Gubbs Mass Spec Utilities / Quick Calc™ 7.x.x

GMSU\QC 7 and earlier

Supported Platforms

Thermo® XDKOEM 2.1.0.26

Sciex® Analyst™ 1.3.1 - 1.5

Administration and Installation Manual

Gubbs, Inc.
265 Blue Spruce Circle
Alpharetta, GA 30005
P: 770-573-0169
F: 508-453-1338

gubbs@gubbsinc.com
www.gubbsinc.com

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C:\GubbsIncApps\GMSU\Administration\Manuals\Admin\GMSU_AdminManual_0008.doc

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1 Introduction

Gubbs Mass Spec Utilities / Quick Calc (GMSU\QC) is a suite of utilities that enhance the ability of scientists to perform post-acquisition processing of data acquired in a high throughput (HT) environment.

GMSU\QC uses either Microsoft® (MS) Access or MS SQL Server as a datastore. MS Access may be used to quickly setup a GMSU\QC instance for user testing or production use. MS SQL Server may be used if a more secure and possibly more efficient environment is desired. The MS Access database can be directly upgraded to SQL Server without loss of data. If users desire custom information reports, data stored in the database is easily accessible.

To perform chromatographic functions, GMSU\QC uses the software development kit components provided by Sciex and Thermo, respectively. Therefore, when users optimize chromatography, they can expect the features available in the native chromatography data system (CDS) will be behave similarly in GMSU\QC. In the same manner, it can be expected that the GMSU\QC chromatographic features will differ between Sciex data and Thermo data, though every effort has been made to ensure the differences are minimal.

GMSU\QC may be used in a multi-user environment. There are several configuration possibilities for multi-user environment which are described in more detail in Section 15. Briefly, the GMSU\QC database and acquired mass spectrometer raw data files may be stored in a common location accessible to others (either a shared file server directory or a shared local directory). In both instances, it is most optimal to place the GMSU\QC Access database on a filer server accessible to all GMSU\QC users.

In a shared file server directory configuration, multiple installations of GMSU\QC may be configured to use the database and access the raw data files located in the common location. This allows users in the analytical department to use GMSU\QC to optimize chromatographic integration from their office rather than the laboratory. Once the chromatographic integration data is approved, users in the pharmacokinetics department may be notified and can immediately generate pharmacokinetic data.

In a shared local directory, GMSU\QC may be configured to “Use UNC Path” (alternatively admins may map each shared local directory to a unique letter). With this setting, data may remain at the local data acquisition workstation and all data pointers in the GMSU\QC database will reference the complete UNC directory path, rather than “C:\”, for example. Please note that, in this configuration, the local data acquisition data directory (e.g. …\Analyst Data\, or …\XCalibur\) must be “shared” to all GMSU\QC users. An Information Technology (IT) representative can assist in this configuration (see Section 15.2 for more details). Also, see Appendix A Thermo Environment Multiuser System Configuration, for a detailed discussion on configuring GMSU\QC in a multiuser environment.

The most current version of this manual may be found by browsing to www.gubbsinc.com and navigating to the GMSU\QC page.

2 Definitions

Term	Definition
CDS	Chromatography Data System
DSN	Data Source Name
EULA	End User License Agreement
GMSU\QC	Gubbs Mass Spec Utilities
HT	High Throughput
LT	Low Throughput
MS	Microsoft®
UGD	UpdateGMSU\QCDatabase.xls

3 High Throughput (HT) vs. Low Throughput (LT) Acquisition

One of the salient features of GMSU\QC is that it can process HT acquired data as well as LT acquired data.

Typically, mass spectrometry data acquisition systems require that compound(s) of interest occur once in a chromatographic analysis. Therefore, in order to analyze a 12-point assay, scientists had to acquire twelve separate 'samples'. This is referred to as LT acquisition in the GMSU\QC system.

In HT acquisition, users open the chromatography data system (CDS) data acquisition window for as long as needed and inject and acquire all assay time points in a single chromatographic run. The benefits of HT acquisition [1 - 4] include:

- The ability to view all chromatographic peaks simultaneously to check for possible instrumental or sample handling problems and/or trends
- When combined with multiple-column switching techniques, increases throughput by decreasing the time between sample injections and minimizes communication problems that can occur between instrument and data acquisition system.

