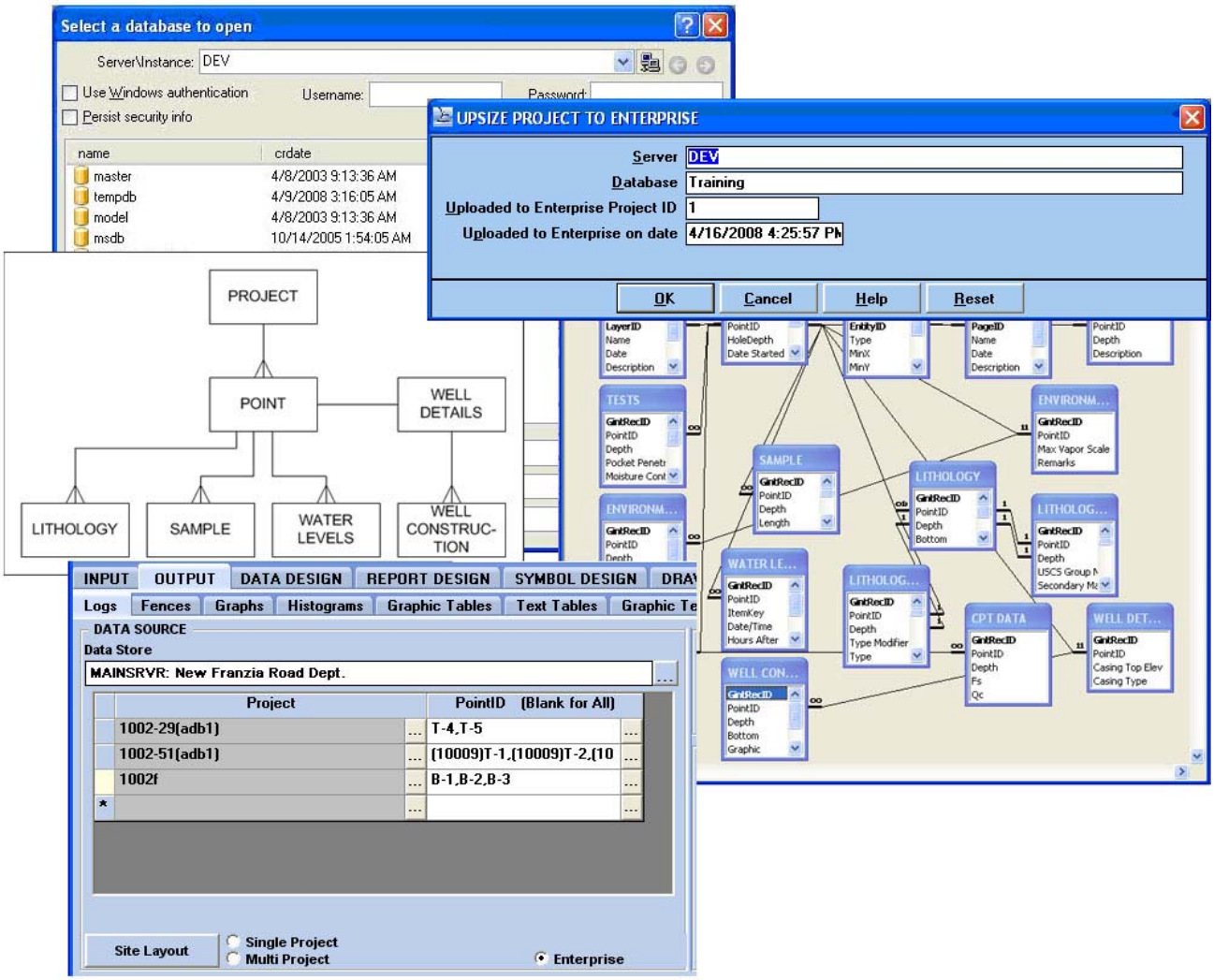
gINT® software

gINT User Guide

Microsoft Excel Options in gINT



Printed November 6, 2008

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Table of Contents

gINT and Microsoft Excel®

gINT is feature-rich and sophisticated enough to handle virtually any task. This reduces the need to use an external program. However, no one program can handle all your needs and certain tasks are best handled with different software. Therefore, we have designed gINT to be compatible with many industry-standard applications.

To this goal, we have incorporated a multitude of methods into the program for interfacing easily with Microsoft Excel. These links strengthen the individual capabilities of both programs and enable users to work in the most efficient environment to meet the specific needs of each project.

gINT is packed with ways in which you can work with Excel data. gINT and Excel should not be seen as mutually exclusive programs but rather as complementary data handling software.

Overview of Links with Excel

gINT provides the user with many options for working with data in Excel. Whether it is bringing data in, or exporting it out, there is a feature in gINT that will complete the task for you. Some processes are more complex, such as writing a gINT Rule, or building a detailed query.

Others require only a drag of the mouse and the click of a button, like the new feature in gINT Version 8 that allows you to select grid data and copy and paste it directly into an Excel spreadsheet. It doesn't get any easier than that!

- **INPUT Import/Export Options** - Your entire gINT project, or selected tables and boreholes can be directly exported to, and imported from, Excel.
- **Text Tables** – Text Tables can be configured in gINT to create customized tabular output of any data, including calculations or manipulations of that data, for export to Excel. Text Tables narrow down the scope of the export to include just the required data for a particular application. These reports, like all others in gINT, are created once and used on any project.
- **Queries** – You can use Structured Query Language (SQL) expressions to extract specific data for export to Excel.
- **gINT Rules Code** – One of the more advanced features of the program, gINT Rules, can be used to read or write directly from Excel or execute a command which uses the native gINT facilities to import or export data from and to Excel.
- **Copying/Pasting from Grids** – This is the quick and easy way to move data between gINT and Excel. Just highlight the data in a grid and copy/paste it into Excel, or visa versa.
- **The List Feature** – All List dialog boxes in gINT contain an **Export** button that allows you to instantly export the displayed data to an Excel spreadsheet.
- **Library Data Import/Export Options** – Non-project specific Library Data offers import/export options for Excel, and because it is a grid-style screen, you can move data between the applications with little or no formatting changes.
- **AGS Export Option** – gINT contains an **Edit AGS File in Excel** option in INPUT to enable AGS files to be modified and the file recompiled from the spreadsheet.
- **DATA DESIGN Import/Export Options** – You can export project database information from DATA DESIGN to Excel using the **File ▶ Export to Excel File** menu option.

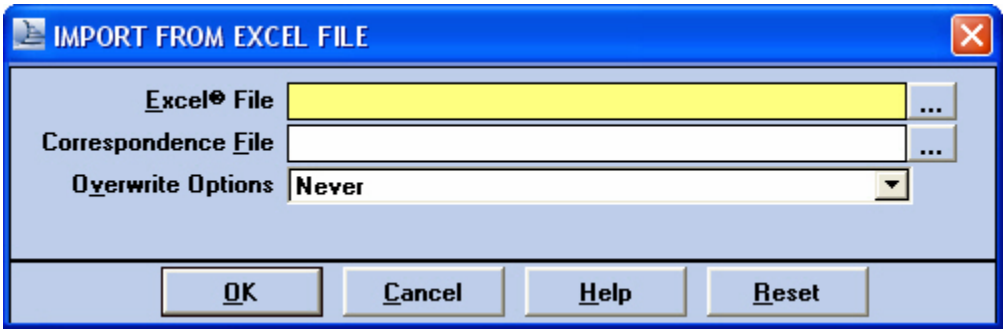
Exploring gINT's Excel-Related Features

Let's take a closer look at how gINT can interface with Excel. The following sections describe each of the Excel import/export features available in gINT, and provide an example using applicable sample data.

INPUT Application Import/Export Options

The INPUT application group contains import/export options for moving and manipulating data between gINT and Excel. Use the **File ▶ Import/Export ▶ Import from Excel File** menu option to import data from Excel into a gINT project database (.GPJ file).

