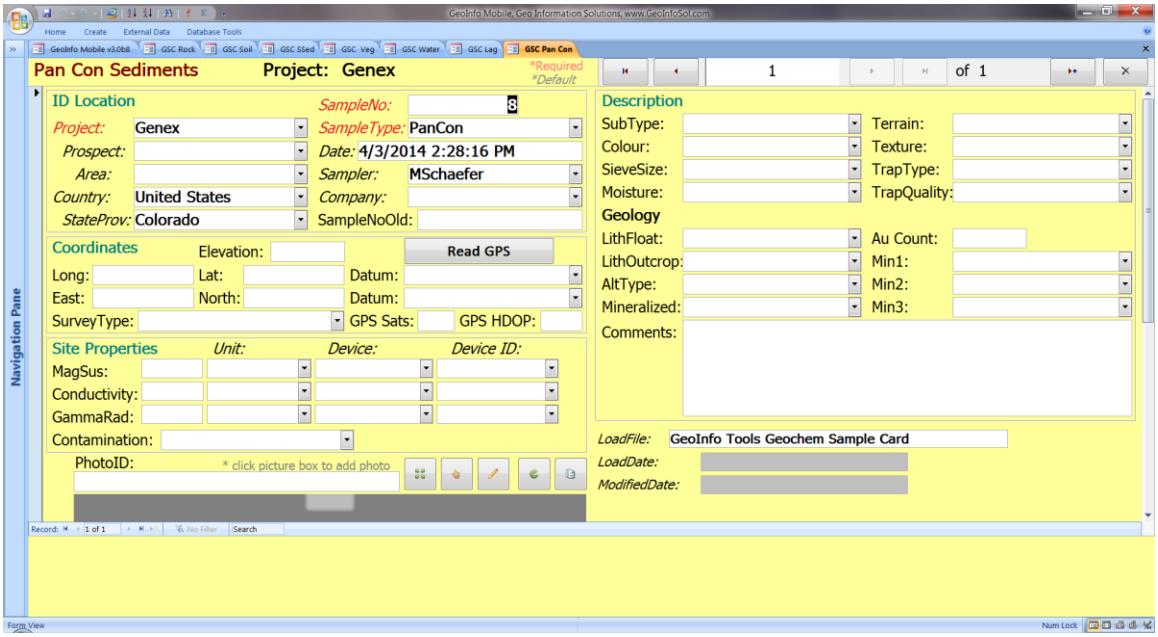


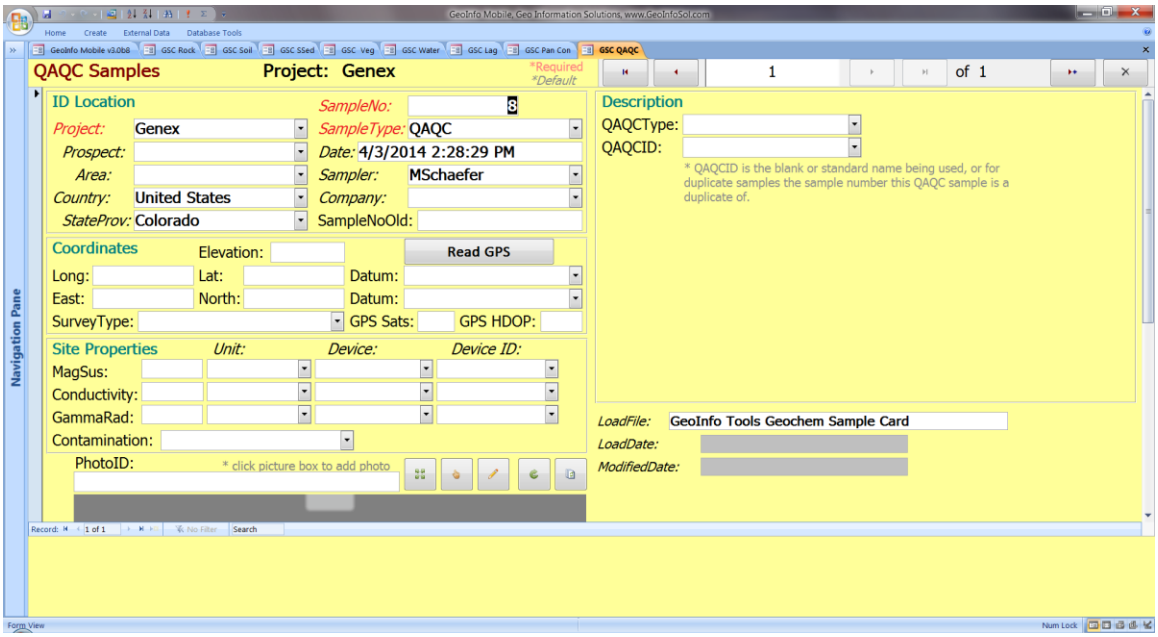

Stream Sediments
Project: Genex
ID Location
Project: Genex
Prospect:
Area:
Country: United States
StateProv: Colorado
SampleNo:
SampleType: StreamSediment
Date: 4/3/2014 2:27:09 PM
Sampler: MSchaefer
Company:
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
SubType:
Width:
Colour:
SieveSize:
Terrain:
Texture:
Moisture:
TrapType:
TrapQuality:
Geology
LithFloat:
LithOutcrop:
AltType:
Mineralized:
Comments:
LoadFile: GeoInfo Tools Geochem Sample Card
LoadDate:
ModifiedDate:
Navigation Pane


Vegetation Samples
Project: Genex
ID Location
Project: Genex
Prospect:
Area:
Country: United States
StateProv: Colorado
SampleNo:
SampleType: Vegetation
Date: 4/3/2014 2:27:24 PM
Sampler: MSchaefer
Company:
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
SubType:
Species:
DomSpecies1:
DomSpecies2:
DomSpecies3:
Plant Stress:
Growth Sampled:
Number Plants:
Avg Plant Height:
Trunk Diameter:
Area Diameter:
Bag Size:
Site
Aspect:
Terrain:
Moisture:
Geology
LithFloat:
LithOutcrop:
AltType:
Mineralized:
Comments:
LoadFile: GeoInfo Tools Geochem Sample Card
Navigation Pane


Water Samples
Project: Genex
*Required
*Default
1
of 1
ID Location
SampleNo:
Project: Genex
SampleType: Water
Prospect:
Date: 4/3/2014 2:27:41 PM
Area:
Sampler: MSchaefer
Country: United States
Company:
StateProv: Colorado
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
SubType:
Site ID:
Water Volume:
Water Use:
SampleEquip:
Sample Depth:
Water Depth:
Well Depth:
Color:
Precip Color
Chemistry
Acidified
Ion Exchange Resin
Filtered
Temperature:
pH:
Conductivity:
Site
Terrain:
Geology
LithFloat:
LithOutcrop:
AltType:
Mineralized:
Comments:
Navigation Pane

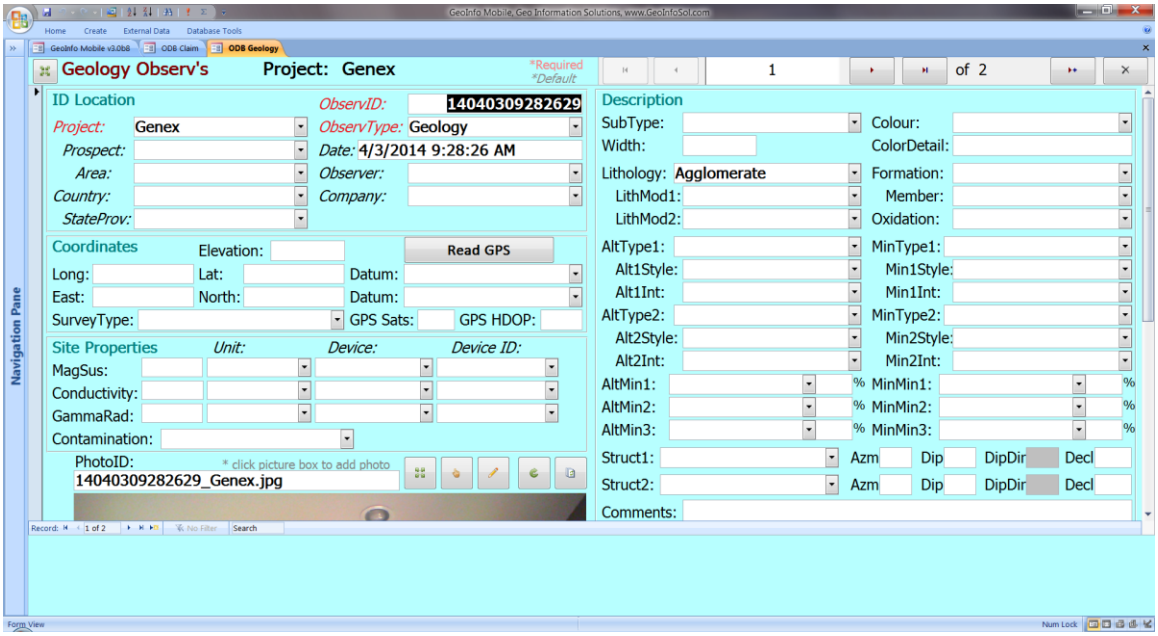

Lag Samples
Project: Genex
*Required
*Default
1
of 1
ID Location
SampleNo:
Project: Genex
SampleType: Lag
Prospect:
Date: 4/3/2014 2:27:56 PM
Area:
Sampler: MSchaefer
Country: United States
Company:
StateProv: Colorado
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
SubType:
Depth:
Colour:
Horizon:
SieveSize:
Terrain:
Texture:
Chip Size:
Geology
LithFloat:
LithOutcrop:
AltType:
Mineralized:
Comments:
LoadFile: GeoInfo Tools Geochem Sample Card
LoadDate:
ModifiedDate:
Navigation Pane

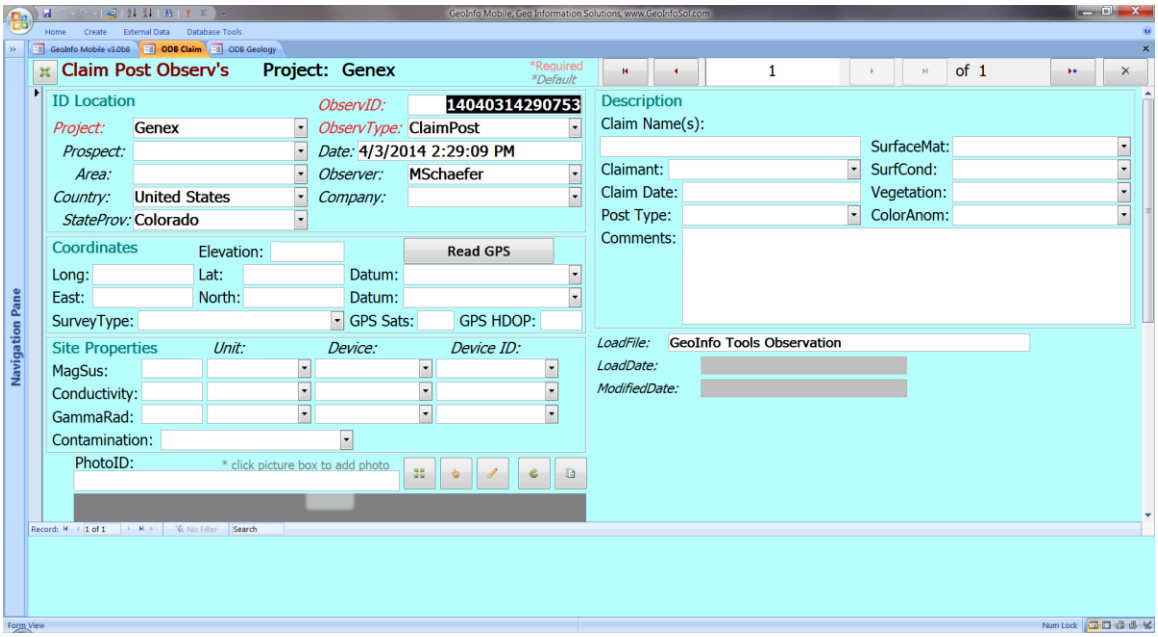

Pan Con Sediments
Project: Genex
*Required
*Default
1
of 1
ID Location
SampleNo:
Project: Genex
SampleType: PanCon
Prospect:
Date: 4/3/2014 2:28:16 PM
Area:
Sampler: MSchaefer
Country: United States
Company:
StateProv: Colorado
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
SubType:
Terrain:
Colour:
Texture:
SieveSize:
TrapType:
Moisture:
TrapQuality:
Geology
LithFloat:
Au Count:
LithOutcrop:
Min1:
AltType:
Min2:
Mineralized:
Min3:
Comments:
LoadFile: GeoInfo Tools Geochem Sample Card
LoadDate:
ModifiedDate:
Navigation Pane

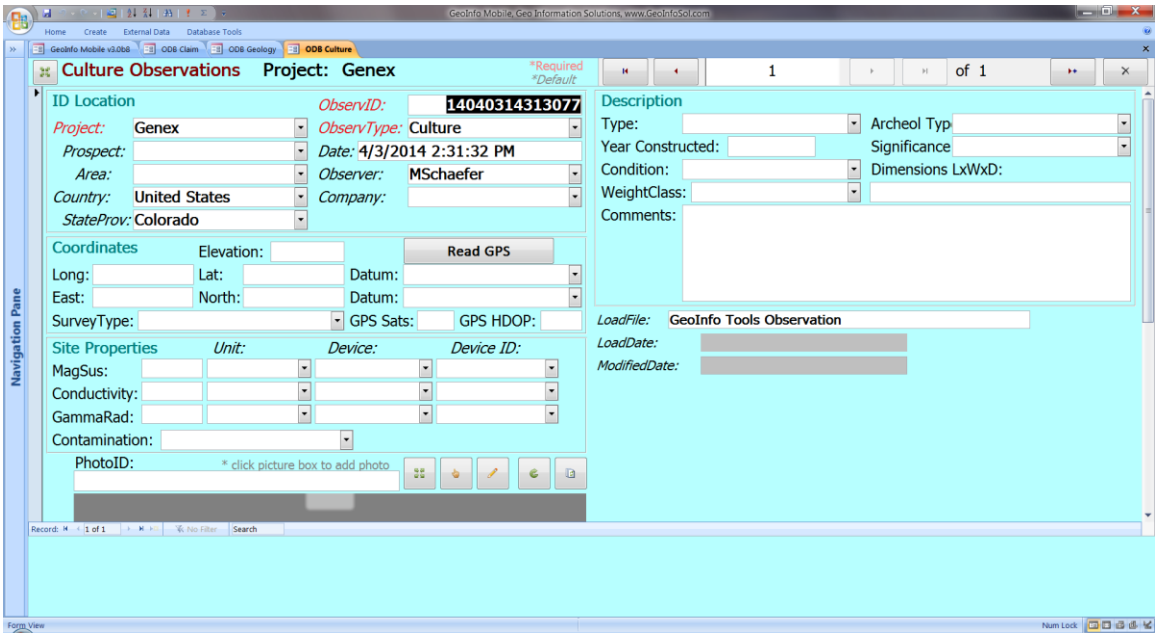

QAQC Samples
Project: Genex
*Required
*Default
1
of 1
ID Location
SampleNo:
Project: Genex
SampleType: QAQC
Prospect:
Date: 4/3/2014 2:28:29 PM
Area:
Sampler: MSchaefer
Country: United States
Company:
StateProv: Colorado
SampleNoOld:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
QAQCType:
QAQCID:
* QAQCID is the blank or standard name being used, or for duplicate samples the sample number this QAQC sample is a duplicate of.
LoadFile: GeoInfo Tools Geochem Sample Card
LoadDate:
ModifiedDate:
Navigation Pane

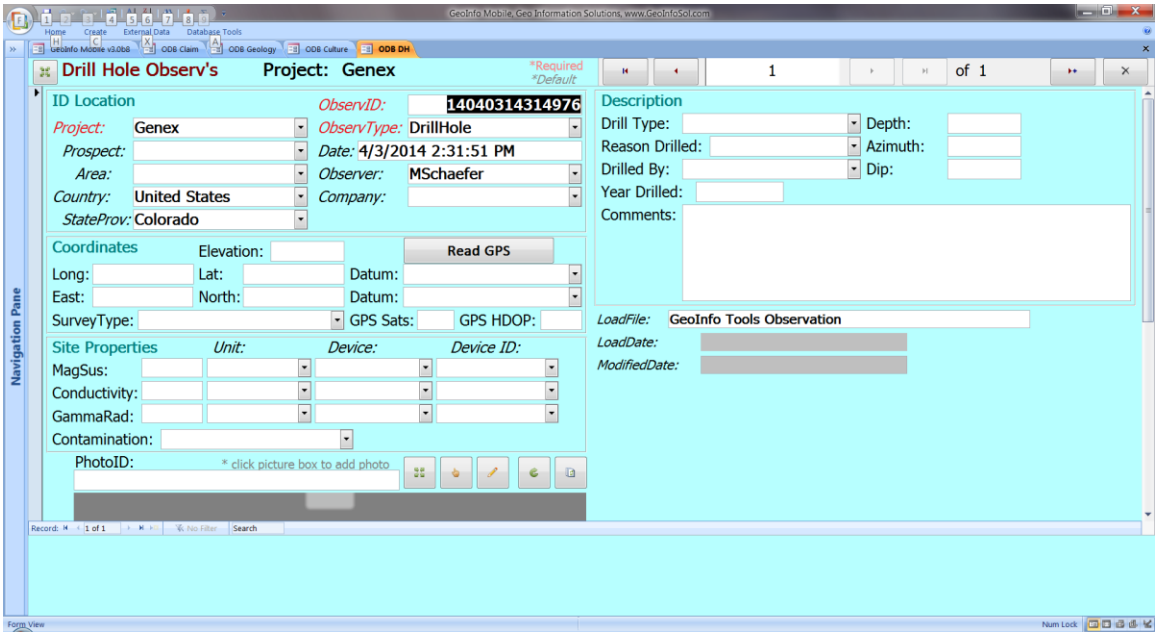
Observation Database Forms

All observation types share some basic information and each observation type has specific unique description fields. Geology observation fields are the same as a rock geochemistry sample.

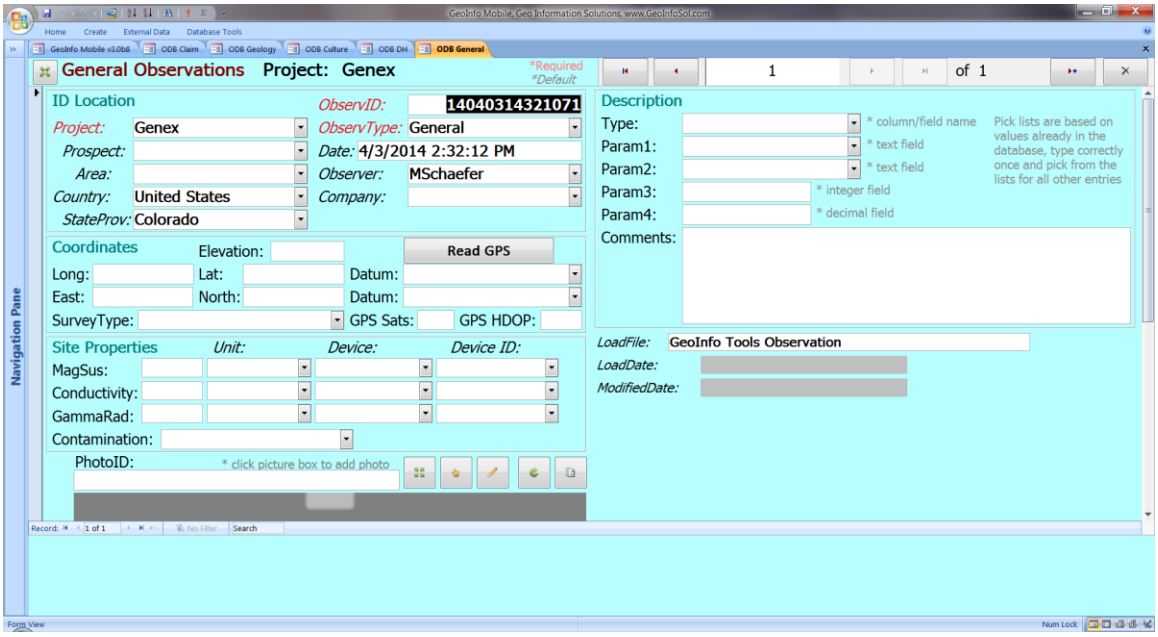


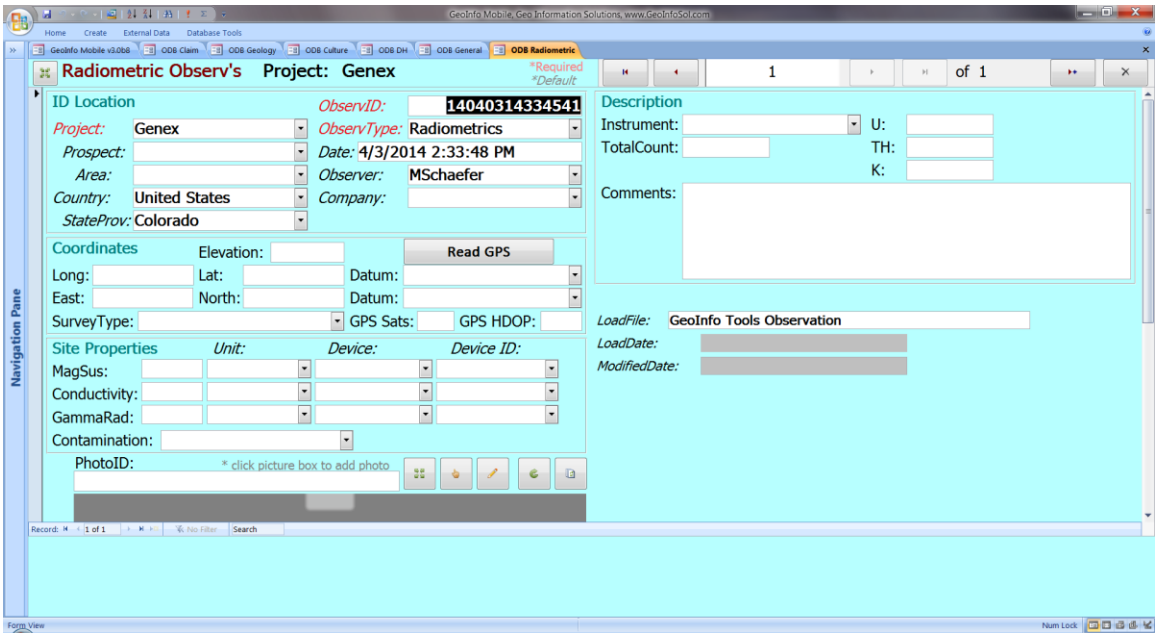


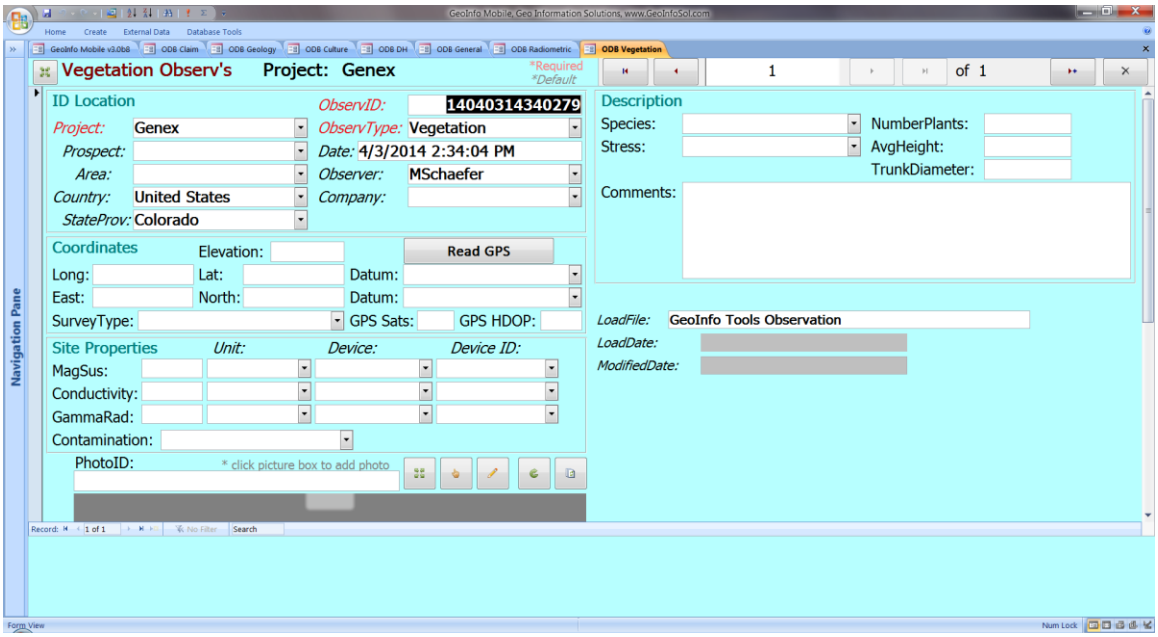

Culture Observations
Project: Genex
*Required
*Default
1
of 1
ID Location
ObservID: 14040314313077
Project: Genex
ObservType: Culture
Prospect:
Date: 4/3/2014 2:31:32 PM
Area:
Observer: MSchaefer
Country: United States
Company:
StateProv: Colorado
Description
Type:
Archeol Typ
Year Constructed:
Significance
Condition:
Dimensions LxWxD:
WeightClass:
Comments:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
LoadFile: GeoInfo Tools Observation
LoadDate:
ModifiedDate:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Navigation Pane

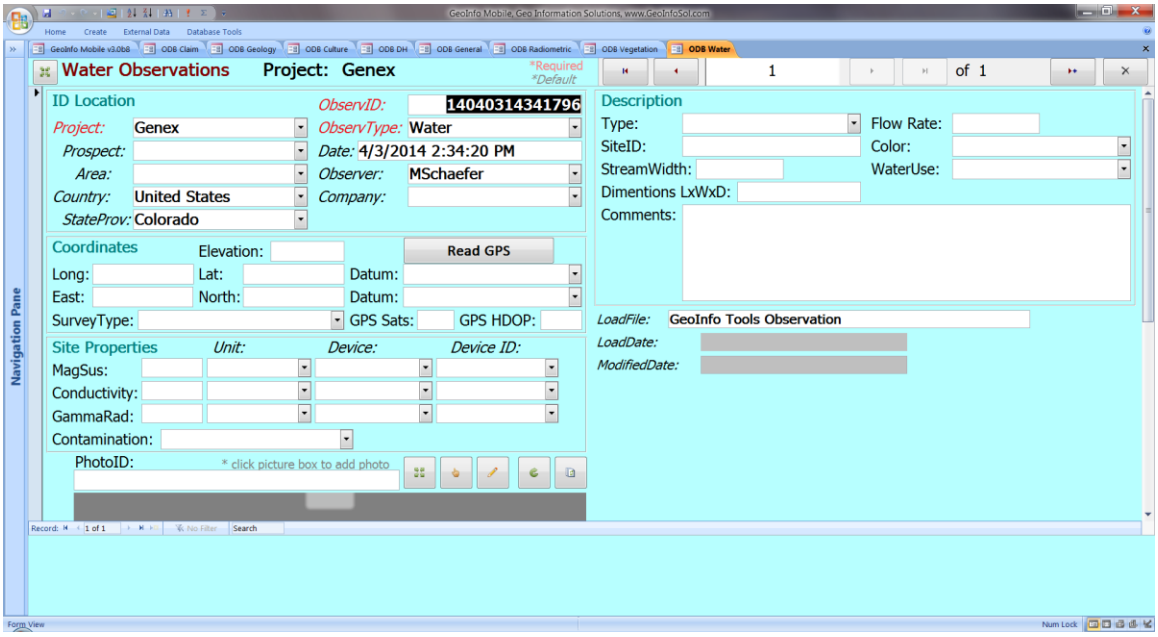

Drill Hole Observ's
Project: Genex
*Required
*Default
1
of 1
ID Location
ObservID: 14040314314976
Project: Genex
ObservType: DrillHole
Prospect:
Date: 4/3/2014 2:31:51 PM
Area:
Observer: MSchaefer
Country: United States
Company:
StateProv: Colorado
Description
Drill Type:
Depth:
Reason Drilled:
Azimuth:
Drilled By:
Dip:
Year Drilled:
Comments:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
LoadFile: GeoInfo Tools Observation
LoadDate:
ModifiedDate:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Navigation Pane

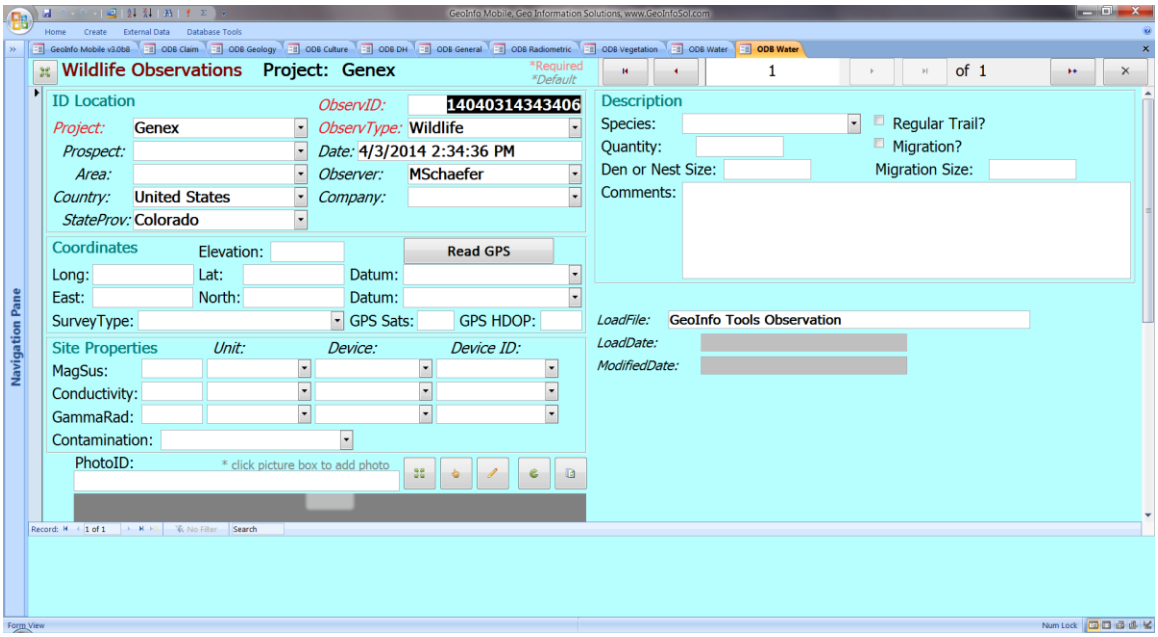
General Observations are for collecting any observation type that does not have a specific data entry form. Any observation can be collected here! Type is the field name and the Parameter and Comment fields are the data.






Vegetation Observ's
Project: Genex
*Required
*Default
1
of 1
ID Location
ObservID: 14040314340279
Project: Genex
ObservType: Vegetation
Prospect:
Date: 4/3/2014 2:34:04 PM
Area:
Observer: MSchaefer
Country: United States
Company:
StateProv: Colorado
Description
Species:
NumberPlants:
Stress:
AvgHeight:
TrunkDiameter:
Comments:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
LoadFile: GeoInfo Tools Observation
LoadDate:
ModifiedDate:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Navigation Pane

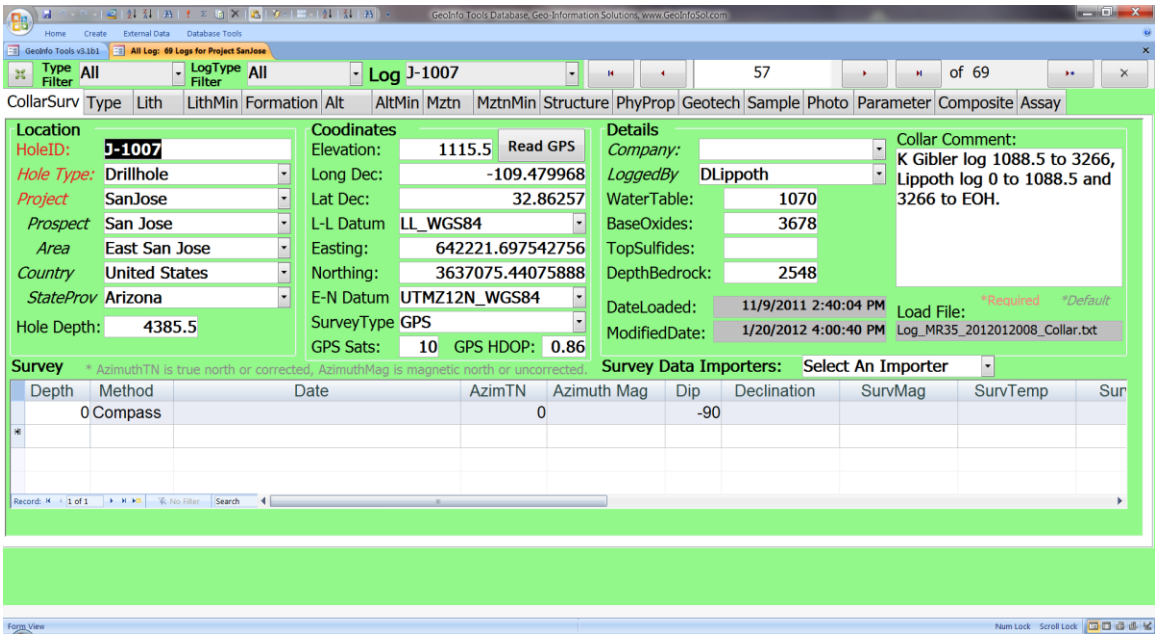

Water Observations
Project: Genex
*Required
*Default
1
of 1
ID Location
ObservID: 14040314341796
Project: Genex
ObservType: Water
Prospect:
Date: 4/3/2014 2:34:20 PM
Area:
Observer: MSchaefer
Country: United States
Company:
StateProv: Colorado
Description
Type:
Flow Rate:
SiteID:
Color:
StreamWidth:
WaterUse:
Dimentions LxWxD:
Comments:
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
LoadFile: GeoInfo Tools Observation
LoadDate:
ModifiedDate:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Navigation Pane

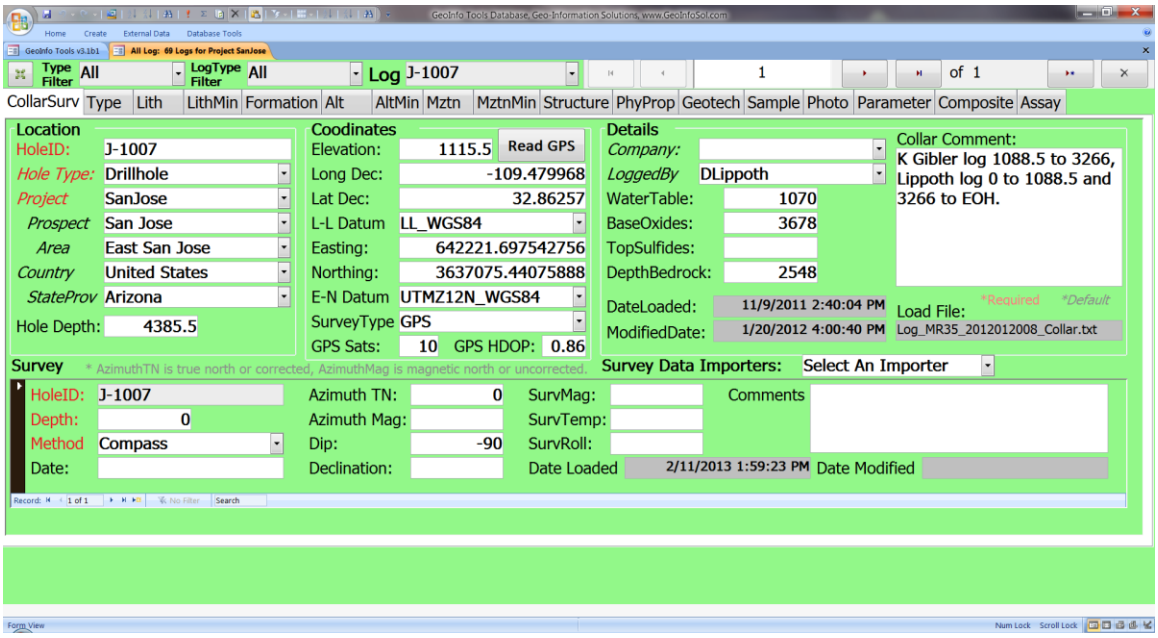

Wildlife Observations
Project: Genex
*Required
*Default
ID Location
ObservID: 140403143434O6
Project: Genex
ObservType: Wildlife
Prospect:
Date: 4/3/2014 2:34:36 PM
Area:
Observer: MSchaefer
Country: United States
Company:
StateProv: Colorado
Coordinates
Elevation:
Read GPS
Long:
Lat:
Datum:
East:
North:
Datum:
SurveyType:
GPS Sats:
GPS HDOP:
Site Properties
Unit:
Device:
Device ID:
MagSus:
Conductivity:
GammaRad:
Contamination:
PhotoID:
* click picture box to add photo
Description
Species:
Regular Trail?
Quantity:
Migration?
Den or Nest Size:
Migration Size:
Comments:
LoadFile: GeoInfo Tools Observation
LoadDate:
ModifiedDate:
Navigation Pane
of 1

Log Forms

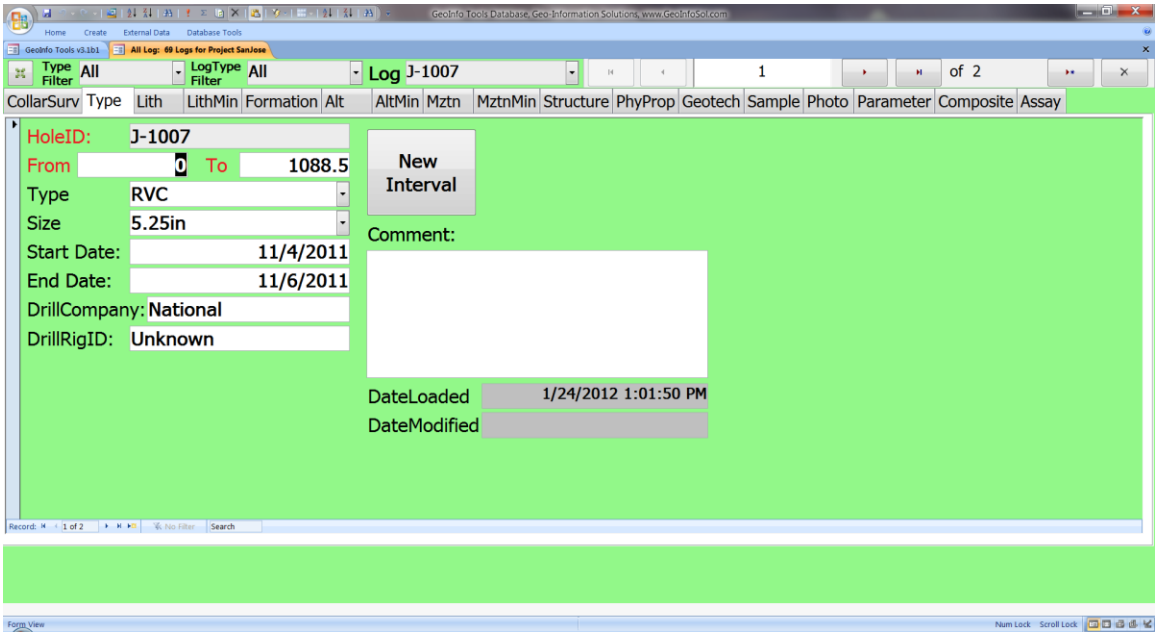
Log forms are for logging Drill Holes, Blast Holes, Trenches or Underground Workings. A tab exists on the log for each type of data;

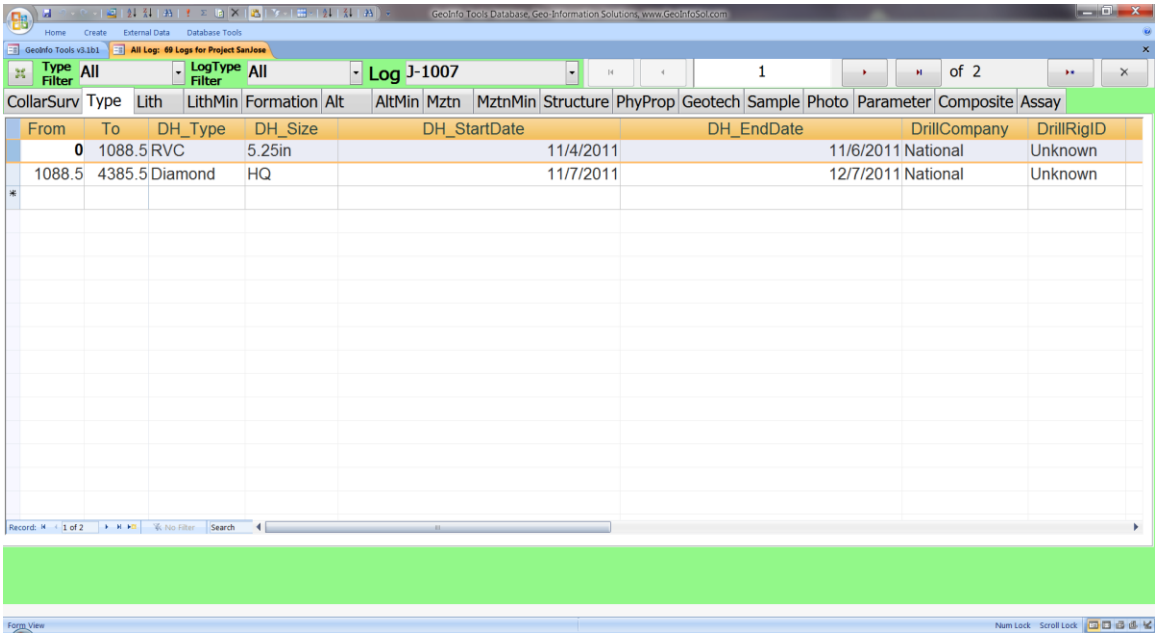
Collar – Survey – Collar and survey information. Collar surveys (drill rig set up) should be entered as well as down hole surveys. Down drill holes should have negative dips, horizontal holes have a 0 dip and up holes (possible underground) positive dips.