NOTE: Currently HT acquisition data processing is supported on the Sciex platform in the Hepatic Clearance and Permeability modules only.

It must be noted here that half of the benefit of HT acquisition is addressed by the 'Display HT Chromatography' feature of GMSU\QC. If normal LT acquisition is performed, users may click on the 'Display HT Chromatography' button to view all the injections (or samples) of an assay in a single chromatogram. GMSU\QC retrieves the XY data of each chromatographic injection/sample and concatenates the data end-to-end in a text file. Both ABI and Thermo chromatographic display components used by GMSU\QC allow text data to be loaded and viewed as a chromatogram. See the GMSU\QC Users Manual – Display HT Chromatography section for more information.

4 Data File Convention

Throughout this manual, the term "Data File" is used.

In the Sciex environment, the Data File is the .wiff file.

In the Thermo environment, the Data File is the .sld file. Even though the .sld file doesn't actually contain raw data (.raw files), the .sld contains the directory path reference to the .raw files. Since the .sld file "manages" the location of the .raw files, the .sld will be referred to as the Data File.

5 Data Acquisition Method Assumptions

GMSU\QC makes the following assumption concerning the configuration of Analyte and Internal Standard transition ions within the data acquisition method (applies to single-analyte assays):

The Analyte is listed first in the experiment transition ion section.
The Internal Standard is listed second in the experiment transition ion section.

If the opposite is true or the Chromatography Data System (CDS) lists the transition ions in order of compound molecular weight, then the user has the ability to assign the appropriate transition ions to Analyte and Internal Standard using the Menu item 'Assign Transition Ions' located in each module.

6 Multiple Analyte Experiments

The 'Assign Transition Ions' feature can also be used to prepare data in which data for multiple analytes have been acquired (e.g. in cassette dosing experiments or looped experiments).

Please note that this process is automated in the Thermo environment in which a valid processing method (.pmd) has been configured in the sequence file (.sld). The .pmd can be created manually using Thermo Xcalibur™, automatically using Thermo QuickQuan™, or exported with the .sld from Thermo LCQuan™. Please see the relevant help files inside any of these CDS's for further information.

7 Data Acquisition Data File Content Rules

Data file content must conform to certain rules in order to be successfully processed by GMSU\QC. The rules differ slightly depending on the data file.

7.1 Sciex

- Sciex data must be stored in a single .wiff file
- The .wiff file may contain data only from a single assay
- An 'assay' is defined as the injections/samples that make up the data set for that analysis (e.g. Hepatic Clearance).
- If the HPLC sequence contains a second assay, that assay must be stored in a different .wiff file

The following table is shown for a 5 injection/sample Hepatic Clearance sequence in which samples 1-5 are for Rat and 6-10 are for a second Rat experiment.

Sample Name	Data File
Sample001	Rat01

Sample002	Rat01
Sample003	Rat01
Sample004	Rat01
Sample005	Rat01
Sample006	Rat02
Sample007	Rat02
Sample008	Rat02
Sample009	Rat02
Sample010	Rat02

Notice that the data file names are different for the two assays.

Note that it is allowable to have several different analytes in each injection (e.g. cassette dosing, looped experiments).

7.2 Thermo

Similar to Sciex data, Thermo data (.raw files) must be grouped by assay. Thermo acquired data cannot be stored in a single data file; therefore, from the perspective of GMSU\QC, the Thermo sequence file (.sld) acts to group Thermo data by assay. The rules vary slightly depending on the CDS used to acquire the data

Note that Thermo applications generate several date-time stamped .sld's in the course of data acquisition and data processing. GMSU\QC ignores the date-time stamped .sld's.

- An 'assay' is defined as the injections/samples that make up the data set for that analysis (e.g. Hepatic Clearance).

7.2.1 Xcalibur™ data

- An .sld may contain only from a single assay
- If the HPLC sequence contains a second assay, that assay must be configured in a separate .sld and submitted to the sequence queue separately.