When you select the menu command, the Import from Excel File dialog box is displayed:



The dialog box contains the following import options:

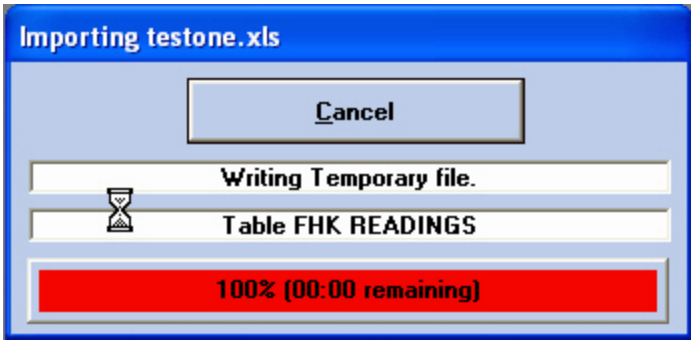
- **Excel File:** Enter the file name that you are importing the data from or click the browse ... button to navigate to the file location.
- **Correspondence File:** A correspondence file informs the program of the relationships between the tables and fields in the source file and the tables and fields in the target file. When importing from Excel, you can use this type of import structure to supply non-default values in the source data and to provide default values where the source field is empty. Or you can have a correspondence file write a default value into a field. Correspondence files are also a good tool for converting the structure of an existing Excel database to a gINT database.
- **Overwrite Options:** This field controls how the program handles data in both the current database and the external file you are importing.

You would select:

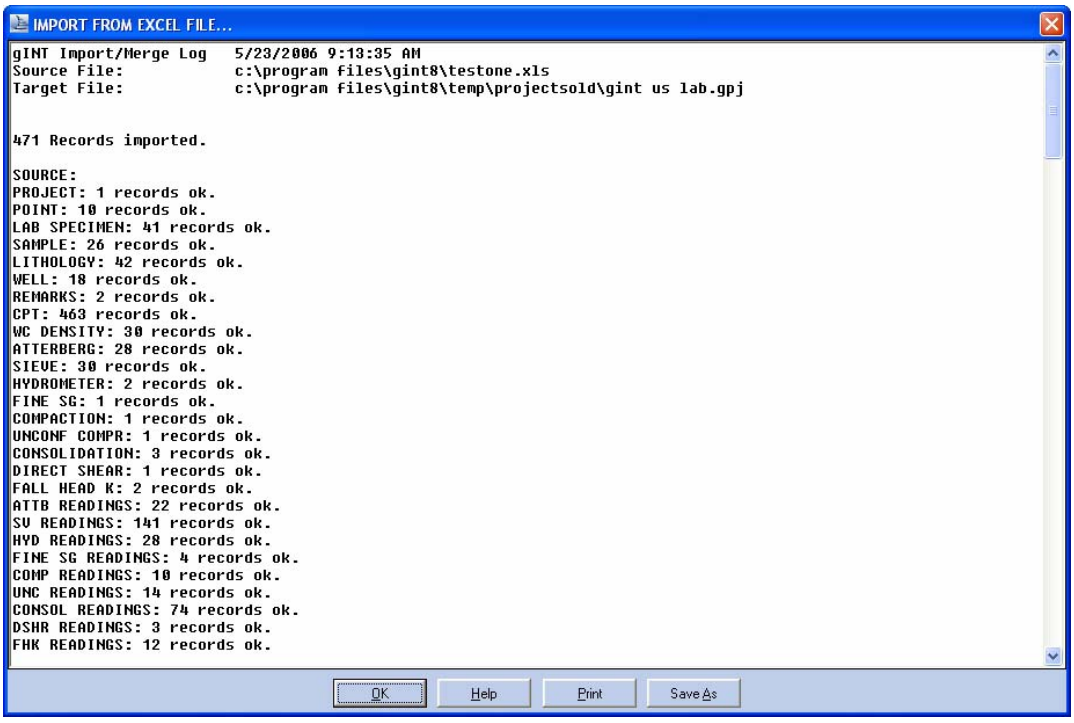
- **Never** - To add records whose keys fields do not exist in the current gINT database. Existing records are not modified. Any overwrite option you select will apply this behavior to new records.
- **Empty Fields** – To write data from the source file only if the corresponding field in the target file is empty.

- **Named fields** – To write data from a field named in the source file wherever a matching field exists in the target, overwriting the contents of the target field. If a field is empty in the source file, the program will overwrite any contents in the target field and leave it blank.
- **Records** – To erase each target record matched by a source record (same key) and write the data from the source file. Any records in the target file that do not have corresponding records in the source file are not affected by the import.
- **Data sets** – To replace entire sets of data. The resulting gINT data set will contain only data from the source file. A "Data Set" is defined by the key set of the parent table. For example, in a table with the PointID,Depth key set, a Data Set is all records with a particular PointID value.

When you are ready to import the data, click **OK**. You briefly see a screen displaying the import progress:

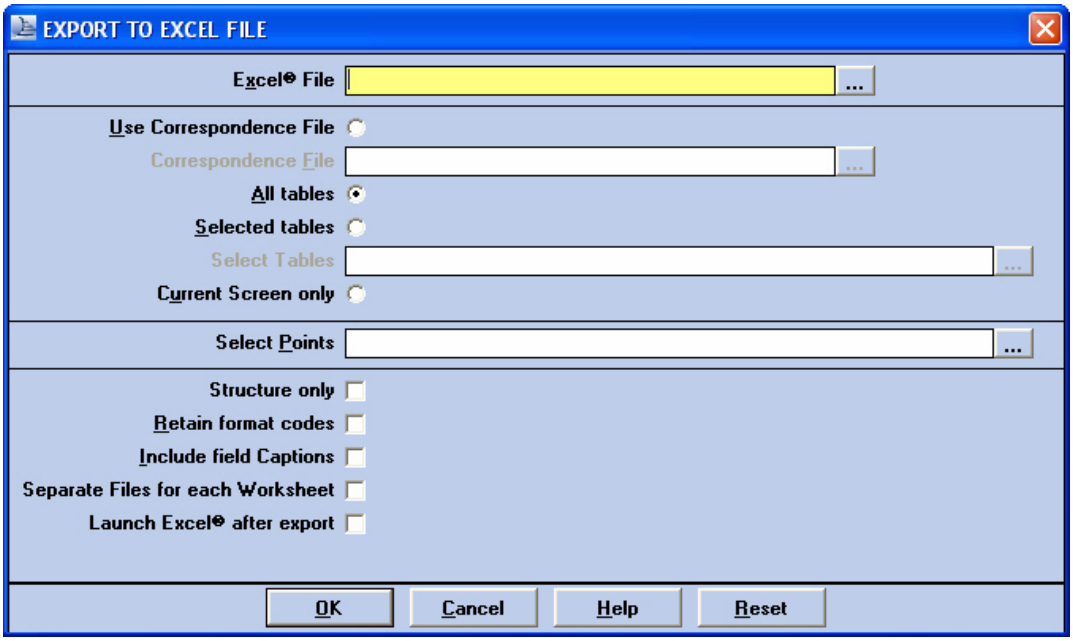


When the import process is complete, gINT displays the import log file detailing the status of the imported data:



Click **OK** to close the dialog box, **Print** to print the information on the screen, or **Save As** to save the file as a text file.

The **File ▶ Import/Export ▶ Export to Excel File** menu option displays the Export from Excel File dialog box:



The Export to Excel dialog box has many useful options that can assist you in manipulating your data into the desired format for exporting to Excel.

You would select:

- **Excel File:** To enter the name and location of the final Excel output file.
- **Use Correspondence File:** To enable the **Correspondence File** field, where you can specify the name and path of the Correspondence File to use. See the **Correspondence File** field description of the Import to Excel dialog box properties, above.
- **All Tables:** This option to export all the tables in the currently project file.
- **Selected Tables:** This option to export selected project database tables. When you click this field, the **Select Tables** option becomes available for you to select the tables to export.
- **Current Screen Only:** To export only the data from the currently displayed table.
- **Select Points:** To supply the list of PointIDs to be exported. If left blank, all PointIDs are exported.
- **Structure Only:** If you did not want to export any data, only the Table and Field structure of the database. You can then use the export file as a starting point for data import. This is useful if you want to import data from an existing spreadsheet file. For example, if you receive Geophysical data from a logging company in an Excel file that you want to import into your existing project file.
- **Retain Format Codes:** To keep the gINT formatting codes (such as <<B>>, <<U>>, and so on) embedded in the final data output.
- **Include Field Captions:** To place any field captions under the actual field names in the Excel file. This allows for easier data entry when exporting to spreadsheet (like Excel).