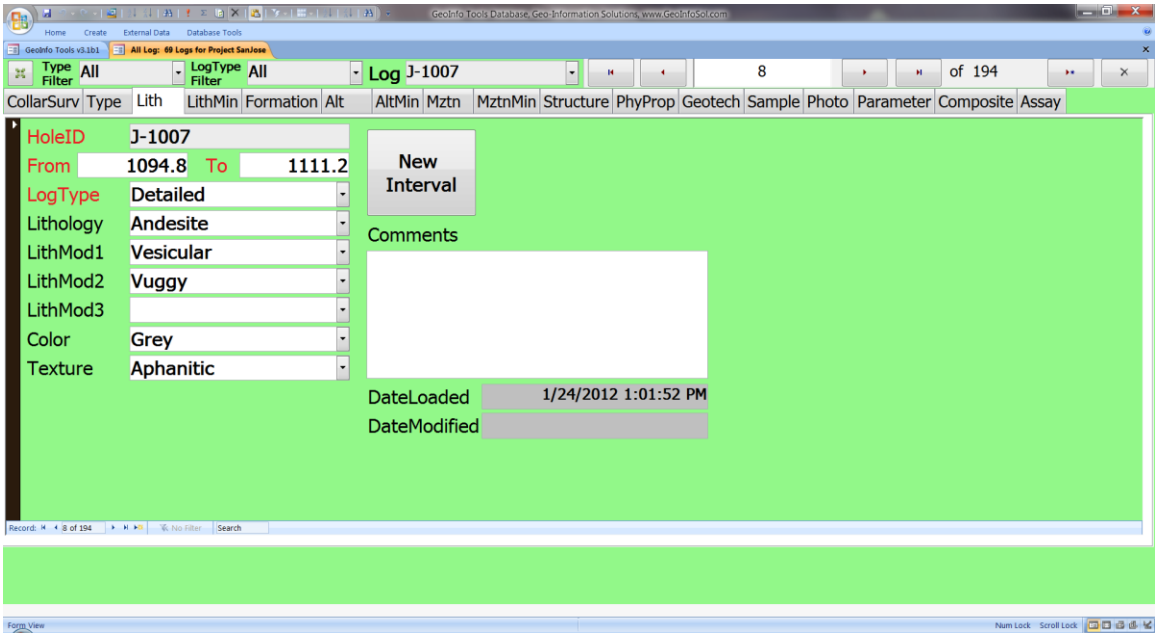


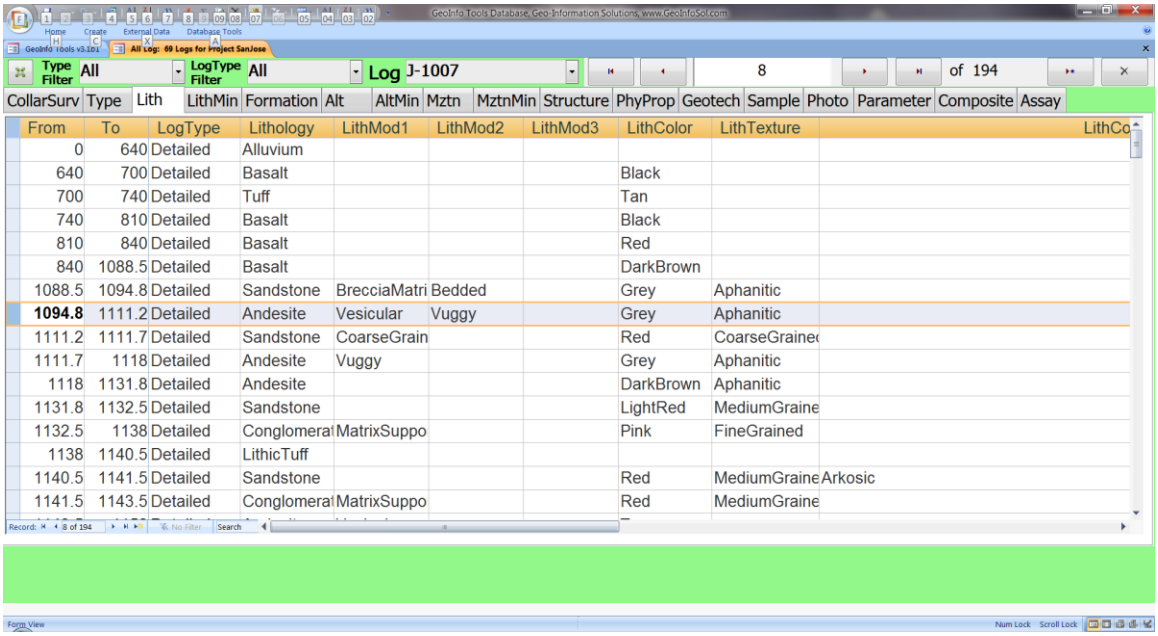
Hole Type – RVC, Core, and drill size information by interval.





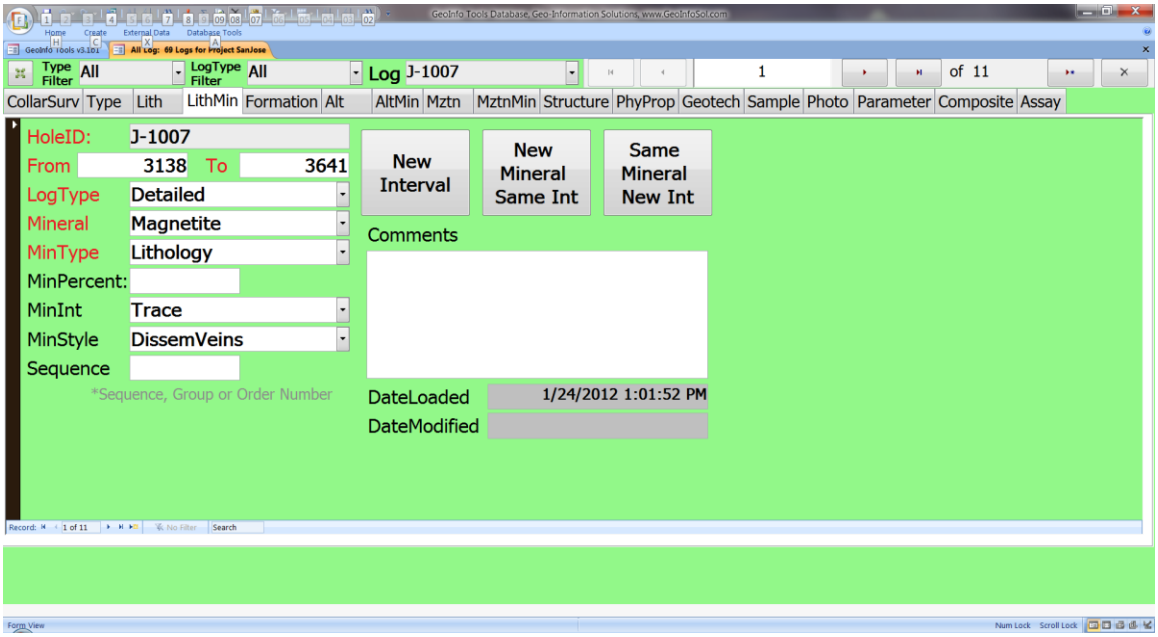
Lithology – Lithology, modifiers, color and texture.

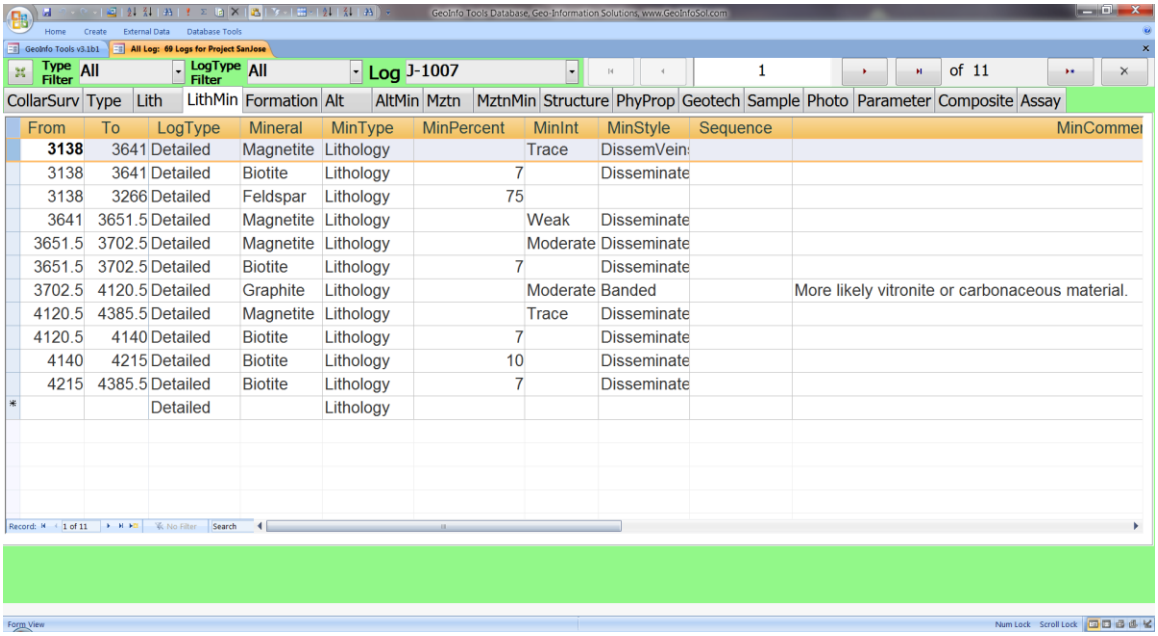




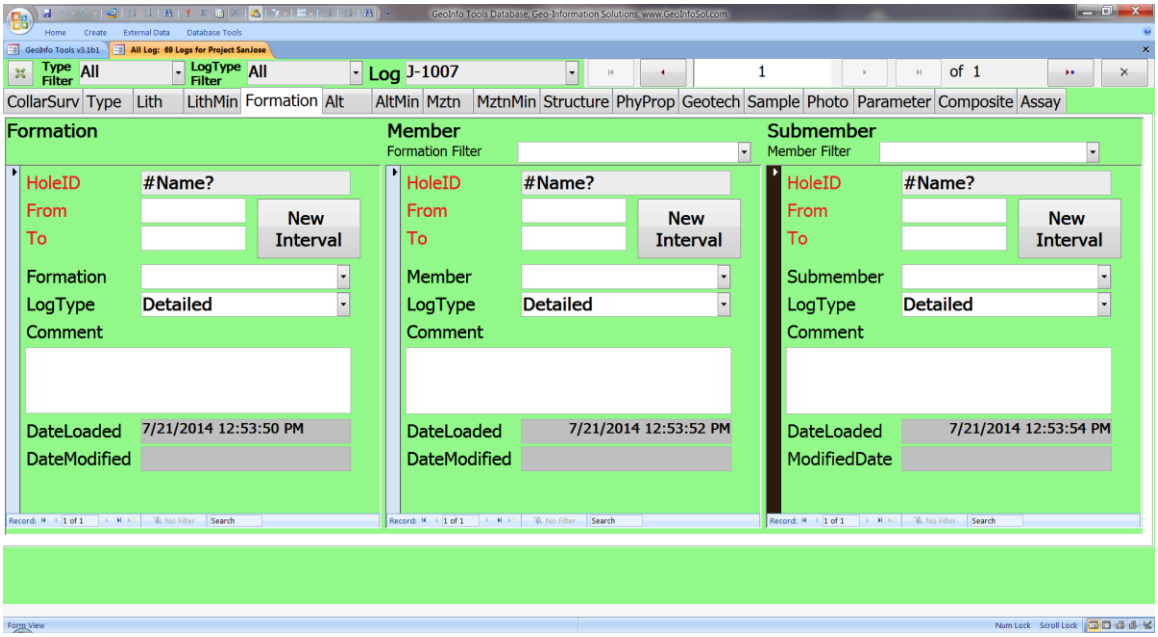
From	To	LogType	Lithology	LithMod1	LithMod2	LithMod3	LithColor	LithTexture	LithCo
0	640	Detailed	Alluvium						
640	700	Detailed	Basalt				Black		
700	740	Detailed	Tuff				Tan		
740	810	Detailed	Basalt				Black		
810	840	Detailed	Basalt				Red		
840	1088.5	Detailed	Basalt				DarkBrown		
1088.5	1094.8	Detailed	Sandstone	BrecciaMatri	Bedded		Grey	Aphanitic	
1094.8	1111.2	Detailed	Andesite	Vesicular	Vuggy		Grey	Aphanitic	
1111.2	1111.7	Detailed	Sandstone	CoarseGrain			Red	CoarseGraine	
1111.7	1118	Detailed	Andesite	Vuggy			Grey	Aphanitic	
1118	1131.8	Detailed	Andesite				DarkBrown	Aphanitic	
1131.8	1132.5	Detailed	Sandstone				LightRed	MediumGraine	
1132.5	1138	Detailed	Conglomera	MatrixSuppo			Pink	FineGrained	
1138	1140.5	Detailed	LithicTuff						
1140.5	1141.5	Detailed	Sandstone				Red	MediumGraine	Arkosic
1141.5	1143.5	Detailed	Conglomera	MatrixSuppo			Red	MediumGraine	

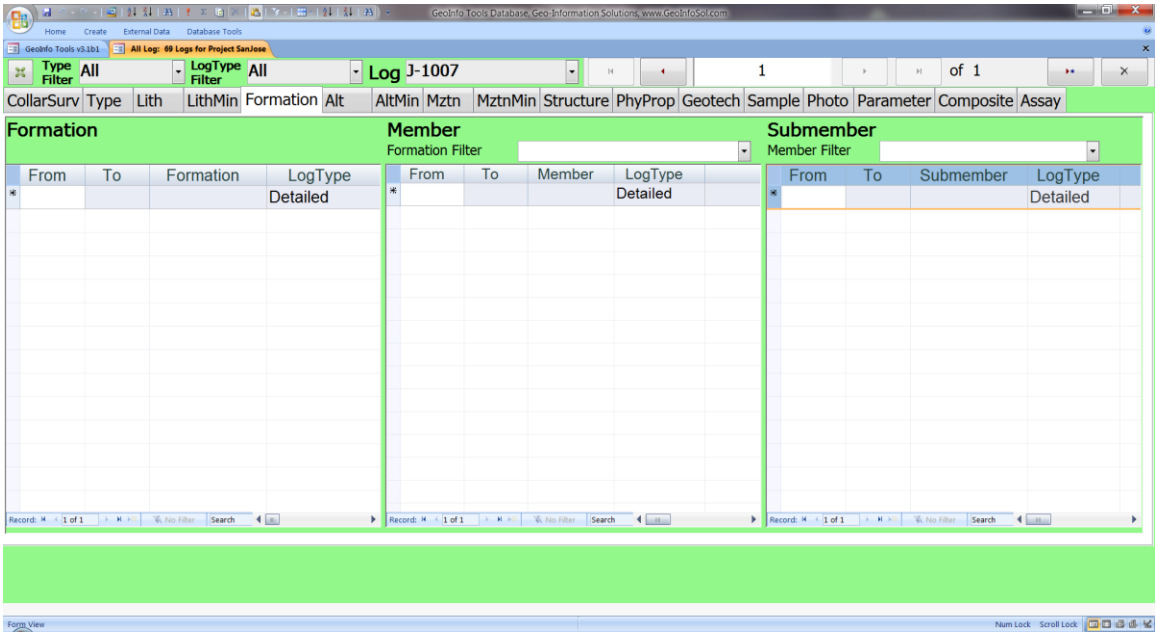
Lithology Minerals – Lithology minerals, percentage estimates, and style.



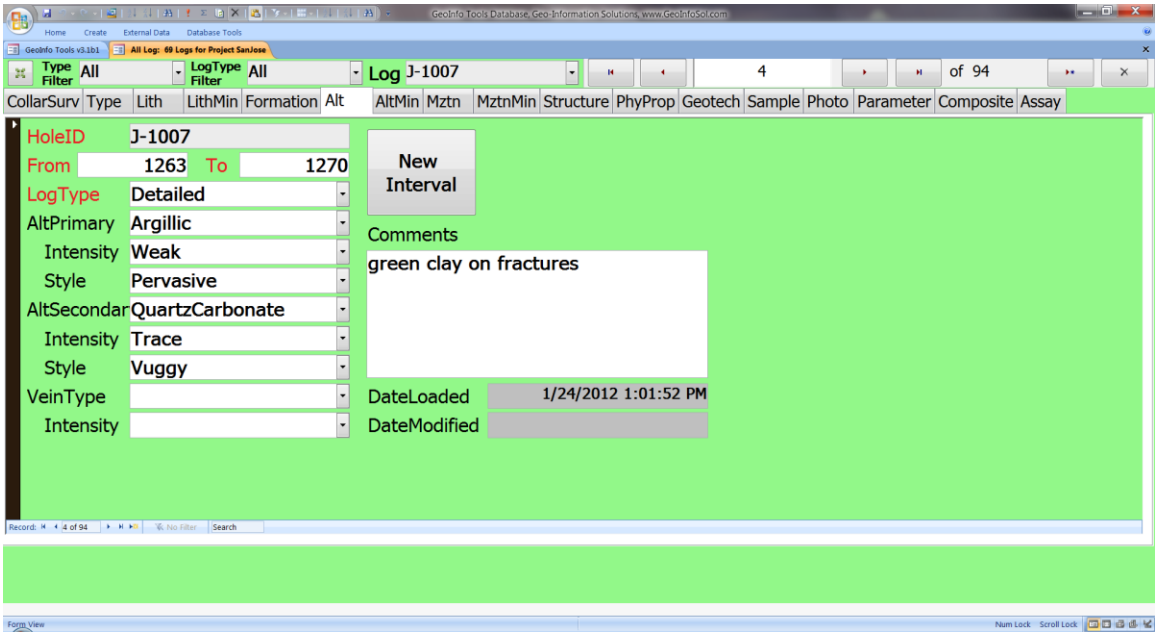


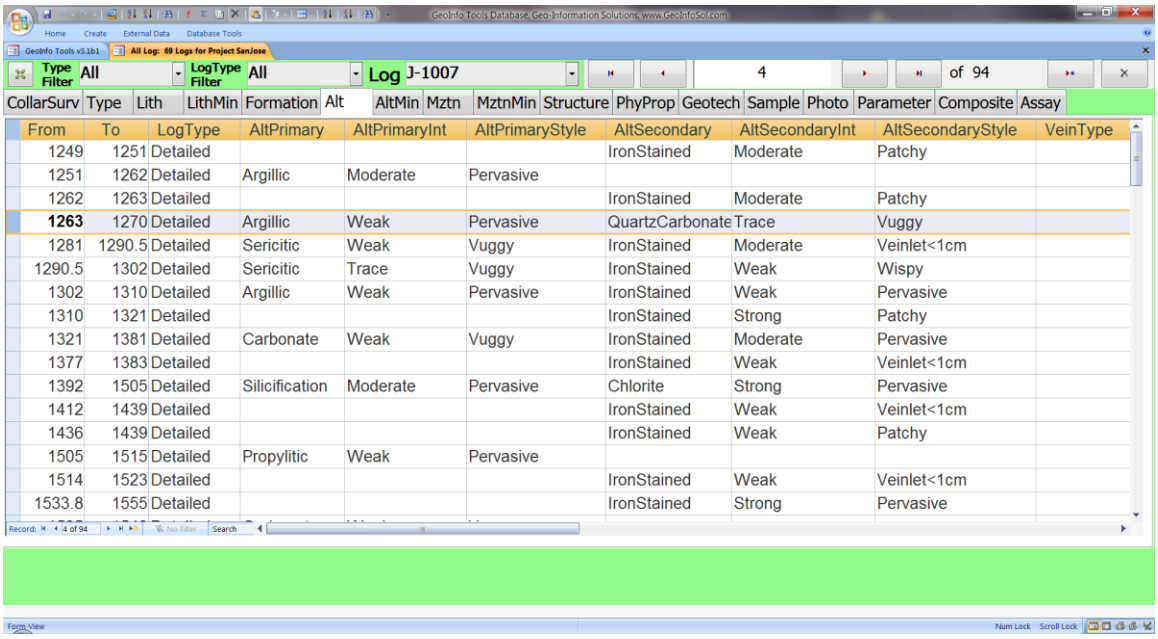
Formation – Formation, Member and Submember. Also used as lithology unit.



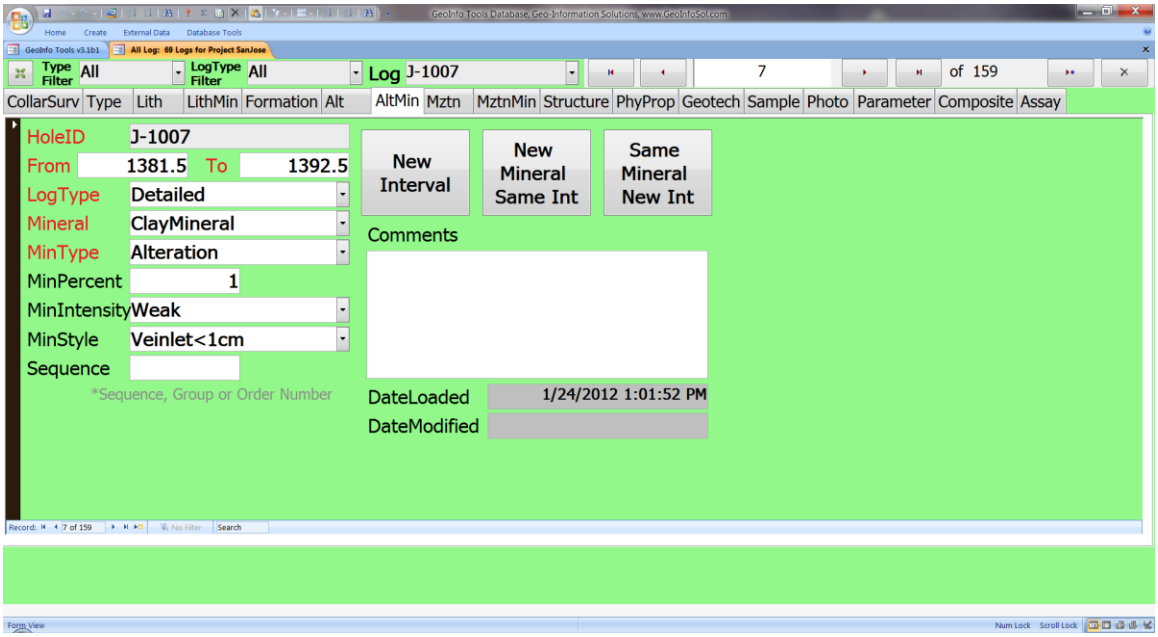


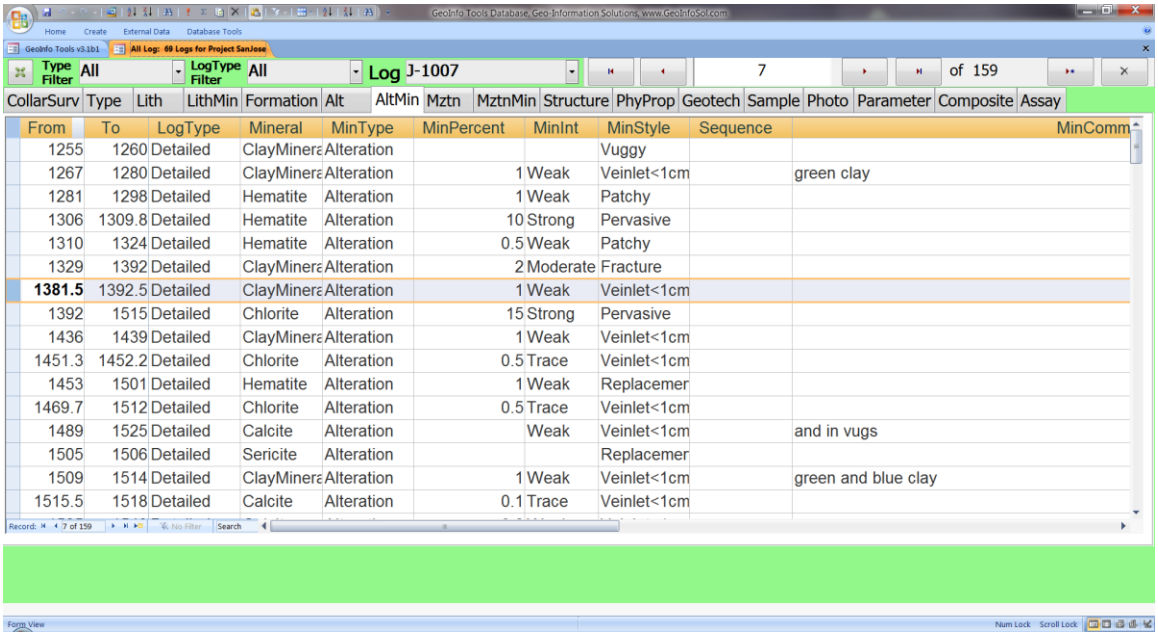
Alteration – General alteration types or suites including primary and secondary. Individual mineral alterations like chloritization can be entered in the Alteration Minerals section.





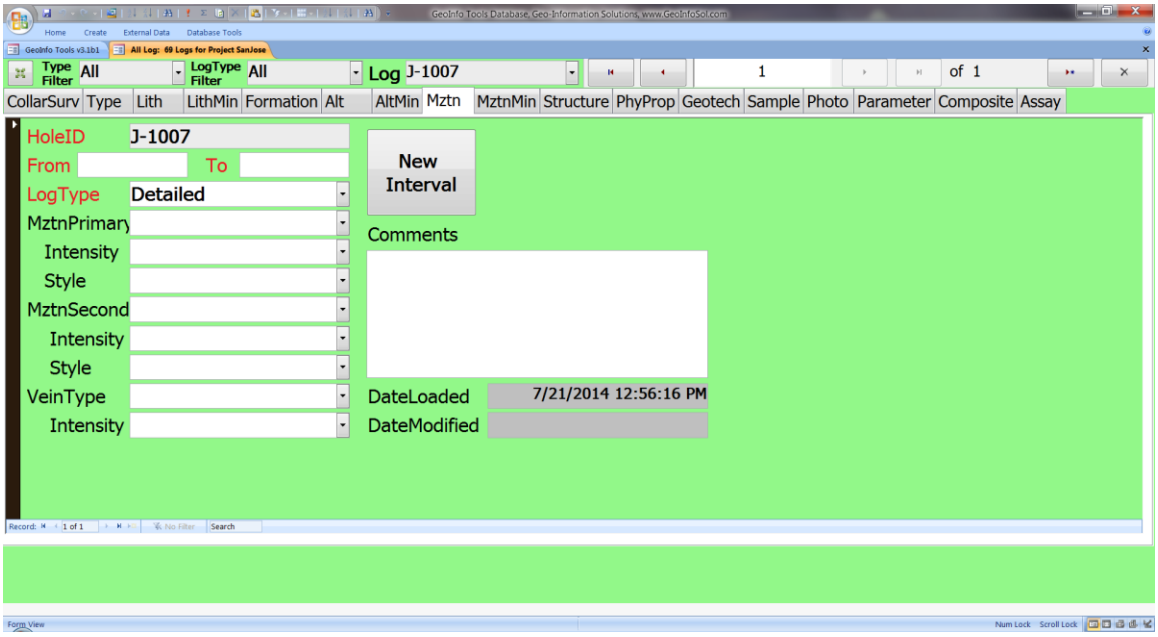
Alteration Minerals – Alteration minerals, percentage estimates, and style.

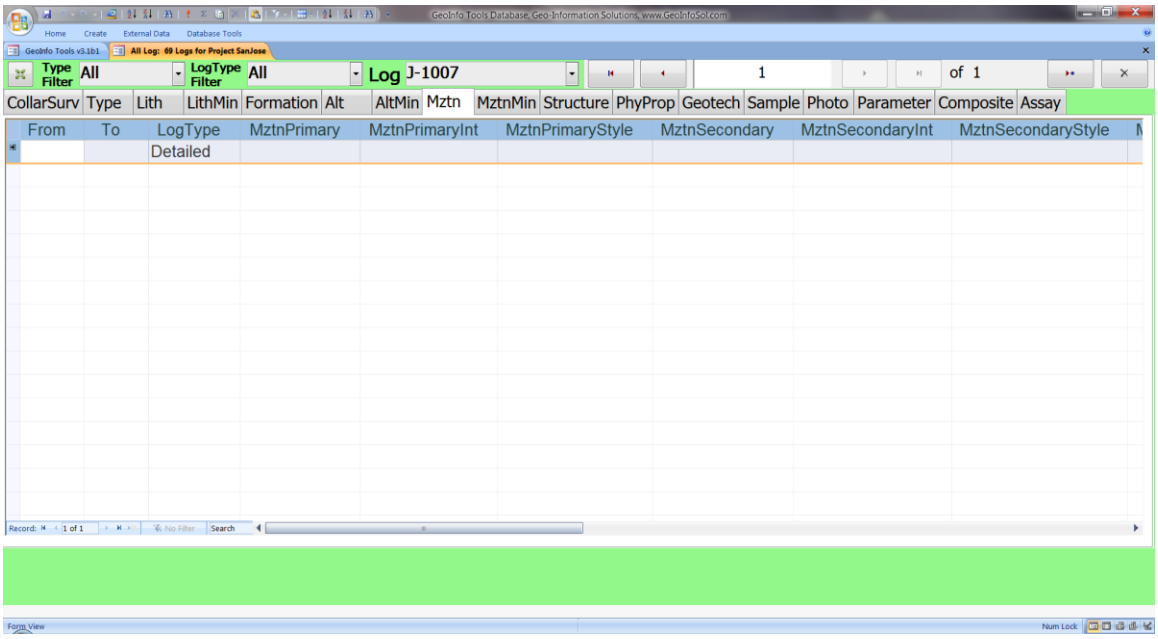




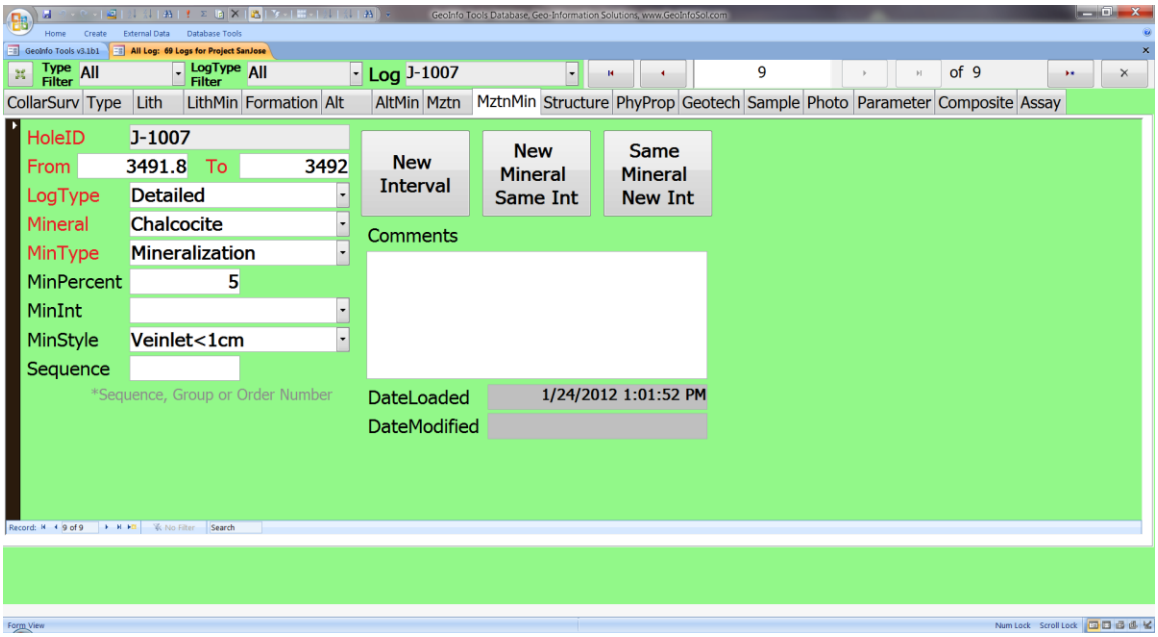
From	To	LogType	Mineral	MinType	MinPercent	MinInt	MinStyle	Sequence	MinComm
1255	1260	Detailed	ClayMinera	Alteration			Vuggy		
1267	1280	Detailed	ClayMinera	Alteration	1	Weak	Veinlet<1cm		green clay
1281	1298	Detailed	Hematite	Alteration	1	Weak	Patchy		
1306	1309.8	Detailed	Hematite	Alteration	10	Strong	Pervasive		
1310	1324	Detailed	Hematite	Alteration	0.5	Weak	Patchy		
1329	1392	Detailed	ClayMinera	Alteration	2	Moderate	Fracture		
1381.5	1392.5	Detailed	ClayMinera	Alteration	1	Weak	Veinlet<1cm		
1392	1515	Detailed	Chlorite	Alteration	15	Strong	Pervasive		
1436	1439	Detailed	ClayMinera	Alteration	1	Weak	Veinlet<1cm		
1451.3	1452.2	Detailed	Chlorite	Alteration	0.5	Trace	Veinlet<1cm		
1453	1501	Detailed	Hematite	Alteration	1	Weak	Replacemer		
1469.7	1512	Detailed	Chlorite	Alteration	0.5	Trace	Veinlet<1cm		
1489	1525	Detailed	Calcite	Alteration		Weak	Veinlet<1cm		and in vugs
1505	1506	Detailed	Sericite	Alteration			Replacemer		
1509	1514	Detailed	ClayMinera	Alteration	1	Weak	Veinlet<1cm		green and blue clay
1515.5	1518	Detailed	Calcite	Alteration	0.1	Trace	Veinlet<1cm		

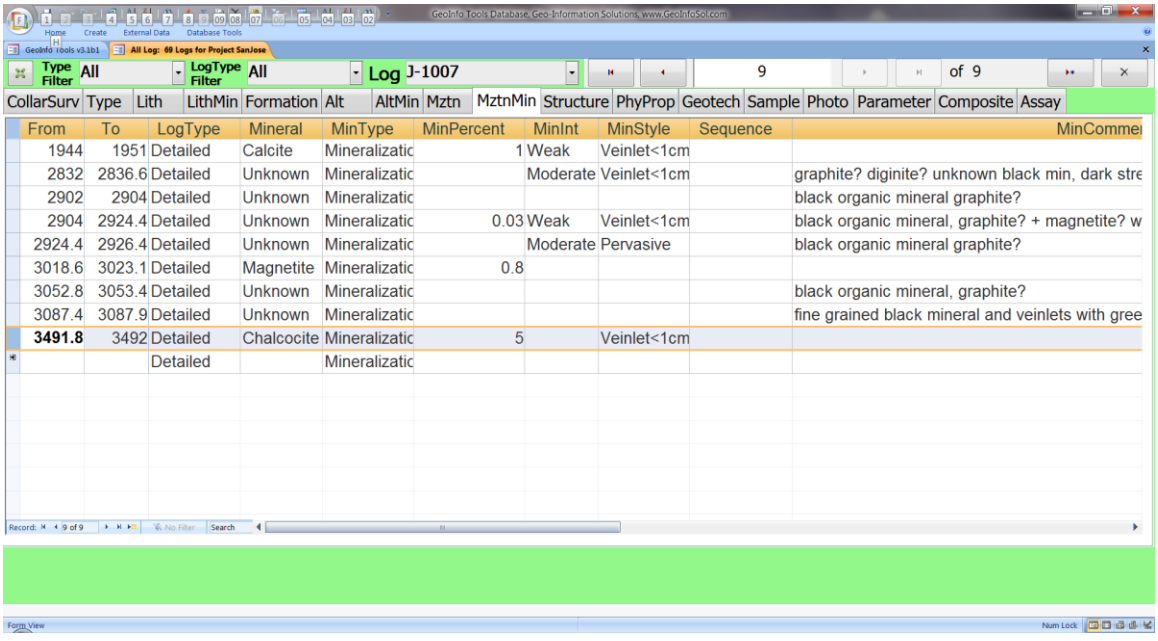
Mineralization – General mineralization types or suites including primary and secondary. Individual mineralization minerals like chalcopyrite can be entered in the Mineralization Minerals section.



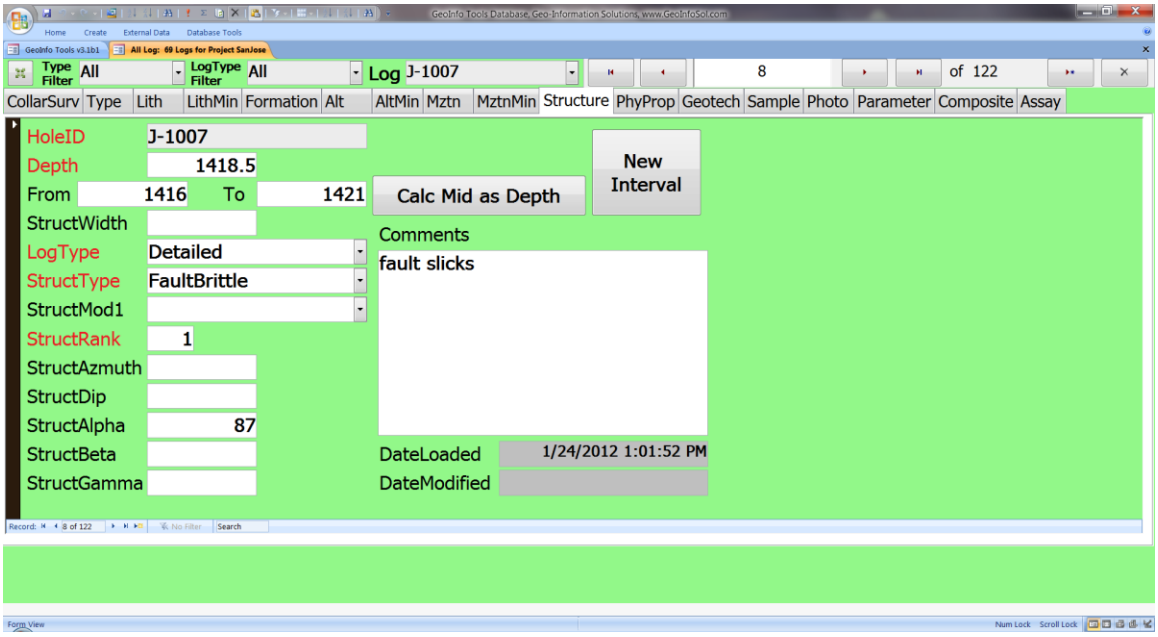


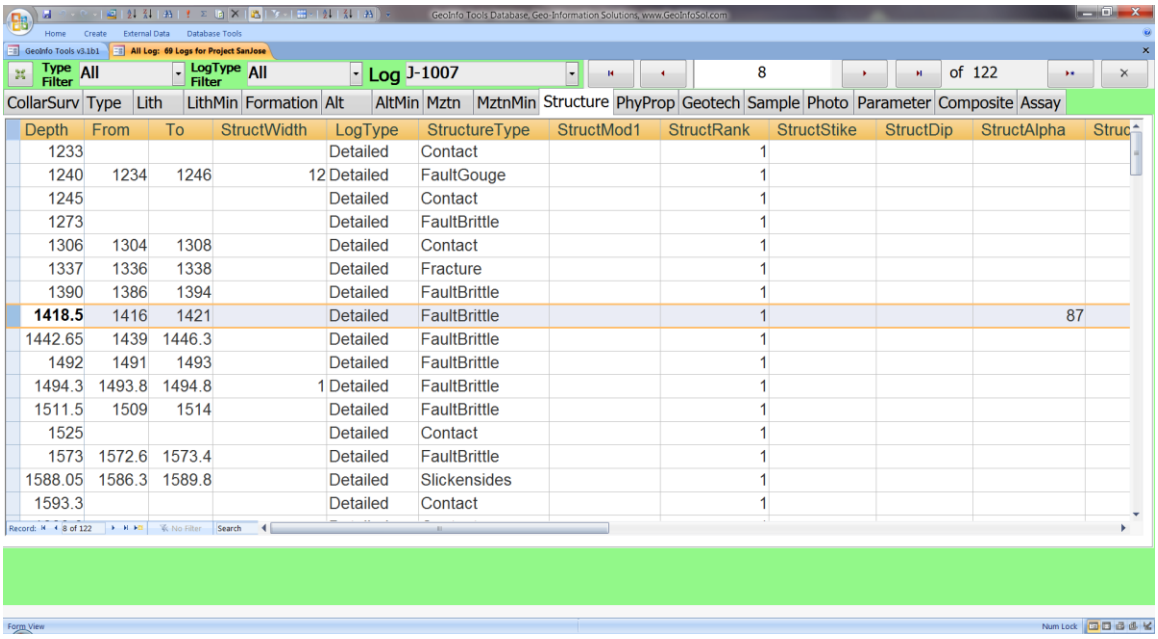
Mineralization Minerals – Mineralization related minerals like chalcopyrite, galena etc…percentage estimates, and style.