The following table is shown for a 5 injection/sample Hepatic Clearance sequence in which samples 1-5 are for Rat. The second table is samples 1-5 are for a second Rat experiment. The two .sld's would need to be submitted to the acquisition queue separately.

Sequence Name: Rat01	
Sample Name	**Path**
Sample001	C:\Xcalibur\Data\Rat01
Sample002	C:\Xcalibur\Data\Rat01
Sample003	C:\Xcalibur\Data\Rat01
Sample004	C:\Xcalibur\Data\Rat01
Sample005	C:\Xcalibur\Data\Rat01

Sequence Name: Rat02	
Sample Name	**Path**
Sample001	C:\Xcalibur\Data\Rat02
Sample002	C:\Xcalibur\Data\Rat02
Sample003	C:\Xcalibur\Data\Rat02
Sample004	C:\Xcalibur\Data\Rat02
Sample005	C:\Xcalibur\Data\Rat02

Please note the following:

- Even though it is permissible to save assay data to the same path, saving assay data to different paths will reduce the possibility of GMSU\QC errors in locating data.
- The two .sld's must have different names.
- It is allowable to have several different analytes in each injection (e.g. cassette dosing, looped experiments).

7.2.2 QuickQuan™ (QQ) data

QuickQuan is a highly specialized application allowing users to efficiently and quickly setup the instrument for high throughput data acquisition. QQ has an added benefit in that processing methods (.pmd's) are generated automatically and will be processed automatically by GMSU\QC. See Section 8 for a further discussion of processing methods.

The only limitation with QQ data is that the QQ sequence must be configured such that there is always a 1-to-1 relationship in generated .sld's-to-.pmd's.

For example, the following QQ sequence will generate a single data subdirectory with two .sld's and two corresponding .pmd's

New Sequence	Drug Set	Sample Name
☒	QuickCalc	Sample01
☐	QuickCalc	Sample02
☐	QuickCalc	Sample03
☐	Labetalol	Sample01
☐	Labetalol	Sample02
☐	Labetalol	Sample03

In another example, the following QQ sequence will generate two data subdirectories, each containing one .sld and a corresponding .pmd

New Sequence	Drug Set	Sample Name
☒	QuickCalc	Sample01
☐	QuickCalc	Sample02
☐	QuickCalc	Sample03
☒	Labetalol	Sample01
☐	Labetalol	Sample02
☐	Labetalol	Sample03

7.2.3 LCQuan™ data

GMSU\QC cannot process LCQuan data directly. Therefore, users must first export a desired .sld from within LCQuan. GMSU\QC then may open the exported .sld.

Users must ensure that, within LCQuan, the .pmd is also exported with the .sld.

8 Thermo Processing Methods

There is an advantage to using Thermo data in that GMSU\QC can retrieve information from processing methods (.pmd's). GMSU\QC pulls as much information as it can from the files available to it from each CDS environment. Table 1 shows a comparison between Thermo and Sciex listing the information that GMSU\QC can retrieve automatically vs information that needs to be configured manually.

Table 1 Thermo/Sciex Automatic Information Retrieval Comparison

Information Component	Thermo [1]		Sciex	
	Automatic	Manual	Automatic	Manual
Analyte Name	X			X
Internal Standard Name	X			X
Analyte/IntStd Association	X			X
Compound association with transition ion set	X			X
Calibration/QC Level	X		X	
Calibration/QC Concentration	X			X

[1] With a correctly matching processing method

Though GMSU\QC contains the tools needed to configure manually all the Information Components listed, that action can become quite tedious, especially when throughput is ramped to >50 different analytes/species/assays per day.

If an incorrect (or no).pmd is configured in the Thermo .sld, then all the Information Components must be configured manually.