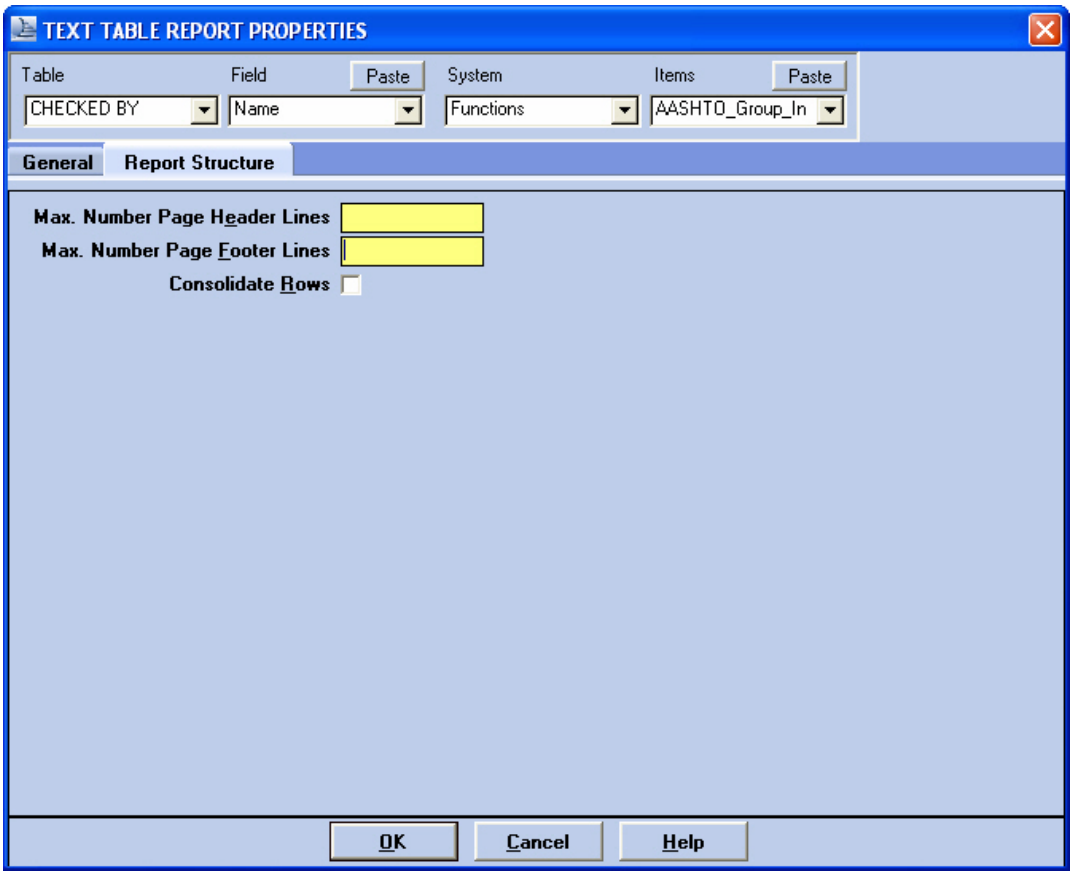
- **Separate Files for Each Worksheet:** To create separate Excel files for each worksheet, instead of separate tabs in one Excel file. Normally, when you export to an Excel file, the data from each table in your project database is saved in a different worksheet (or tab) in the Excel file. This option is helpful when exporting files that will be imported by programs requiring each worksheet to be a separate file.
- **Launch Excel After Export:** To open Microsoft Excel after the export process is completed.

The INPUT Excel import/export options allow users to configure and modify their data to achieve the final output format of their choice and maximum target/source file compatibility.

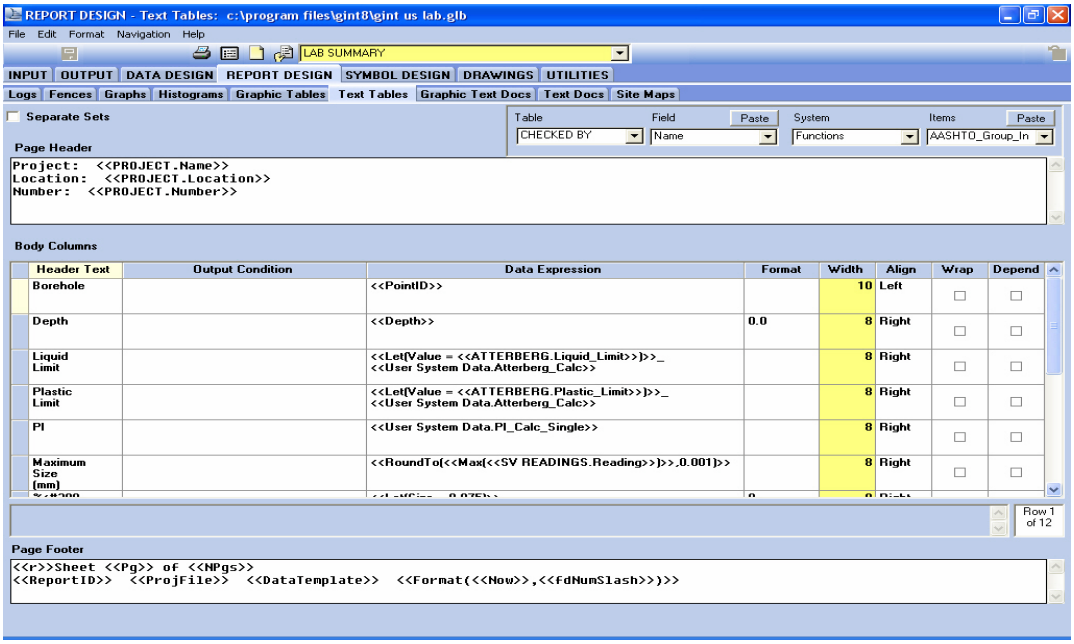
Using Text Tables to Import/Export Excel Data

Text Tables are reports that present tabular summaries of data. This is very useful for importing/exporting to Excel because there are no formatting issues to deal with and makes data exchange a straightforward process. To create a new text table report, open REPORT DESIGN and click the Text Tables tab.

Select **File ▶ New**, press **CTRL+N**, or click the New  icon to display the New... properties dialog box. Click the Report Structure tab to define the properties specific to Text Table reports.



The values entered in these fields must be greater than or equal to the actual header/footer lines specified in the report. The value in the **Max. Number Page Header Lines** is specific for the page header. The column headers are specified in the report body and the number of column header lines are determined from the column headers. If you click **OK**, you see a screen similar to the following:



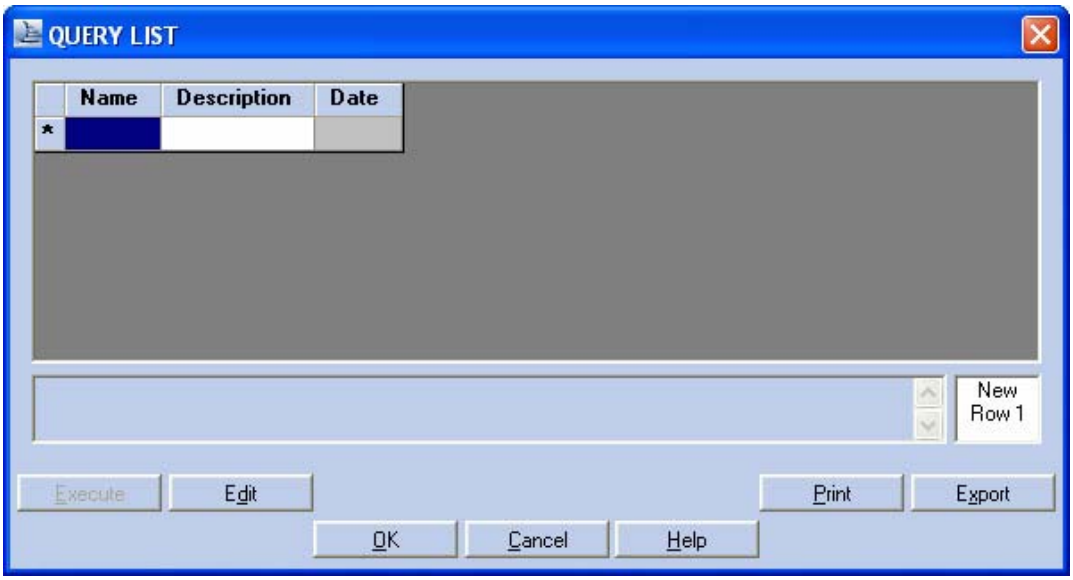
The report itself is broken down into a multi-line text box for the page header, a grid for the column headers and body, and another multi-line text box for the footer. If you leave the **Separate Sets** option unchecked, all the data lines will print one after another. If checked, the report will start a new page for every set of data.