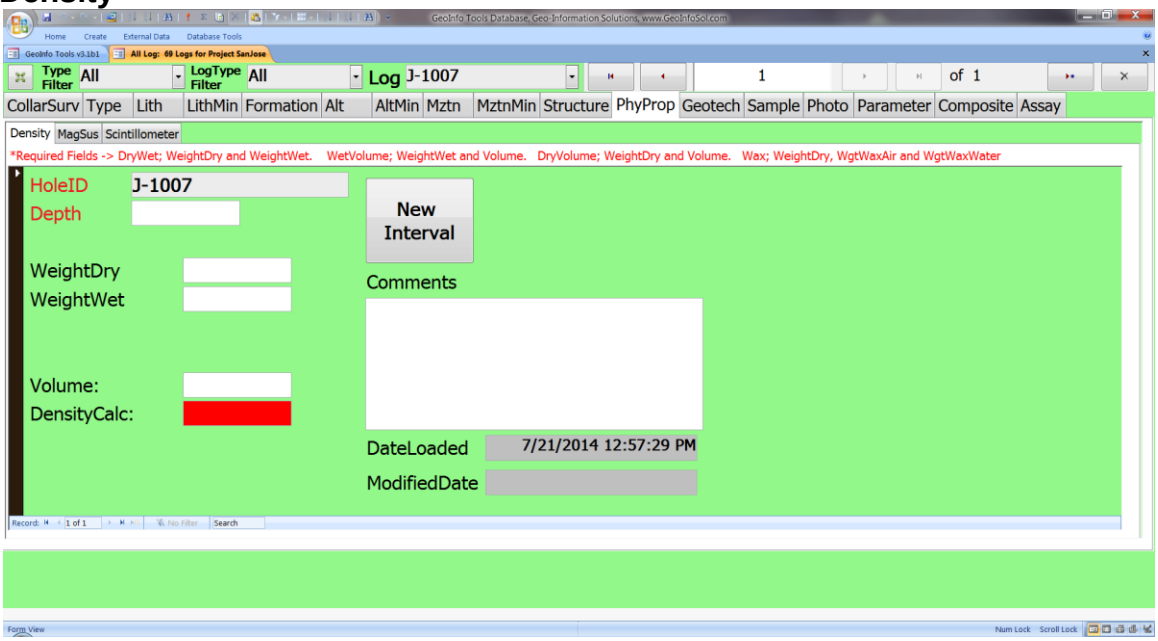
Structure – Structure type, rank (for paragenetic sequence), modifiers, strike and dip. Depth is the center of the structure and the width provides interval information for larger structures if needed.

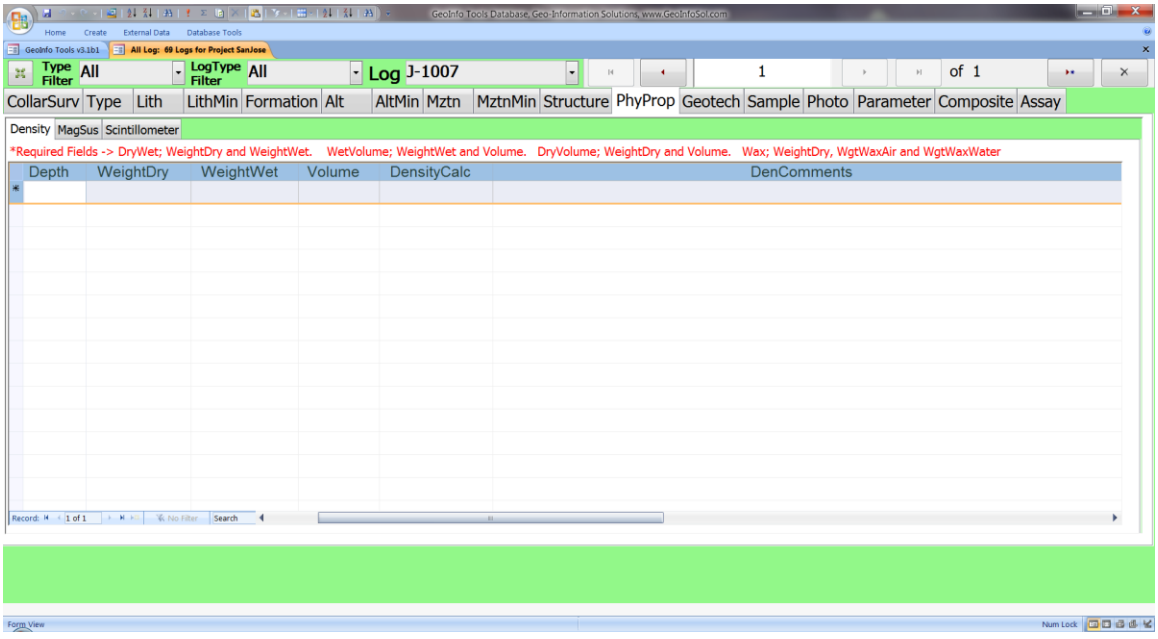




Physical Properties – Magnetic susceptibility, density, and scintillometer. Magnetic susceptibility data can be imported from a MPPEM25 instrument export.

Density



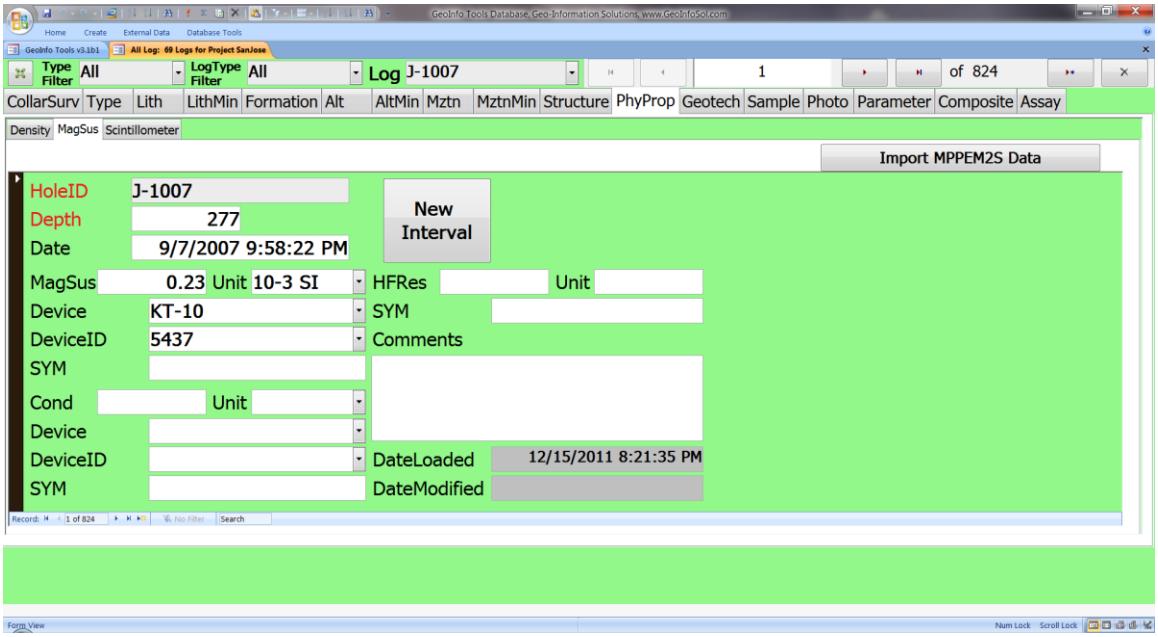


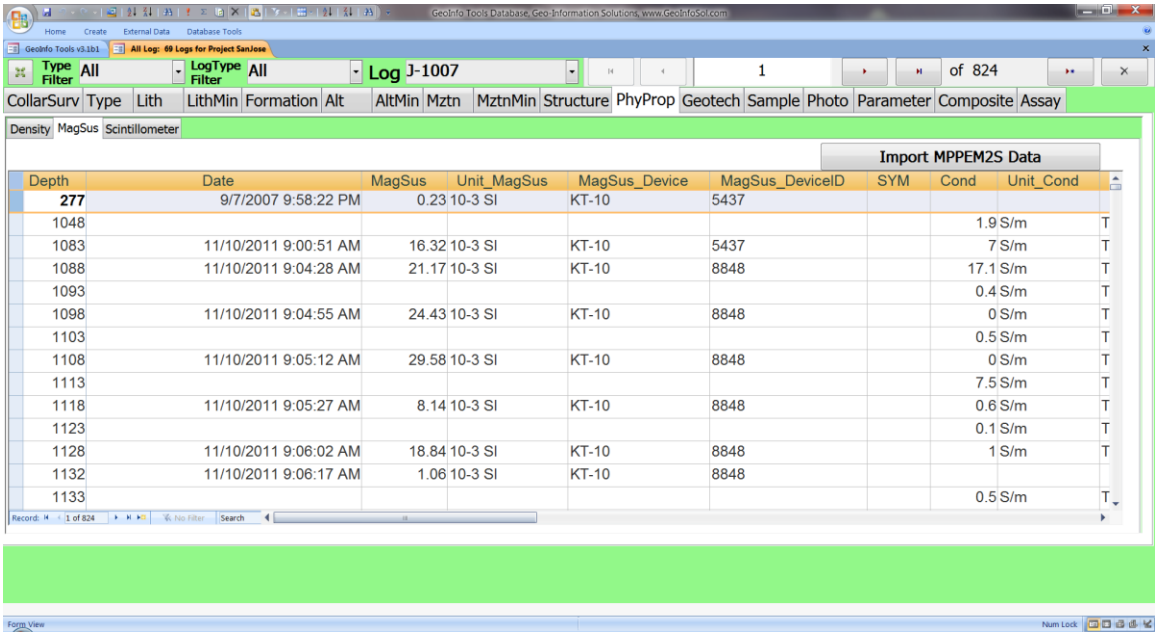
Density Formulas

Density requires 2 to 3 fields be collected for a density calculation. The four methods in the database are as follows.

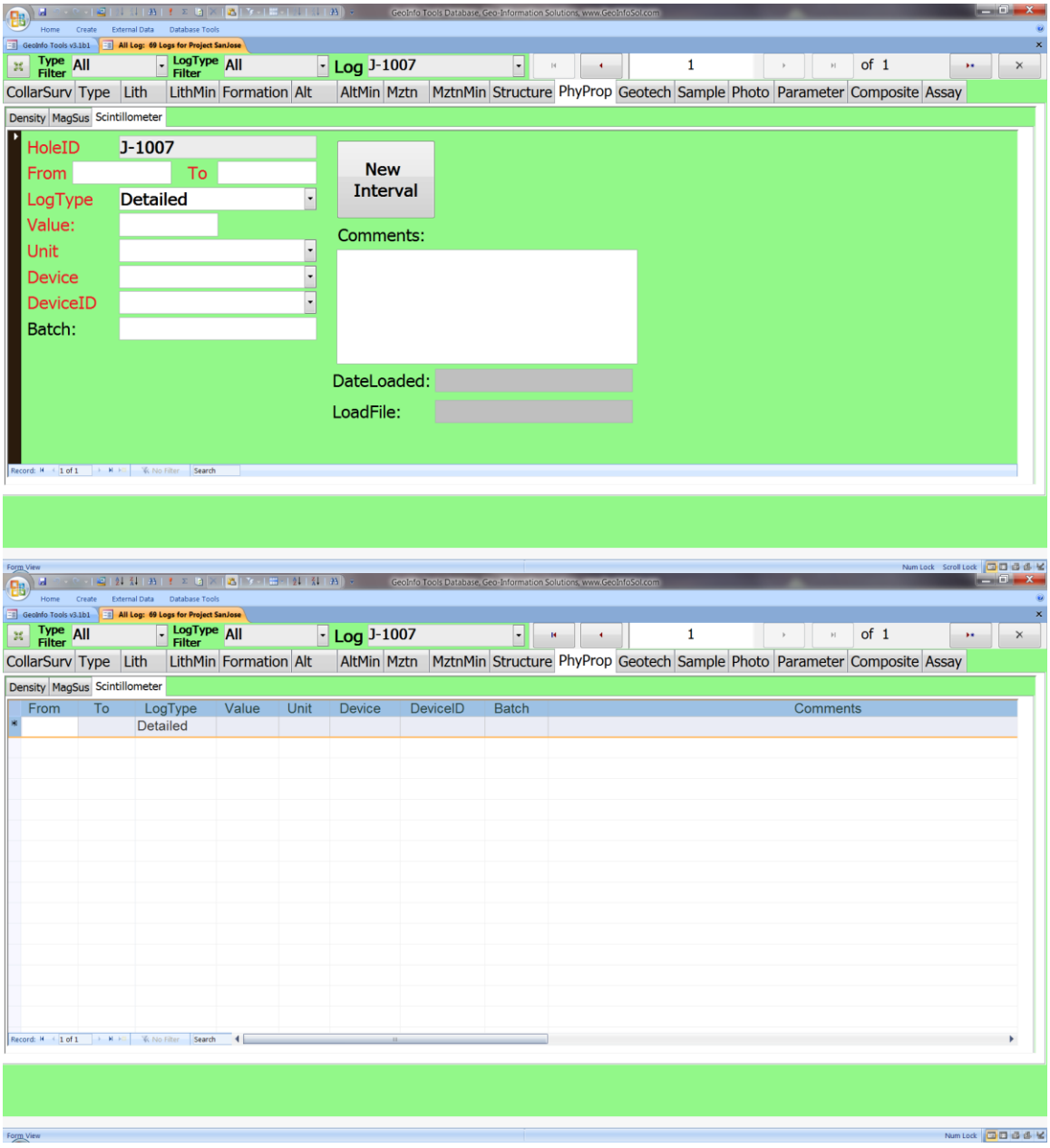
Method	Calculation
DryWet	*WeightDry / (WeightDry - WeightWet)*
WetVolume	*Volume / (WeightWet – Volume)*
DryVolume	*Volume / (WeightDry – Volume)*
Wax	Measured Fields ▪ *WeightDry (D)* ▪ *WeightWaxAir* (A) (Core and Wax) ▪ *WeightWaxWater* (W) (Core and Wax in water) Calculation: *D / (A-W((A-D)/0.93))*

Magnetic Susceptibility

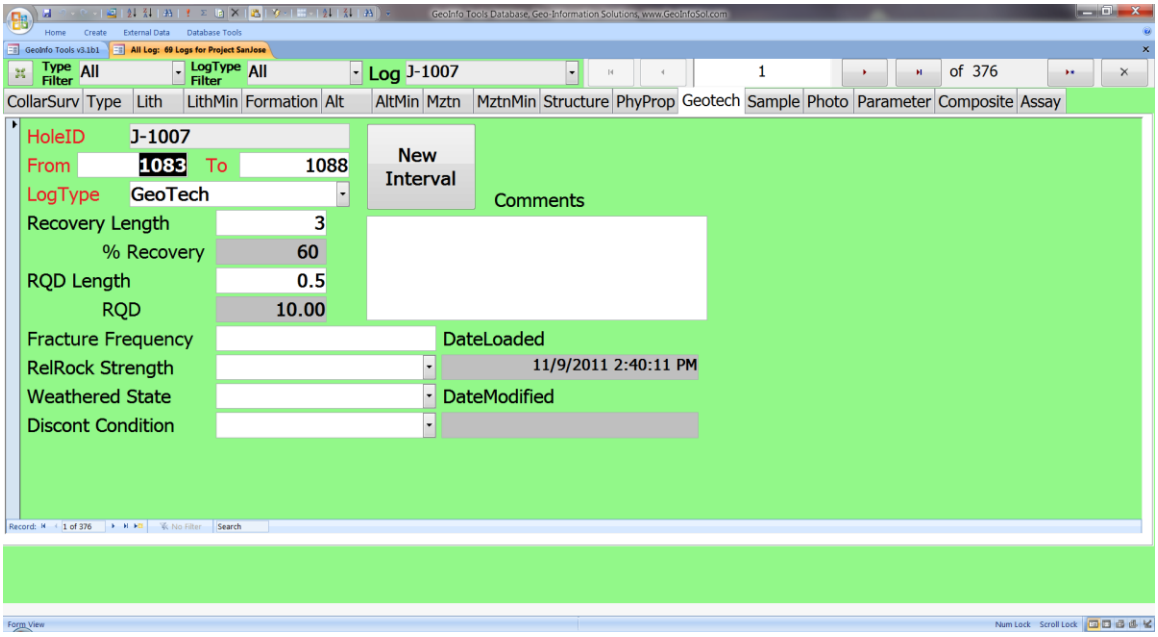


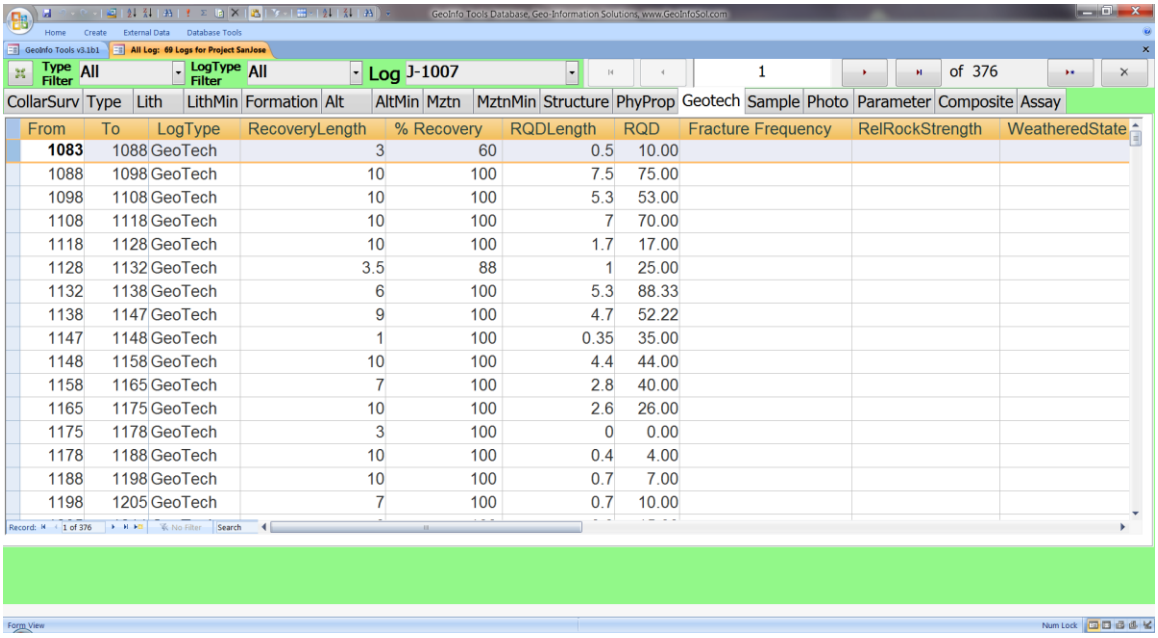


Scintillometer



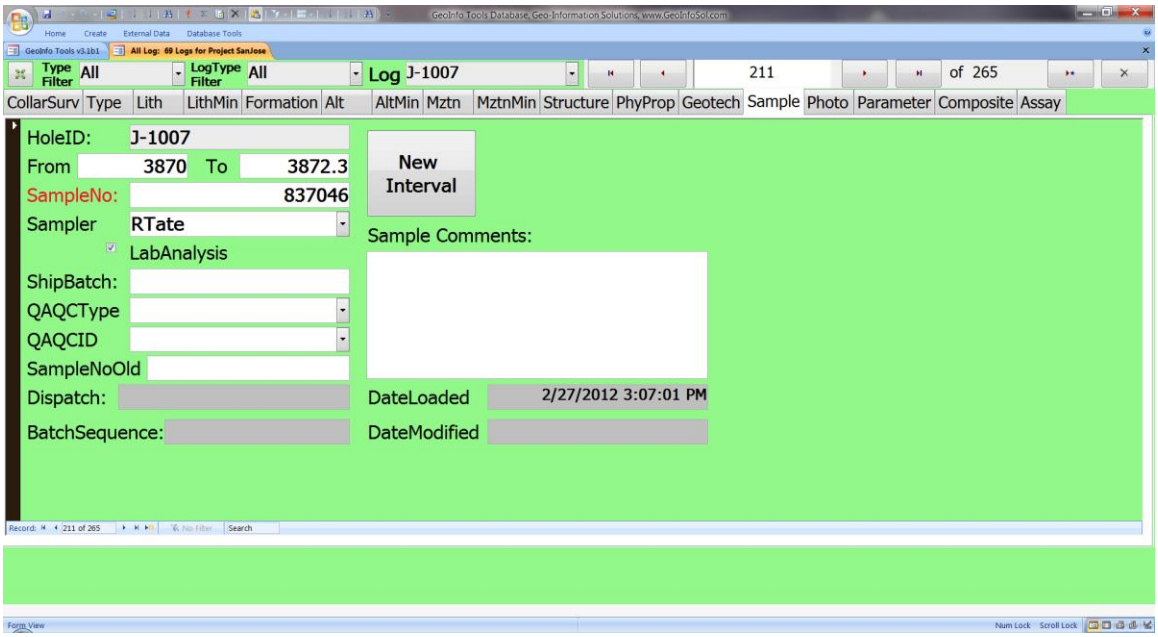
Geotech – Recovery length and RQD lengths are used to automatically calculate recovery and RQD. Fracture frequency, relative rocks strength, weathered state and discontinuity condition can be collected.

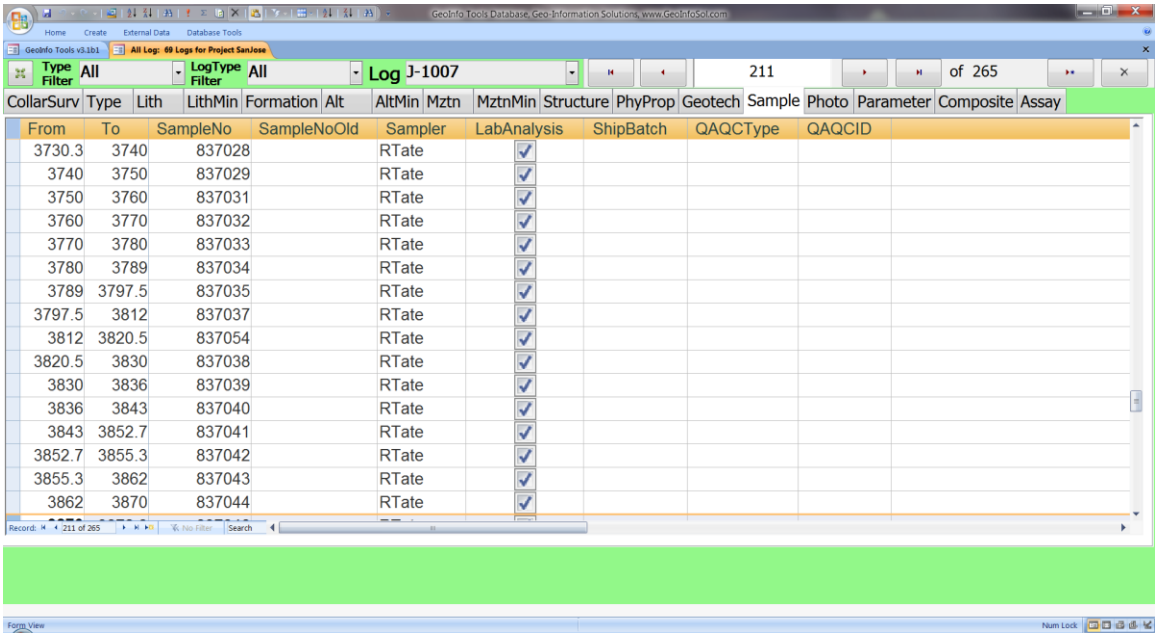




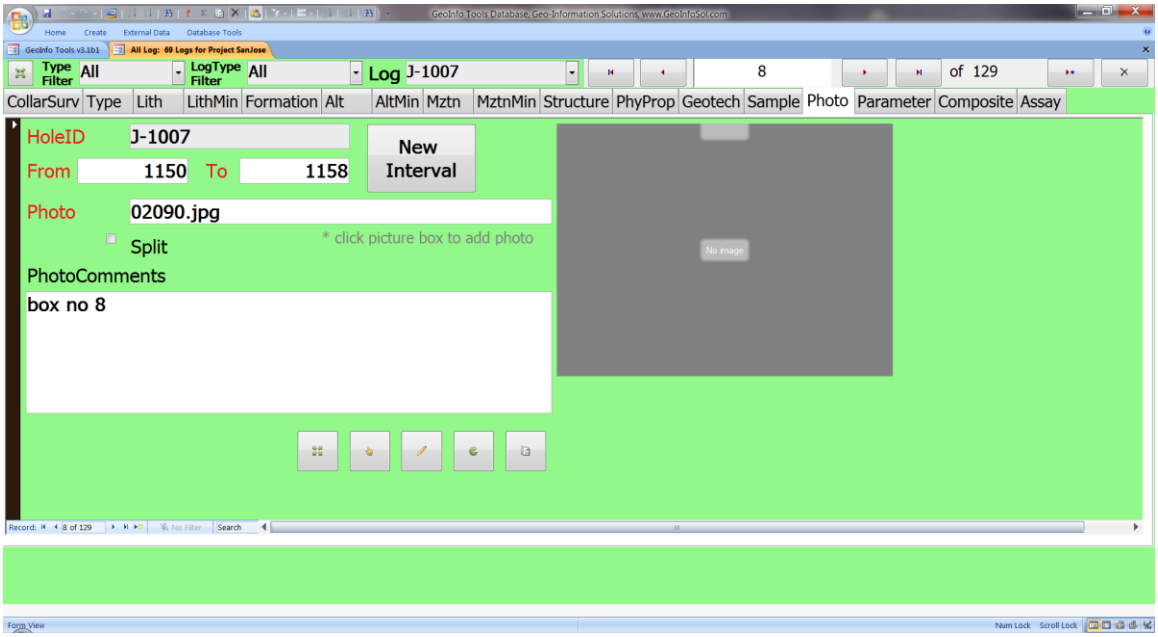
From	To	LogType	RecoveryLength	% Recovery	RQDLength	RQD	Fracture Frequency	RelRockStrength	WeatheredState
1083	1088	GeoTech	3	60	0.5	10.00			
1088	1098	GeoTech	10	100	7.5	75.00			
1098	1108	GeoTech	10	100	5.3	53.00			
1108	1118	GeoTech	10	100	7	70.00			
1118	1128	GeoTech	10	100	1.7	17.00			
1128	1132	GeoTech	3.5	88	1	25.00			
1132	1138	GeoTech	6	100	5.3	88.33			
1138	1147	GeoTech	9	100	4.7	52.22			
1147	1148	GeoTech	1	100	0.35	35.00			
1148	1158	GeoTech	10	100	4.4	44.00			
1158	1165	GeoTech	7	100	2.8	40.00			
1165	1175	GeoTech	10	100	2.6	26.00			
1175	1178	GeoTech	3	100	0	0.00			
1178	1188	GeoTech	10	100	0.4	4.00			
1188	1198	GeoTech	10	100	0.7	7.00			
1198	1205	GeoTech	7	100	0.7	10.00			

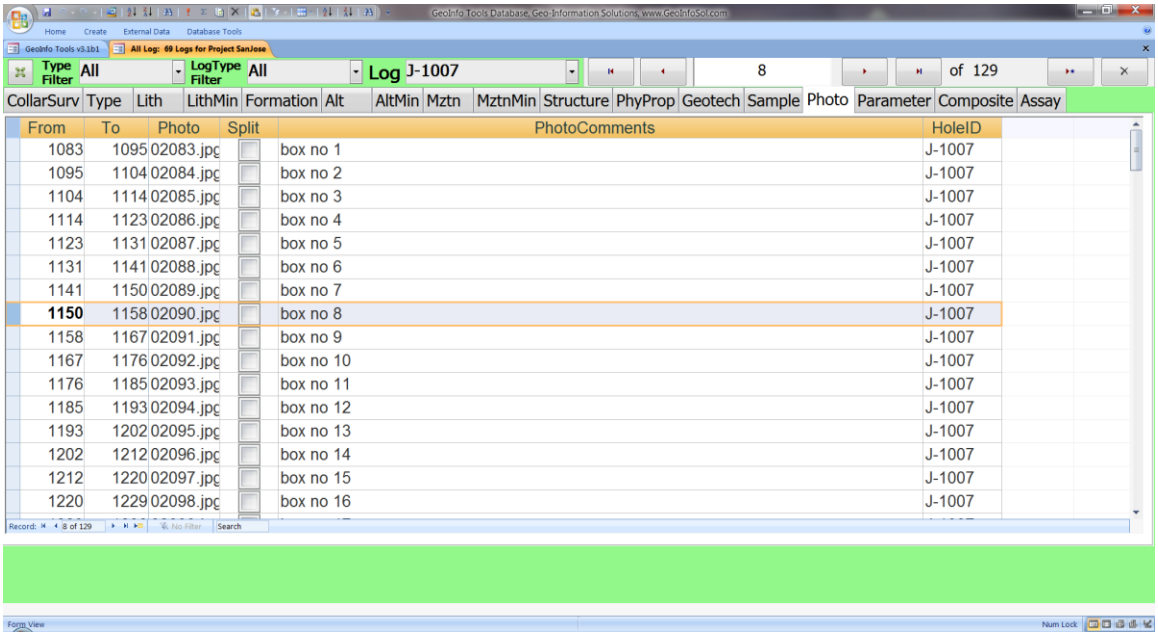
Samples – Analysis sample intervals are assigned sample numbers. QAQC samples can be logged.



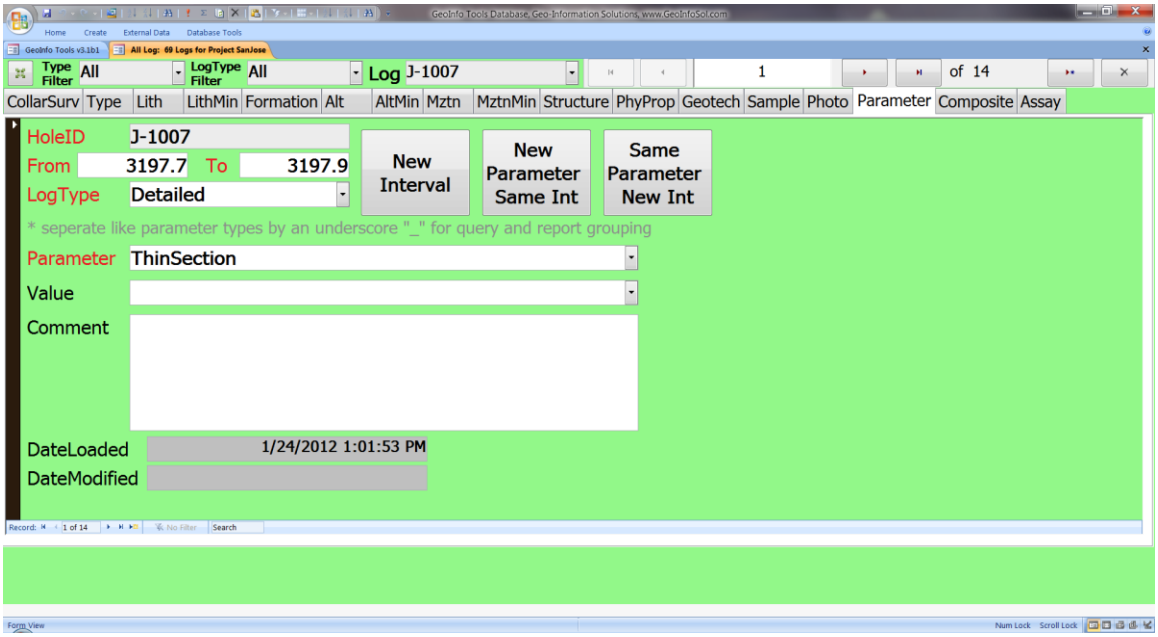


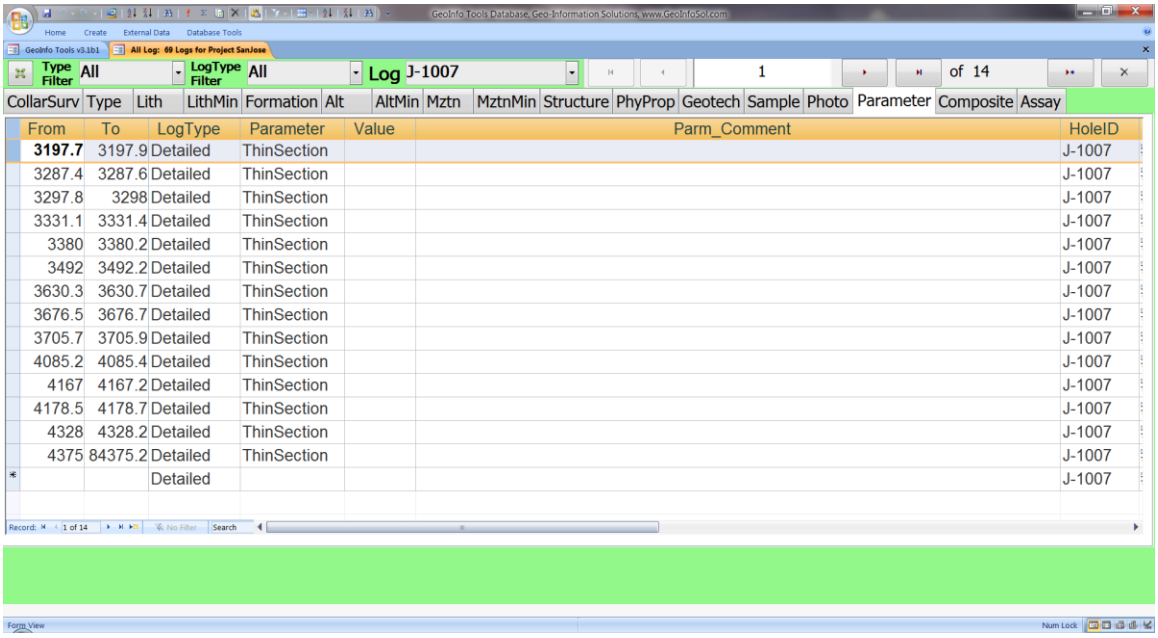
Photos – Photos are linked to the database for hyper linking.



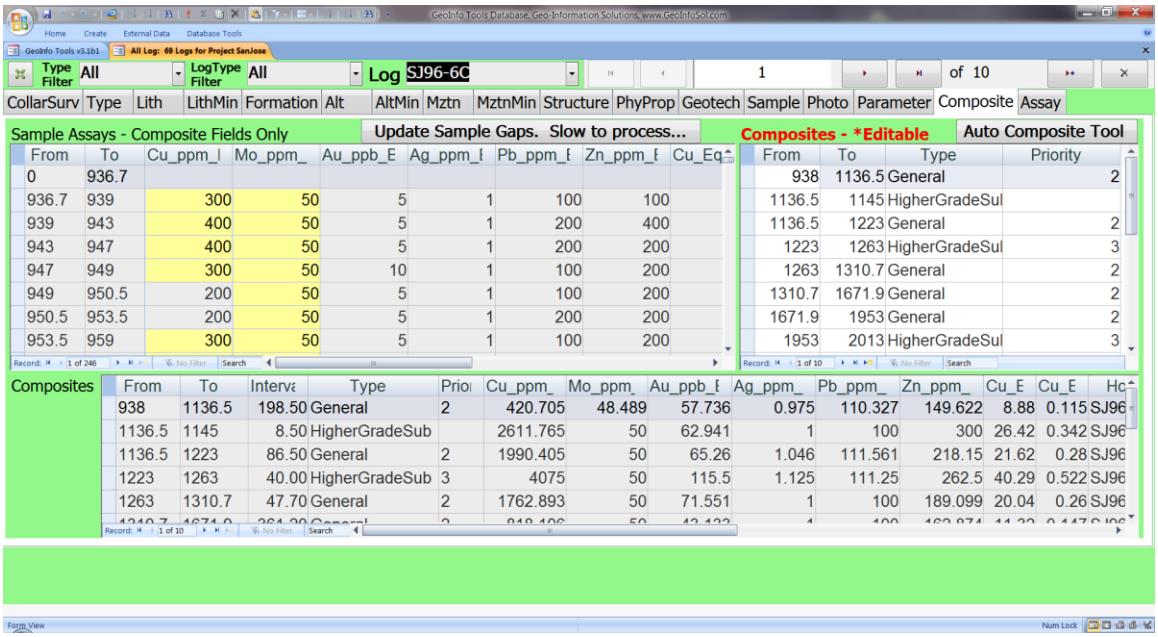


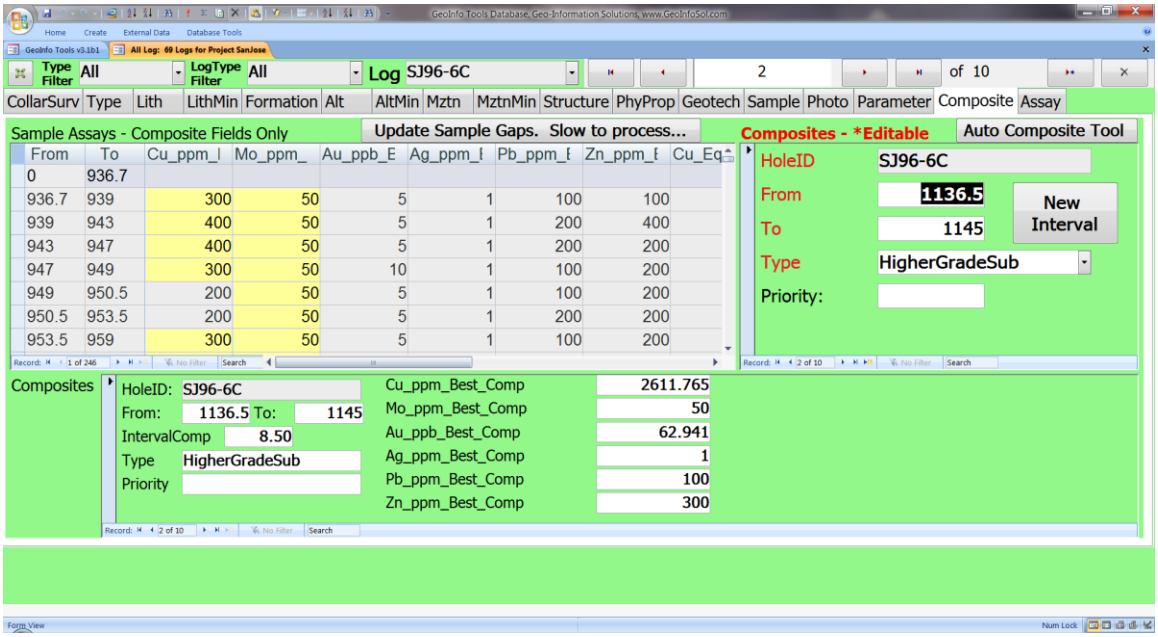
Parameters – the parameter log is used to log information that does not have an appropriate location in any of the other logs. The parameter field should be the name of field that will be used to store the information and the Value field is the value for this column/parameter. For example; since protolith does not exist in the lithology log, “Protolith” (the text) can be typed in parameter field and the name of the Protolith like Limestone should be typed into the Value field.



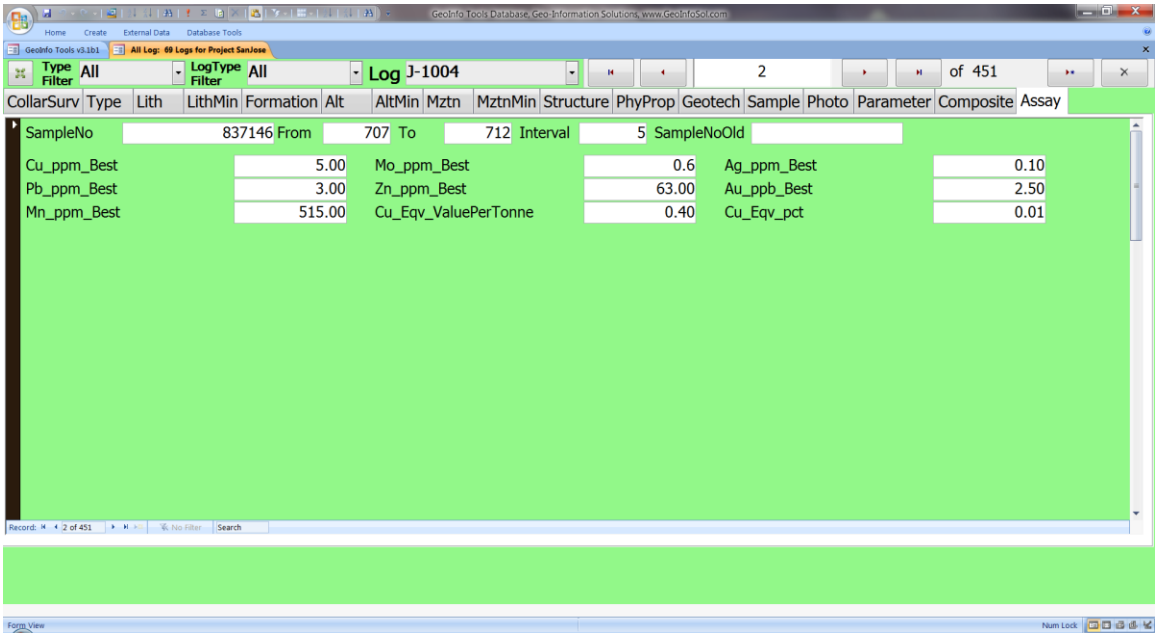


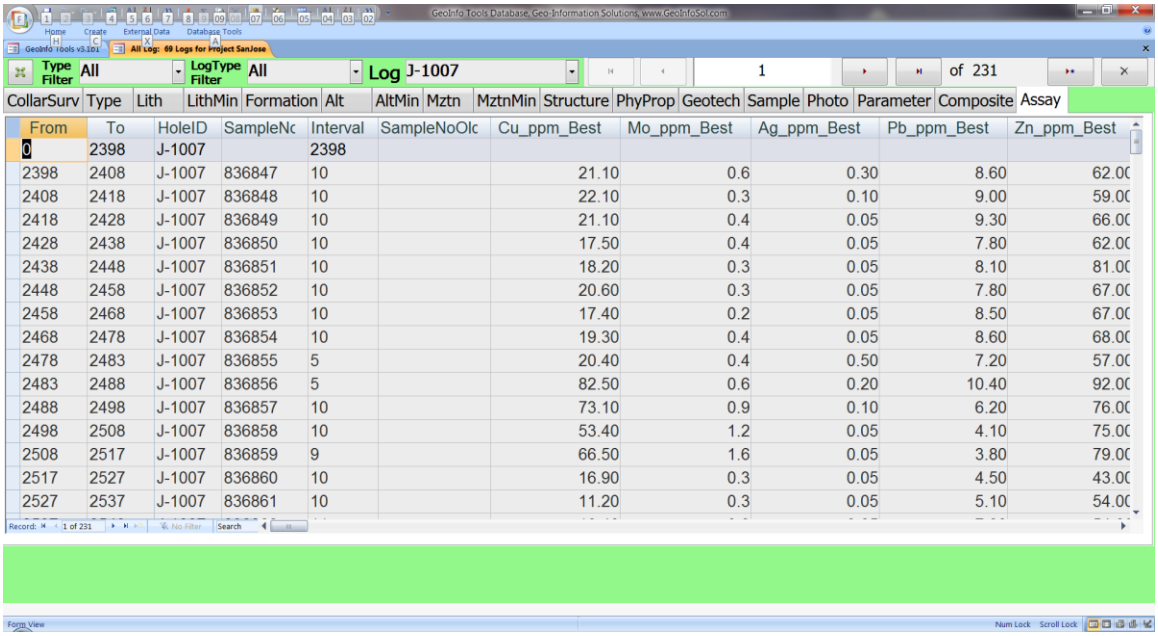
Composites – after composite settings are complete and assay results are received from the lab, composite intervals can be logged.