9 Installation Overview

It is recommended that administrators perform GMSU\QC Setup according to the following steps. Please refer to each referenced section for a detailed discussion of each step

Installation Step		Section
9.1	Inspect system requirements and prerequisites	Sections 10 - 11
9.2	Execute Setup.exe	Section 12
9.3	Determine the physical location of the GMSU\QC database Gubbs_01.mdb (if applicable) • Note: Does not need to be performed if installing a subsequent GMSU\QC installation on an existing GMSU\QC client workstation • Perform this section if GMSU\QC is to be configured in multi-user environment	Section 13
9.4	Prepare Windows® directory share and directory permissions (if needed) • Note: Does not need to be performed if installing a subsequent GMSU\QC installation on an existing GMSU\QC client workstation • Perform this section if GMSU\QC is to be configured in multi-user environment • Thermo users please pay special attention to Section 15.2	Sections 15
9.5	Configure database (if needed) • Note: Does not need to be performed if upgrading an existing GMSU\QC installation 9.5.1 Microsoft Access Does not need to be performed 9.5.2 Microsoft SQL Sever	Section 16 Section 18

Installation Step	Section
9.6 Configure DNS ODBC file (if needed) • Note: Does not need to be performed if installing a subsequent GMSU\QC installation on an existing GMSU\QC client workstation 9.6.1 Microsoft Access Perform this section only if GMSU\QC Setup could not automatically configure a DSN ODBC file 9.6.2 Microsoft SQL Sever	Section 17 Section 19
9.7 Execute UpdateGMSU\QCDatabase.xls (UGD) (if applicable) • To be performed with subsequent GMSU\QC installations. • UGD may or may not need to be executed after a subsequent installation. Upon running the new version, GMSU\QC will notify the user if UGD needs to be executed (see Section 22).	Section 22
9.8 Configure GMSU\QC Configuration Default Parameters • Note: Does not need to be performed if installing a subsequent GMSU\QC installation on an existing GMSU\QC client workstation • It is recommended that administrators configure several default values for proper GMSU\QC usage.	Section 24 Section 26

10 System Requirements

The following describes the environments on which GMSU\QC is configured and developed. The user is free to install GMSU\QC on workstations of differing OS and Microsoft® Office/Excel configuration with the understanding that:

- GMSU\QC should be tested before implementing the differing configuration.
- GMSU\QC may not perform as expected in a lesser configuration than that recommended below.

Client Workstations		
OS [5]	MS Windows XP SP3	
CPU (GHz)	1.8	
RAM (MHz)	512	
Sciex Analyst [1,4]	1.4.1, 1.4.2, 1.5	
Thermo Excalibur [2,4]	2.1 and earlier	
Thermo XDKOEM	**GMSU/QC Version**	**XDKOEM version**
	6.x.x	1.0.2.15
	7.0.x	2.1.0.25
	7.1.x	2.1.0.26
Microsoft® Office [3, 6]	Office 2003 SP2	
UpdateGMSU\QCDatabase.xls	MS Excel 2003 SP2	
GubbsIncPswd_01.xls	MS Excel 2003 SP2	

[1] GMSU\QC supports data acquired using Sciex Analyst 1.3.x and Analyst 1.4.2
[2] GMSU\QC supports data acquired using XCalibur 2.3 and previous versions
[3] At a minimum, Microsoft® Word and Excel must be installed. GMSU\QC is compatible with Office XP, 2003, and 2007 (see note below concerning the PK Calculator [5]).
[4] Not required for data reporting (see Section 11)
[5] GMSU\QC supports and has been tested on the operating system Microsoft Vista, though this operating system has not yet been officially implemented in the development environment.
[6] GMSU\QC uses Microsoft Office to generate reports in Excel and Word. GMSU\QC supports and has been tested on Microsoft Office 2008 EXCEPT FOR THE FOLLOWING FEATURE: The PK Calculator has the option of generating a report in Microsoft Word. This feature is not yet supported with Microsoft Office 2008.

MS SQL Server Server [1]	
SQL Server	SQL Server 2000 SP4, SQL Server 2005
OS	MS Windows Server 2003 SP1
CPU (GHz)	1.3
RAM (MHz)	1250

[1] If SQL Server is to be used

11 Pre-Requisites

11.1 Sciex environment

11.1.1 Data Processing

In order to process Sciex data, Sciex Analyst must be installed on the workstation on which the GMSU\QC client is being installed. GMSU\QC uses several Sciex Analyst Active X objects and .dll's to ensure that information provided by GMSU\QC is identical to information if it were to be generated on Sciex Analyst.