The table body is specified by a series of grid rows, with each row specifying a column on the final output. By defining the table properties, such as **Output Condition**, **Data Expression**, and so on, you can manipulate the data that you want to print on the report. You can then output the report (in the OUTPUT application group) to an Excel file.

Using Queries to Generate Excel Data

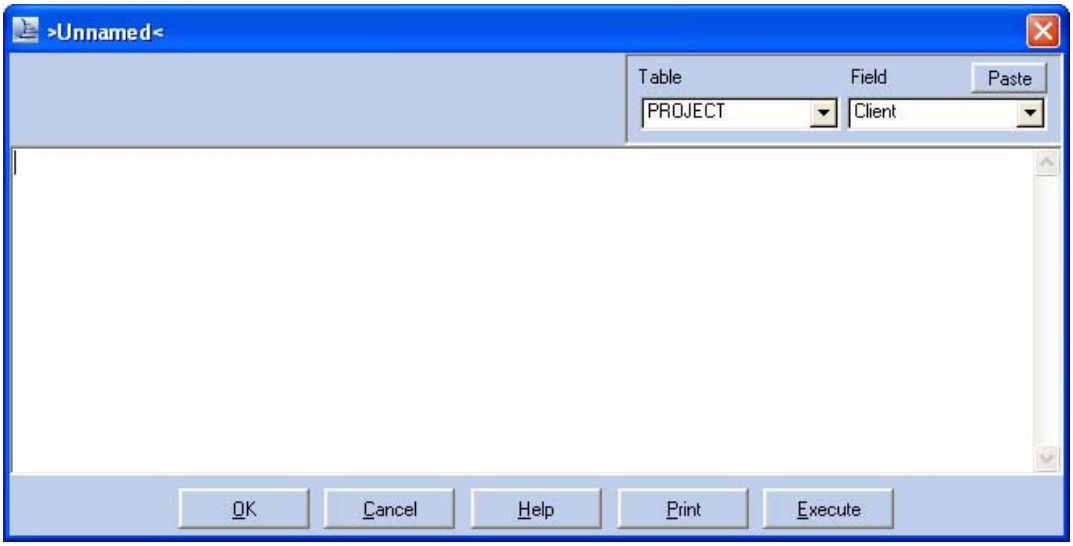
If you have some knowledge of **SQL** (Structured Query Language), you can create reports that filter on specific data quickly and easily using the INPUT application's Query feature. Queries are stored in your library, not in the current project, so you can use a query with any project. You can also import and export queries using the Lib Merge/Copy application in UTILITIES.

Select **Tools ▶ Queries** to display a list of existing queries or to create a new query. You see the Query List dialog box:



To create or edit a query, click the **Edit** button at the lower left of the dialog box.

You see an expanded window containing the Data Tool:



Once a SQL expression is written, it can be executed by clicking the **Execute** button on either the SQL edit window or the Query List dialog box. The query is executed against the currently open project.

Executing a successful SQL expression displays a grid dialog box with your field headers shown above the results columns. If you just selected fields, the field names will appear, unless they were captioned, in which case, the captions will appear. From the query results screen, you can print or export to an Excel file.

gINT Rules and Excel Data

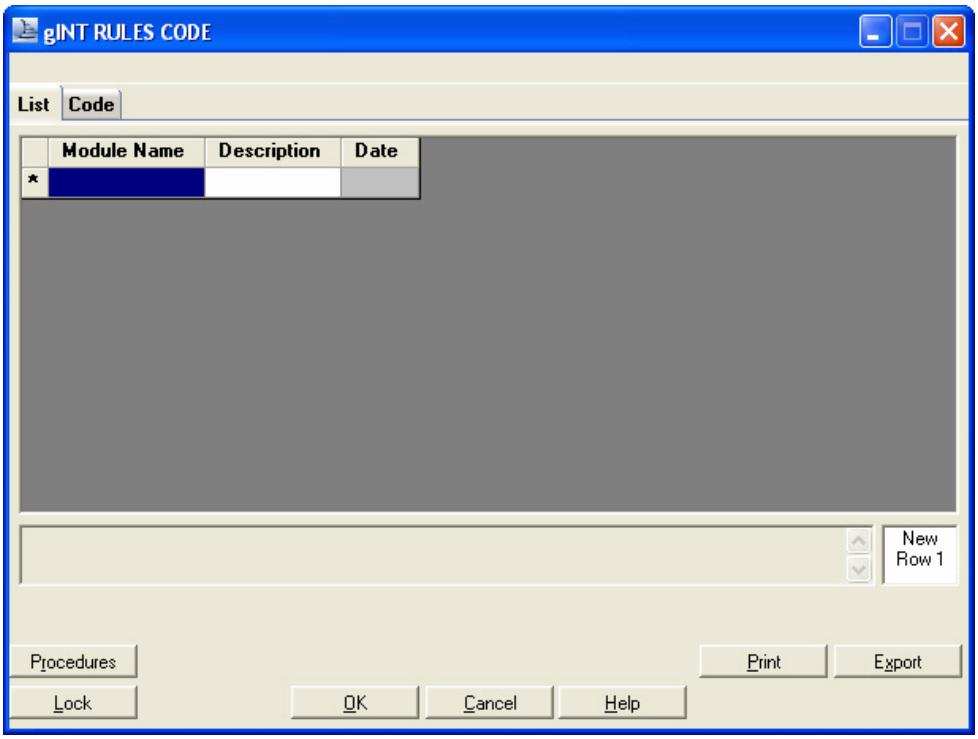
gINT Rules Code allows you to write programs in gINT. Please by aware that this is programming and you must be a programmer to use this facility. Using gINT Rules Code, the first step is to write code procedures within a module or modules, and then assign the procedure to the **gINT Rules Procedure** property of the applicable table in DATA DESIGN.

gINT Rules can be used with Excel in two ways:

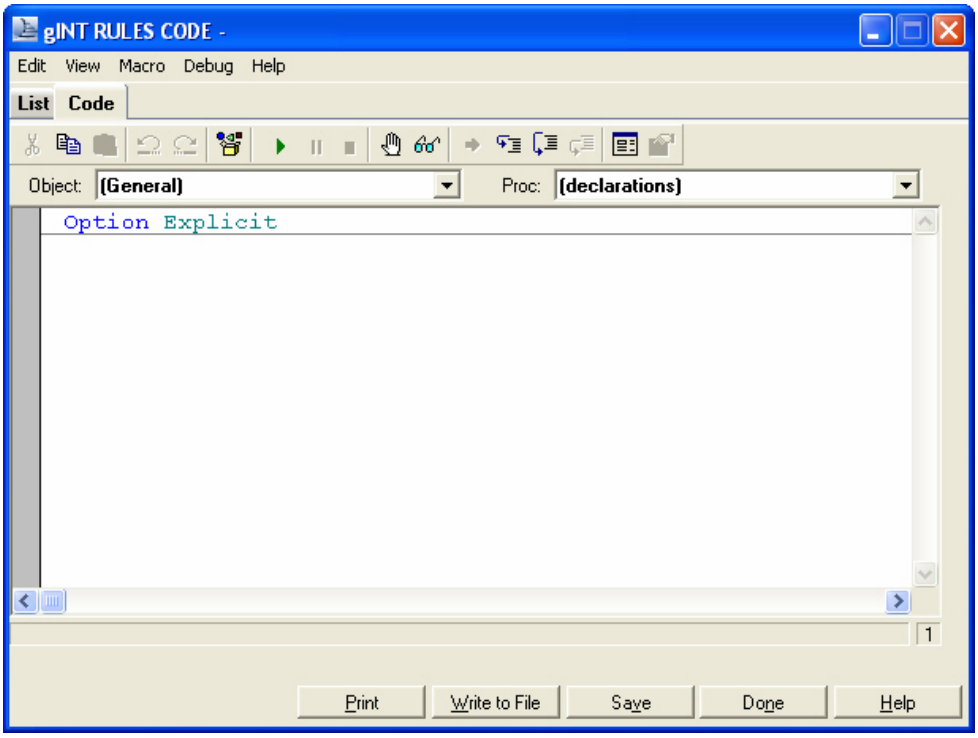
- Native gINT commands can be invoked to run queries, perform Excel import and export, and to export to Excel via Text Table reports.
- Procedures can be written that access the Excel object for direct manipulation of Excel spreadsheets.

gINT Rules are created in INPUT, using the **gINT Rules ▶ gINT Rules Code** menu option.