Assay – Assay results for the sample intervals.





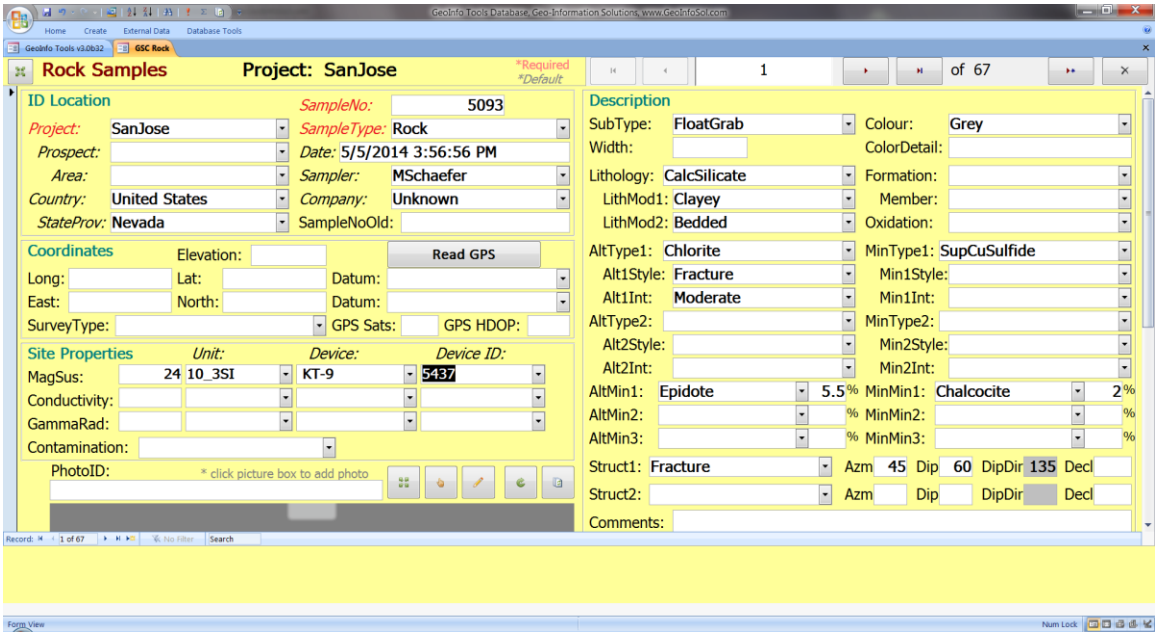
From	To	HoleID	SampleNc	Interval	SampleNoOlc	Cu_ppm_Best	Mo_ppm_Best	Ag_ppm_Best	Pb_ppm_Best	Zn_ppm_Best
0	2398	J-1007		2398						
2398	2408	J-1007	836847	10		21.10	0.6	0.30	8.60	62.0
2408	2418	J-1007	836848	10		22.10	0.3	0.10	9.00	59.0
2418	2428	J-1007	836849	10		21.10	0.4	0.05	9.30	66.0
2428	2438	J-1007	836850	10		17.50	0.4	0.05	7.80	62.0
2438	2448	J-1007	836851	10		18.20	0.3	0.05	8.10	81.0
2448	2458	J-1007	836852	10		20.60	0.3	0.05	7.80	67.0
2458	2468	J-1007	836853	10		17.40	0.2	0.05	8.50	67.0
2468	2478	J-1007	836854	10		19.30	0.4	0.05	8.60	68.0
2478	2483	J-1007	836855	5		20.40	0.4	0.50	7.20	57.0
2483	2488	J-1007	836856	5		82.50	0.6	0.20	10.40	92.0
2488	2498	J-1007	836857	10		73.10	0.9	0.10	6.20	76.0
2498	2508	J-1007	836858	10		53.40	1.2	0.05	4.10	75.0
2508	2517	J-1007	836859	9		66.50	1.6	0.05	3.80	79.0
2517	2527	J-1007	836860	10		16.90	0.3	0.05	4.50	43.0
2527	2537	J-1007	836861	10		11.20	0.3	0.05	5.10	54.0

Standard, Mobile and Portrait Views

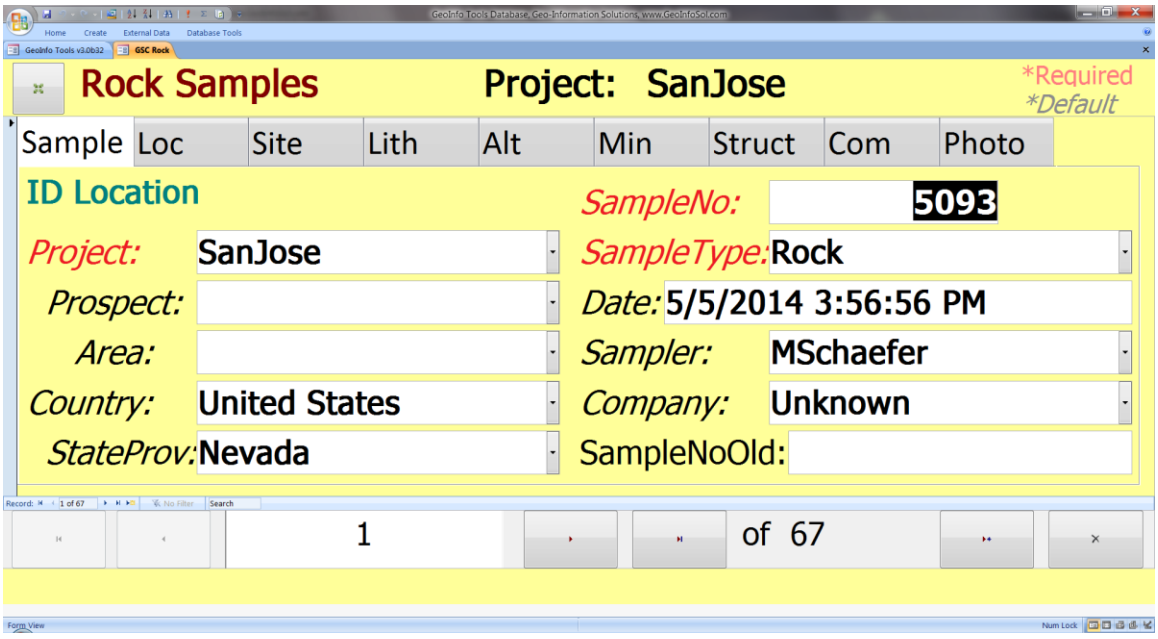
Three form formats are provided; Standard Landscape (both view option boxes unchecked), Mobile (small device landscape), and Portrait. Depending on the computer/tablet screen orientation and size users can find the format that works best . All formats have the same data fields, they are just arranged differently. In general the following is suggested;

- **Standard Landscape**: computer or tablet displays greater than 11 inches
- **Mobile**: 8-11 inch tablets where field size needs to be bigger to operate by touch.
- **Portrait**: 8-11 tablets. Field size is smaller than Mobile View and larger than Standard Landscape view. This format also optimizes data content, minimizes Windows and Access software elements, and works well with the Windows 8.1 onscreen keyboard on tablets.

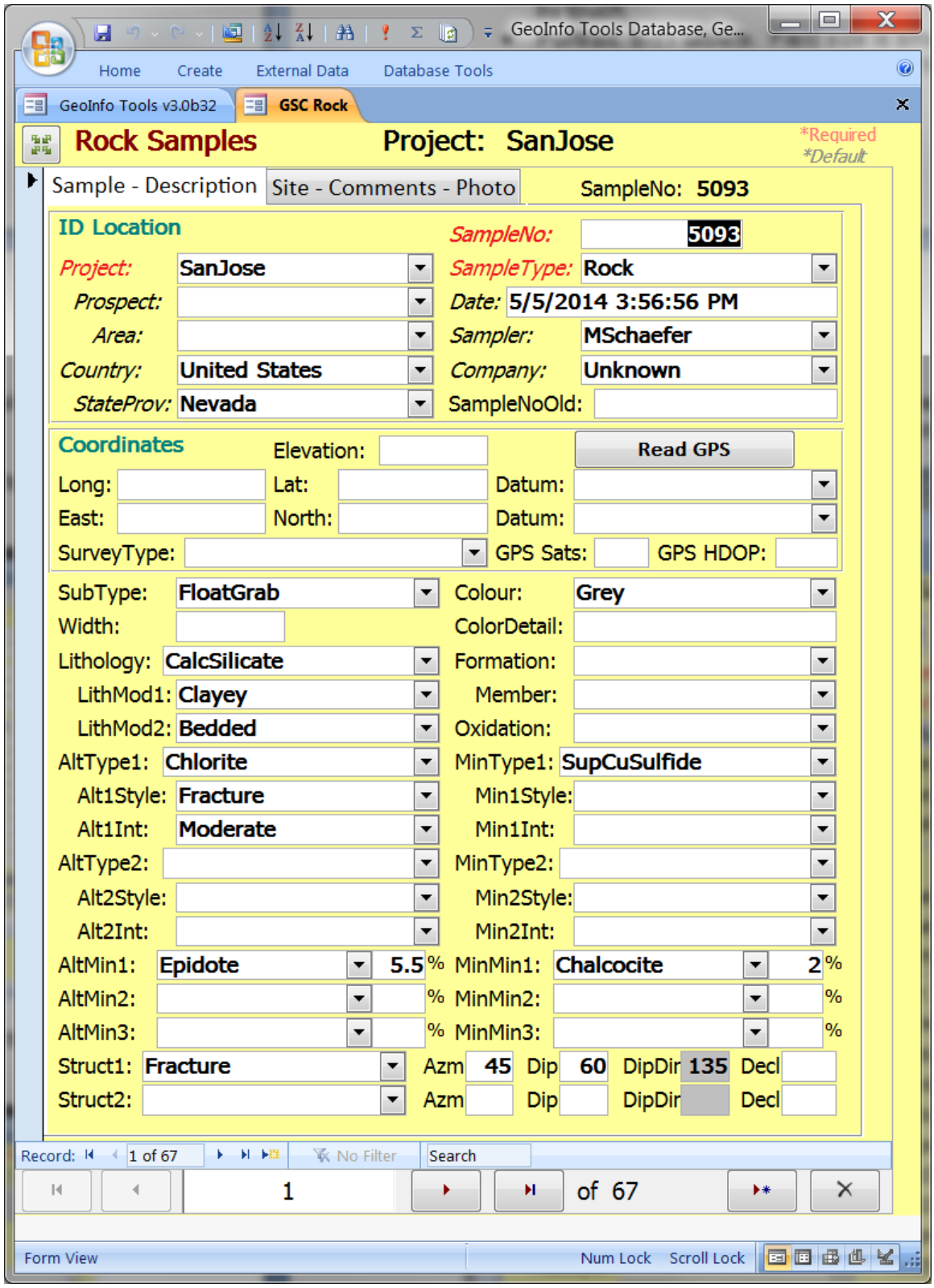
Standard Landscape format has all data fields on one page. The page needs to be scrolled down to see the complete photo and comment fields.



Mobile Landscape format has several tabs for different types of data and the fields are larger and thus more visible and touch friendly on small devices.

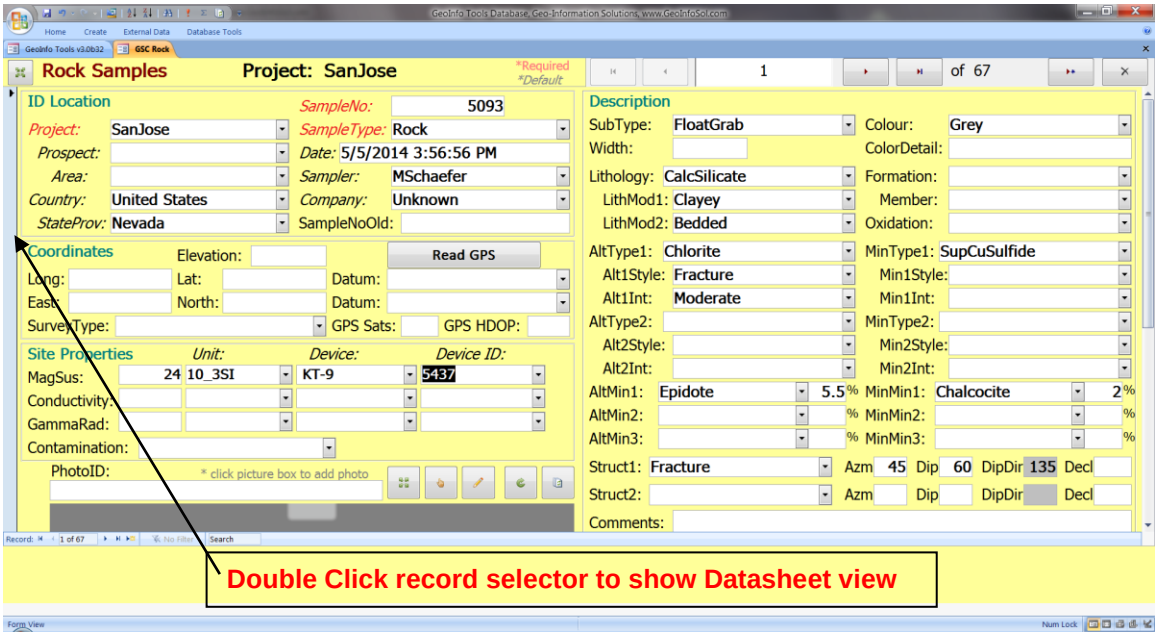


Portrait Format has two tabs and the fields are sized between Standard and Mobile landscape formats. The field size is good for touch screen operation and Windows and Access elements are minimal.

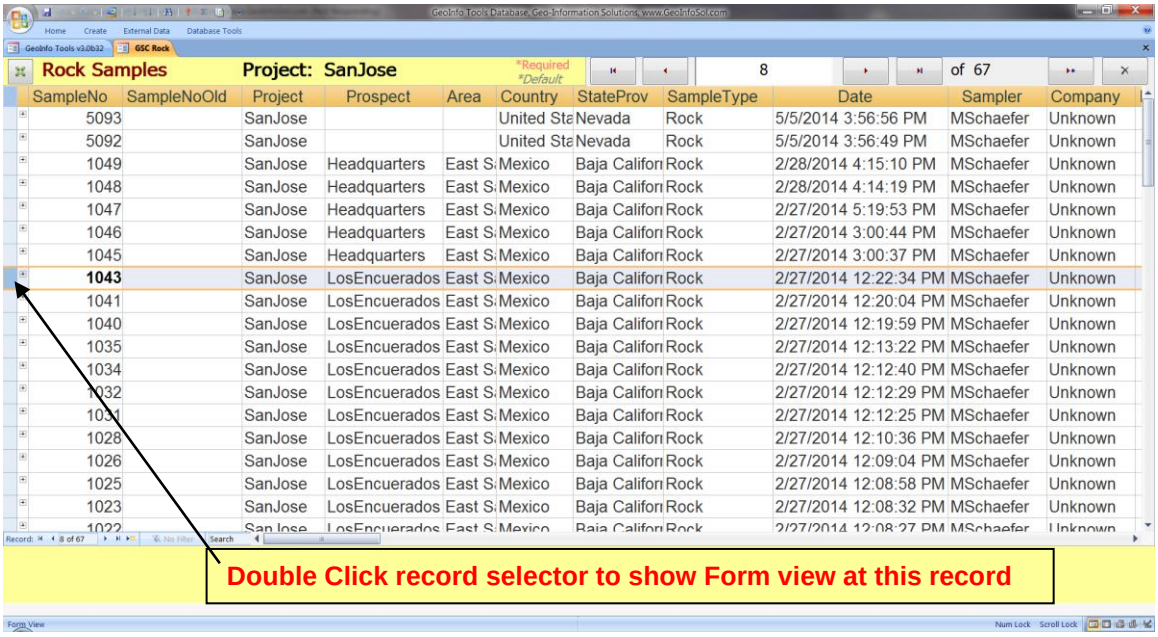


Form and Datasheet Views

The default view is form view. Form view allows the user to see more data for a sample on one screen without scrolling. By double clicking on the grey record selector on the left of the form you can switch to datasheet view (list, log or spreadsheet view); very useful for logging!

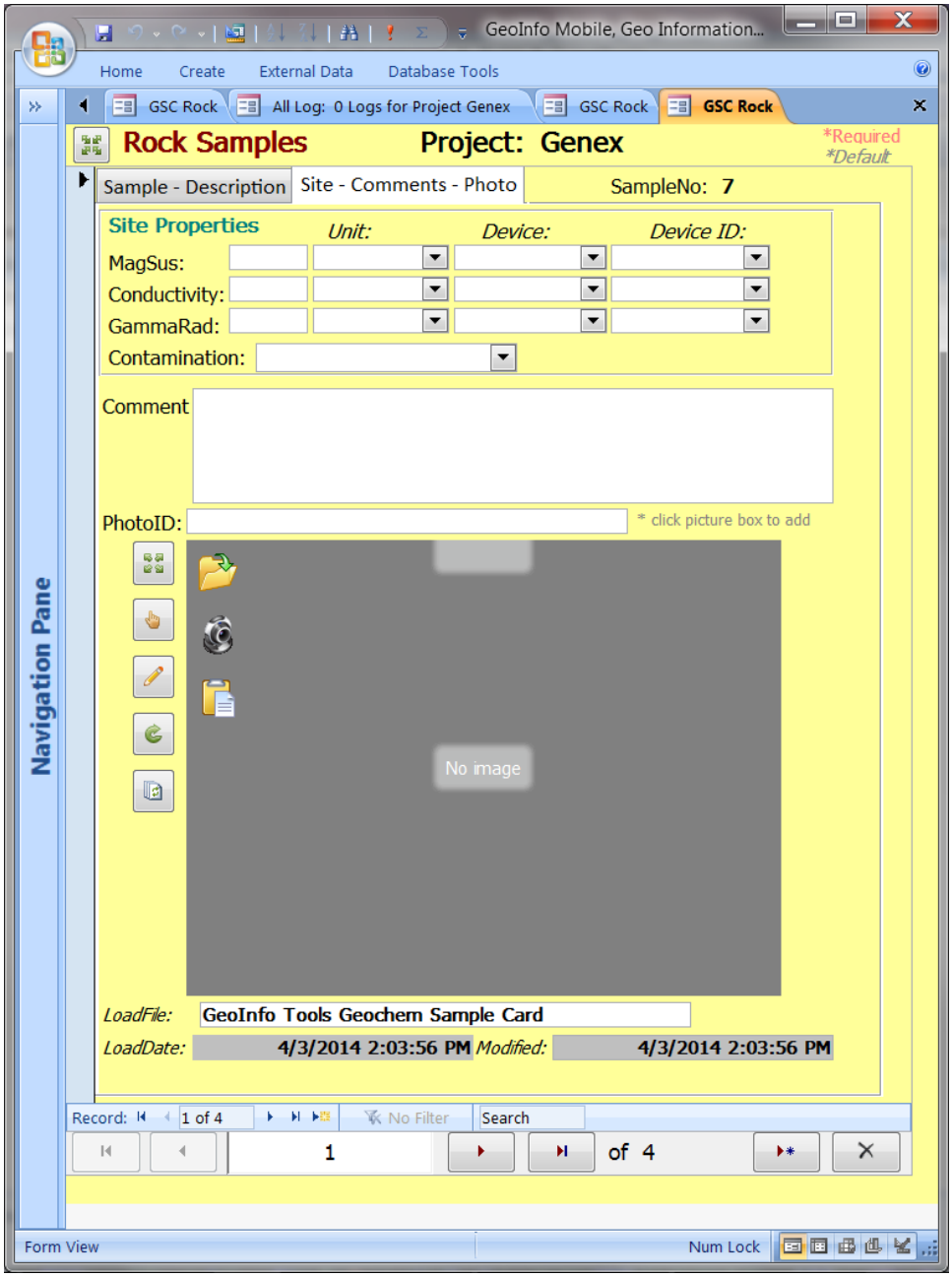


Datasheet view shows all the samples in the database for the active project. Double clicking on the grey record selector to the left of a sample row activates Form view at that sample.



Photos

The Photo field shows associated photos and if one does not exist allows you to capture one from your computer tablet camera. Photos are linked to the records in the database by the Photo ID field. The file location of photos is determined by the settings on the GeoInfo Tools Settings tab. If the user does not set a photo location path for the current project in the Settings tab then default directories are created in the location of the GeoInfo Tools application named PhotosGeochemistry, PhotosObservatons, and PhotosLog.



Click on the photo control (grey imago box) and the camera icon will fly in from the left. The first time you use your computer or tablet Right Click on the camera icon to set the camera device to use. Once your device is defined then Click on the camera icon to take a photo. (Warning: some camera settings are not functioning properly and resolution settings are not working so some cameras are only capturing low resolution images right now.)

Alternately you can select the Folder icon and select a photo to link to this record. This works if you copy your photos to your computer from a camera.

Once you have a linked photo to a record you have the following photo tools;

Full Screen View: just click full screen to close

Pan Screen View

Edit Picture: opens picture to default Windows picture program you have setup. You can edit in Paint or Photoshop for example.

Rotate Picture

Refresh Picture (need to do after editing to see changes)

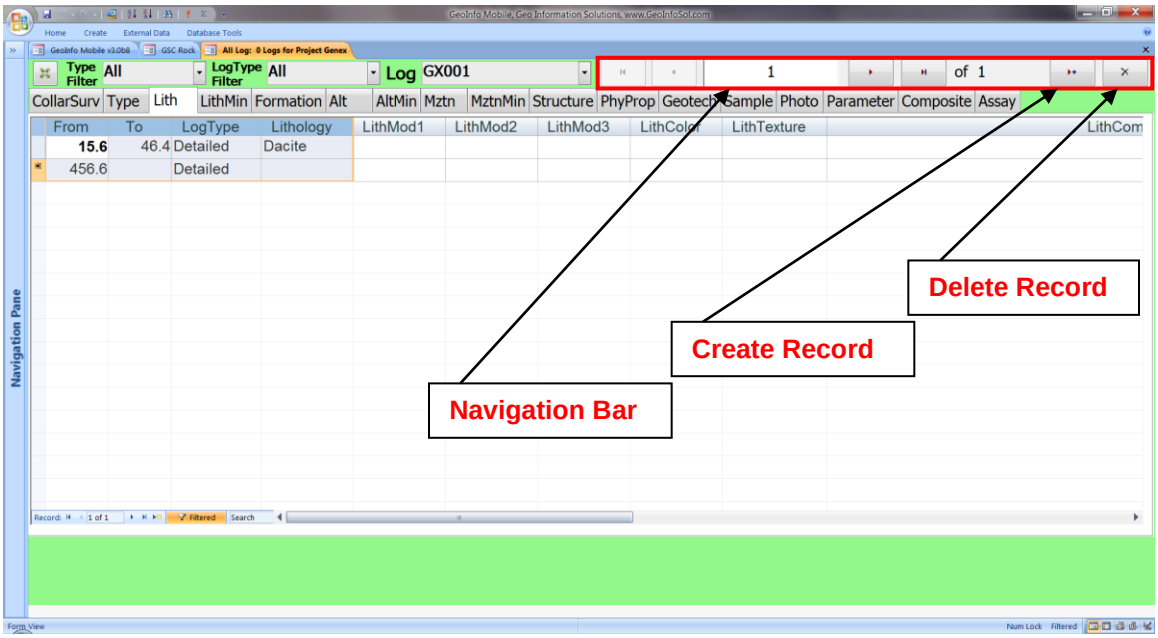
Read GPS

The Read GPS button will connect to the tablet GPS or a Bluetooth GPS based on the COM port settings in the GeoInfo Tools Settings tab. If a GPS is found the native GPS Latitude/Longitude coordinates will be saved and the UTM coordinates will be calculated and saved. Survey Type will be set as either GPS or GPSDifferential based on the reading type and the HDOP and number of satellites will be saved.

HDOP (Horizontal Dilution Of Potion) is a measure of GPS accuracy; 0-1 is excellent, 1-2 is good, 2-5 is poor and 5+ is unacceptable.

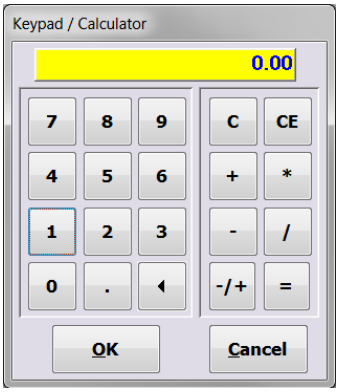
Navigation Bar

Access provides a navigation bar on the bottom left of each form, however, for smaller touch screen tablets the navigation bar is too small to use by touch. GeoInfo Tools has a larger navigation bar on all the forms that is touch friendly. The GeoInfo Tools navigation bar has added functionality for creating new records and deleting records.



Double Click / Touch Optimization

Double clicking in any numeric field brings up a calculator based numeric keypad for easy data entry. This is particularly useful when values need to be calculated or you are doing data entry on touch screen tablets.



Double clicking in a pick list field expands the pick list. This is particularly useful on touch screen tablets as you do not need to click the small down arrow.

Double clicking on a pick list field label will open the Lookup List Viewer/Editor for the list that is validating that field. This is quick way to get to the proper lookup list that controls a field on a form.

Scrolling with touch is single finger vertically and two fingers horizontally.

Auto Incrementing/Created Values

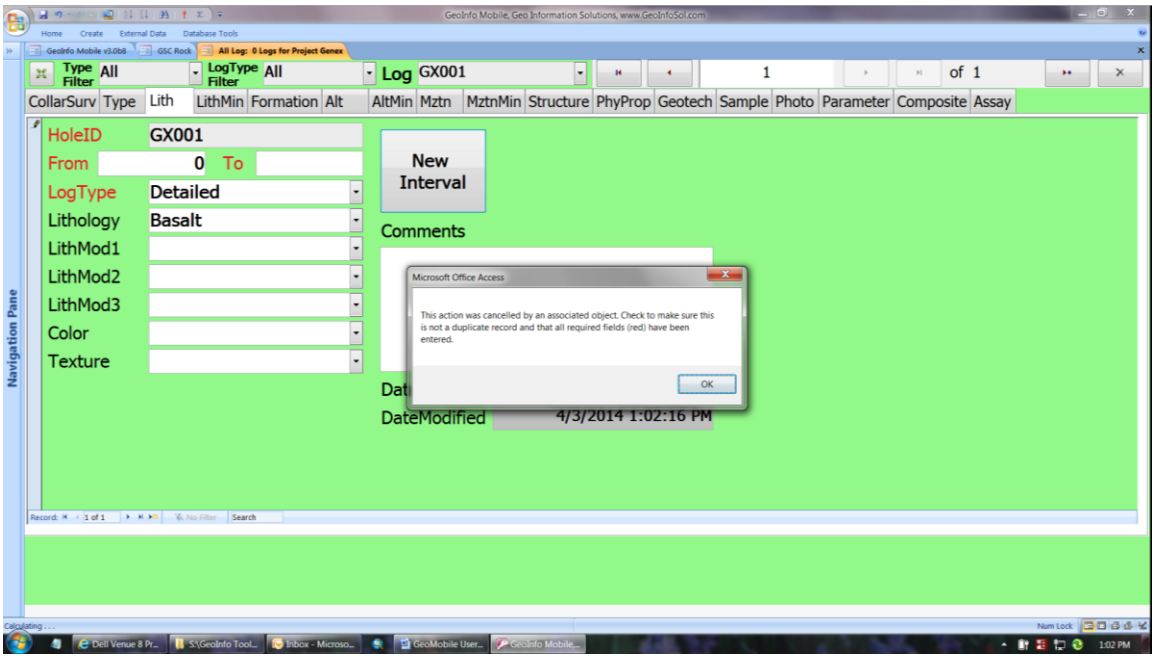
In the Log forms interval From values are defaulted to the previously typed To value to save typing. Sample numbers are auto-incremented.

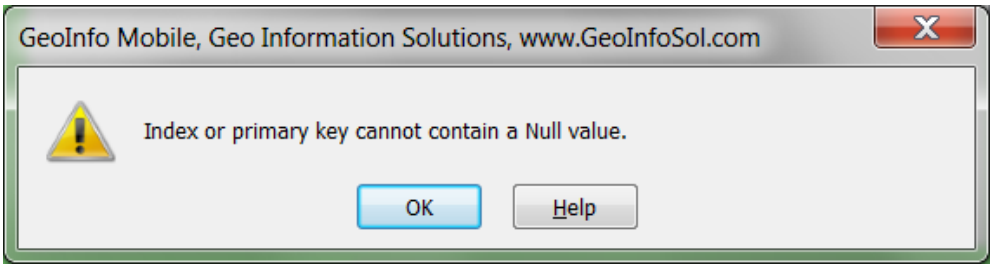
In the Geochem Sample Card forms Sample Number is incremented to the next number. The GeoInfo Tools Settings tab has an option to auto increment sample numbers by sample type rather than the default by all sample types combined (one number series for all sample types).

Observation IDs, which have to be unique in the database, are auto-created based on the date and time.

Required Fields

Required fields are labeled in Red in Form view. Required fields in the forms need to be entered before moving on, if the user starts to enter data in a record and wants to leave that table to enter other data an error will be presented if a required field is missing for that record,(see below). The user will have to enter the required field data or type the **ESC** key to delete the record. Closing the form exits without saving the incomplete record.





Defaulted Fields

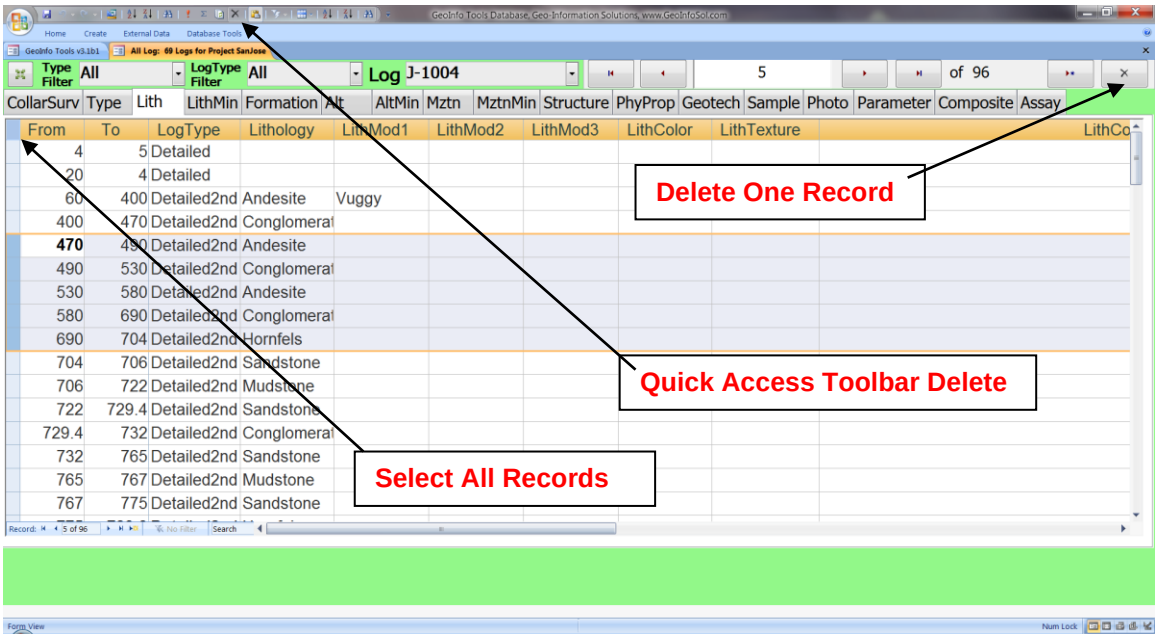
Default values for some consistent fields like *Sampler/Person, Country, State/Prov, Project, Prospect, Area, Structure Measurement Instrument Declination, and* MagSus, Conductivity and Gamma Radiation *Device ID's, Unit* and *Device Type* are automatically defaulted to the last entered value when new records are created. The defaulted fields are shown with italic labels in Form View.

Saving Data

Data is saved as soon as it is entered in a field so there is no need to save your data.

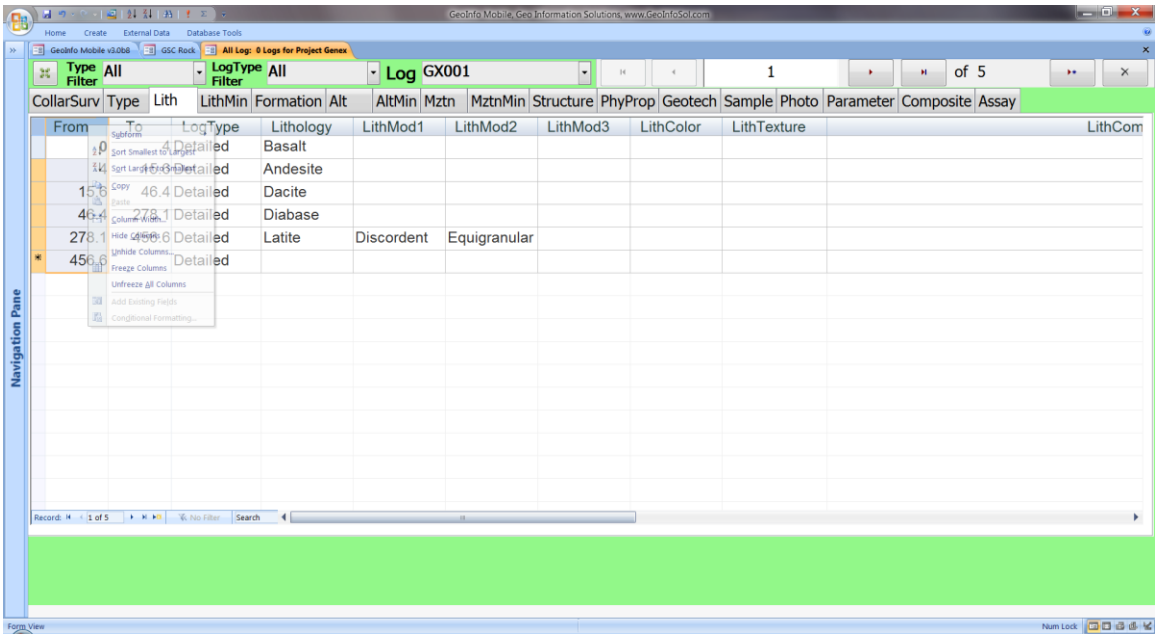
Deleting Records

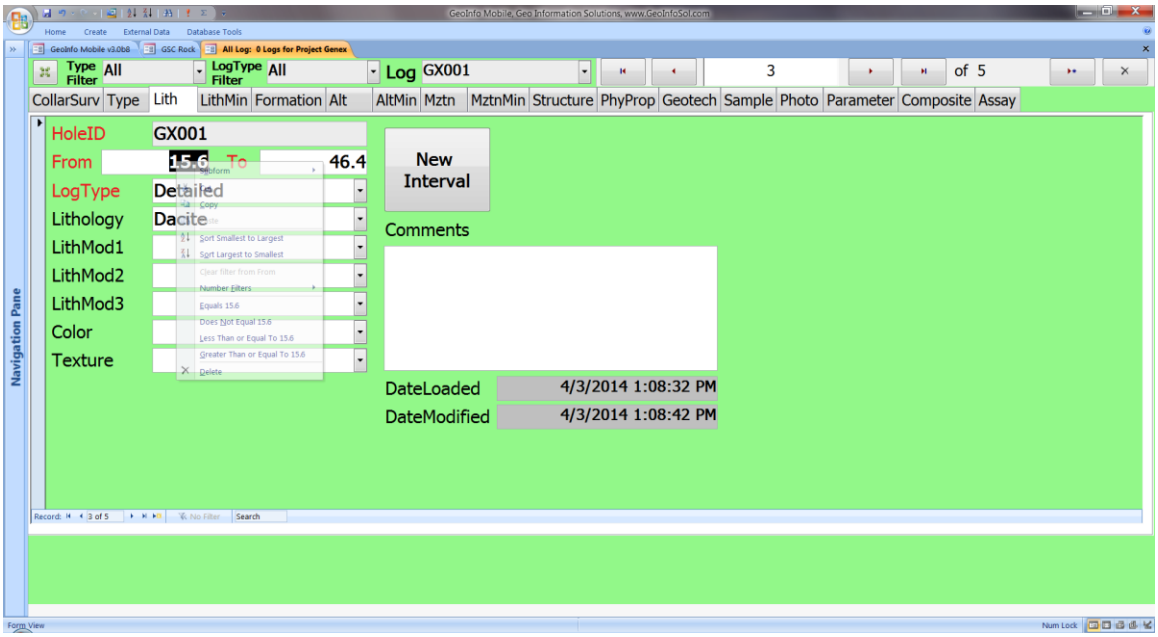
Records can be deleted in the forms by clicking the grey box to the left of the row then pressing the delete key on the keyboard, going to the Quick Access Toolbar at the top and selecting the Delete icon (black X), or by clicking the Delete Record Icon on the navigation bar (only one record at a time with this tool). Multiple records can be selected at one time by click and dragging along the grey/blue bar on the left side of the datasheet or all records can be selected by clicking on the grey box where the column and row selectors meet in the upper left corner of a datasheet/log view form.



Sorting Records

Sorting a form is set by highlighting the column that you want to sort on, click on the grey/blue column label box, and then clicking the A…Z or Z…A icon,  , from the quick access toolbar at the top of the Access window. Alternately you can click the down arrow by the column header and select A…Z or Z…A sort.

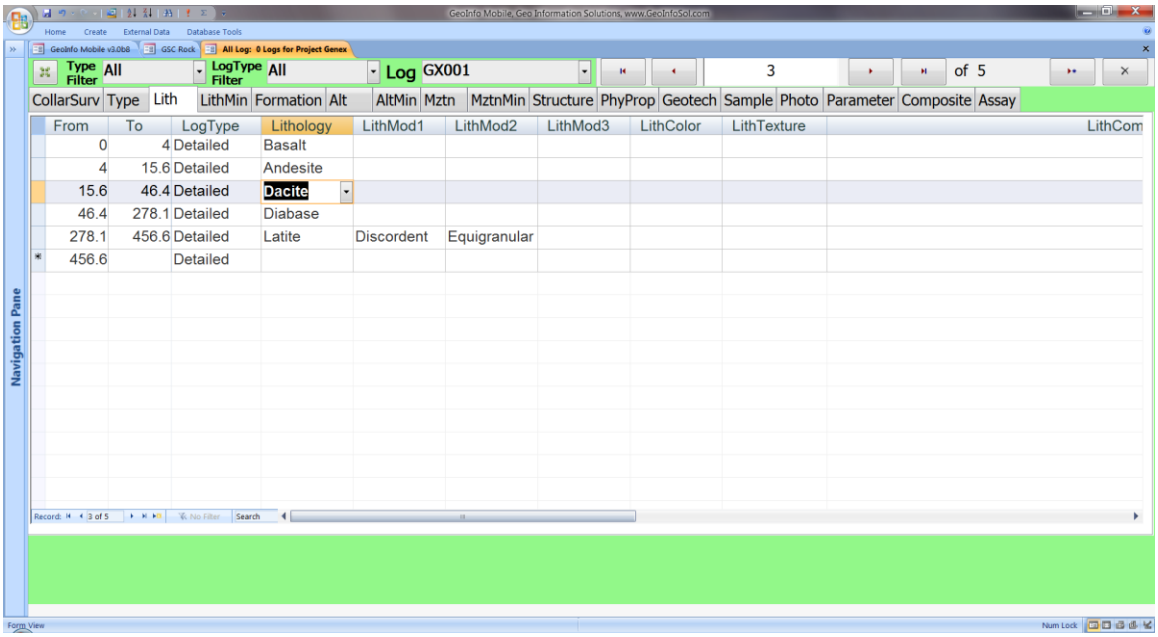




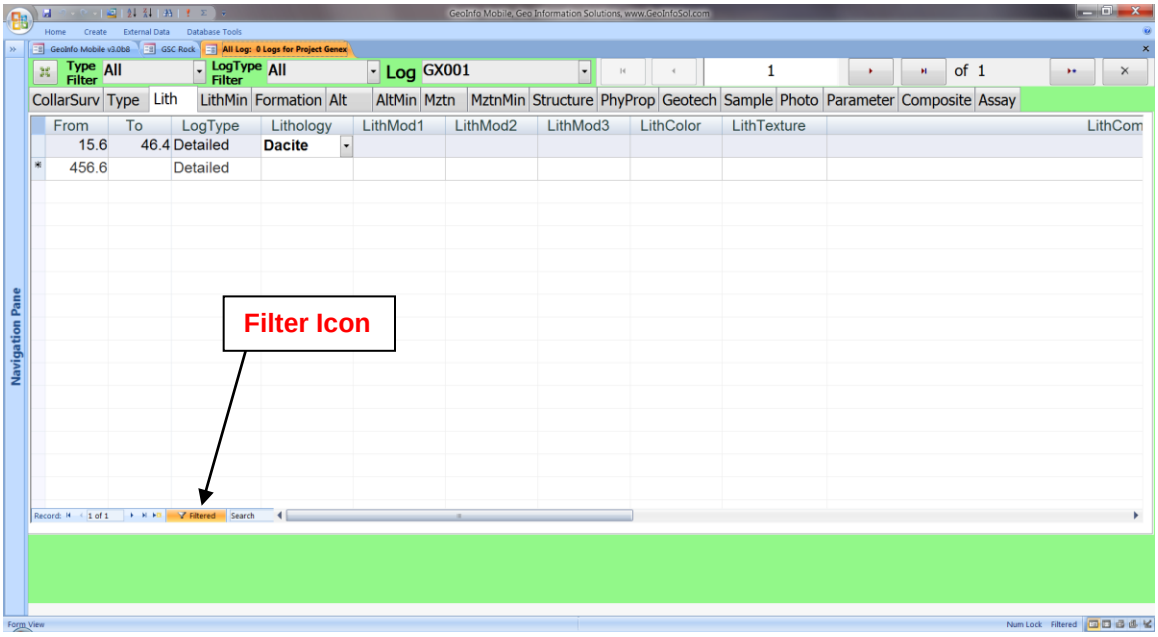
Filtering Records

Filtering a form can be completed by highlighting the value in a record that you want to filter on and clicking the Filter Lightning bolt icon,  , from the quick access toolbar at the top of the Access window.