If Sciex Analyst is not installed on the workstation, GMSU\QC will not allow the user to open Sciex data files (.wiff).

11.1.2 Data Reporting

Sciex Analyst is not required to be installed to report data. All data reporting modules are available.

11.2 Thermo Scientific environment

11.2.1 Data Processing

In order to process Thermo data, the Thermo software development kit called 'XDK OEM" must be installed on the workstation on which the GMSU\QC client is being installed. GMSU\QC uses several XDK OEM Active X objects and .dll's.

If XDK OEM is not installed on the workstation, GMSU\QC will not allow the user to open Thermo data files (.sld).

11.2.2 Data Reporting

XDK OEM is not required to be installed to report data. All data reporting modules are available.

12 Setup Execution

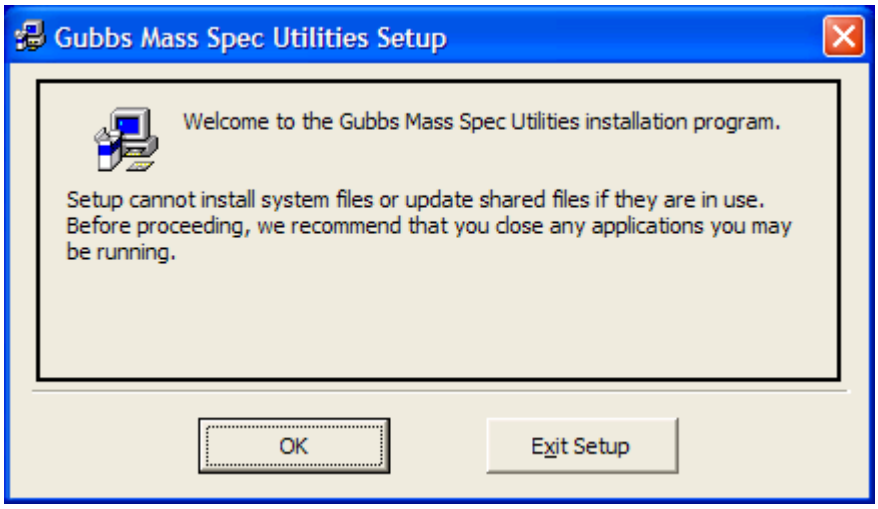
NOTES:

If a previous installation of GMSU\QC exists on the workstation, it must be uninstalled (through the MS Windows Add/Remove Programs Control Panel) before a new version of GMSU\QC is installed.

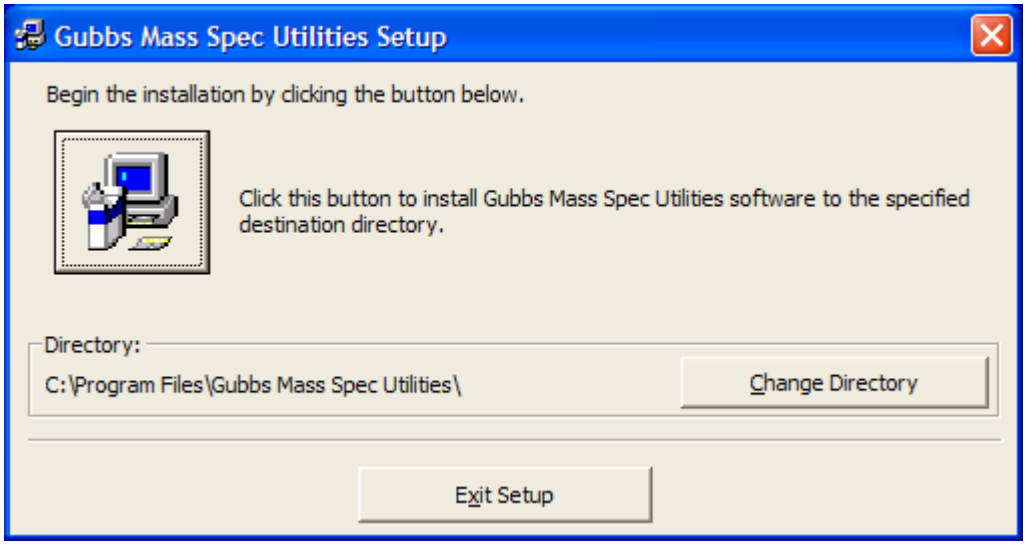
12.1 Setup Execution

Note: The contents of the screens described in this section may differ slightly from actuality.