When you select the menu command, the gINT Rules Editor is displayed:

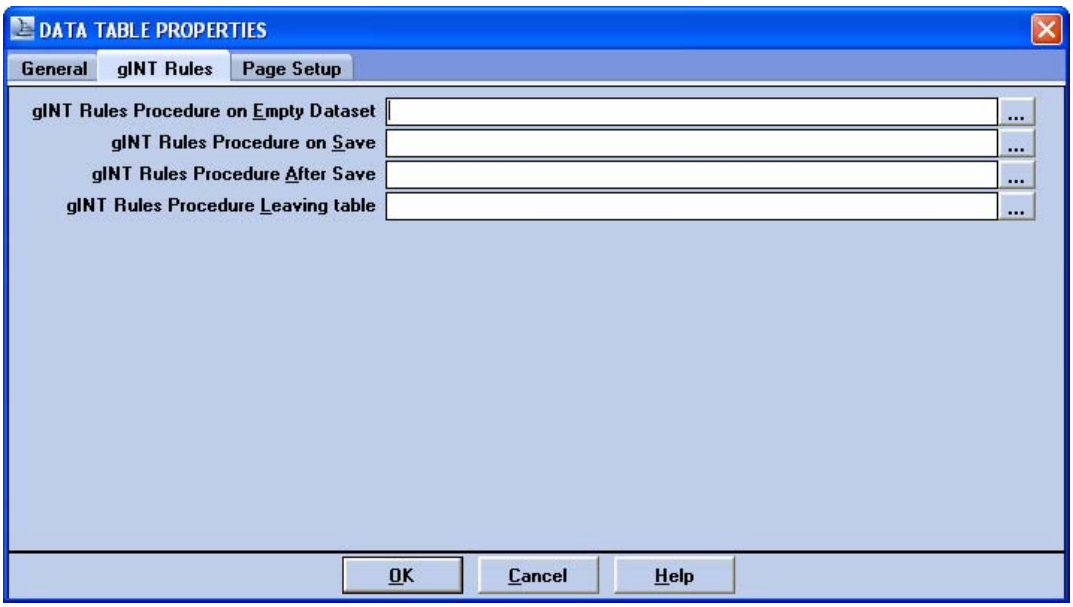


The List tab displays all the modules defined in the current library, and the Code tab is where you write the actual program code.



Once the code is written, it must be assigned to a table in DATA DESIGN. You would open DATA DESIGN, and from the Project Database tab select the database you want to assign the gINT Rules procedure to.

Then select the appropriate table from the object selector drop-down list, click the Properties icon and select the gINT Rules tab. You see a dialog box similar to the following:



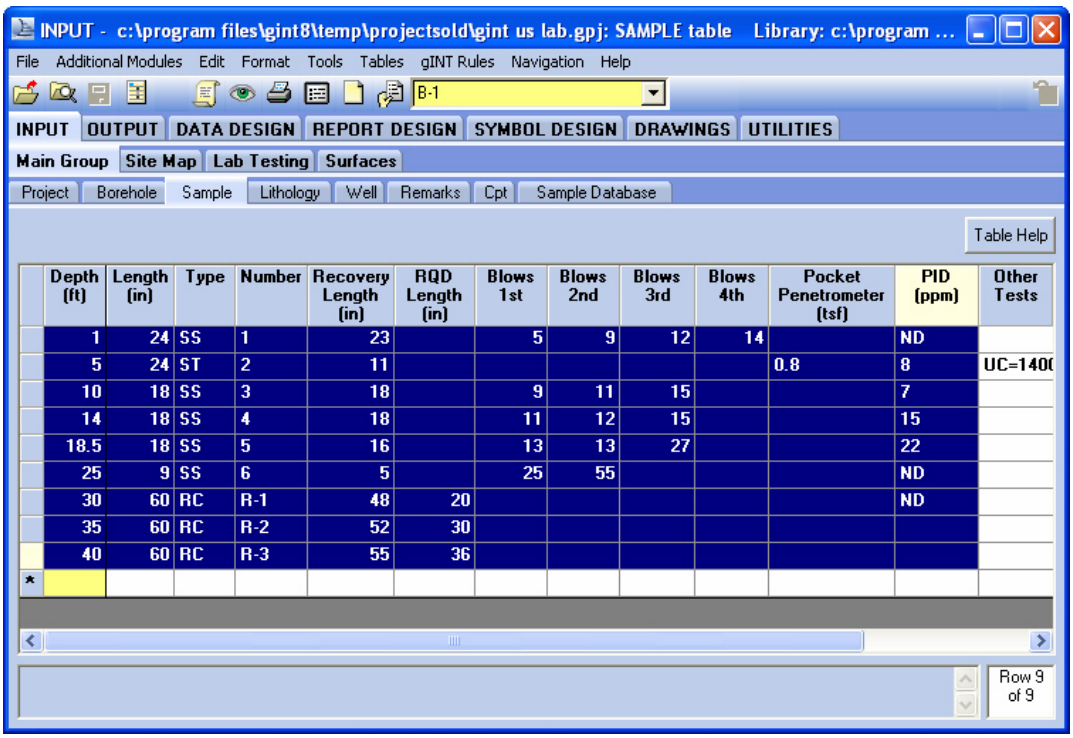
This is where you would assign the procedure that you wrote in INPUT. gINT Rules is a powerful tool within gINT, and can be used to create extensive and complex commands to exchange data between gINT and Excel.

Copying and Pasting Data from Grids to Excel

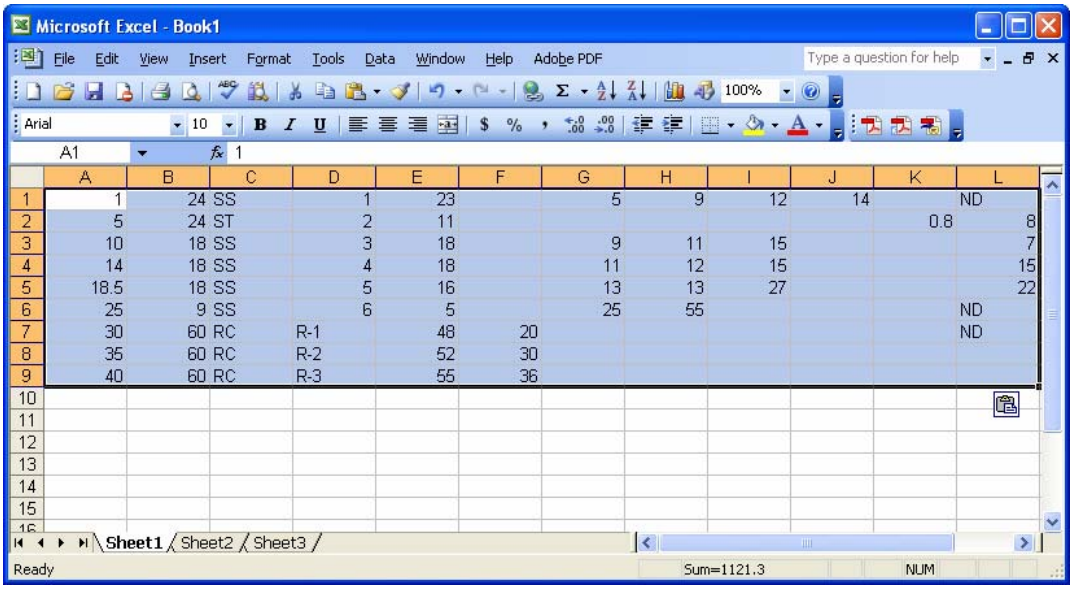
While gINT Rules is an advanced method of working with data, the copy/paste feature available from Version 8 on is the simplest and most convenient way to move selected data between gINT and Excel.