Part of a field value can be selected and filtered based on just that part of the word existing in the field, for example highlighting just the *stone* part of the value *Sandstone* and filtering will filter all records containing *stone*, so *Sandstone* and *Mudstone* will be part of the filtered set.



When a table is filtered the Filter icon, , is highlighted yellow, and the Record counter on the bottom of the table (see figure below) shows the record count with the text (Filtered) next to it. To remove a filter, click the highlighted yellow Filter icon.

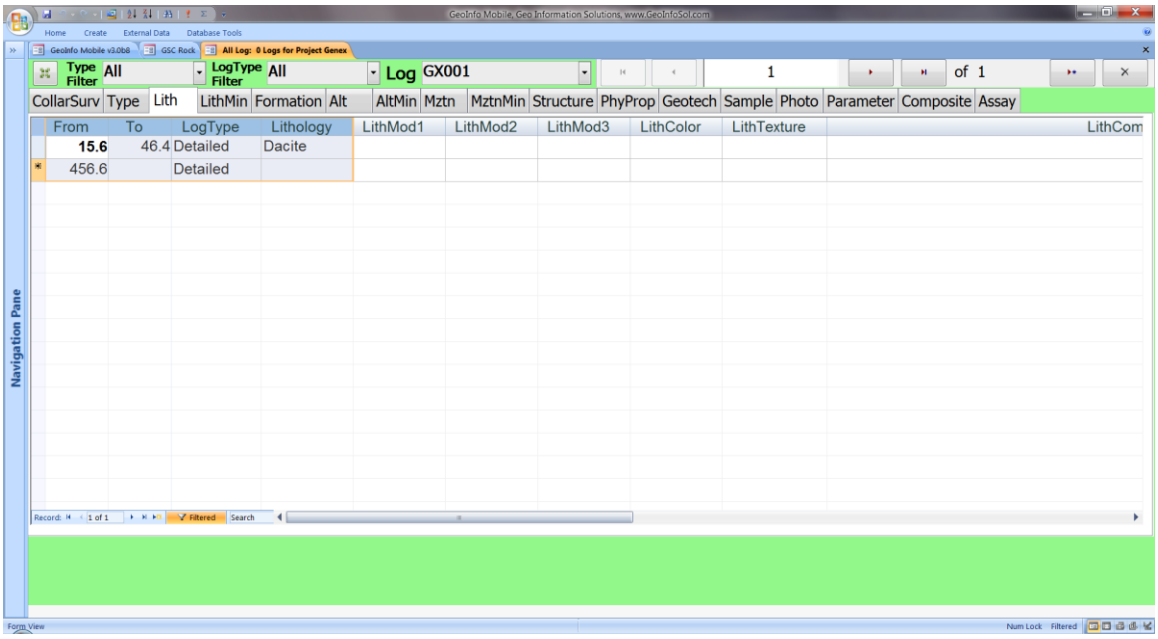


Freezing Columns

Columns can be frozen in a table if the user wants to scroll horizontally and still see certain columns. This might be useful, for example, for Alteration Primary in a table like Alteration which has many columns.

Select the columns that you want to freeze (using the grey column title bar), then select **Freeze Columns** from the More menu in the quick access toolbar at the top of the Access window.

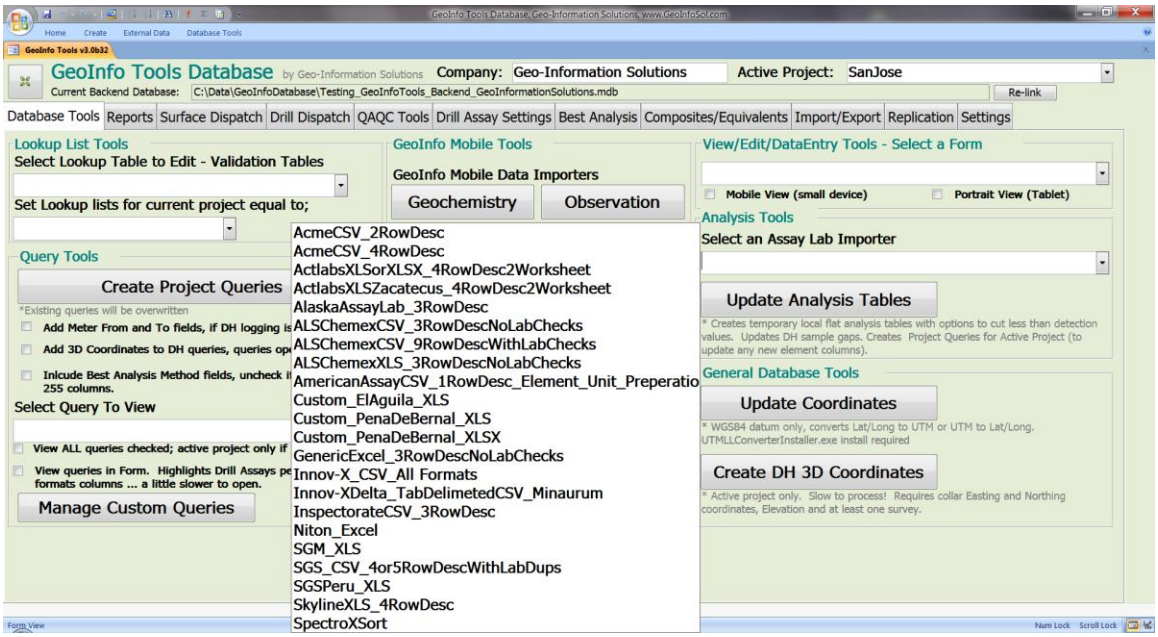
Log forms have From, To and Depth fields frozen by default.

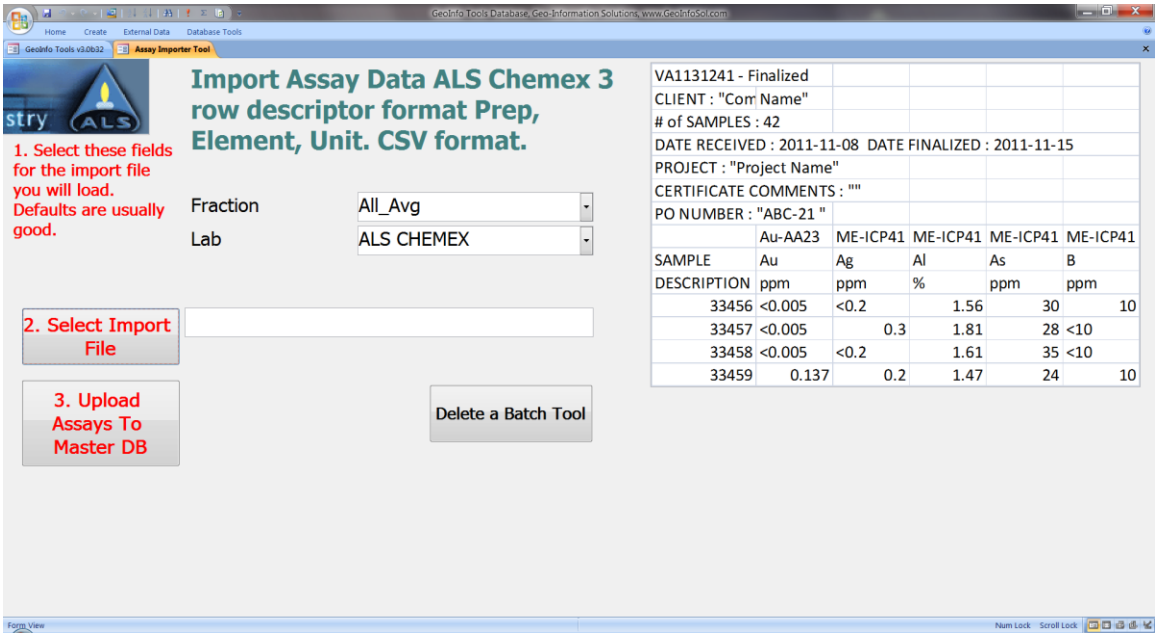


Assay Lab Data Importers

Lab importers exist for many assay labs and XRF devices, and new ones can be added upon request. The **Generic Excel** importer can be used to import assay data that is not in a lab specific format; open the importer to see the required format.

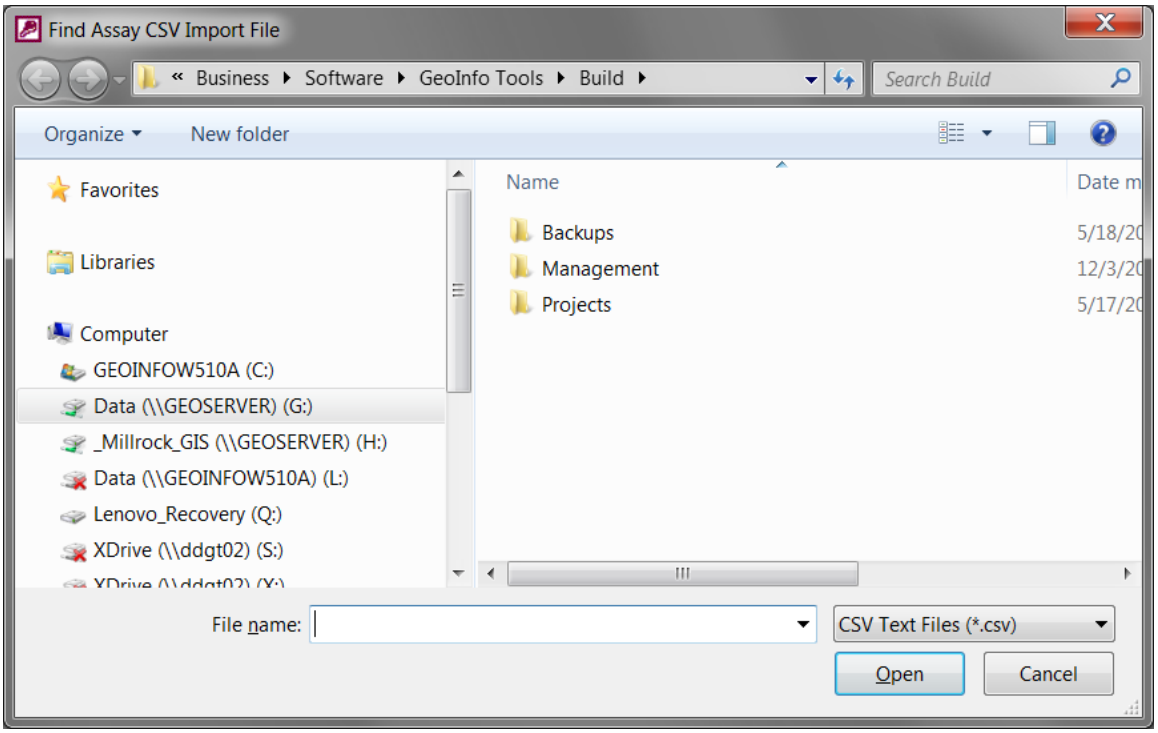
Select an importer from the list.





Fraction is generally set to the default of *All_Avg* and is only changed in special situations where you analyze different fractions using the same sample number. **Lab** is defaulted in the importer and need not be changed.

Clicking the **Select Import File** button brings up a file browser so you can locate the file you want to import. It is important to not rename lab assay files before loading them into the database as the file name is the database batch ID.



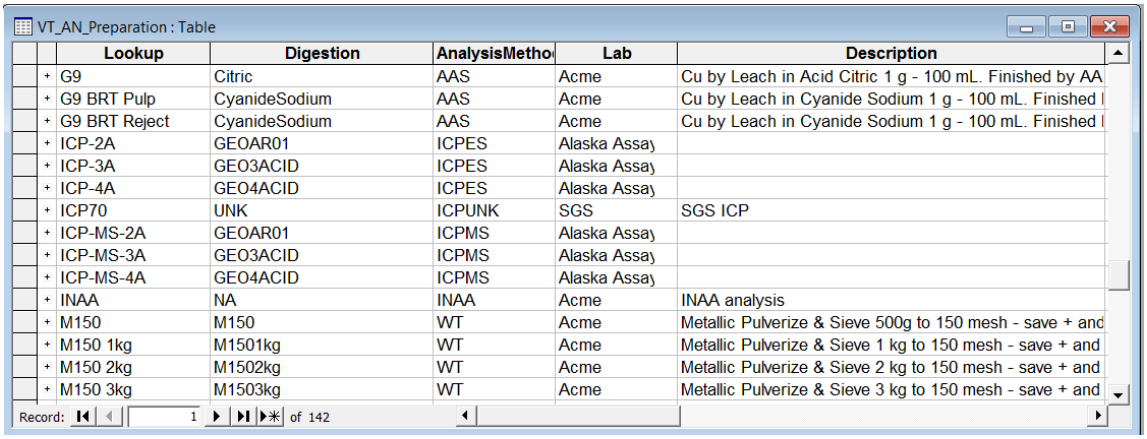
After browsing and selecting the file to import the importer will review the data and perform several validation checks;

- Check completeness of import form, generally not an issue.
- Check if samples exist in the database. Samples have to exist in the database before assay results can be loaded; this is an important data quality issue.
- Check if this batch has already been loaded. A batch can only be loaded once. If you have loaded a preliminary batch, you must delete it before reloading it.
- A warning message will be presented if assay results for the same sample number already exist from a different batch. This is not common as duplicates and reanalyses should be given different sample numbers.
- Check for duplicate sample numbers in the lab result sheet. Generally, a lab error.

- Check that preparation codes, analysis methods and digestion values exist in the database validation tables, *VT_AN_Preparation*, *VT_AN_AnalysisMethod* and *VT_AN_Digestion*. If these do not exist a message is displayed and the *VT_AN_Preparation* table is opened for editing so the new values can be added to the database.

Each individual assay result is stored with sample number, element, unit, preparation, digestion, analysis method, fraction, batch, lab, load date and load file name. Preparation, digestion and analysis method fields are validated by the *VT_AN_Preparation*, *VT_AN_AnalysisMethod* and *VT_AN_Digestion* validation tables respectively, thus these tables need to contain values for each analysis loaded into the database. GeoInfo Tools has *VT_AN_Preparation*, *VT_AN_AnalysisMethod* and *VT_AN_Digestion* values for many methods but on occasion new ones need to be added to the database.

Labs generally report data with preparation codes and not analysis method or digestion. Users must read the labs scheduled of serves to determine the analysis method and digestion for each preparation method used. Once you know the analysis method and digestion used for your preparation code make sure they exist in the *VT_AN_AnalysisMethod* and *VT_AN_Digestion* tables. Then open the *VT_AN_Preparation* table and add the new preparation code at the bottom, selecting the proper analysis method, digestion and lab from the pick lists. Once a record is added to the *VT_AN_Preparation* table, assay results for this preparation code can be loaded into the database.


VT_AN_Preparation : Table

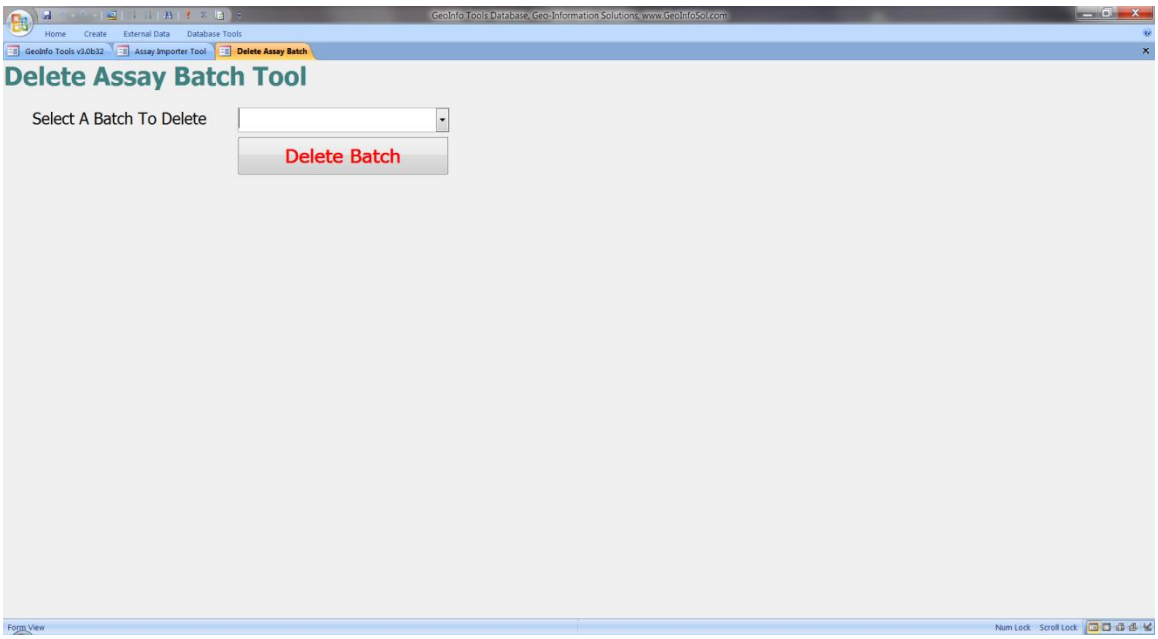
Lookup	Digestion	AnalysisMetho	Lab	Description
G9	Citric	AAS	Acme	Cu by Leach in Acid Citric 1 g - 100 mL. Finished by AA
G9 BRT Pulp	CyanideSodium	AAS	Acme	Cu by Leach in Cyanide Sodium 1 g - 100 mL. Finished l
G9 BRT Reject	CyanideSodium	AAS	Acme	Cu by Leach in Cyanide Sodium 1 g - 100 mL. Finished l
ICP-2A	GEOAR01	ICPES	Alaska Assay	
ICP-3A	GEO3ACID	ICPES	Alaska Assay	
ICP-4A	GEO4ACID	ICPES	Alaska Assay	
ICP70	UNK	ICPUNK	SGS	SGS ICP
ICP-MS-2A	GEOAR01	ICPMS	Alaska Assay	
ICP-MS-3A	GEO3ACID	ICPMS	Alaska Assay	
ICP-MS-4A	GEO4ACID	ICPMS	Alaska Assay	
INAA	NA	INAA	Acme	INAA analysis
M150	M150	WT	Acme	Metallic Pulverize & Sieve 500g to 150 mesh - save + and
M150 1kg	M1501kg	WT	Acme	Metallic Pulverize & Sieve 1 kg to 150 mesh - save + and
M150 2kg	M1502kg	WT	Acme	Metallic Pulverize & Sieve 2 kg to 150 mesh - save + and
M150 3kg	M1503kg	WT	Acme	Metallic Pulverize & Sieve 3 kg to 150 mesh - save + and

Record: 1 of 142

If the lab importer error checking is successful a temporary normalized table (each analysis as a different row in the table) of your assay data will be presented for review. This is a view of your data as it will be loaded into the database. Generally, the only fields worth review are the Preparation, Digestion and Analysis Method fields. After reviewing this table, it can be closed by clicking the **X** in the upper right corner of the table tab. Clicking the **Upload Assays to Master DB** will load your results.

Delete Batch Tool

Each lab importer has a **Delete a Batch Tool** button. Clicking this brings up a simple tool to select and delete a lab batch of results from the database. Generally, this is used when an error has been found in a loaded batch or the first load was a preliminary report.



***note**; different file names are treated as different batches so if a batch is labeled preliminary the database will not recognize the final result sheet without the word preliminary in the name as the same batch and it is up to the user to manually remove the preliminary batch. The lab importers will warn users that the same samples from a different batch name have already been loaded.*

Update Analysis Tables

Assay results are stored in a normalized table in the database (each analysis as a different row in the table) which is useful for data storage but not for analysis and presentation.

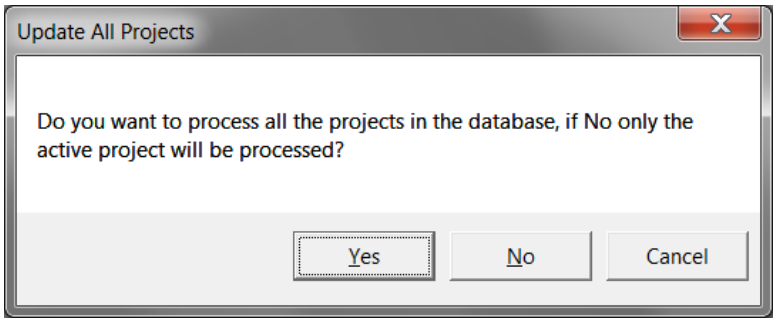
The **Update Analysis Tables** tool creates flat tables for the analyses where each sample is one row of data, and each analysis result is in a new column in that row; this is the format we work with assay data. The tool also offers the option to cut less than detection values to half the detection level, which is an industry standard for analysis.

The creation of these temporary flat tables improves performance when using/analyzing assay data. It needs to be run after new analyses are added to the database (after multiple batches are loaded is fine) or you will not see newly loaded results in the analysis queries. This tool can be slow to run (2 to 10 minutes) when you have significant amounts of assays data, so it is best run when you have time.

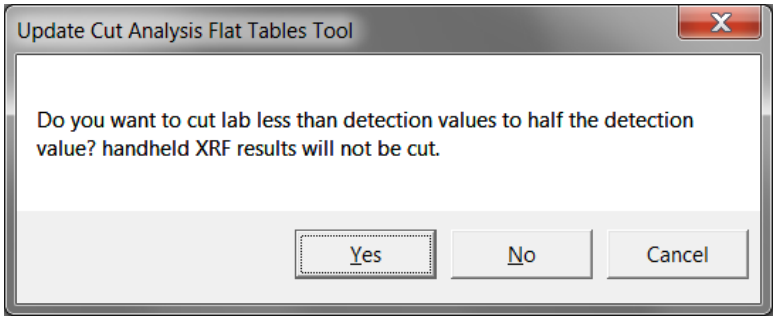
If you have loaded assay results with new analysis or digestion methods and have updated the analysis flat tables, new assay fields with this data will not show up in the project queries until you run the Create Project Queries tool. This tool is automatically run after an Analysis Update, however only for the Active Project, so if you need to update other projects you will have to manually run the Create Project Quires tool. This only needs to be run when new methods have been loaded into the database not just new assay result.

Clicking the **Update Analysis Tables** button prompts the user with 3 options;

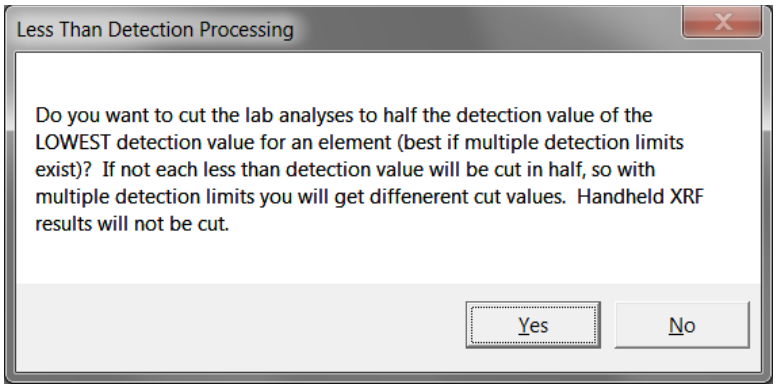
1. The first option is to process all the projects in the database or only the active project. It is easiest to process all the projects in the database (**Yes**) however if you are in a hurry you may want to process only the active project (all projects might take 10 min, whereas just the active project may only take 1-6 minutes).



2. The second option asks if you want to cut less than detection values to half the detection level. This is the industry standard so generally its best to click **Yes**.



3. The third option asks if you want to cut less than detection values to half the LOWEST detection value. Generally this is not an issue but in cases where you have the same element, analysis method and digestion, and different detection levels you can cut the values to half the lowest value.



A query, *qryALL_AnalysisLessThanDetections_MultipleValues*, will show any multiple detection analysis methods you might have in your database, if your database has none or the differences are not significant then you do not need to process with this option.

**Note: this option increases the Update Analysis Tables tool processing time (up to 25%) so only run this option if it is important or the processing time is acceptable.*

Update Coordinates

Converts Latitude / Longitude coordinates to UTM coordinates and UTM coordinates to Lat/Long coordinates. It only converts and writes coordinates if either the Easting/Northing or Lat_Dec/Long_Dec fields in the database are blank (null). This coordinate conversion only works for WGS84 datum coordinates in the database. The database knows the coordinates are in WGS84 datum if the datum fields, LatLongDatum and/or EastNorthDatum, use the following format; LL_WGS84 and UTMZ12N_WGS84 (any UTM zone in this format).

Run this tool after new geochemical samples, observations or drill holes are added to the database or coordinates are entered or edited.

This tool requires installation of the *UTMLLConverterInstaller.exe* software. See the UTM Latitude Longitude Converter Software section for instructions.

**Note; if you edit one coordinate pair in the database, either Easting/Northing or Latitude/Longitude and want the other pair calculated by the database you will have to delete those values from the database so they are blank (null). The tool only converts records with empty fields in the second coordinate pair.*

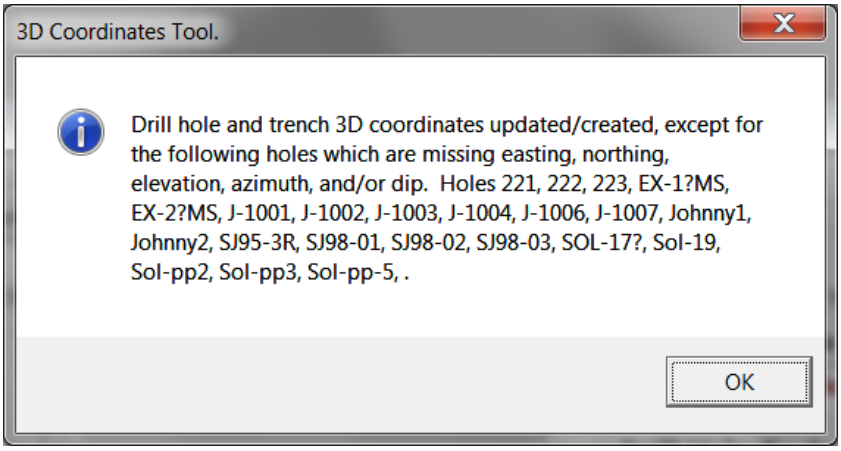
Create DH 3D Coordinates

The **Create Hole / Trench 3D Coordinates** tool creates coordinate pairs (X and Y) and an elevation (Z) for the start, end and center point of each logged data interval in the database. Drill holes need the Easting, Northing and Elevation fields completed for the collar, and at least one survey at 0 depth for the 3D coordinate calculations. Additional down hole surveys will be used if available. Users will be prompted with questions concerning the units the project is based on; coordinates, elevation, and From,To, and Depth values (units can be mixed like UTM coordinates with logging in feet).

A few issues might come to light using this tool, which might force you to clean your data;

- If elevation is not entered for a hole no 3D coordinates will be created.
- A survey dip of 90 degrees is up not down, so the 3D coordinates of a 90 degree dip hole shows the hole being drilled up! Survey dip is based on 0 being horizontal, down being negative and up being positive, so a vertical down hole has to be -90.

Holes/trenches not having the required fields for calculating 3D coordinates will be reported after this tool completes processing.

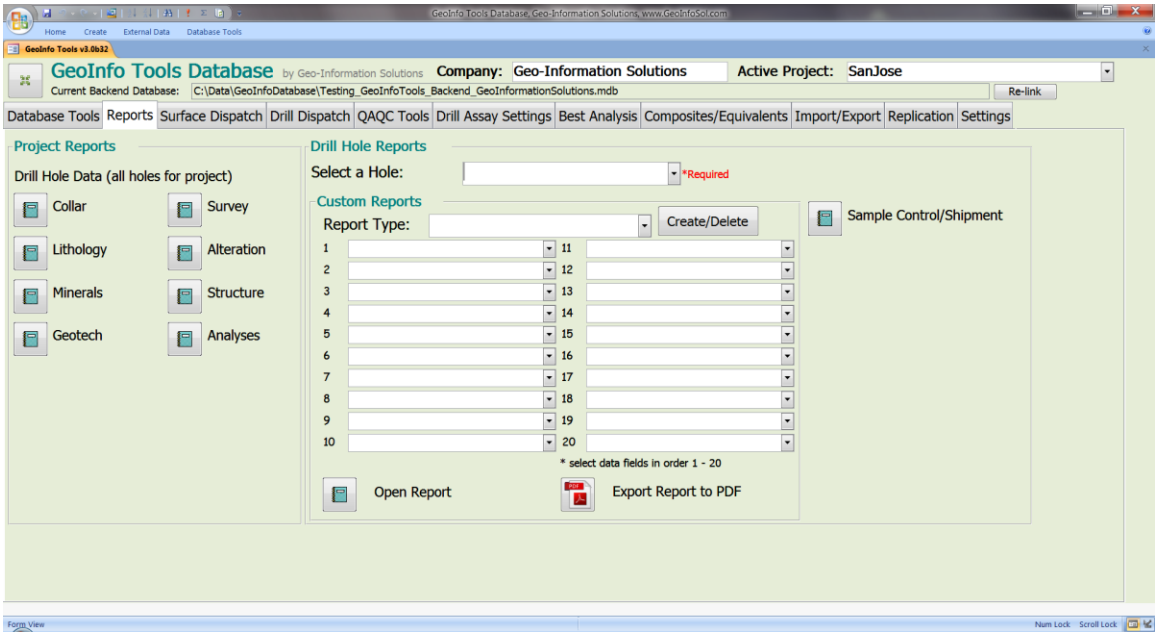


Creating 3D coordinates is processed for the Active Project. The first time this tool is run it can take a very long time for a large project with a lot of logging (2-3 hours for a very large project), however subsequent running of this tool will only process new and changed data so it will update much faster.

A companion tool for plotting 3D data in ArcGIS has been programmed to allow creating attributed line segment intervals on maps using these 3D coordinates. See Appendix D - Plotting Log Intervals in ArcGIS for details on using this tool.

Reports

Reports are available for drill hole/trench reporting. A series of standard reports by data type can be created by project.



Custom drill hole/trench reports are created using the **Custom Report Tool**. First create a report by clicking the **Create/Delete** button and then assign a name to the report type. The user then selects the types of information they wish to include in the report by selecting data types from the 1 – 20 pick lists. Once the report is designed you can select a hole to report and click the **Open Custom Report** button.

Reports always have collar information and then as many pages as needed for each type of information included in the report.

Once a report is defined it can then be used for as many drill holes/trenches as needed by selecting the report type from the **Report** pick list and a hole from the **Hole** list. Create several report formats and then create reports for holes as needed.

Reports can be opened in Access using the **Open Report** button (and then saved or printed), or exported to a PDF file using the **Export Report to PDF** button. Exported reports are saved in the *Reports* directory in the GeoInfo Tools application location.

GeoInformation Solution

Detail Drill Hole Report

SanJose Project

Hole: J-1004

Hole ID:	J-1004	Country:	United States	Latitude:	32.848277
Hole Type:	Drillhole	State/Prov:	Arizona	Longitude:	-109.51222
Hole Depth:	4747	Project:	SanJose	LatLong Datum:	LL WGS84
Logged By:	DLippoth	Prospect	San Jose	Easting:	639226.09
		Area:	West San Jose	Northing:	3635447.74
				Projection	UTMZ12N WGS84
				Elevation:	982.3

Report Contents:

Lithology

Alteration

Mineralization

Minerals

Structure

MagSus

GeoTech

Samples

MagSus

Analyses_01-05

Geo-Information Solution — Detail Drill Hole Report

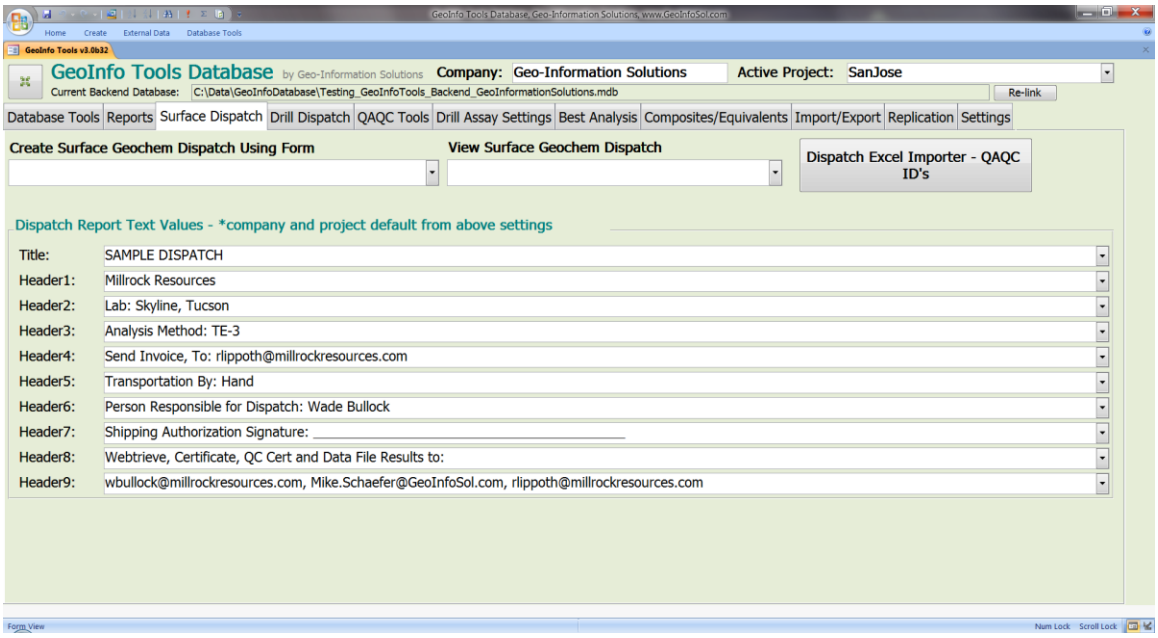
SanJose Project — *Hole: J-1004*

Lithology

HoleID:	From:	To:	Lithology:	Mod1:	Mod2:	Mod3:	Color:
J-1004	0.00	60.00	Alluvium				
J-1004	60.00	400.00	Andesite	Vuggy			
J-1004	400.00	470.00	Conglomerate				
J-1004	470.00	490.00	Andesite				
J-1004	490.00	530.00	Conglomerate				
J-1004	530.00	580.00	Andesite				
J-1004	580.00	690.00	Conglomerate				
J-1004	690.00	704.00	Hornfels				
J-1004	704.00	706.00	Sandstone				
J-1004	706.00	722.00	Mudstone				
J-1004	722.00	729.40	Sandstone				
J-1004	729.40	732.00	Conglomerate				
J-1004	732.00	765.00	Sandstone				
J-1004	765.00	767.00	Mudstone				
J-1004	767.00	775.00	Sandstone				
J-1004	775.00	783.30	Hornfels				
J-1004	783.30	786.00	Dacite	Dike			White
J-1004	786.00	840.00	Hornfels				
J-1004	840.00	874.00	Sandstone				
J-1004	874.00	887.00	Hornfels				
J-1004	887.00	933.50	Sandstone				
J-1004	933.50	951.00	Hornfels				
J-1004	951.00	970.60	Sandstone				
J-1004	970.60	983.20	Mudstone				
J-1004	983.20	984.80	Tonalite	Dike			
J-1004	984.80	995.10	Mudstone				
J-1004	995.10	1022.00	Sandstone				
J-1004	1022.00	1024.00	Hornfels				
J-1004	1024.00	1061.60	Dacite	Dike	Flow		
J-1004	1061.60	1063.00	Hornfels				
J-1004	1063.00	1089.50	Sandstone				
J-1004	1078.00	1079.00	Hornfels				
J-1004	1089.00	1098.00	Hornfels				
J-1004	1098.00	1109.30	Sandstone				
J-1004	1109.30	1110.30	Hornfels				
J-1004	1110.30	1150.00	Sandstone				
J-1004	1150.00	1153.20	Hornfels				
J-1004	1153.20	1194.00	Sandstone				
J-1004	1194.00	1212.00	Hornfels				
J-1004	1212.00	1230.60	Tonalite	Dike	Aphanitic		Green
J-1004	1230.60	1323.00	Hornfels				
J-1004	1323.00	1404.00	Tonalite	Dike			Green
J-1004	1404.00	1436.80	Hornfels				LightBrow
J-1004	1436.80	1473.40	Tonalite	Aphanitic			Green
J-1004	1473.40	1480.00	Marble				Grey

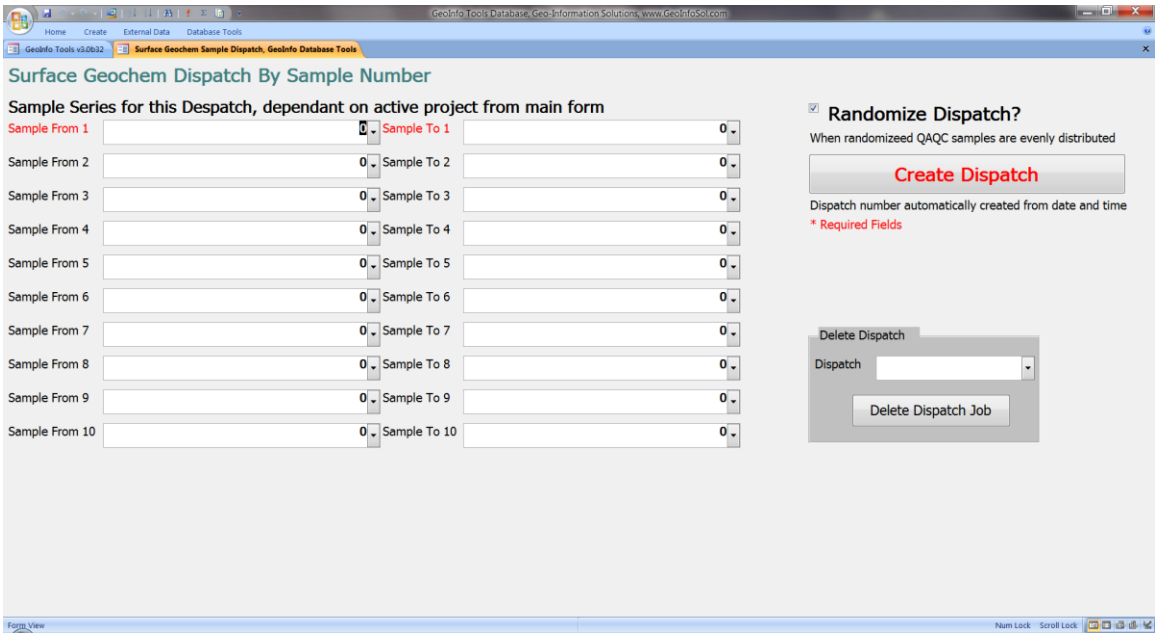
Surface Dispatch

The **Surface Geochemistry Dispatch** tool creates a dispatch sample preparation report used for assembling a batch of samples to send to an assay lab, including QAQC samples, and it creates a report to send to the assay lab showing the samples dispatched and a count of the samples submitted. The dispatch number is automatically generated using the current data and time (for example; 20120520101439 is YYYYMMDDHHNNSS).



Dispatch Report Text Values include a title and 9 header text rows for inclusion on dispatch reports. Some suggested values are available in the dropdown lists but any values can be entered. Once text values have been entered, they are saved for the active project. Design these header values so you can submit the dispatch form directly to the lab with all the instructions that are necessary for analysis.

Select a dispatch type from the **Create Surface Geochem Dispatch Using Form** pick list.



Select up to 10 From - To sample number intervals to dispatch from the database. Samples listed are only samples that have not been dispatched and only for the active project. Once dispatched, samples will no longer exist in the lists. Intervals are inclusive of all samples between the From - To values. Gaps are not a problem as only samples listed will be dispatched.

The user has the option to randomize samples for lab QAQC control. If **Randomize Dispatch** is checked, then sample numbers are listed in random order on the submittal report that is generated for the assay lab. It is good to have one of your custom text values instruct the lab to analyze the samples in the order provided on the report. If a dispatch is randomized the dispatch QAQC samples are evenly distributed within the random sample number order provided to the lab. This is helpful in that QAQC samples can be added just before dispatch without needing to make sure sample numbers are evenly distributed within the original field number series; the randomizer will distribute the QAQC samples evenly through the batch even if the QAQC sample numbers are grouped together at the end of the sample number series.