You can perform the copy and paste from any grid screen in gINT. For example, from the INPUT application, open a project database file and select the tab you want to copy the data from.

Highlight the data by dragging your mouse across the appropriate cells:



Press **CTRL+C** or right-click the mouse and select **Copy** from the menu that is displayed. Open Excel, select the desired file and press **CTRL+V** or **Edit ▶ Paste** to paste the selected data into the spreadsheet.



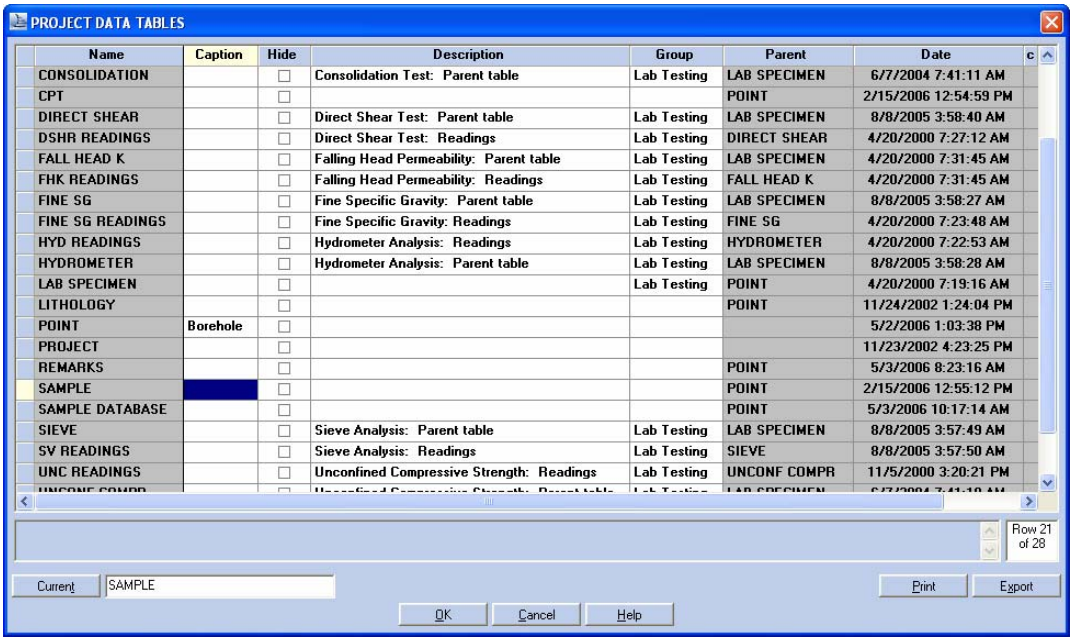
	A	B	C	D	E	F	G	H	I	J	K	L
1	1	24	SS	1	23		5	9	12	14		ND
2	5	24	ST	2	11						0.8	8
3	10	18	SS	3	18		9	11	15			7
4	14	18	SS	4	18		11	12	15			15
5	18.5	18	SS	5	16		13	13	27			22
6	25	9	SS	6	5		25	55				ND
7	30	60	RC	R-1	48	20						ND
8	35	60	RC	R-2	52	30						
9	40	60	RC	R-3	55	36						
10												
11												
12												
13												
14												
15												

You can also reverse the process and select data in Excel then copy and paste it into a gINT grid screen. Note that when pasting from Excel to gINT, you may be pasting 100 rows of data but the gINT grid has only one empty row. Just paste, gINT will create the required number of rows.

Using List Screens to Export to Excel

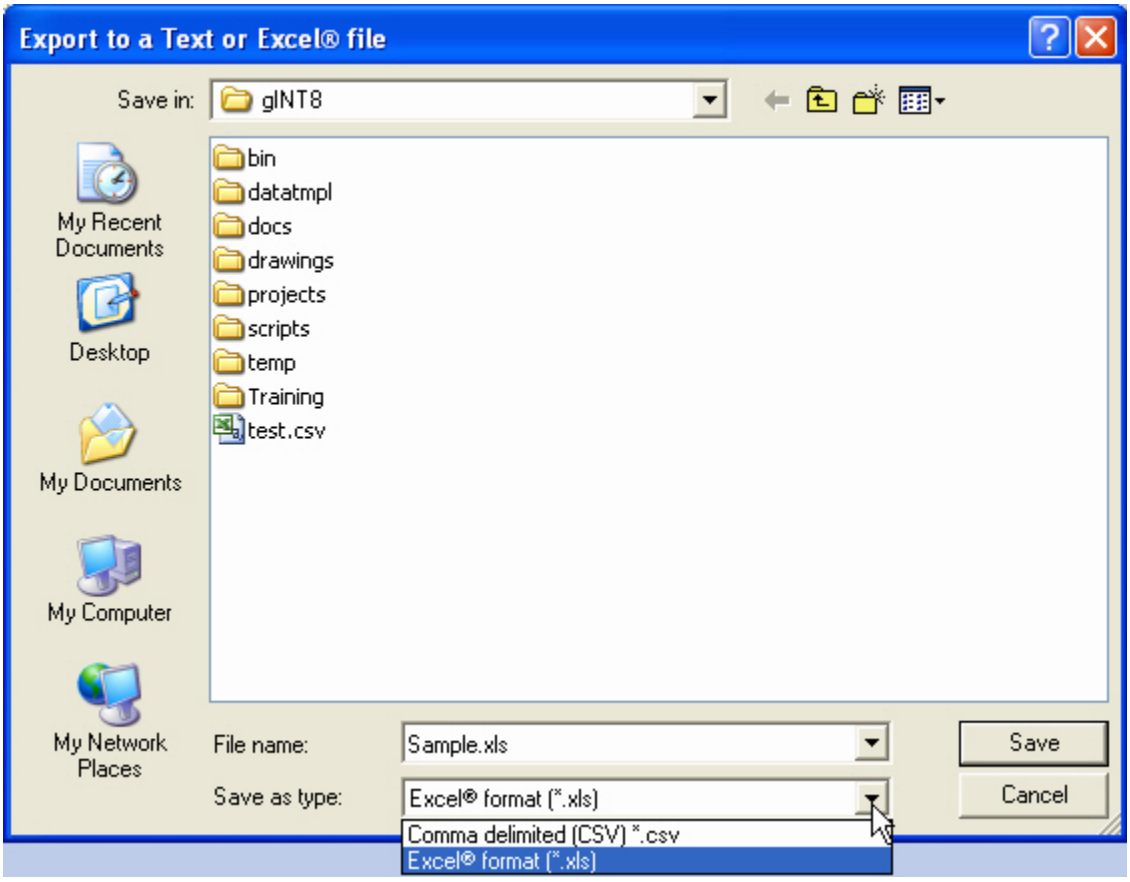
All the List screens in gINT contain an **Export** option that you can use to export the displayed information to another format, and specifically Excel if that is your choice.

For example, in INPUT, if you click the List  button, you see a dialog box similar to the following:

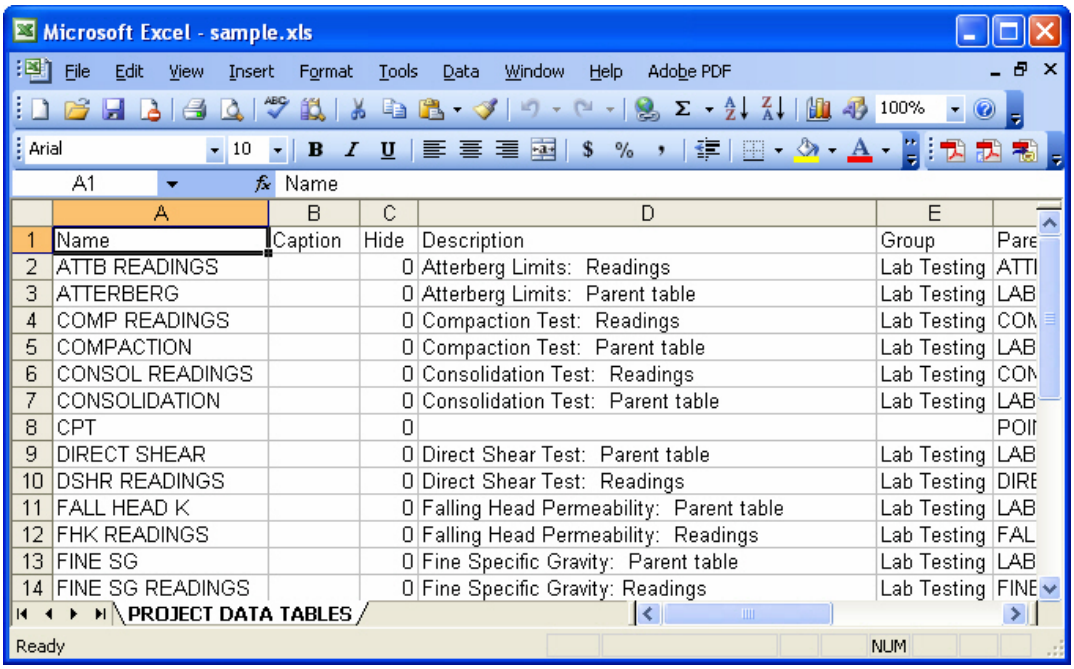


Name	Caption	Hide	Description	Group	Parent	Date
CONSOLIDATION		☐	Consolidation Test: Parent table	Lab Testing	LAB SPECIMEN	6/7/2004 7:41:11 AM
CPT		☐			POINT	2/15/2006 12:54:59 PM
DIRECT SHEAR		☐	Direct Shear Test: Parent table	Lab Testing	LAB SPECIMEN	8/8/2005 3:58:40 AM
DSHR READINGS		☐	Direct Shear Test: Readings	Lab Testing	DIRECT SHEAR	4/20/2000 7:27:12 AM
FALL HEAD K		☐	Falling Head Permeability: Parent table	Lab Testing	LAB SPECIMEN	4/20/2000 7:31:45 AM
FHK READINGS		☐	Falling Head Permeability: Readings	Lab Testing	FALL HEAD K	4/20/2000 7:31:45 AM
FINE SG		☐	Fine Specific Gravity: Parent table	Lab Testing	LAB SPECIMEN	8/8/2005 3:58:27 AM
FINE SG READINGS		☐	Fine Specific Gravity: Readings	Lab Testing	FINE SG	4/20/2000 7:23:48 AM
HYD READINGS		☐	Hydrometer Analysis: Readings	Lab Testing	HYDROMETER	4/20/2000 7:22:53 AM
HYDROMETER		☐	Hydrometer Analysis: Parent table	Lab Testing	LAB SPECIMEN	8/8/2005 3:58:28 AM
LAB SPECIMEN		☐		Lab Testing	POINT	4/20/2000 7:19:16 AM
LITHOLOGY		☐			POINT	11/24/2002 1:24:04 PM
POINT	Borehole	☐				5/2/2006 1:03:38 PM
PROJECT		☐				11/23/2002 4:23:25 PM
REMARKS		☐			POINT	5/3/2006 8:23:16 AM
SAMPLE		☐			POINT	2/15/2006 12:55:12 PM
SAMPLE DATABASE		☐			POINT	5/3/2006 10:17:14 AM
SIEVE		☐	Sieve Analysis: Parent table	Lab Testing	LAB SPECIMEN	8/8/2005 3:57:49 AM
SV READINGS		☐	Sieve Analysis: Readings	Lab Testing	SIEVE	8/8/2005 3:57:50 AM
UNC READINGS		☐	Unconfined Compressive Strength: Readings	Lab Testing	UNCONF COMPR	11/5/2000 3:20:21 PM

The screen displays all the tables in the current project file. If you click the **Export** button on the lower right corner of the screen, you see the Export To a Text or Excel File dialog box:



Enter a name for the Excel file and select "Excel format (*.xls)" for the **Save as Type**. Click **Save** to save the file. When you open the file in Excel, the table data from your gINT project file is displayed:

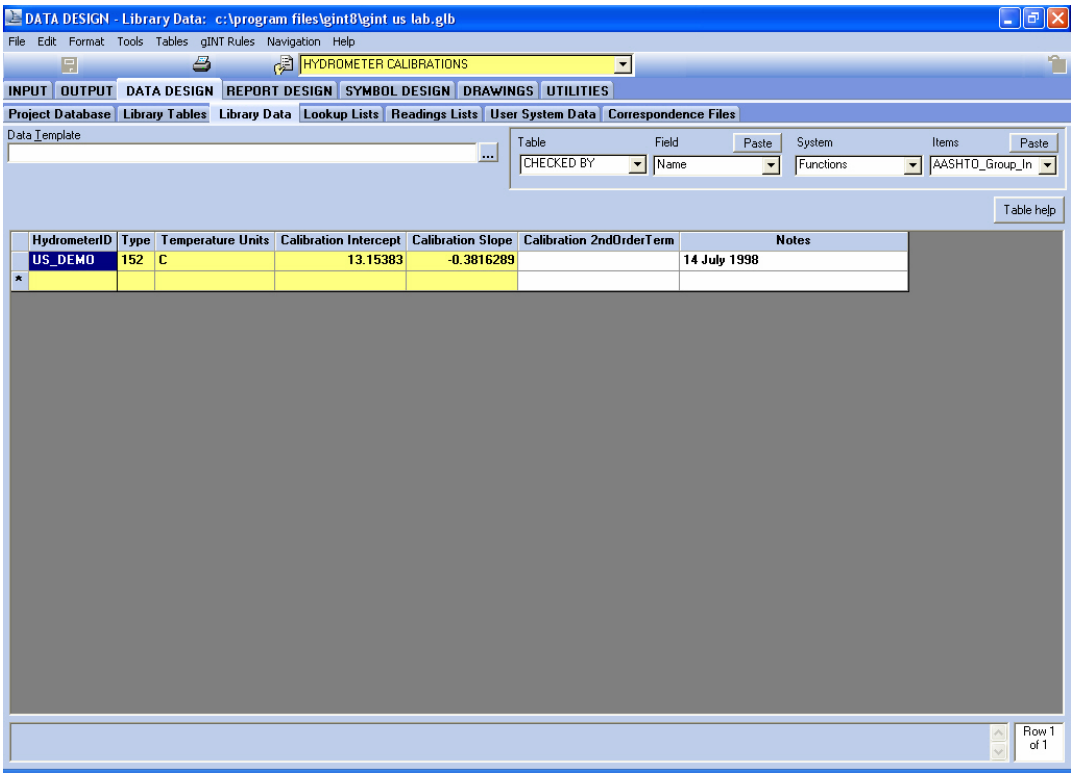


	A	B	C	D	E	
1	Name	Caption	Hide	Description	Group	Pare
2	ATTB READINGS		0	Atterberg Limits: Readings	Lab Testing	ATTI
3	ATTERBERG		0	Atterberg Limits: Parent table	Lab Testing	LAB
4	COMP READINGS		0	Compaction Test: Readings	Lab Testing	COM
5	COMPACTION		0	Compaction Test: Parent table	Lab Testing	LAB
6	CONSOL READINGS		0	Consolidation Test: Readings	Lab Testing	CON
7	CONSOLIDATION		0	Consolidation Test: Parent table	Lab Testing	LAB
8	CPT		0			POI
9	DIRECT SHEAR		0	Direct Shear Test: Parent table	Lab Testing	LAB
10	DSHR READINGS		0	Direct Shear Test: Readings	Lab Testing	DIRE
11	FALL HEAD K		0	Falling Head Permeability: Parent table	Lab Testing	LAB
12	FHK READINGS		0	Falling Head Permeability: Readings	Lab Testing	FAL
13	FINE SG		0	Fine Specific Gravity: Parent table	Lab Testing	LAB
14	FINE SG READINGS		0	Fine Specific Gravity: Readings	Lab Testing	FINE

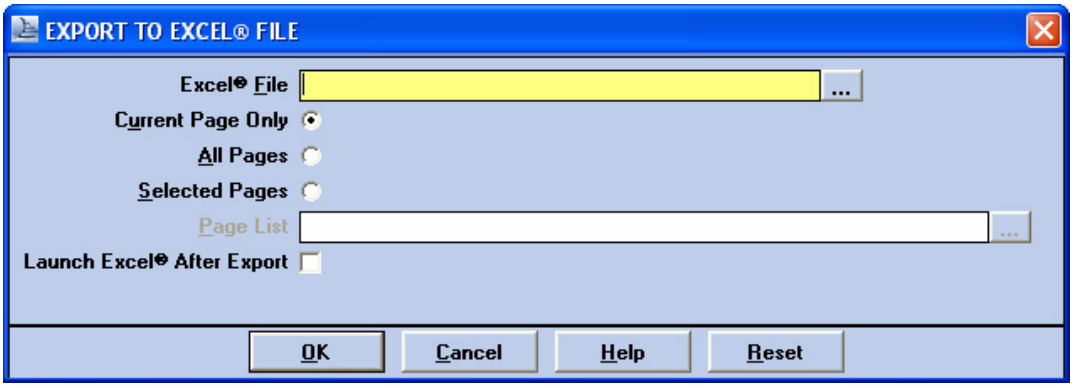
Library Data Import/Export Options

The Library Data application in DATA DESIGN offers import/export options for the Excel file format. You can export data from an existing library table or import data from an Excel spreadsheet into an empty table and then work with the data in gINT.