Clicking the **Create Dispatch** button will generate two reports. The first report is for internal use, and is used to build the dispatch for shipping, including preparing the QAQC samples with sample numbers. Even with randomized dispatches sample numbers in this report are in sample number order for ease of building the shipment.

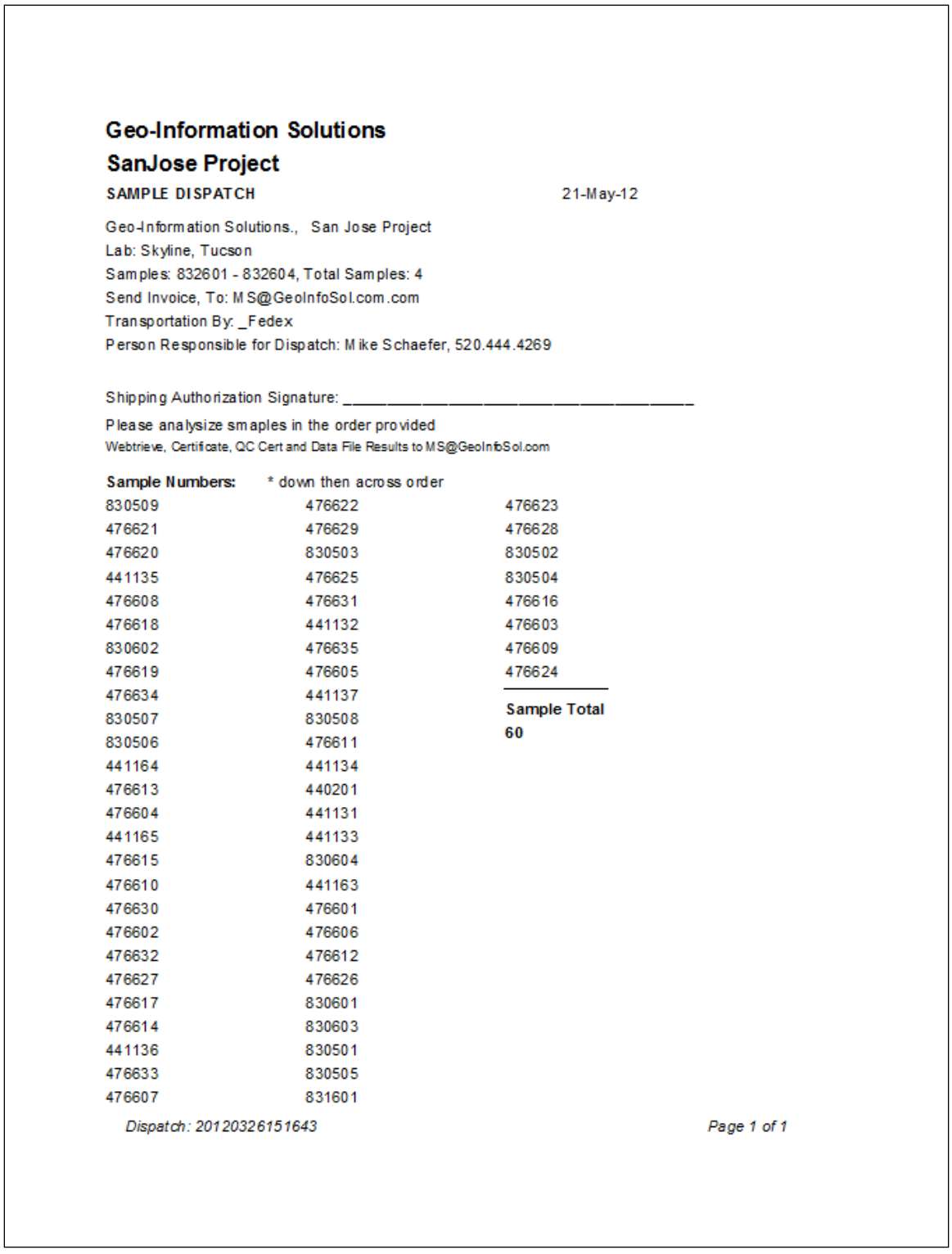
Geo-Information Solutions

SanJose Project

Build Dispatch 20120326151643 List

SampleNo:	Dispatch Sequence	Sample Type	QAQC Type	QAQC ID	Sampler
440201	39	Rock			CVanluven
441131	40	Rock			KNegri
441132	32	Rock			KNegri
441133	41	Rock			KNegri
441134	38	Rock			KNegri
441135	4	Rock			KNegri
441136	24	Rock			KNegri
441137	35	Rock			KNegri
441163	43	Rock			CVanluven
441164	12	Rock			CVanluven
441165	15	Rock			CVanluven
476601	44	Rock			KGibler
476602	19	Rock			KGibler
476603	58	Rock			KGibler
476604	14	Rock			KGibler
476605	34	Rock			KGibler
476606	45	Rock			KGibler
476607	26	Rock			KGibler
476608	5	Rock			KGibler
476609	59	Rock			KGibler
476610	17	Rock			KGibler
476611	37	Rock			KGibler
476612	46	Rock			KGibler
476613	13	Rock			KGibler
476614	23	Rock			KGibler
476615	16	Rock			KGibler
476616	57	Rock			KGibler
476617	22	Rock			KGibler
476618	6	Rock			KGibler
476619	8	Rock			KGibler
476620	3	Rock			KGibler
476621	2	Rock			KGibler
476622	27	Rock			KGibler
476623	53	Rock			KGibler
476624	60	Rock			KGibler
476625	30	Rock			KGibler
476626	47	Rock			KGibler
476627	21	Rock			KGibler
476628	54	Rock			KGibler
476629	28	Rock			KGibler
476630	18	Rock			KGibler
476631	31	Rock			KGibler
476632	20	Rock			KGibler
476633	25	Rock			KGibler
476634	9	Rock			KGibler

The second report generated is used to send to the lab with the shipment, this report replaces the lab submittal form. The company, project, title and header text fields are printed on the report and a list and total count of samples is provided. If randomized, sample numbers will be listed in random order.



Geo-Information Solutions

SanJose Project

SAMPLE DISPATCH 21-May-12

Geo-Information Solutions., San Jose Project
Lab: Skyline, Tucson
Samples: 832601 - 832604, Total Samples: 4
Send Invoice, To: MS@GeoInfoSol.com.com
Transportation By: _Fedex
Person Responsible for Dispatch: Mike Schaefer, 520.444.4269

Shipping Authorization Signature: _____

Please analysize smaples in the order provided
Webtrieve, Certificate, QC Cert and Data File Results to MS@GeoInfoSol.com

Sample Numbers: * down then across order

830509	476622	476623
476621	476629	476628
476620	830503	830502
441135	476625	830504
476608	476631	476616
476618	441132	476603
830602	476635	476609
476619	476605	476624
476634	441137	
830507	830508	**Sample Total**
830506	476611	**60**
441164	441134	
476613	440201	
476604	441131	
441165	441133	
476615	830604	
476610	441163	
476630	476601	
476602	476606	
476632	476612	
476627	476626	
476617	830601	
476614	830603	
441136	830501	
476633	830505	
476607	831601	

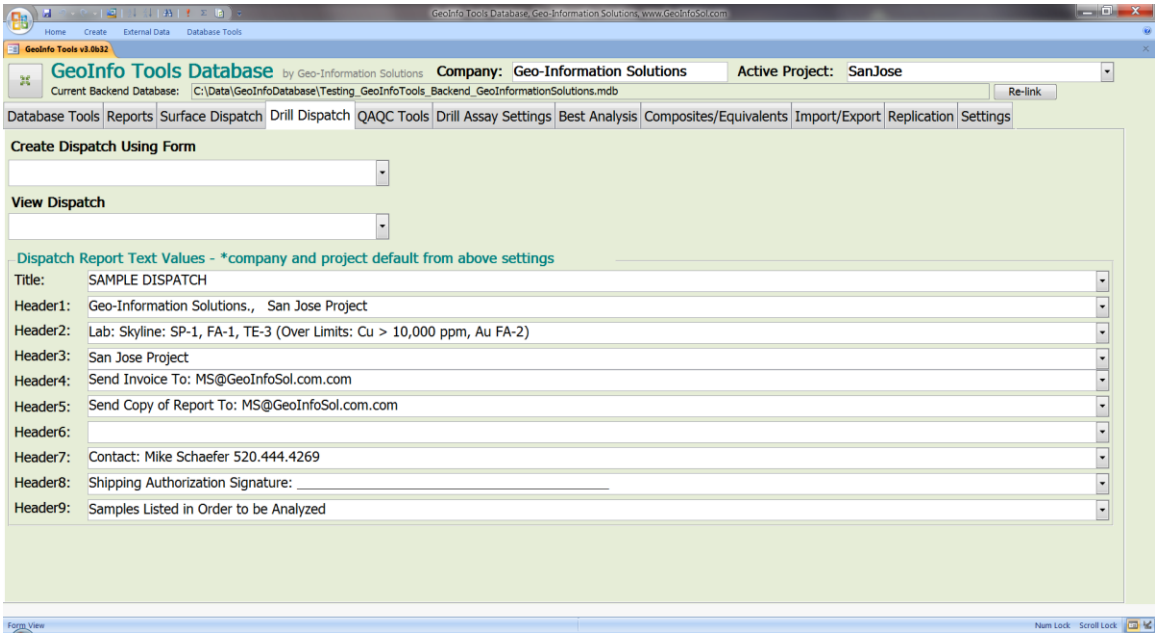
Dispatch: 20120326151643 *Page 1 of 1*

Dispatches can be deleted by selecting the dispatch from the **Delete Dispatch** pick list (only the dispatch ID field for the sample is deleted no data).

The **View Surface Geochem Dispatch** pick list lists all dispatches that have been created in the database. Select a dispatch to recreate the reports that are generated when a batch is first created.

Drill Dispatch

Drill dispatch is much like the Surface Geochemistry Dispatch tool and users are referred to that section for details.

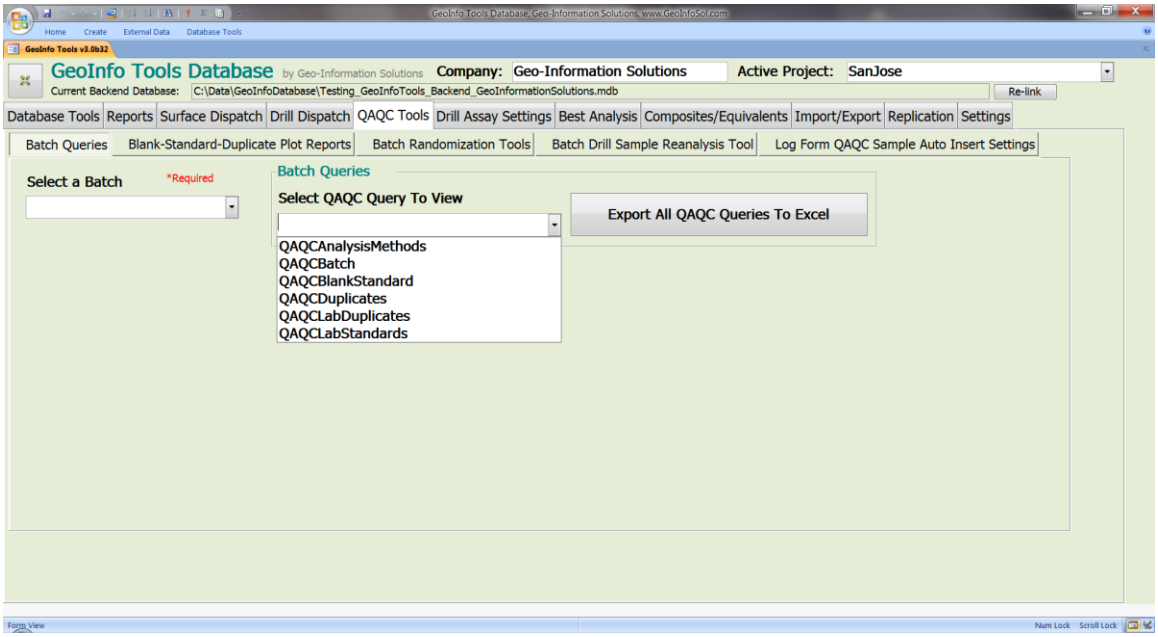


Drill dispatch has two dispatch types. The **BySampleNumber** dispatch type is similar to the Surface Geochemistry Dispatch tool and samples are dispatched by sample number. The **ByShipmentBatch** dispatch type dispatches sample numbers by ShipBatch (Shipment Batch) and group's lists of samples for dispatch by shipment batch (bag).

QAQC Tools

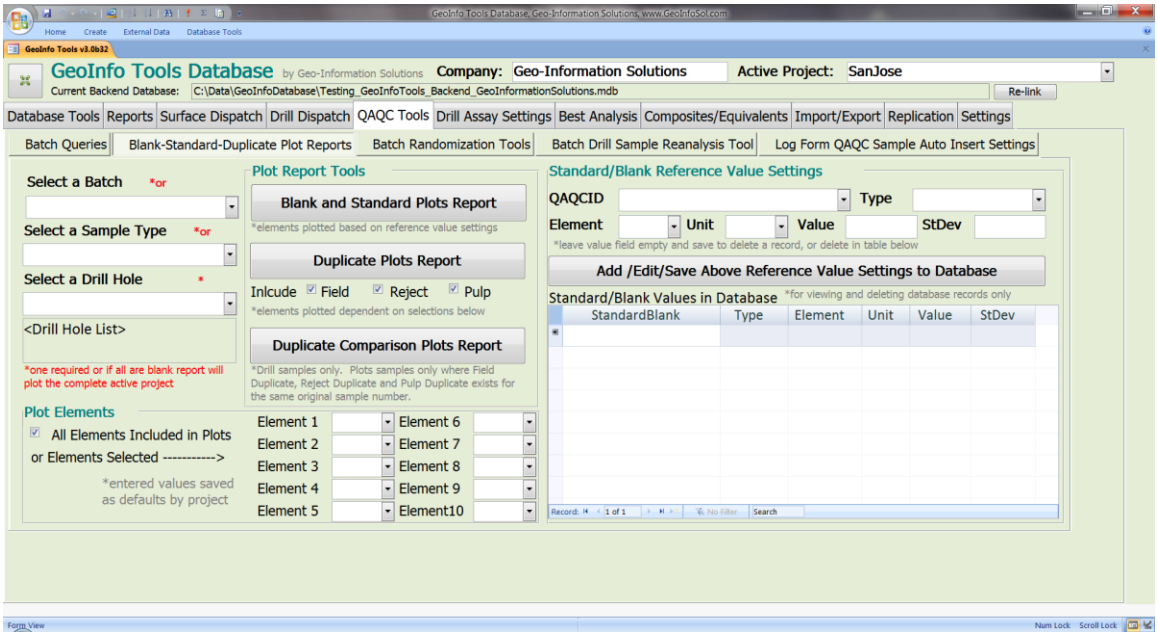
Batch Queries

Select a batch from the **Select A Batch** pick list. QAQC queries can be opened from the **Select QAQC Query To View** pick list. This query list is a simple QAQC analysis start however more queries can be designed as requested. All the QAQC queries for the selected batch can be exported to a single Excel spreadsheet for analysis.



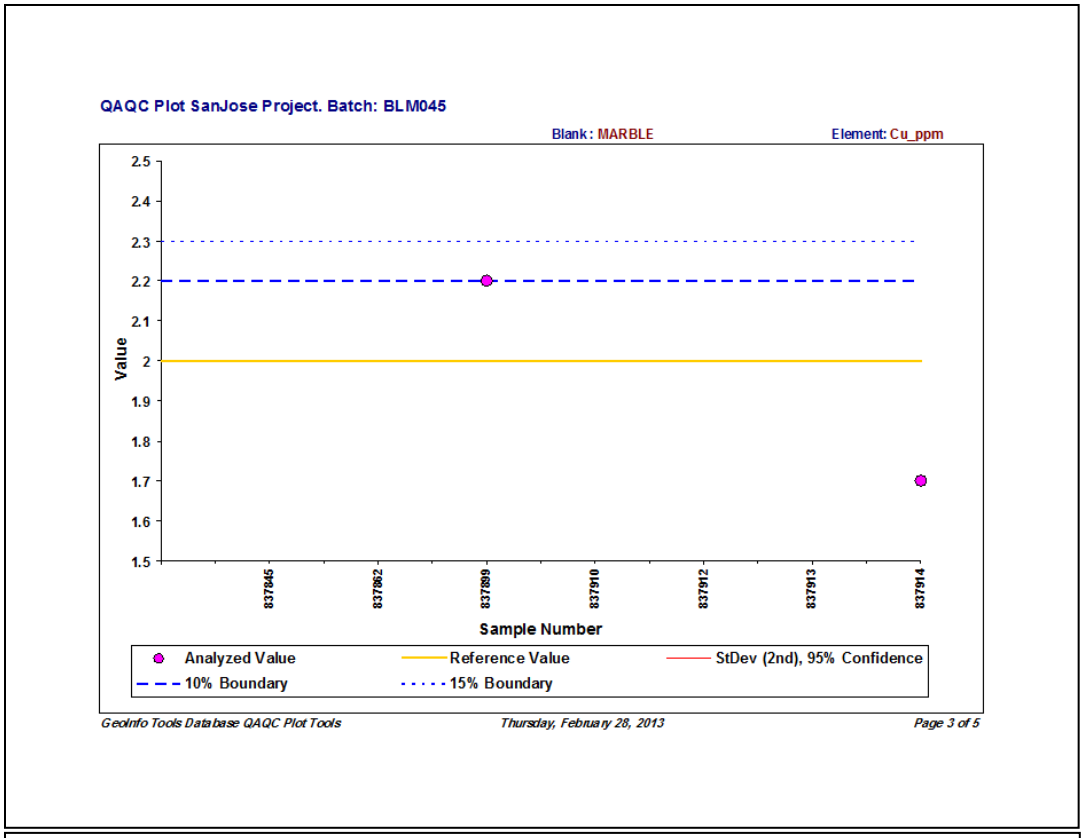
Blank-Standard-Duplicate Plot Reports

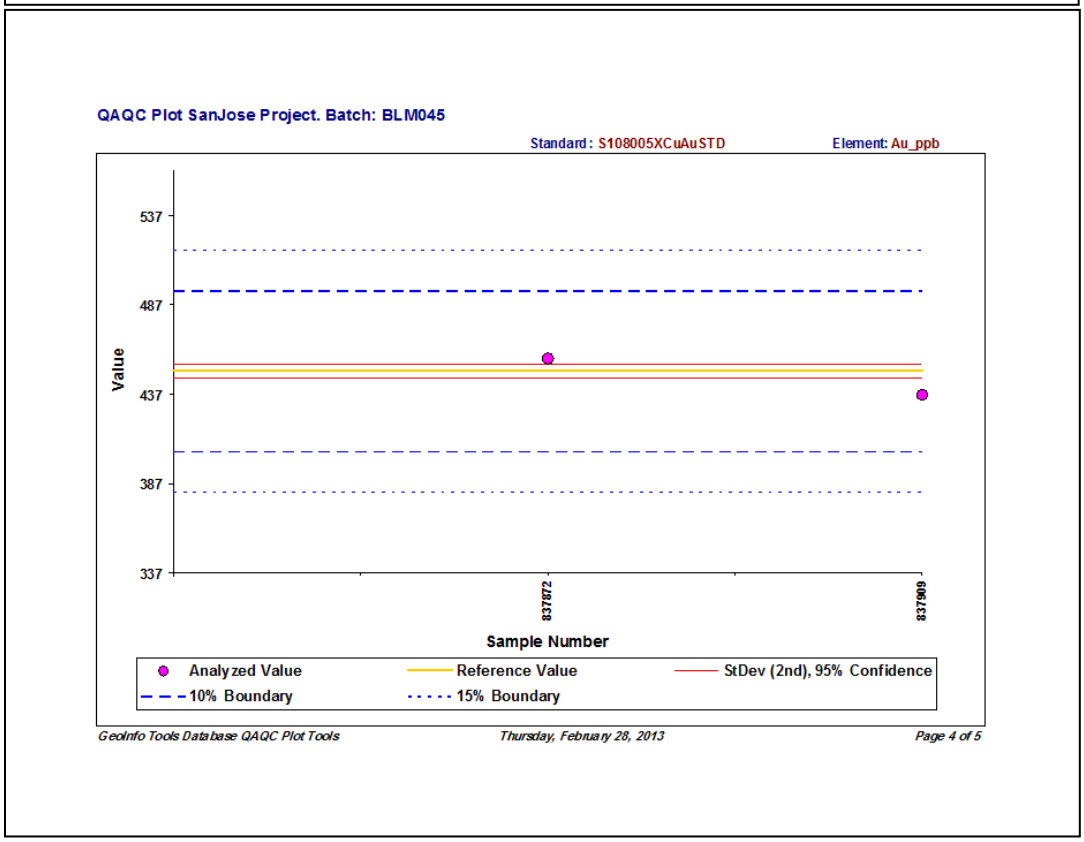
Reports with plots of Blank, Standard, Field Duplicate, Reject Duplicate and Pulp Duplicate samples can be generated for a complete project, a batch, a sample type or a selection of drill holes. All elements or select elements can be plotted. Standard and Blank reference value settings (certified value and measured standard deviation) can be entered and stored in the database using these tools.



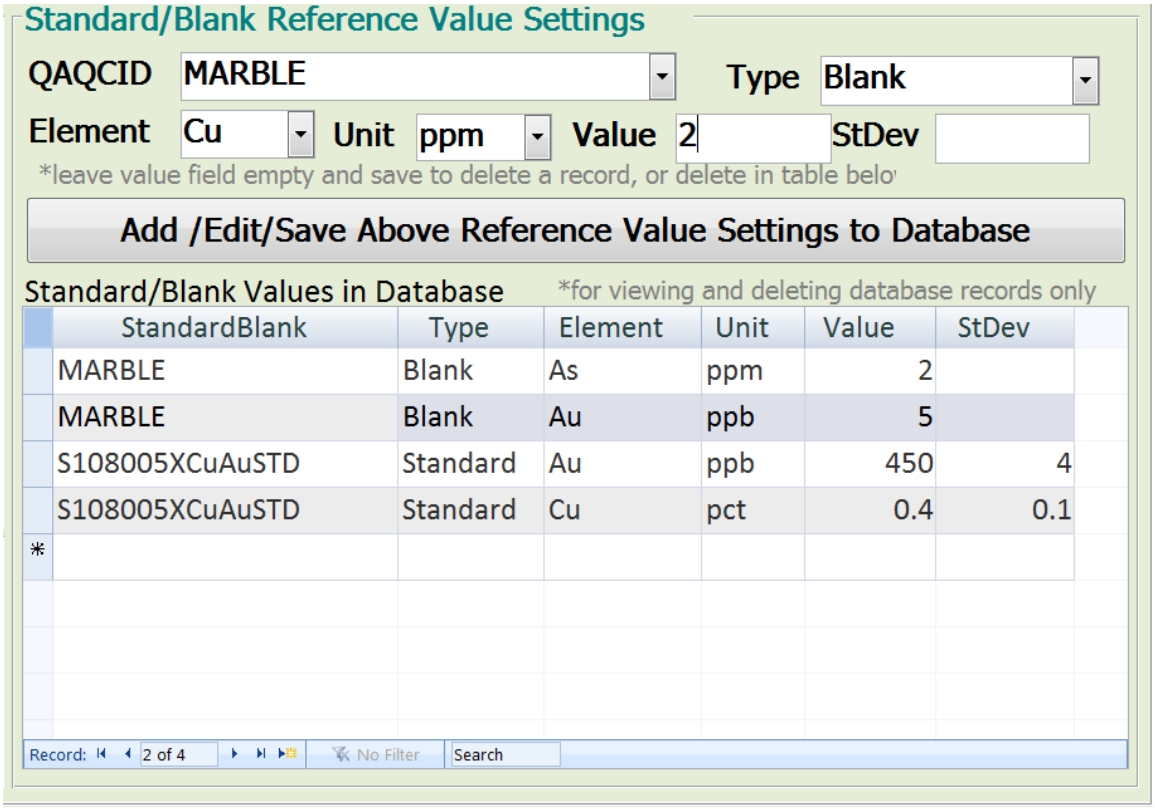
Blank and Standard Plots

Blank sample plots show measured values against a reference value (the certified value), and 10% and 15% upper error limits. Standard sample plots show measured values against the reference value, 2nd standard deviation limits (95% confidence level), 10% error limits and 15% error limits.


QAQC Plot SanJose Project. Batch: BLM045
Blank: MARBLE
Element: Cu_ppm
Value
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
837845
837862
837899
837910
837912
837913
837914
Sample Number
Analyzed Value
Reference Value
StDev (2nd), 95% Confidence
10% Boundary
15% Boundary
GeoInfo Tools Database QAQC Plot Tools
Thursday, February 28, 2013
Page 3 of 5


QAQC Plot SanJose Project. Batch: BLM045
Standard: S108005XCuAuSTD
Element: Au_ppb
Value
537
487
437
387
337
837872
837909
Sample Number
Analyzed Value
Reference Value
StDev (2nd), 95% Confidence
10% Boundary
15% Boundary
GeoInfo Tools Database QAQC Plot Tools
Thursday, February 28, 2013
Page 4 of 5

Before a Blank and Standard Plot report can be created you must enter the reference value for each Blank and Standard for each certified element. Select the **QAQC ID** from the pick list (QAQC ID types need to first be entered into the VT_Standards validation table) and then select a **Type**, **Element**, **Unit**, **Value** and **StDev** (only for Standards not Blanks and only the first standard deviation as the database will calculate the 2nd StDev), then click the **Add/Edit/Save Above Reference Value Settings to Database** button to save this data to the database. Plots will be created for each Blank and Standard for each reference element entered.

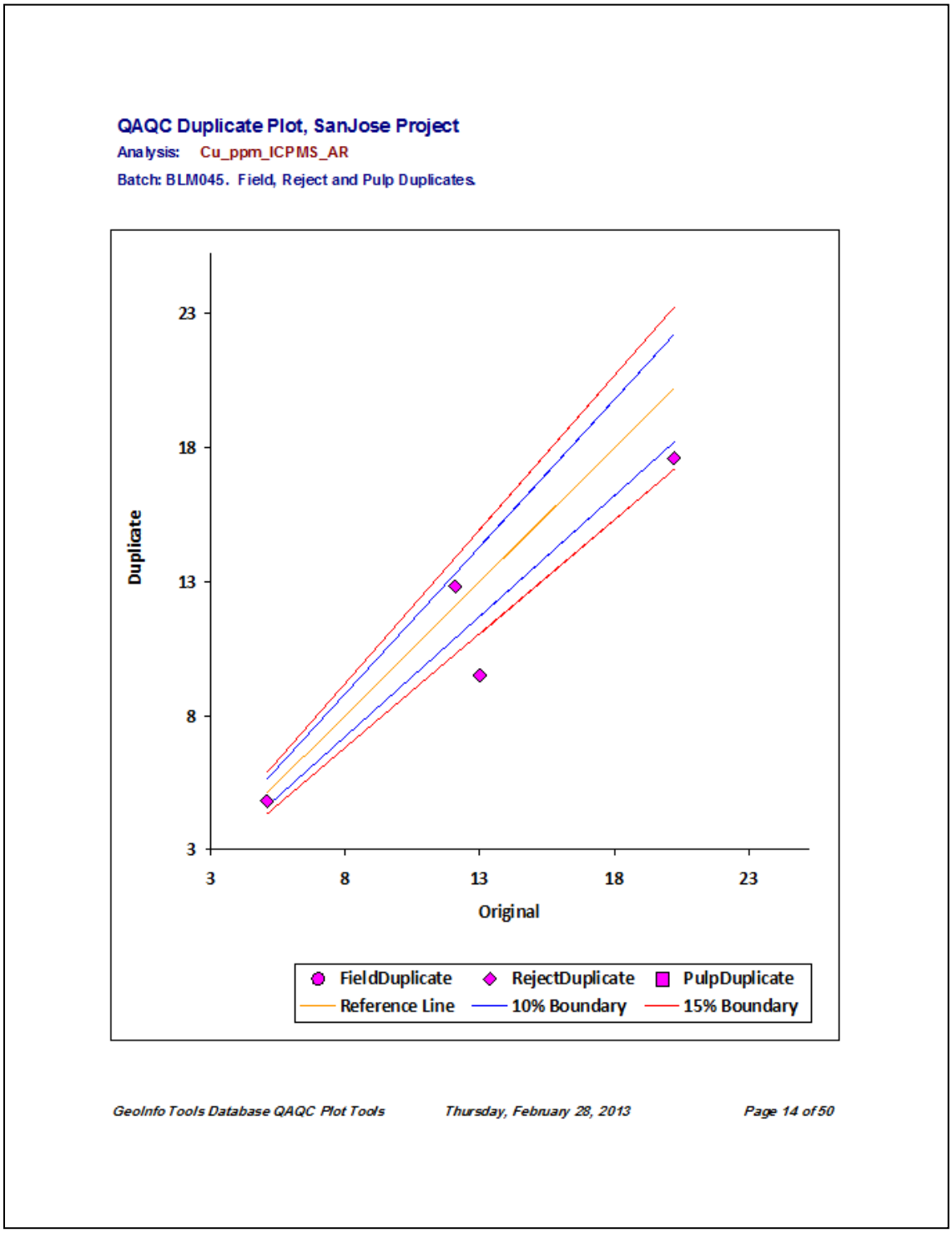


Select a **Batch**, a **Sample Type** or a **Drill Hole** (select multiple holes one at a time to build a list of more than one hole) from the pick lists on the left. If all these pick lists are blank, then the report will be generated for the entire project (which can be slow and cluttered).

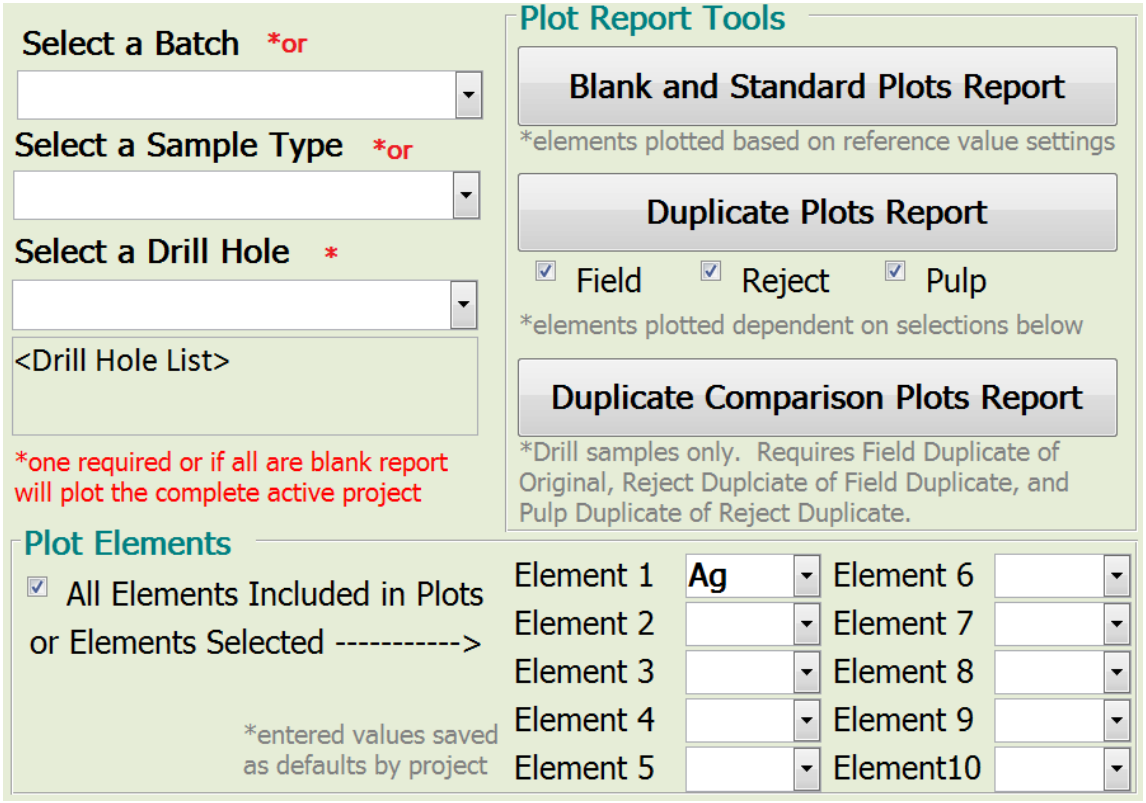
Click the **Blank and Standards Plots Report** button to generate the report.

Duplicate Plots

Duplicate plots show measured values against a reference value (1:1 trend line), 10% error limits and 15% error limits.



Plots are created for all elements if the **All Elements** check box is checked or select elements if unchecked. If you want select elements enter these in the element fields provided; up to 10 elements can be selected. Plot creation performance is better with only selected elements.



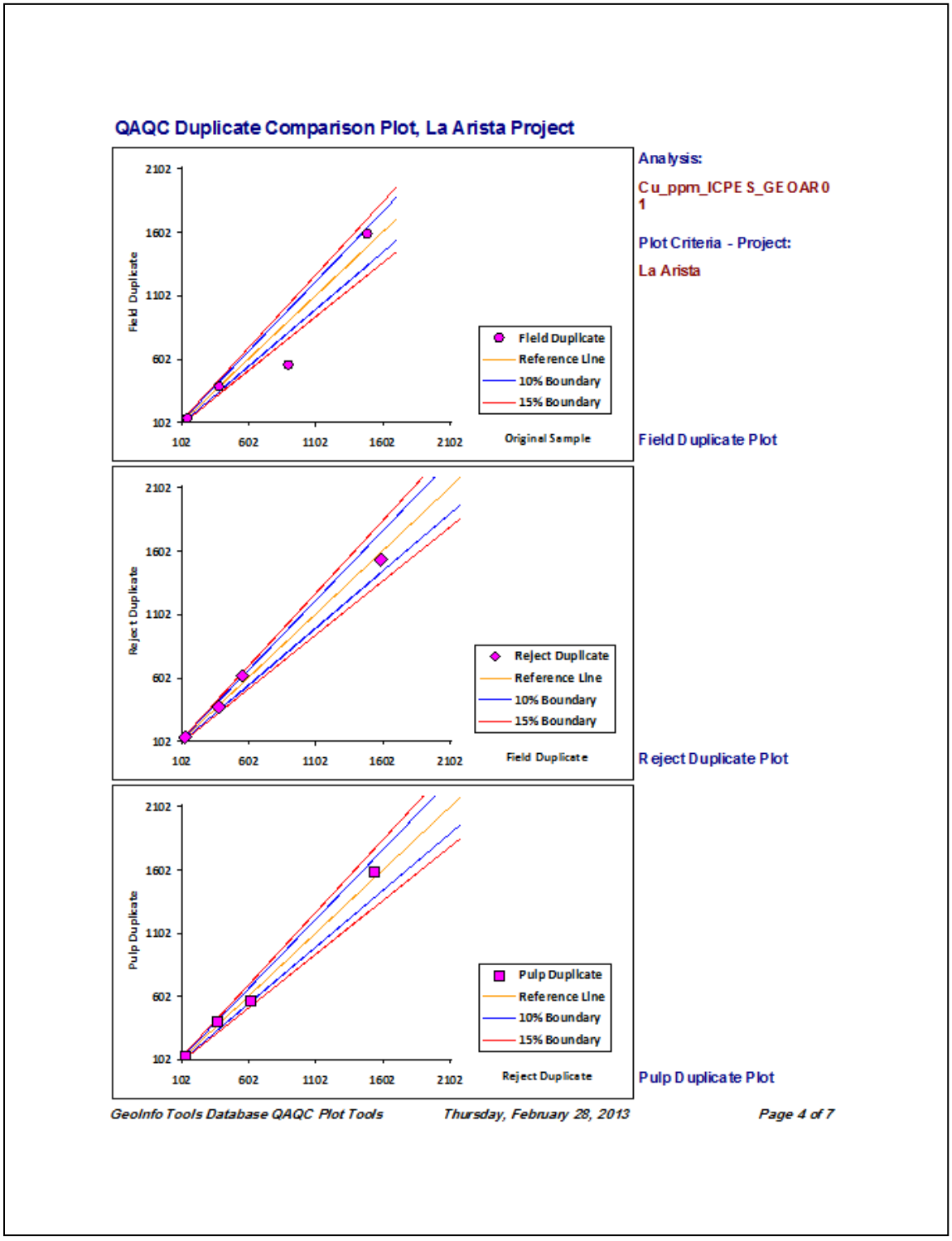
Select the types of duplicates you want included in the plots using the **Field**, **Reject** and **Pulp** check boxes.

Select a **Batch**, a **Sample Type** or a **Drill Hole** (select multiple holes one at a time to build a list of more than one hole) from the pick lists on the left. If all these pick lists are blank then the report will be generated for the entire project.

Click the **Duplicate Plots Report** button to generate the report.

Duplicate Comparison Plots

Duplicate Comparison plots look similar to Duplicate plots and show measured values against a reference value (1:1 trend line), 10% error limits and 15% error limits, however this report creates a different plot for each duplicate type.

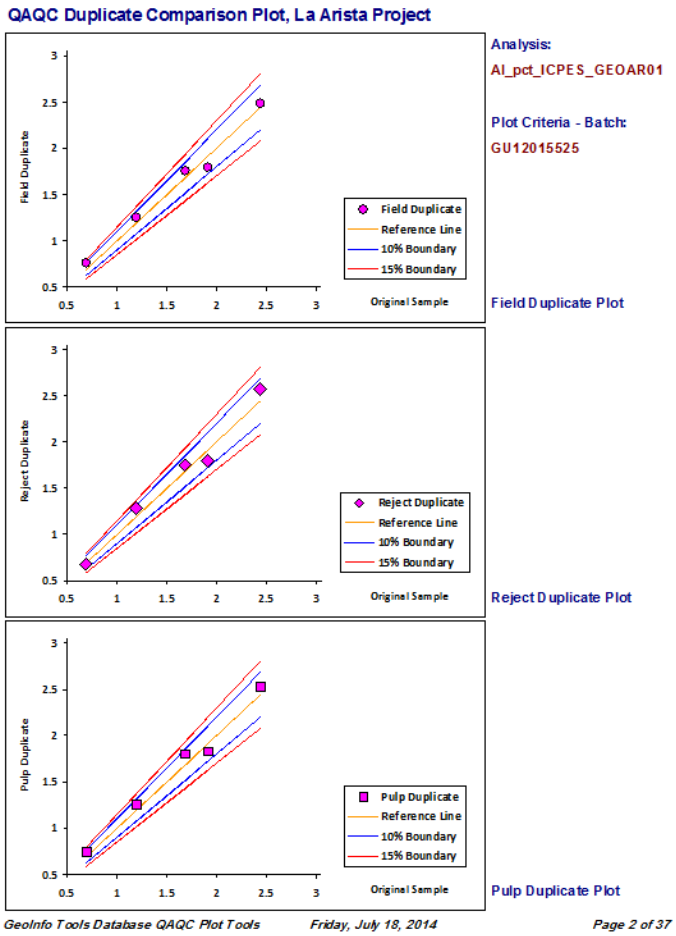


This is a more specific plot and is for drill samples only. It requires a specific sampling protocol; a Field Duplicate of an Original sample, a Reject Duplicate of an Original sample, and Pulp Duplicate of an Original sample. All four samples have to exist for this plot. The database sampling needs to look like this;

tblDHSamples					
HoleID	From	To	SampleNo	QAQCType	QAQCID
SJ0001	32.92	34.71	50944		
SJ0001			50945	FieldDuplicate	50944
SJ0001			50946	RejectDuplicate	50944
SJ0001			50947	PulpDuplicate	50944

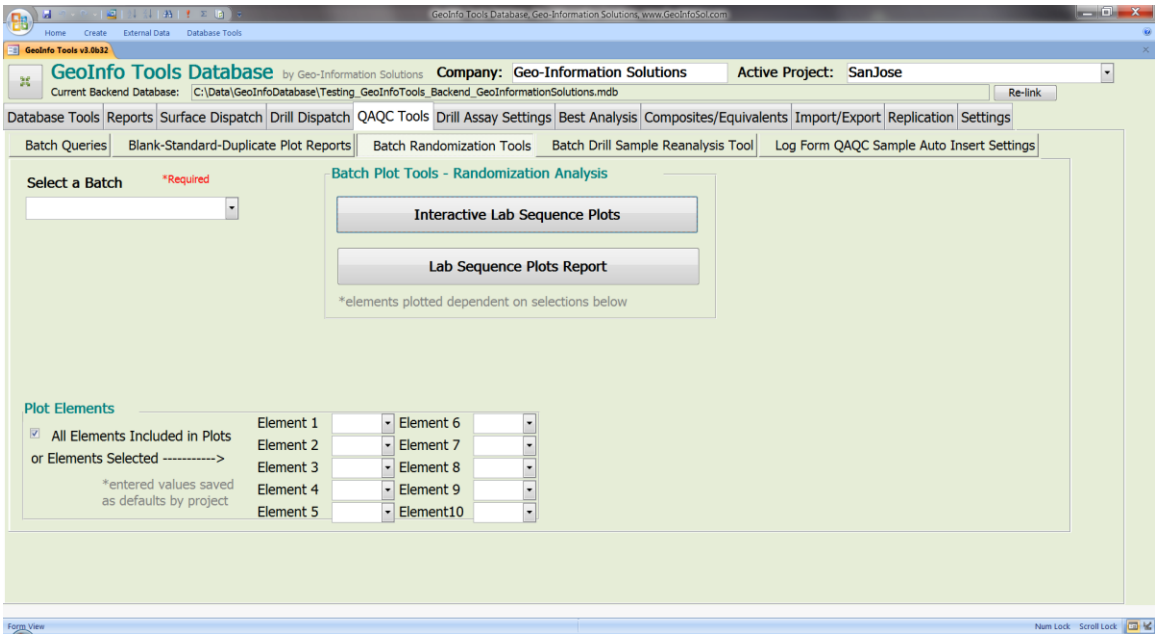
Select a **Batch** or a **Drill Hole** (select multiple holes one at a time to build a list of more than one hole) from the pick lists on the left. If all these pick lists are blank then the report will be generated for the entire project, which can be very slow to process!

Click the **Duplicate Comparison Plots Report** button to generate the plot.

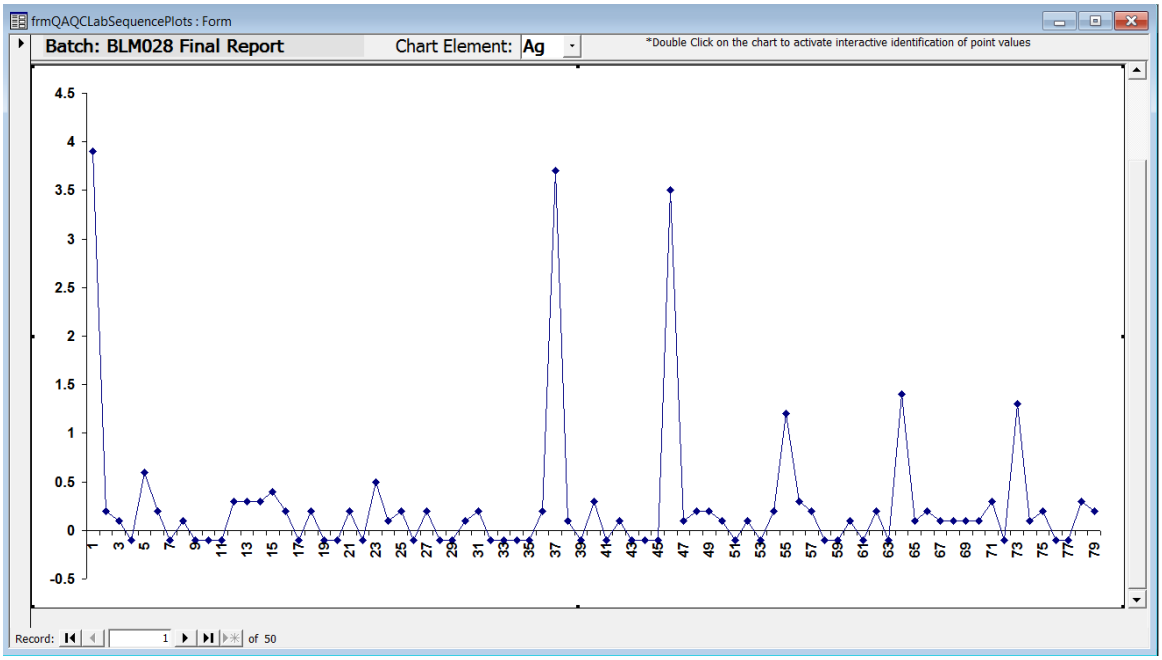


Batch Randomization Tools – Plot Analysis

These tools create randomized sample batch line graph plots designed to analyze for lab errors in a randomized batch; with randomized samples a nice normal distribution plot of an element likely indicates a lab problem. We expect to see a completely random plot with good lab data.

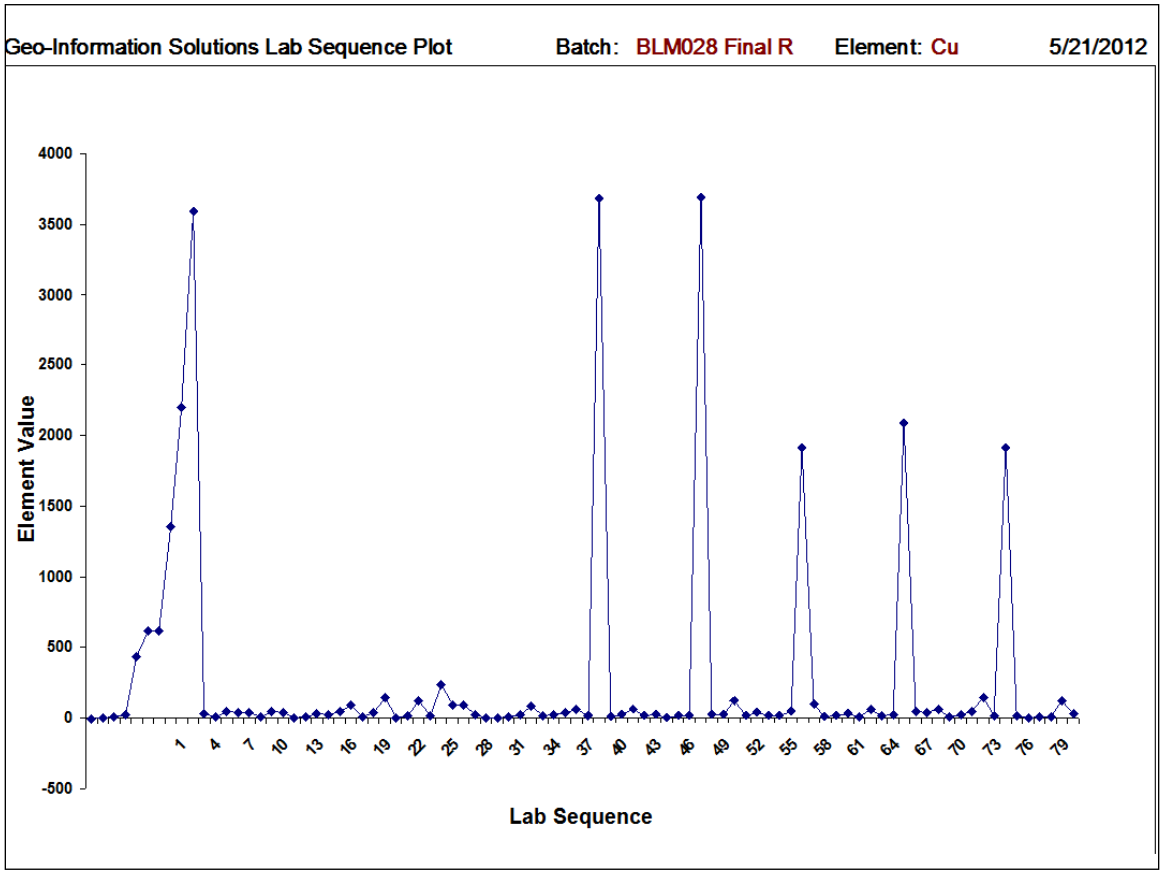


The **Interactive Lab Sequence Plots** tool allows the user to select any element and view a plot.



The **Lab Sequence Plots Report** creates a report containing either all the elements in the batch or select elements.

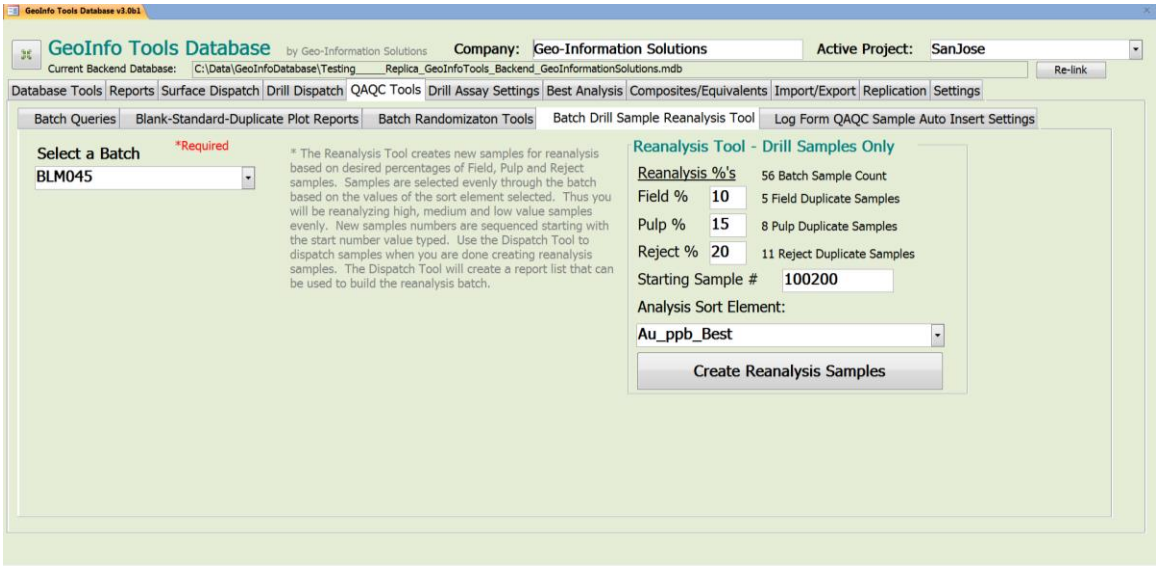
Plots are created for all elements if the **All Elements** check box is checked or select elements if unchecked. If you want select elements enter these in the element fields provided; up to 10 elements can be selected.



Reanalysis Tool

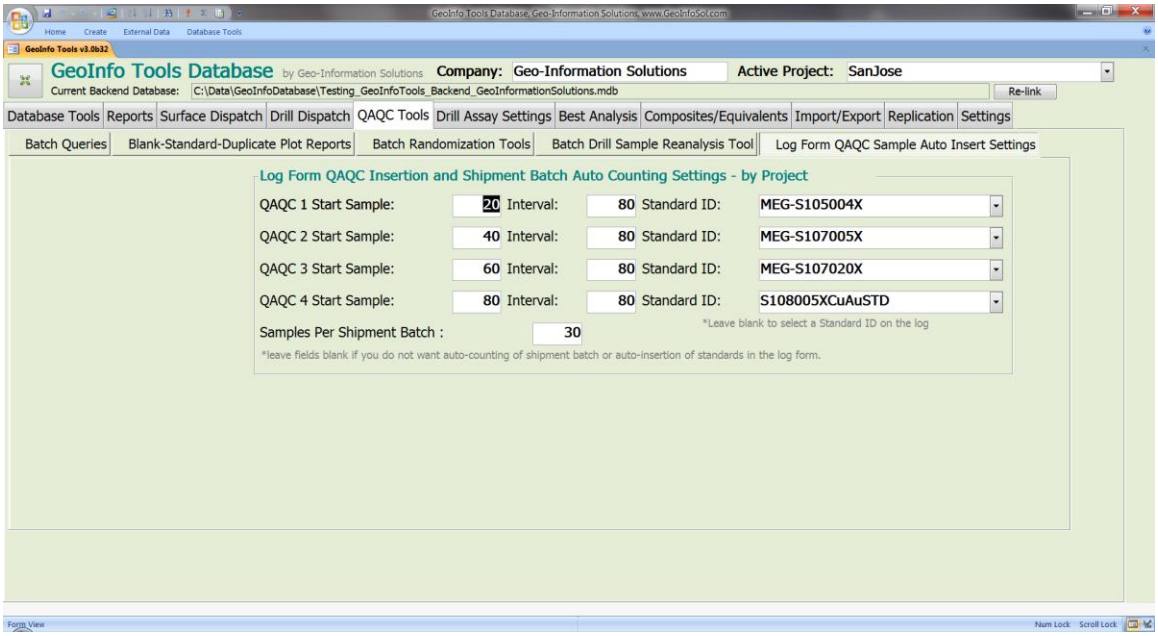
The Reanalysis Tool automatically logs Field, Pulp, and Reject duplicates into the database. Reanalysis is based on percentages of the total batch sample count.

1. Select a batch from the **Select A Batch** pick list to the left. The count of samples in that batch will display in the Reanalysis tool.
2. Type in the desired reanalysis percentages for each duplicate type and the tool will calculate the number of samples of each type to be logged to the right.
3. Enter a starting sample number making sure you have enough available numbers for all your new samples.
4. Then select a sort element which will be used to sort the list of sample numbers before the reanalysis samples are even selected down the list; in the case below by selecting Ag as the sort element you will be assured that high, moderate and low Ag values will be selected for reanalysis as the samples are selected for reanalysis in even increments down an element sorted list.
5. The **Create Reanalysis Samples** button creates the reanalysis samples (automatically logs these samples) based on the settings above.



Log Form QAQC Settings

Users can setup defaults to automatically insert QAQC samples as samples are being logged into the database using one of the drill log forms.



If you do not want to automatically insert QAQC samples in the log forms leave all these setting fields blank.

If you want to enter just a single QAQC sample after a specific number of samples have been entered for a drill hole enter that number in the **QAQC X Start Sample** field. If you want to then increment from that number of samples and insert a QAQC sample at a defined interval, then enter that interval number in the **QAQC X Interval** field. If you want the user to be prompted to select a QAQC ID or Standard ID from the *VT_Standards* lookup table in the database leave the **QAQC X Standard ID** field blank; if however you want a specific Standard ID, Blank, or Course Blank (anything in your *VT_Standards* lookup table) automatically inserted then select a value for the **QAQC X Standard ID** field. Various combinations of entering values in these setting fields or leaving them blank can set up many ways to auto-enter QAQC values as you log samples in a drill log form.

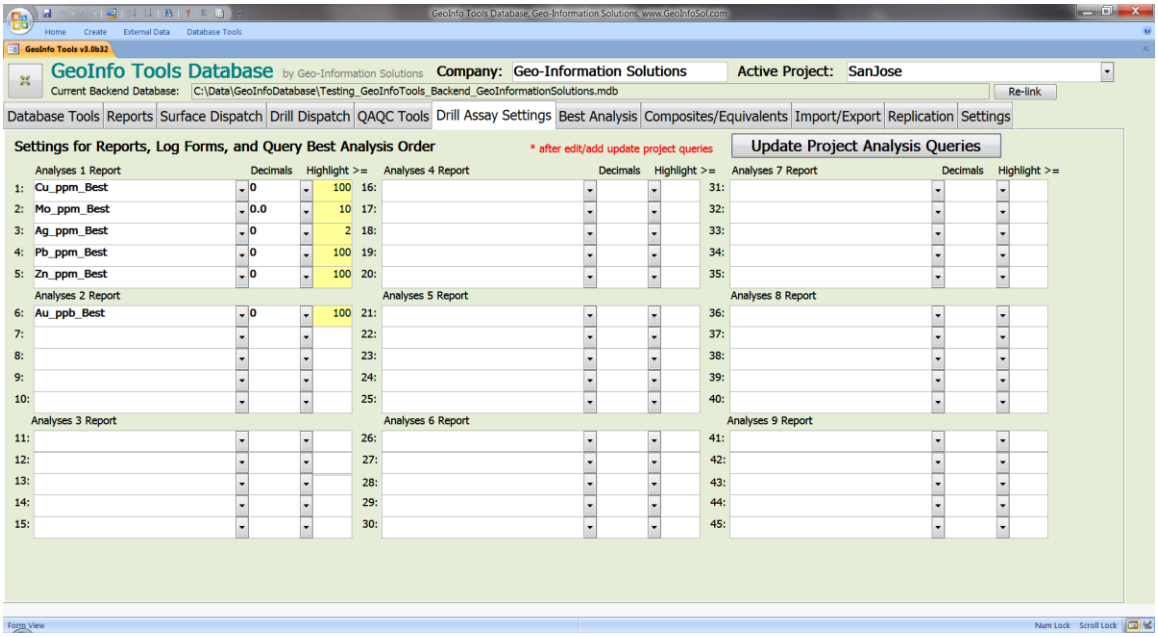
The example settings shown above will insert MEG-S105004X at 20, 100, 180, etc… MEG-S107005X at 40, 120, 200, etc …

The **Samples Per Shipment Batch** field sets the default number of samples that will be defaulted to a shipment batch in the Sample tab of the log form. This is generally used for grouping samples for shipping in larger rice bags. If a value is

selected for this default and the user enters a ShipBatch number in the log form the ShipBatch field will be populated/repeated automatically as samples are added for a hole until the default number of samples is reached and then the ShipBatch number will automatically incremented up one number.

Drill Assay Settings

Drill assay settings set the order, decimals, and highlighting that is displayed in reports and forms (including queries open via the form option). Anytime you edit these settings make sure to run the Update Project Analysis Queries tool. Note that the reports are based on 5 element groups which is the number of elements that will fit on one page of a report.

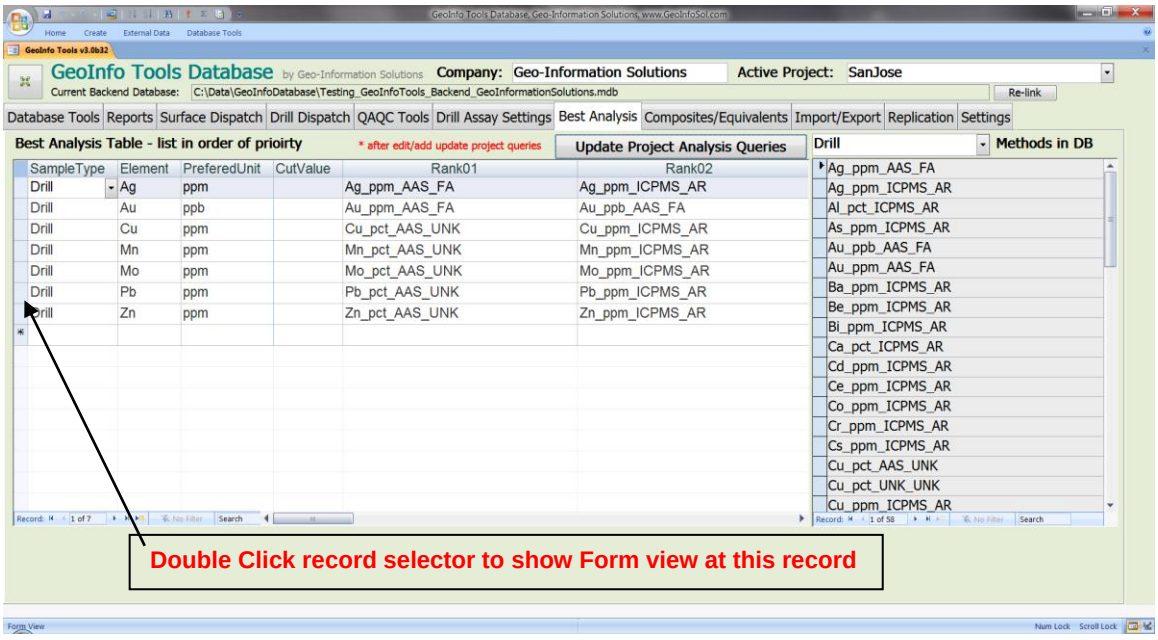


Best Analysis

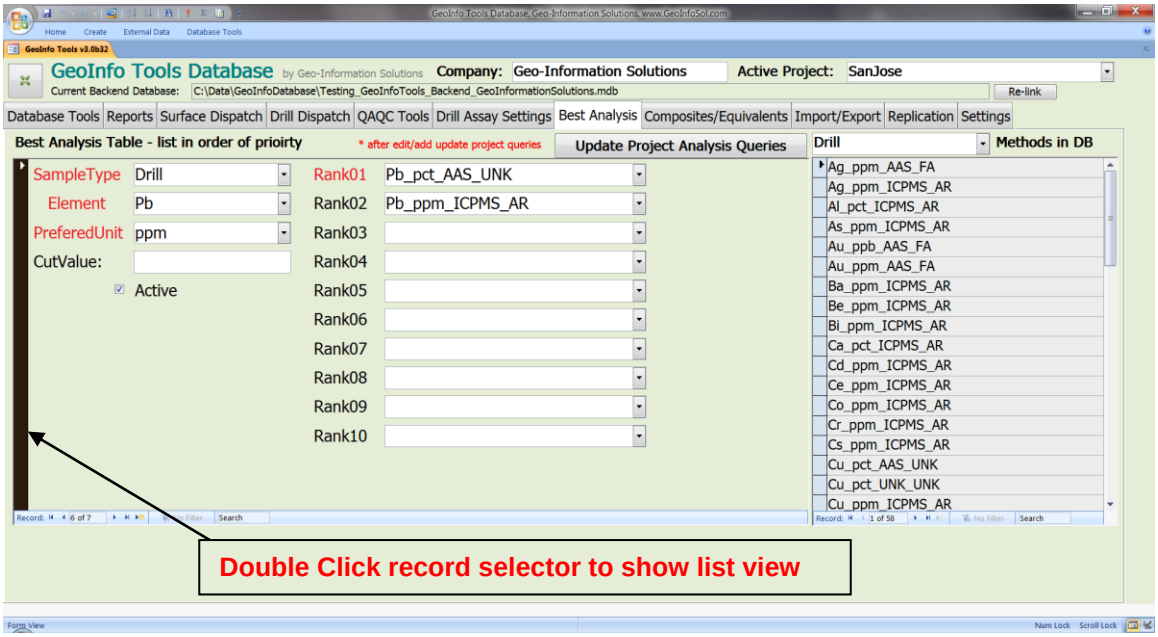
The best analysis tool creates a new analysis field/column for an element that contains the best available analyses for each sample. This is needed when you have elements that have been analyzed by different analysis and digestion methods because each method will create a new column in the database, thus you might have the same element spread out over 5 or more different columns.

If you are returned an over limit result it is common to then run a better analysis method to get a better estimate of the metal value. If you do run the over limits with a better method, you then have two values for the same sample and element, and the best analysis tool will make sure you get the proper result in a single best column for analysis. *For example*; Cu from ICP returned as >10,000 ppm is in the database as 10,000 ppm in a column named Cu_ppm_ICP_ GEO4ACID. If this over limit sample is then analyzed with AAS, which is commonly done, then a result like 1.56% will be in the database in column named Cu_pct_AAS_ ASYAR01. To get one field in your project queries with Cu AAS results where they exist and Cu ICP results where AAS values do not exist create a best analysis field for Cu with Cu_pct_AAS_ ASYAR01 ranked first (this is a better result) and Cu_ppm_ICP_ GEO4ACID ranked second.

When you set up the project best analyses with the various methods in the proper quality order you will be assured of using the best result for analysis. The best analysis tool computes unit conversion where needed. You also have an option to assign a **Cut Value** for elements. Best analyses are set for each surface geochemistry sample type and drill/trench samples independently.



The best analysis form has a form view and list view. Double click on the left grey record selector box or bar to change views. Form view is easier for editing settings; makes setting Best Analyses easier as all 10 rank fields can be viewed without scrolling, and list view is better for navigating and reviewing settings.



Anytime you edit Best Analysis settings you have to run the Update Project Analysis Queries tool. The queries are where the best analysis fields are created.

Anytime you add new analysis methods to your database you will want to edit your Best Analysis settings.

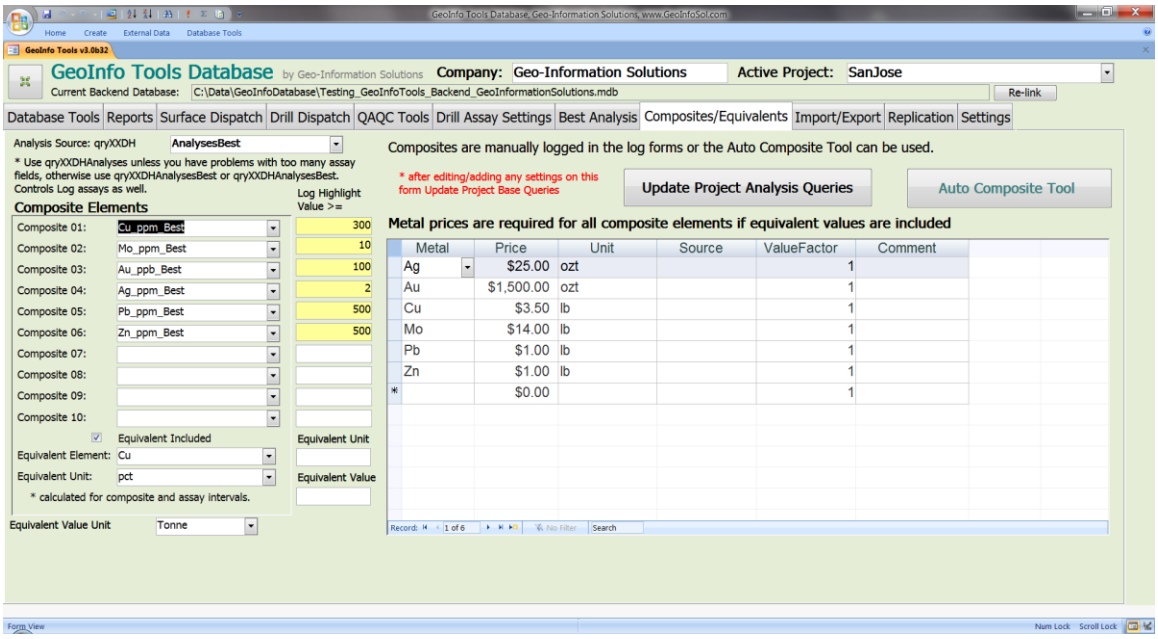
**Note: Make sure to run the Update Analysis Tables tool after new assay results are added to the database to make sure you are seeing all the available results.*

**Note: Query qryALLDH_AnalysisMethodsNotAssignedBestAnalyes shows drill analysis methods that have not been assigned to a best analysis. Check this list frequently to make sure all results in your database have been assigned to your best analysis settings.*

Composites / Equivalents – Drill Holes

Drill hole composite and equivalent settings allow logging of composite intervals manually in the drill log forms (the database automatically calculates composites and equivalents as you are logging the intervals; it's an interactive tool) or automatically using the Auto Composite Tool.

Composite / Equivalent Settings

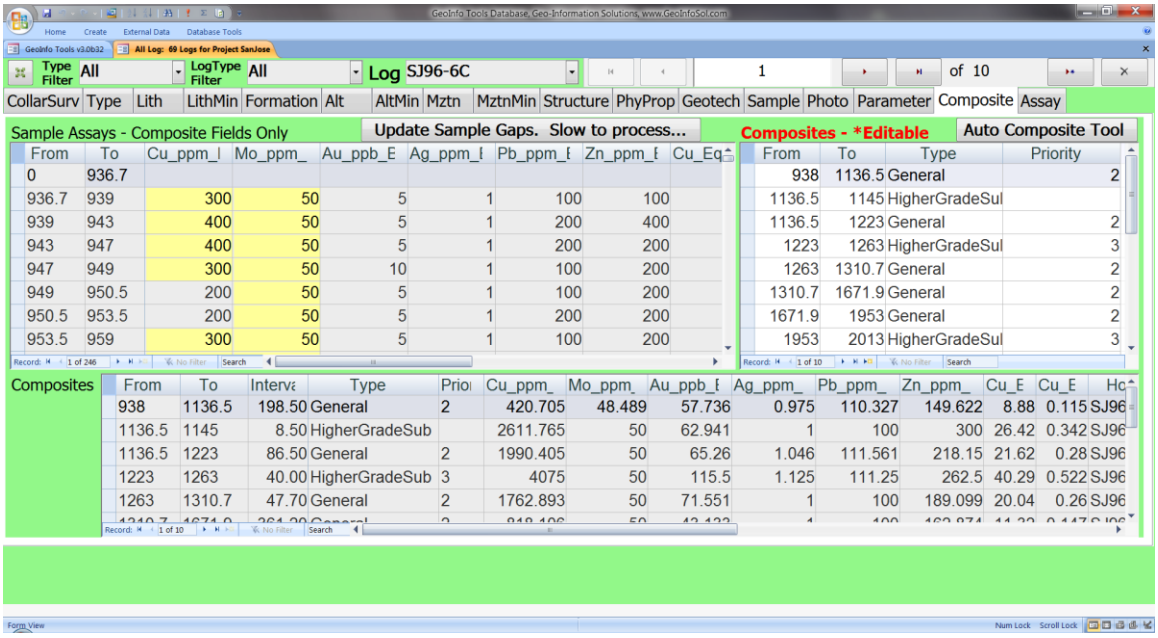


First you select the elements you want to use for composite calculations. Generally it is good to first create Best Analyses and use these fields for composites as all the data for single element is then in one column.

Check the **Equivalent Included** box to include equivalent values to your composite calculations. Select an element and unit to report equivalents in, and Tonne or Ton units. Enter a metal value for each element included in the composite list. Equivalents are reported in the selected element/unit total and as dollar value per Tonne/Ton. **Value Factor** in the Metal Price table allows you to set recoveries in the equivalent calculations; 1 equals 100%, 0.8 equals 80%.

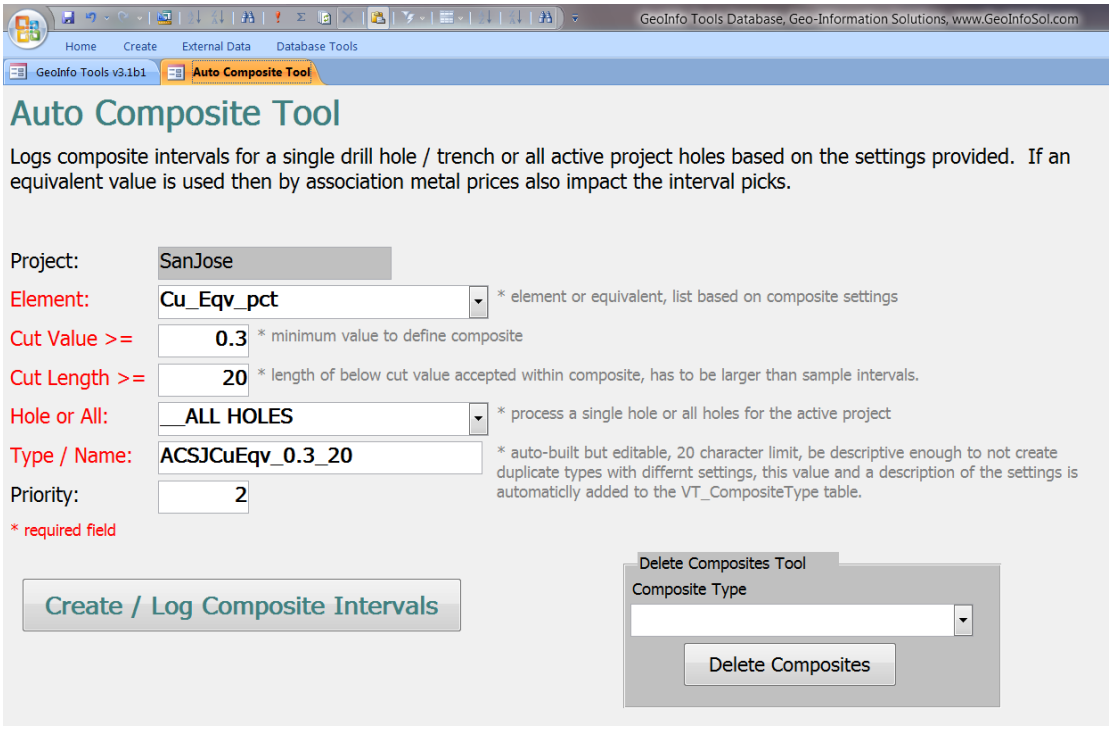
Logging Composites in Log Form

Logging composites is completed on the Composite tab of the Log View/Edit/Data entry form. The left table shows the elements you have set up for compositing and highlights values greater than the limit you set in the composite settings. The only editable table is the right Composites table. Here you enter a From - To interval and composite type, and optionally can enter a priority. Once the From - To interval is entered the composite and equivalent is automatically calculated in the bottom data view. This is an interactive tool and "what if" is easily explored.



Auto Composite Tool

The Auto Composite tool allows automatic logging/definition of composite intervals based on user specific criteria.



Element: select an element to composite on. The list is based on your composite settings.

Cut Value >=: minimum values to include in a composite interval. All values at or above this threshold will be logged as a composite.

Cut Length > =: along with Cut Value this defines the composite intervals. This value is the maximum length of below Cut Value threshold values accepted within a composite interval. Once the length of less than the Cut Value setting values is reached the composite interval will end. A new composite interval will be started if values later in the hole are above the Cut Value setting.

Hole or All: One or All holes can be processed

Type / Name: Composite type name is automatically created based on the settings selected to create the composites, however this value can be edited as needed. AC for Auto Composite, XXX is project code, Element, Cut Value, and Cut Length. Unique names are encouraged so users can quickly delete Auto Composite runs using the **Delete Composites Tool**, users can test several setting quickly before settling on one that works best.

Priority: An optional priory can be assigned to composite intervals, this is an integer value.

Click the **Create / Log Composite Intervals** button when your settings are complete, and composites will be created/logged for one or all holes of your project.

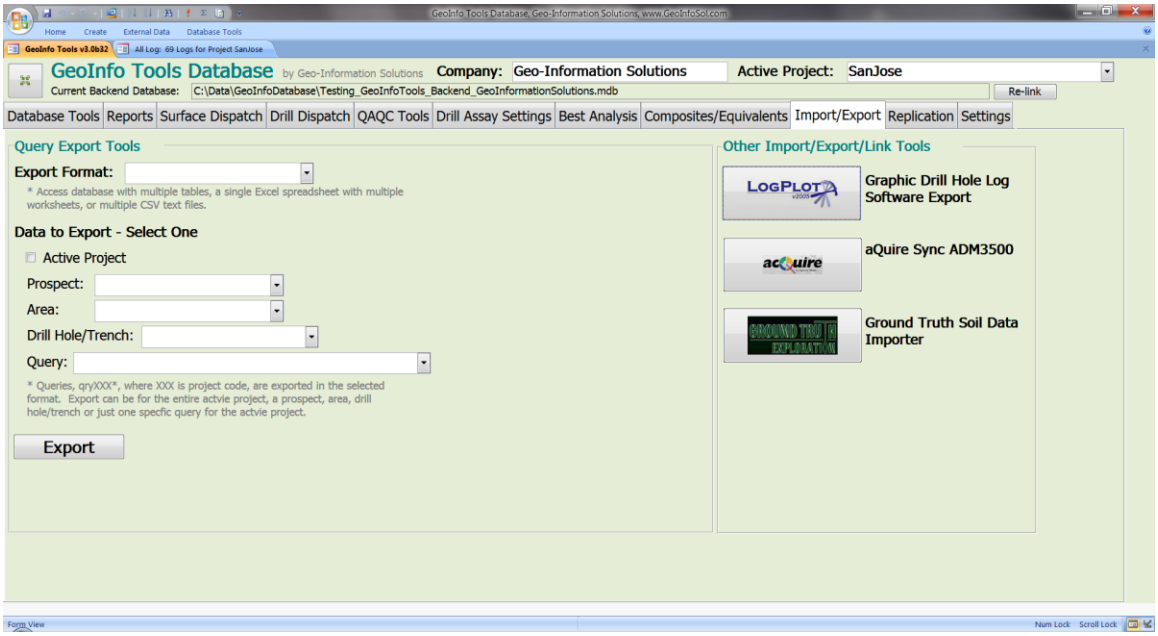
Equivalent Factors

- **"ppm" to "lb"** = 0.002204624, 1ppm = 1gm, 1 oz = 28.3495 gm, 1 lbs = 16 oz, 16oz*28.3495 gm = 453.592 gm, 1/453.592 = 0.002204624
- **“lb” to "ppm"** = 453.592
- **"ppm" To "oz"** = 0.03527399, 1ppm = 1gm, 1 oz = 28.3495 gm, 1/28.3495 = 0.03527399
- **"oz" To “ppm”** = 28.3495
- **"ppm" to "ozt"** = 0.032150746, 1ppm = 1gm, 1 ozt = 31.1034768 gm, 1/31.1034768 = 0.032150746
- **"ozt" To “ppm”** = 31.1034768
- **"ppm" To "ton”** = 0.000001102, 1ppm = 1 gm, 1 lbs = 453.592 gm, 1 ton = 2000 lbs = 2000 lbs * 453.592gm = 907184 gm, 1/907184 = 0.000001102
- **"ton" To “ppm”** = 907184
- **"ppm" To "tonne"** = 0.000001**,** 1 tonne = 2204.622 lb = 2204.622 * 453.592 = 999998.9022 gm really 1000000, 1/1000000 = 0.000001
- **"tonne" To “ppm”** = 1000000
- **“ppm” To “ppb”** /1000
- **“ppm” To “pct”** *10000
- **“ppm” To “opt”** *34.2857

Import Export Tools

Data can be exported from the database in Access database, Excel spreadsheet or CSV text file formats. Queries can be exported by Project, Prospect, Area, Drill Hole/Trench, or by individual Query.

An Access export creates a new database with a table for each query with data. An Excel export creates a spreadsheet with a worksheet for each query with data. A CSV export creates a folder with text files for each query with data.



**Note: Sometimes you receive errors related to specific queries (commonly Density and Geotech) where some values were not exported. This is due to division by zero errors in your data. This is a clue to find and fix errors.*

The Log Plot export tool will export a drill hole to text files for import into Rock Ware's Log Plot software for creating graphical logs. This tool creates a directory for the selected drill hole (in the current database directory) and then exports all the data for that hole into text files that are ready for import into Log Plot.

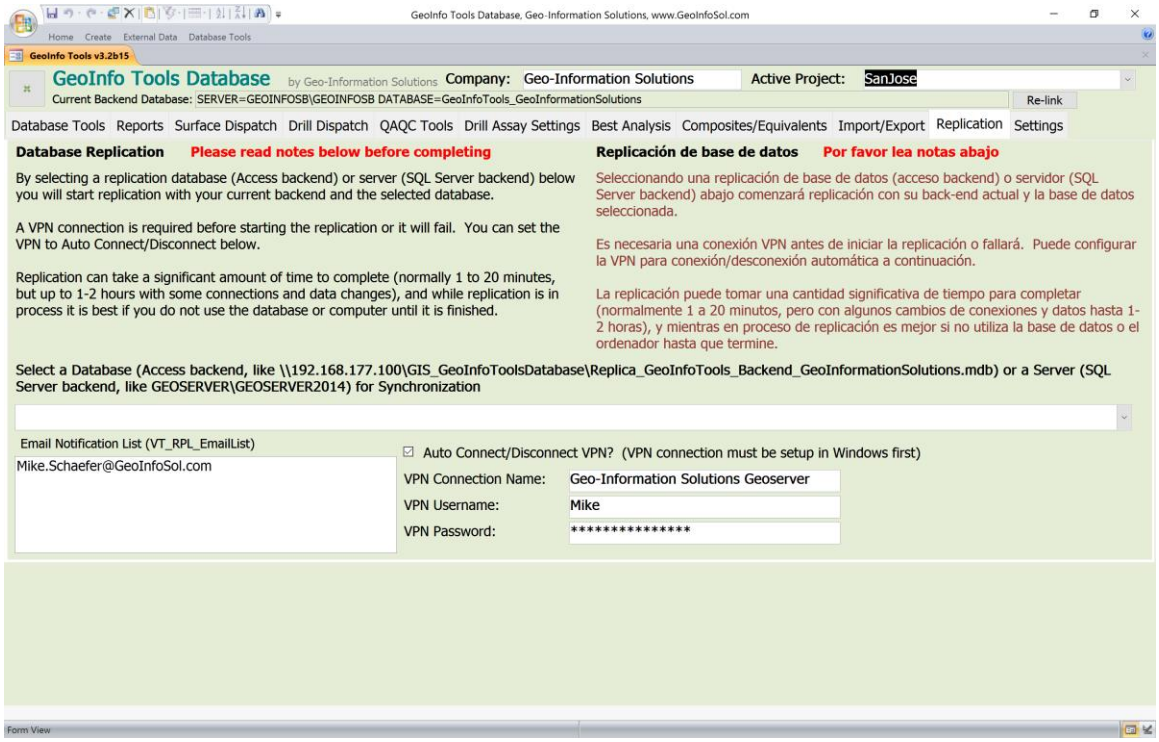
An acQuire database synchronization tool is only partially complete.

A Ground Truth Soil Data Importer is a custom importer designed for Ground Truth soil sample collection data.

Replication

The SQL Server backend version of GeoInfo Tools database can be setup for internet replication which allows multiple users to work on the database in a disconnected local environment and periodically synchronize their databases over the internet to share data with others. Database replication can synchronize a project site database with a corporate office database and vice-versa.

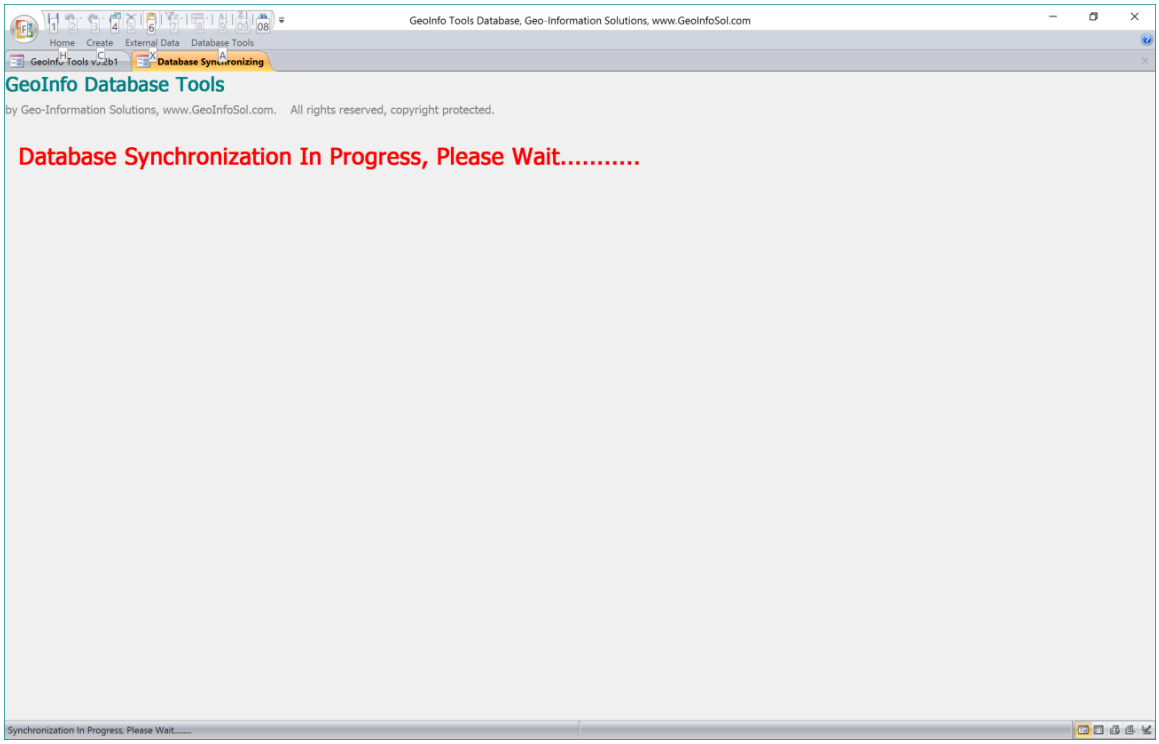
Replication requires specialized setup in the backend database. If a backend database is set up for replication, this tool is used to internet synchronize your local database to another database on an internet server.