If you click the Library Data tab in DATA DESIGN, you see a screen similar to the following:

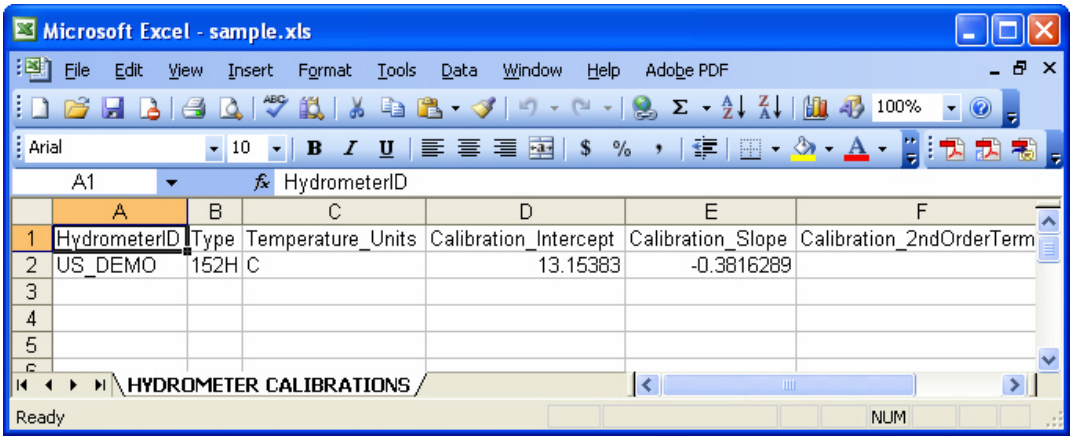


Select **File ▶ Import/Export** and choose an option, either **Export to Excel File** or **Import from Excel File**. If you select the Export option, you see a dialog box similar to the following:



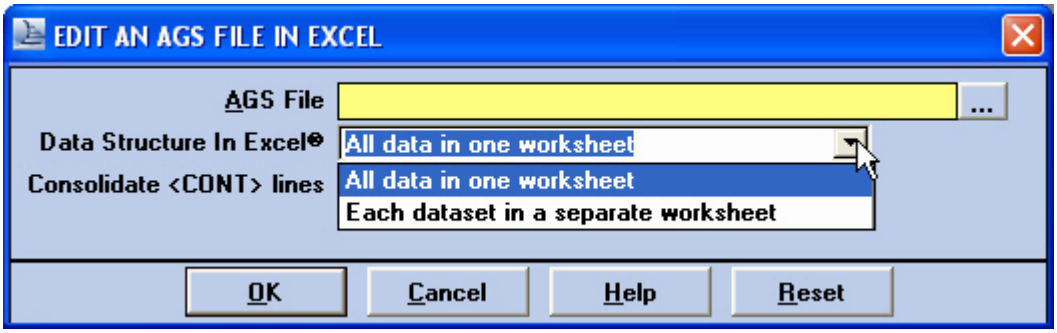
This screen is similar to the INPUT Export to Excel File screen but with fewer properties. Enter the file name or click the browse button to select a file to export the data to. You can export the current library data table (**Current Page Only**), all tables (**All Pages**), or select a specific table (**Selected Pages**).

If you click **Selected Pages**, the **Page List** field is activated and you can select the data you want to export from a list of all the library tables. When you are ready to export the data, click **OK**. You can then open Excel and view the exported data:



The AGS Export Option

You can edit AGS files in Excel using the **File ▶ AGS Files ▶ Edit AGS File in Excel** option in INPUT. You see the following dialog box:



Enter the name of the AGS file or navigate to the file location using the browse ... button. Next, select an option for formatting the data in Excel.

Select **All data in one Worksheet** top place to keep all the AGS data in one Excel worksheet, or **Each dataset in a separate worksheet** to place each AGS group in its own worksheet and name the worksheets by the AGS group.

Check the **Consolidate <CONT> lines** option to combine continued heading, units, and data lines into one line so that there are no continuations. If you wish to edit the file in Excel, you must check this option. The program will not recreate the AGS from the Excel spreadsheet if it is unchecked.

To facilitate editing, checking the **Each dataset in a separate worksheet** option for the data structure makes finding data and adding new rows easier. While you are working in the Excel spreadsheet, you will not be able to access gINT.

If you check **Consolidate <CONT> lines**, make changes in Excel, and then save the file, when you return to gINT, the program recreates the original AGS file using the new data.

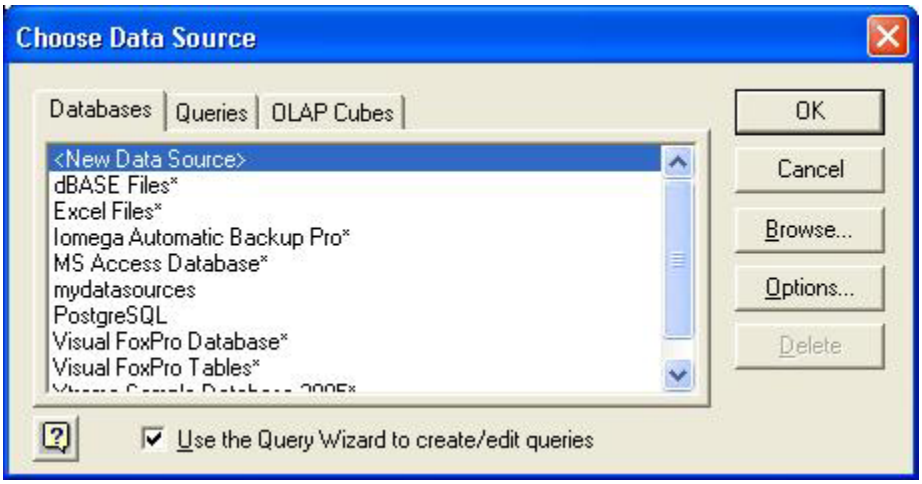
DATA DESIGN Import/Export Options

The DATA DESIGN application group has an Export to Excel File option on the **File** menu that can be used in the Project Database, Library Tables, Lookup Lists, and Reading Lists applications. Like the Excel Export option in INPUT, you can name the output file, specify which pages to export, and launch Excel after the export process is complete.

Using the Excel Database Query Facility

Excel supports database import through user-defined queries. This is similar to the gINT Query method described above but it has a "wizard" interface that walks you through the process.

To access this capability, in Excel select the **Data ▶Import External Data ▶New Database Query** menu.



In this dialog you would select the "MS Access Database" option and a file open dialog will appear. Although gINT uses ACCESS files to store its data, it does not use the default "MDB" extension. gINT projects use a "GPJ" extension. So in the file open dialog you would change the file type to "All Files".

For the rest of the process, please see Excel Help (search for "Database Query") or perform a search on the Internet (search for "Excel Query" or related topics).

In the end you can import whatever data you wish directly from a gINT project into Excel using this method.

Summary

As you can see, there are many ways to work with Excel data in gINT, or to export gINT data to Excel and work with it there. gINT has an expansive ability to manipulate and format data within its own features and applications, but should you need or desire to work with an external application such as Microsoft Excel, gINT has the tools to do so.