A reasonable internet connection and a VPN connection to the host database server are required before starting the replication or it will fail.

You can check the Auto Connect/Disconnect VPN option and enter the VPN Connection Name (exact Windows name), Username and Password. The VPN connection needs to be setup in Windows before using this option.

Clicking on the pick list of available databases and selecting one from the list starts the synchronization. While running the following form is displayed;



Replication normally takes 2-5 minutes to complete, however it could take longer with some slow internet connections and large data changes. While replication is in process it is best if you do not use the database or computer.

Replication Email notifications are emailed to recipients in the *VT_RPL_EmailList validation* table. It is best to include all persons synchronizing to the email list so they are aware that someone has synchronized so they can then sync to get any new data.

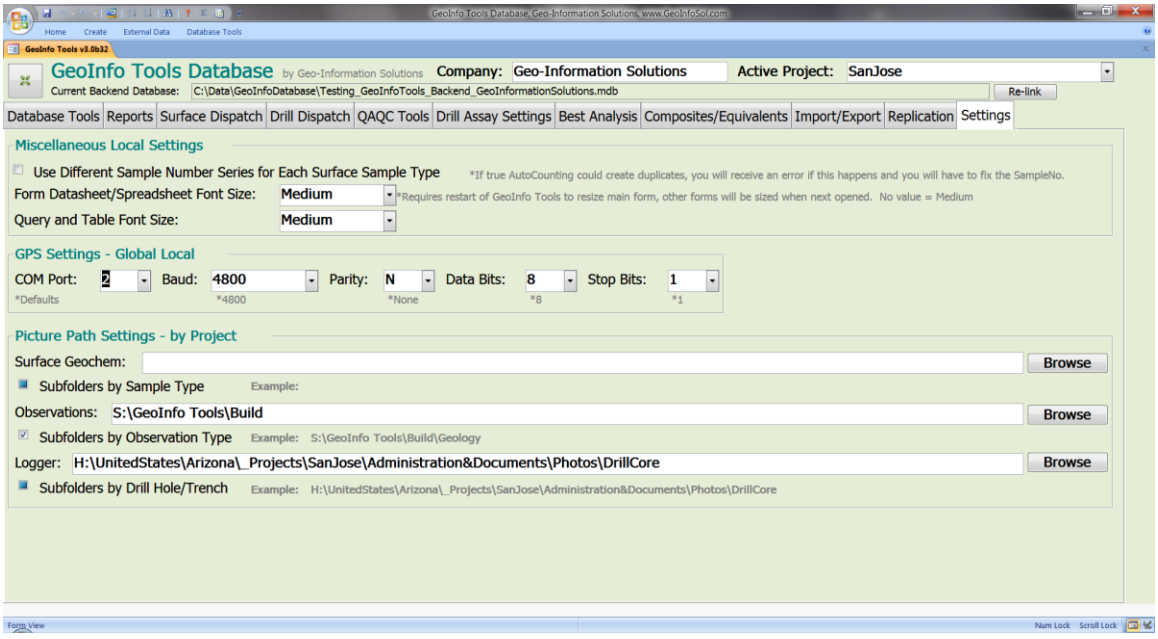
When the synchronization is complete and the Emails sent out, a synchronization complete message will be displayed. Click **OK**.

** Synchronizing can cause conflicts if two users edit the same data while disconnected so it is always best if you sync before you edit/add data (so you can get all available edits before you start) and just after you edit/add data (so others can get your edits before they edit/add data).*

Settings

GeoInfo Tools Settings are set on the Settings tab, including;

- Sample numbering - either same series for all sample types or different series for each sample type.
- Form Datasheet, Query and Table font size.
- GPS Settings.
- Picture Path Settings. This sets up hyperlinks in your queries to your photos.



Appendix A – ODBC Database Linking Setup

ODBC (**Open Database Connectivity**) is used to connect Simple GIS, ArcGIS, MapInfo, Log Plot, Excel, mine modeling software, statistical software and almost any other software directly to the GeoInfo Tools database queries. ODBC provides a direct link to the database, and it is preferred to use an ODBC connection rather than repeatedly exporting and importing data into other software for analysis and presentation.

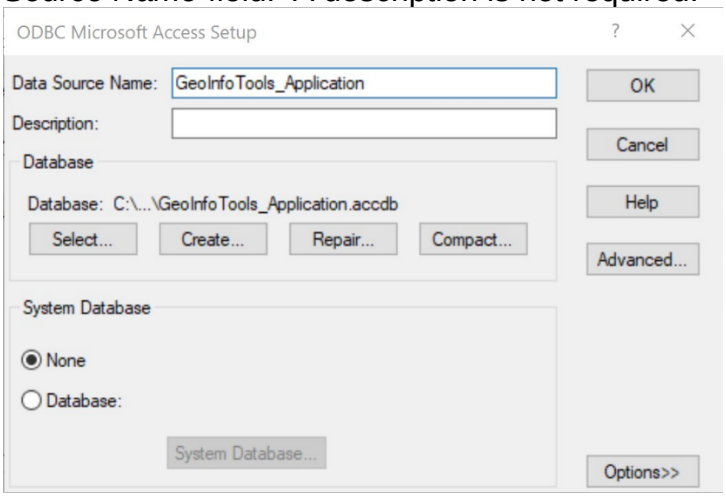
ODBC is a standard interface for accessing database management systems (DBMS). An application can use ODBC to query data from a database. ODBC uses an *ODBC driver* as a translation layer between the application and the database. The application uses ODBC functions through an *ODBC driver manager* with which it is linked, and the driver passes the query to the database.

To setup a Windows ODBC driver to the GeoInfo Tools Database;

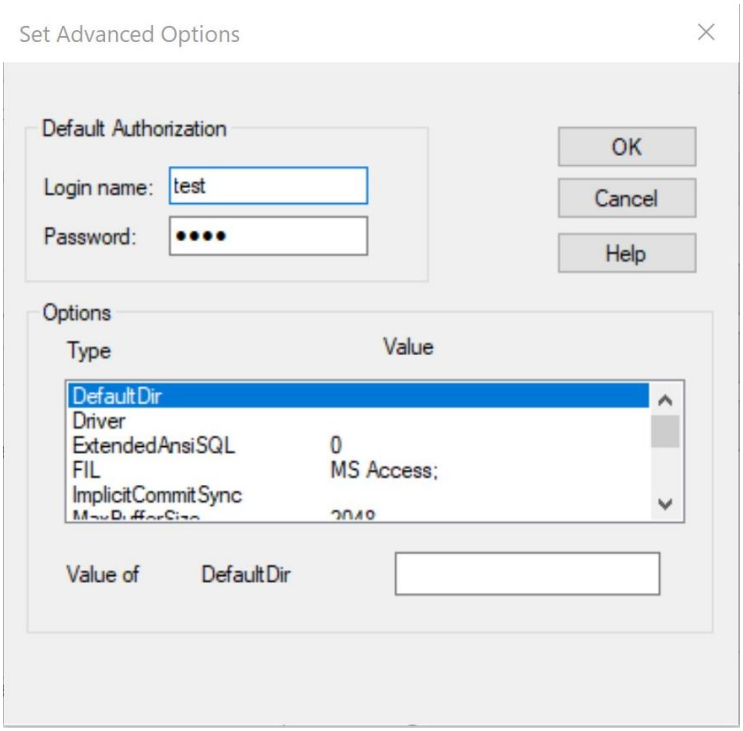
- **Windows 32 bit Operating System (uncommon)**;
    1. Click the Windows Start menu, Control Panel, Administrative Tools, and **Data Sources (ODBC)**.
    2. Select the **System DSN** tab, and then click **Add**.
    3. Locate the *Microsoft Access Driver (*.mdb, *accdb)* in the driver list and click **Finish**
    4. Type *GeoInfoTools_Application,* the exact name of the GeoInfo Tools front end database (without the extension), in the *Data Source Name* field. A description is not required.
    5. Click **Select** to locate the *GeoInfoTools_Application.accdb* front end database on your computer.
    6. Click **OK** to close the setup form and **OK** again to close the ODBC Data Source Administrator form.

- **Windows 64 bit Operating System (common)**;
    1. In Windows Search type **ODBC**, select **ODBC Data Sources (32-bit)**. In old pre-Windows 10 systems, In Windows File Explorer locate and open (double click) the *C:\Windows\SysWOW64\odbcad32.exe* file.
    2. Select the **System DSN** tab, and then click **Add**.
    3. Locate the *Microsoft Access Driver (*.mdb, *accdb)* in the driver list and click **Finish**

4. Type *GeoInfoTools_Application,* the exact name of the GeoInfo Tools front end database (without the extension), in the *Data Source Name* field. A description is not required.



5. Click **Select** to locate the *C:\GeoInfoTools\GeoInfoTools_Application.accdb* front end database on your computer.
6. Click **Advanced** and enter any value in the Default Authentication **Login Name** and **Password** fields. GeoInfo Tools does not require ODBC authentication, however entering any values for these makes sure users are not prompted to enter them every time a data link is created.



7. Click **OK** to close the setup form and **OK** again to close the ODBC Data Source Administrator form.

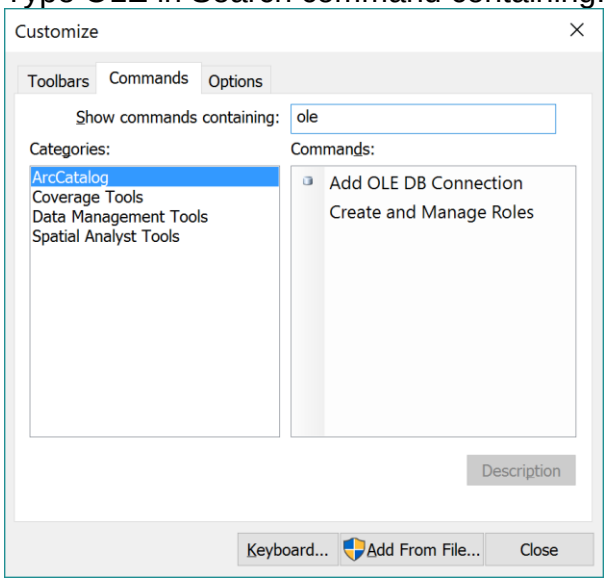
Appendix B – ArcGIS OLE DB Connection Setup

ArcGIS links directly to the GeoInfo Tools database using an OLE DB connection to an ODBC driver. After setting up an ODBC driver as described in Appendix A you can then setup an ArcGIS OLE DB connection.

1. Open ArcCatalog
2. In the ArcCatalog browser section on the left locate the *Database Connections* folder and expand it. Double click **Add OLE DB Connection** option.
3. In the *Provider* tab select *Microsoft OLE DB Provider for ODBC Drivers*, and then click **Next**.
4. In the *Connection* tab select the *GeoInfoTools_Application* ODBC driver from the *Use data source name* dropdown list.
5. Click **Test Connection** button and upon receiving the Test connection succeeded message click **OK**.
6. Click **OK** in the *Data Link Properties* form to finish setting up the OLE DB connection.

***NOTE**: ArcGIS no longer has the **Add OLE DB Connection** option exposed in the menu of ArcCatalog. To expose this tool;

- Customize – Toolbars – Customize – Commands Tab.
- Type OLE in Search command containing:



- Grab, drag and drop the Add OLE DB Connection icon to one of the tool bars.
- Click this new menu tool icon to Add OLE DB Connection.

Appendix C – ArcGIS Make Query Table Tool

There is a limitation in ArcGIS when linking to database tables by just opening them directly from the database ODBC driver… selections do not work. The reason for the selection limitation in ArcGIS with linked database tables is the database tables do not have OID or Object-ID fields which are required for some advanced features of ArcGIS, like selections.

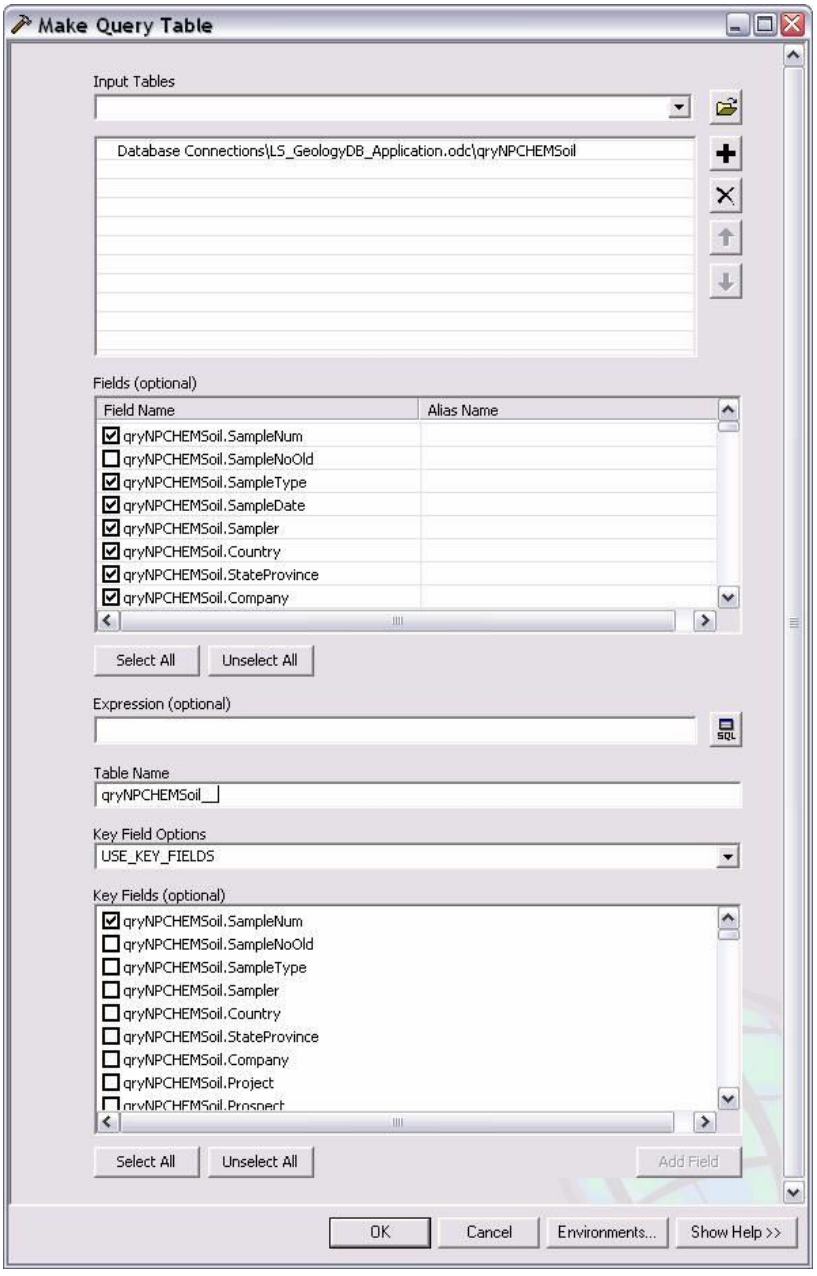
If you link to the database using the Make Query Table tool, in ArcToolbox, you have the option to create an Object-ID field so you can have full functionality in ArcGIS with linked database tables.

Below are instructions for opening GeoInfo Tools database queries using the ArcGIS Make Query Table tool;

- Open **ArcToolbox** in ArcMap
- Double click the **Make Query Table** tool to open the dialog box. The tool is located in *Data Management Tools\Layers and Table Views*.
- In the **Input Tables** field click the Open File Icon. Navigate to Database Connections then select your database OLE DB connection. Then find the database query that you want to open.
- In the fields list **Select All** or just the fields your want. See the bug note below for pre v9.3 AcrGIS.
- An **Expression** is an option; this will give you a subset of the database data. Generally we leave this blank and use a Definition Query in ArcGIS instead.
- Type the same name as the database query in the **Table Name** field; this lets you know the data is from the database. When we see qry* in any layer name we know it is a linked table to a database. ArcGIS does not let you use the same exact name as the input database query name so add an underscore to the name. If you use an expression to limit records then describe that filter after the underscore. For example *qryNPCHEMSoil_* for all the soil data or *qryNPCHEMSoil_MSchaefer* for soils collected by MSchaefer.
- The **Key Fields Options** field is where we define an Object-ID field for the database query. Select USE_KEY_FIELDS (or Virtual if you do not know the unique primary key for the data).
- In **Key Fields** check the *SampleNum, ObservID, HoleID* field or any field or combination of fields that define the primary key for a table (a unique value for each record).
- Click **OK** to run.
- This step is not required in all ArcGIS versions and the query might be automatically loaded; Once run go the Results tab of ArcToolbox, find your Make Table Query session and expand the list. Find the query you just loaded and right click and select Add To Display. Close ArcToolbox.

- Now the table is loaded in the Sources tab of ArcMap. Right click on the newly added table and click **Display XY Data**. Select the correct X and Y coordinate fields and projection and create the mapped points.
- **Set your symbology and then save a layer file of your final mapped query so you do not have to recreate these steps every time you want to map this data.**

**BUG in ArcGIS v9.2 (fixed in 9.3 and beyond). If you select all the fields to display and run the tool, a bug causes each field to be duplicated. The work around is to select all the fields and then unselect just one field, doing this gets rid of the duplication bug issue in ArcGIS.*



Appendix D – Plotting Log Intervals in ArcGIS

There are two tools to get your trench data (or projected to surface drill holes) to display in ArcGIS;

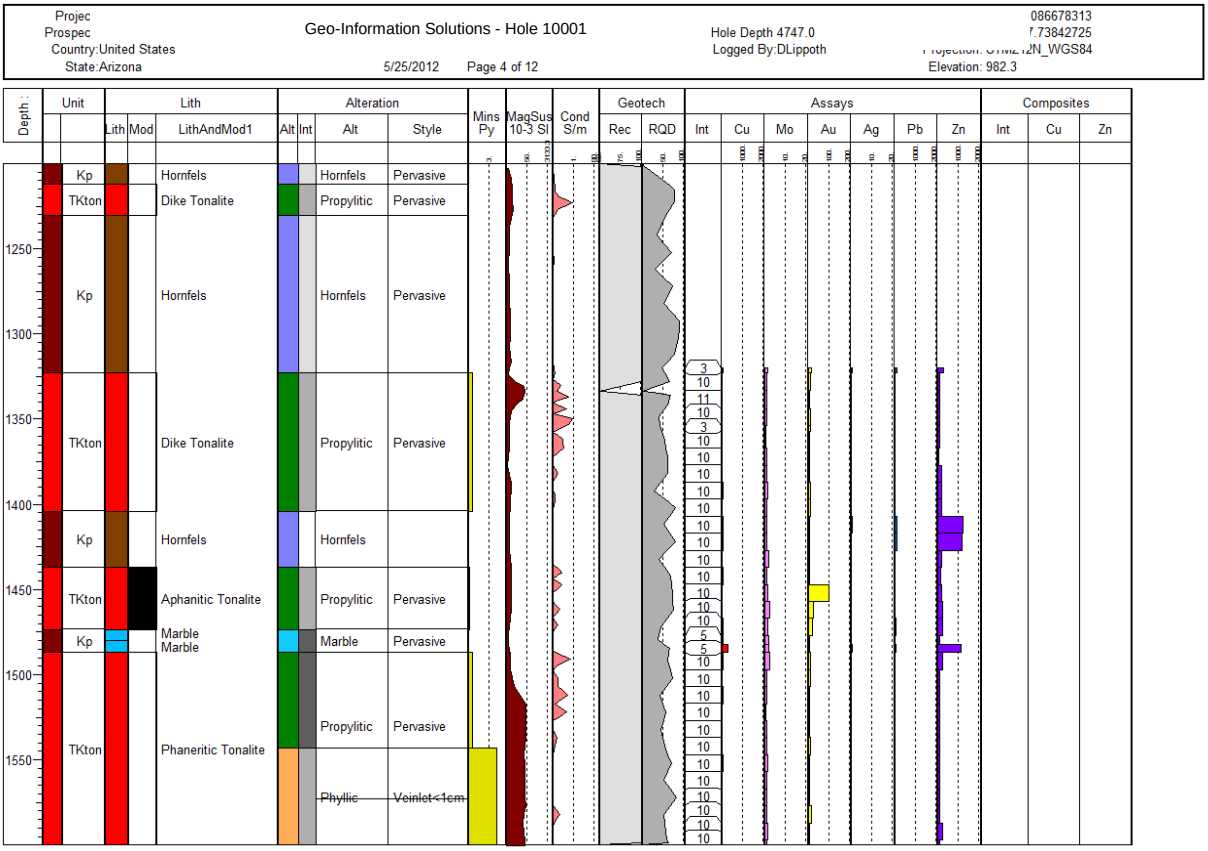
1. Run the GeoInfo Tools Create Hole / Trench 3D Coordinates tool to create 3D coordinates for all your logged interval data.
2. An Arc Toolbox tool (download here), *GeoInfo Tools ArcGISv10.tbx* (ArcGIS v9.2 and v9.3 tools are also available), reads GeoInfo Tools database drill hole queries with 3D Coordinate pairs, X_From, Y_From, Z_From, X_To, Y_To, Z_To and creates a polyline Shapefile with attributes for analysis and display. You can then use this Shapefile to color a trench or projected to surface a drill hole trace based on any of the database attribute values like , Au, Cu, lithology, alteration, recovery, structure, minerals, etc…
    a. To load the tool. Open ArcGIS, then ArcToolbox, right click on the top icon in the toolbox name ArcToolbox, click Add Toolbox, and select the toolbox (*GeoInfo Tools ArcGISvXX.tbx*) that matches the version of ArcGIS you are using.
    b. To run the tool. Expand the GeoInfo Tools Toolbox in the ArcToolbox tree. Double Click on the *Create Line Segments from qryXXXDH* Queries* tool to open the tool. Enter the 5 required fields to run the tool;
        i. Database query. Click the select file icon to the right and navigate to your Database Connection for GeoInfo Tools. Select the qryXXXDH* query you want to use to create a polyline Shapefile.
        ii. Output Shapefile. Click the select file icon to the right and navigate to the location where you want to save the Shapefile and give it a name, preferably, *qryXXXDHXXXXXX_LineTrace* or *Polylines*, but keep the *qryXXXDHXXXXXX* prefix so you know that this data comes from the database.
        iii. Unique ID field. Select either ID or SampleNo depending on the query you are working with. Note you can NOT use SampleNumber as ArcGIS crops field names to 8 characters in the process and the join back to the original attributes will fail.
        iv. Spatial Reference. Select the projection and datum from the ArcGIS list.
        v. Temp Shapefile. This is a temporary Shapefile needed in the process, it will be automatically deleted if the process completes without error.

Appendix E – Core View Graphic Log Software

Core View is a free software that creates graphic logs from GeoInfo Tools drill hole queries, http://www.visidata.com.au/HTML/CoreView.html . Core View links to GeoInfo Tools directly through an ODBC driver (the same one setup for ArcGIS or other software).

In Core View you link to GeoInfo Tools queries and then create graphic log templates based on the data in these queries. You can create any number of different graphic logs. Once a log is created any number of holes can be viewed graphically. These logs can then be printed or printed to a PDF.

Core View is a little buggy but once you get a log built and understand its quirks, it creates some great looking graphic logs!



Appendix F – MapInfo Database Linking

Read the MapInfo User Manual to understand the MapInfo DBMS tool principles. A brief explanation follows;

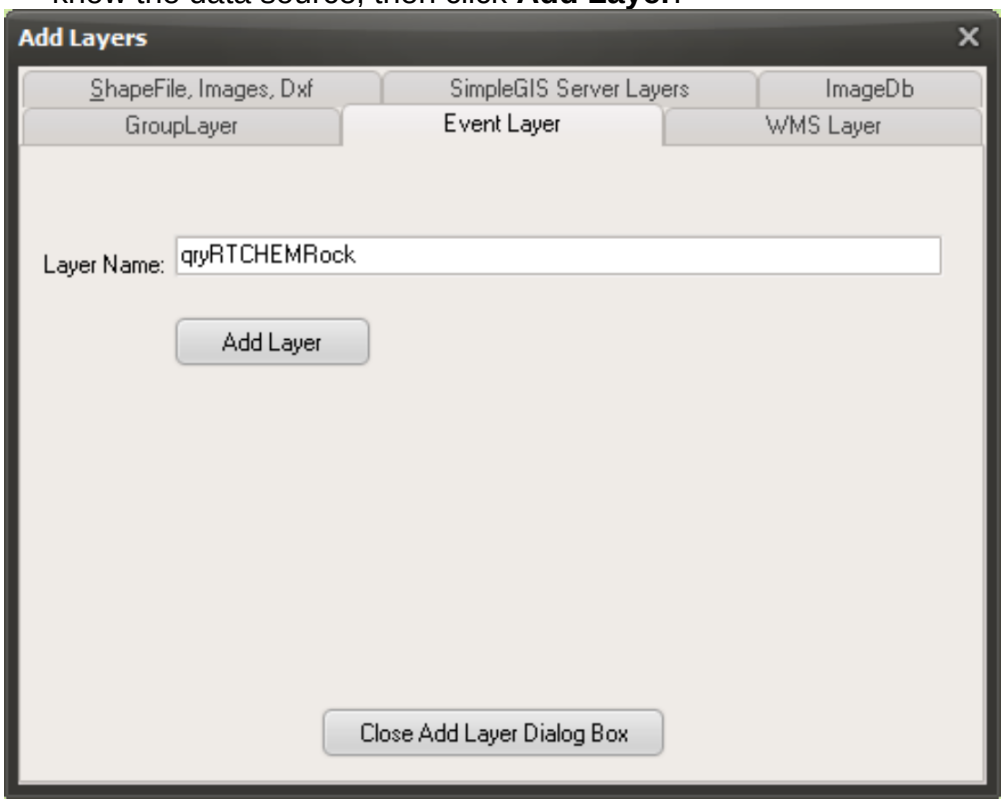
1. MapInfo needs to manage mappable tables in a specific look up table format in the database, called the MapInfo Catalog, GeoInfo Tools already has this table ready for MapInfo.
2. The first thing you do is connect to the database, File-Open DBMS Connection. Connect to an ODBC driver (set up explained in Appendix A)
3. Make the MapInfo DBMS Toolbar visible.
4. The 4th icon on the DBMS Toolbar is **Make DBMS Table Mappable**. You do this only once for each query in the database that you want to map. This writes a record in the MapInfo Catalog in the GeoInfo Tools Database. Once the record is written in the MapInfo Catalog it will not show up in the list anymore since it need be completed only once. When making a query/table mappable use the following settings;
    a. Index Type = XY Coordinates
    b. X Coordinate = Long_Dec or Easting
    c. Y Coordinate = Lat_Dec or Northing
    d. Uncheck Per Row Style
    e. Select a symbol and color
    f. Set the projection!
    g. Some versions of MapInfo return an error at the end “Unable to download only the OBJECT from an DBMS table ……” then another error “The table you have chosen cannot be made mappable …..” but the table is still made mappable and you can ignore it.
5. You can now open the query that has been made mappable. File-Open and change Files of Type from *MapInfo (*.tab)* to the name of your ODBC database driver *GeoInfo Tools Application*. Select the query that you have made mappable and you should now see your data loaded in a map window as objects. If you open a query that has not been made mappable you will see the table open rather than map objects. Use the default Downloaded Data option as MapInfo is slow using Live Access. You can use Column and Row filters as desired but if you do a Column filter make sure to select the OBJECT at the bottom of the list or you will only get a table.
6. Since we link via Downloaded Data you need to use the **Refresh DBMS Table** tool to automatically re-query the database if new data is available.
7. The **Unlink DBMS Table** tool breaks the link from the Downloaded Data to the database and thus you are then left with the equivalent of a normal Tab file and no way to re-query the database for new data. We don’t do this often.

Appendix G – Simple GIS Open Database Event Layer

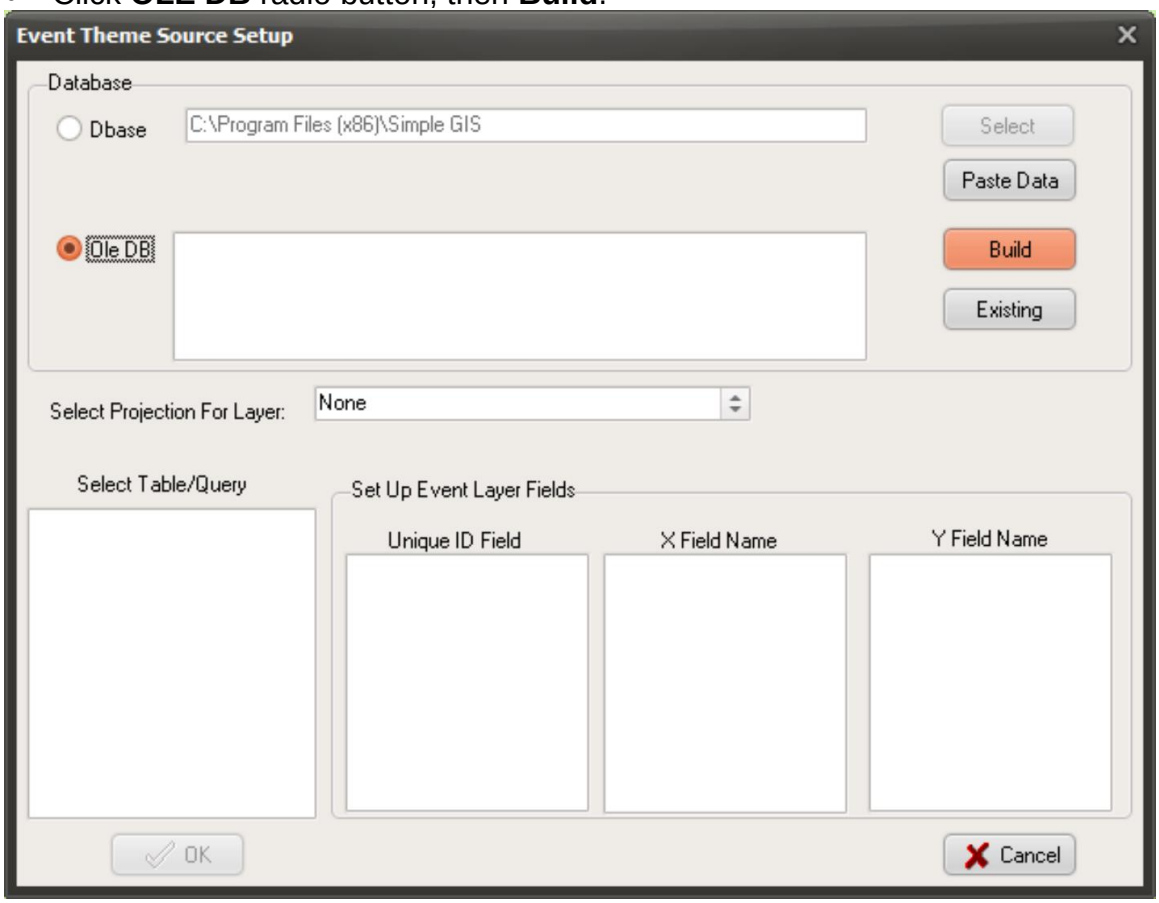
Simple GIS is a good GIS software that works well with GeoInfo Tools, https://www.simplegissoftware.com/home.html. Simple GIS also provides great GIS\GPS functionality on tablets for field work.

An ODBC data source, as specified in Appendix A, is required to open GeoInfo Tools queries as Event layers in Simple GIS.

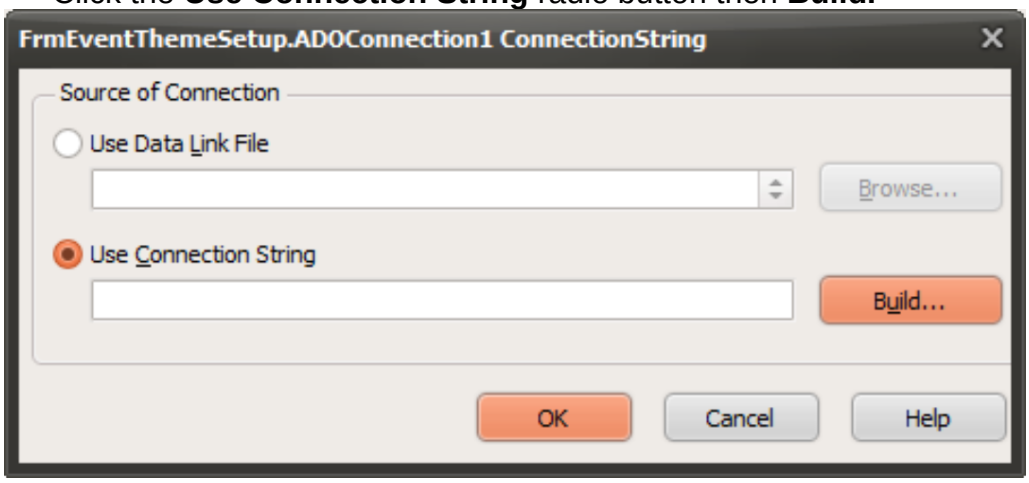
- Click the **Add Data to View** icon, then the **Event Layer** tab. Enter a name, I suggest using the same name as the GeoInfo Tools query so it's easy to know the data source, then click **Add Layer**.



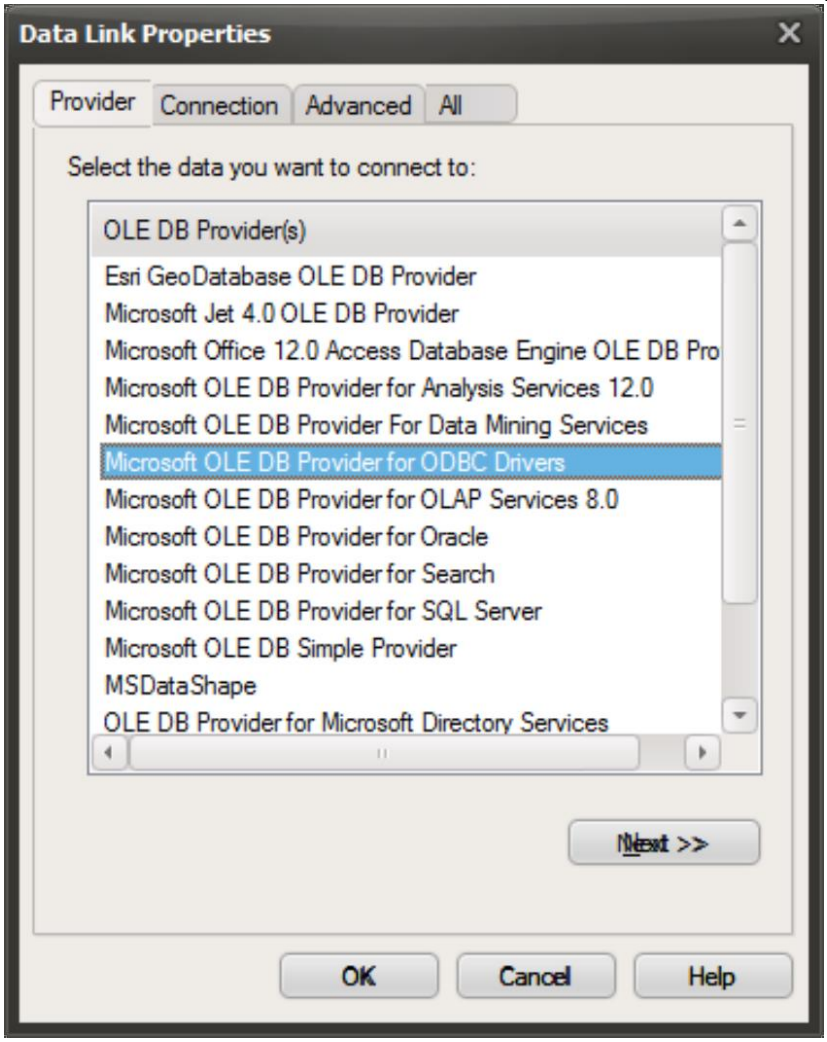
- Click **OLE DB** radio button, then **Build**.



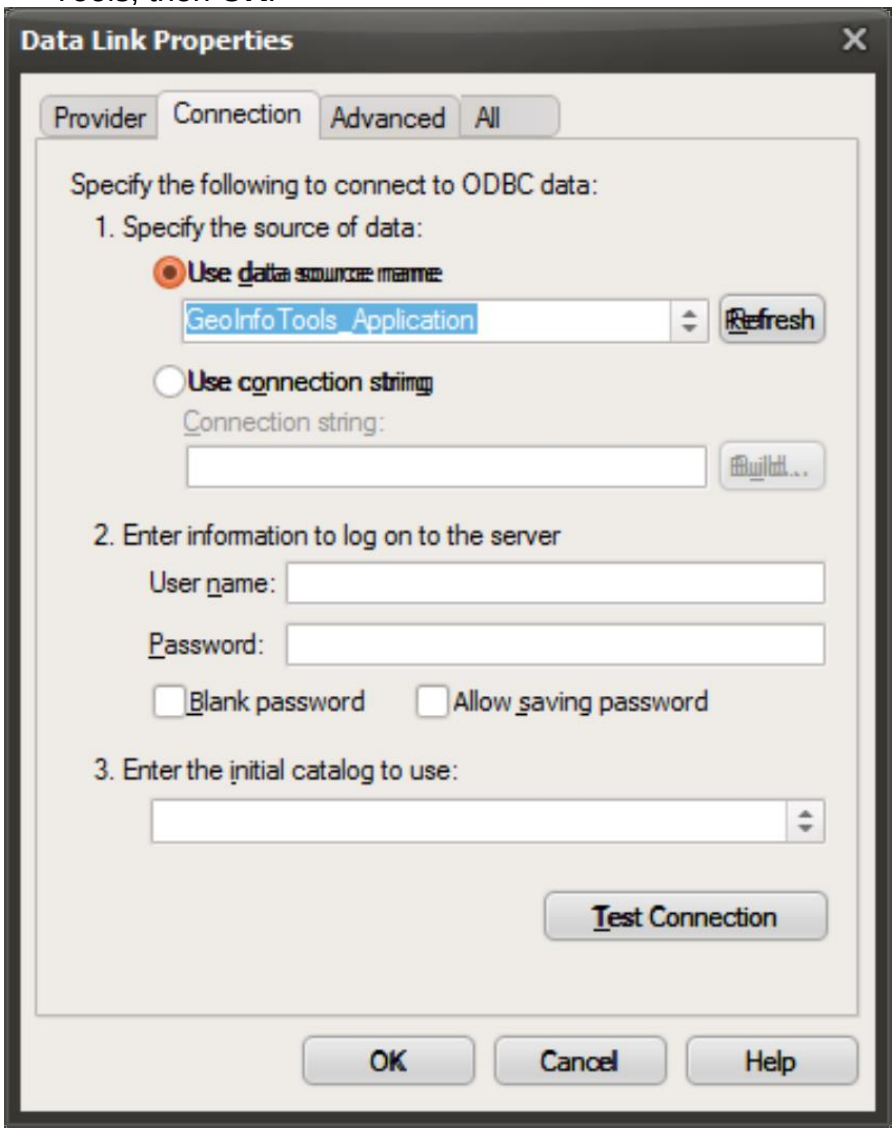
- Click the **Use Connection String** radio button then **Build.**



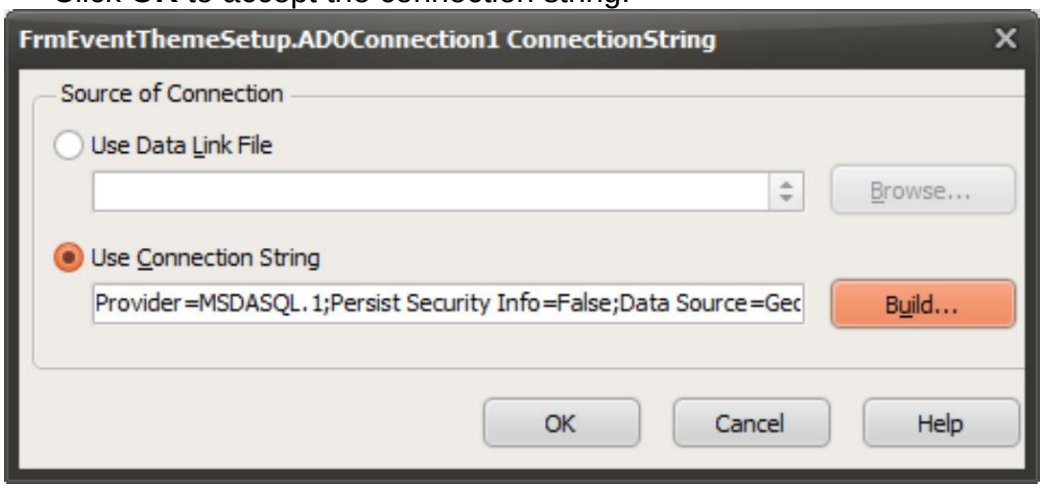
- Select Microsoft **OLE DB Provider for ODBC Drivers**, then **Next**.



- Select **Use data source name** as the ODBC data source set up for GeoInfo Tools, then **OK**.



- Click **OK** to accept the connection string.



- Select WGS84 as the Projection, the query you want to open, SampleNum as the Unique ID field (ObservationID for observations and HoleID for drill hole collars), Long_Dec as the X field, and Lat_Dec as the Y field; then click **OK**.