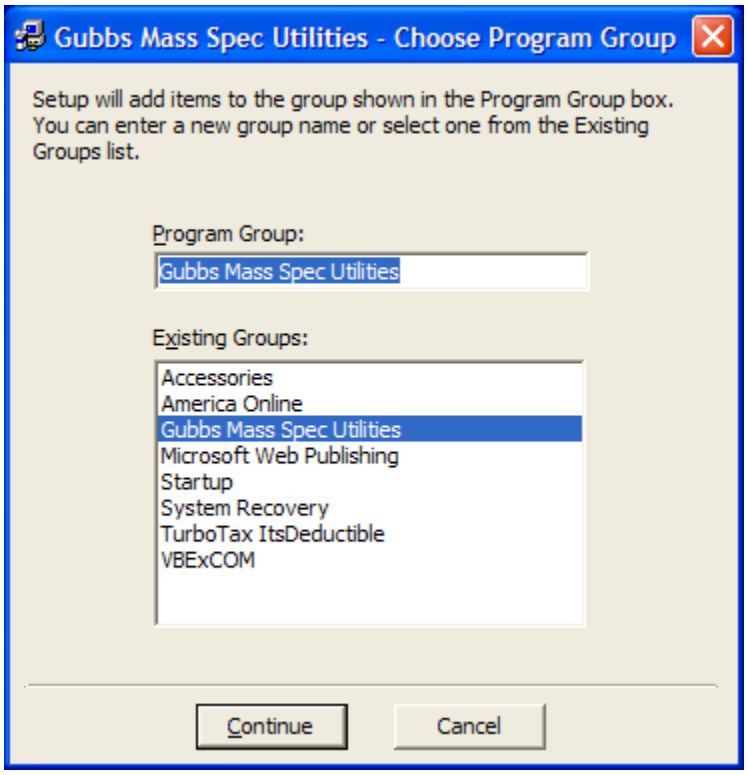
Run the GMSU\QC Setup.exe executable. The following screens will be presented:



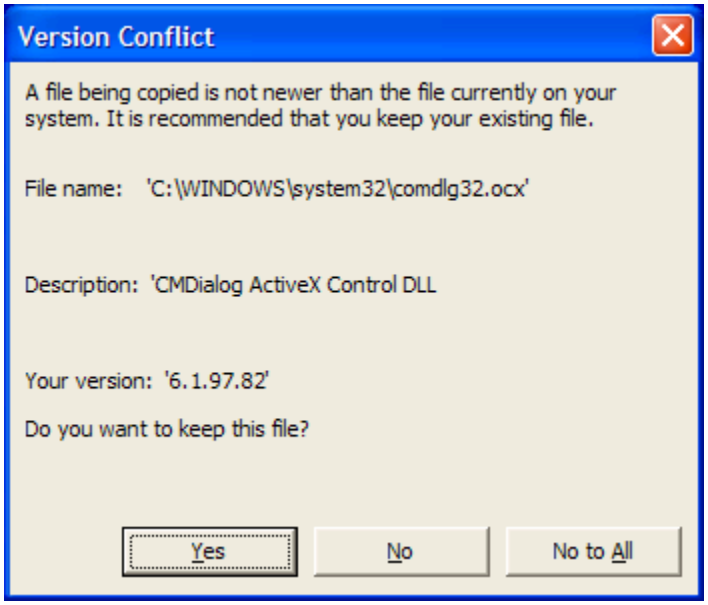
Click OK



Click the large button with the PC icon. The user may change the location of the installation directory, but it is not recommended.



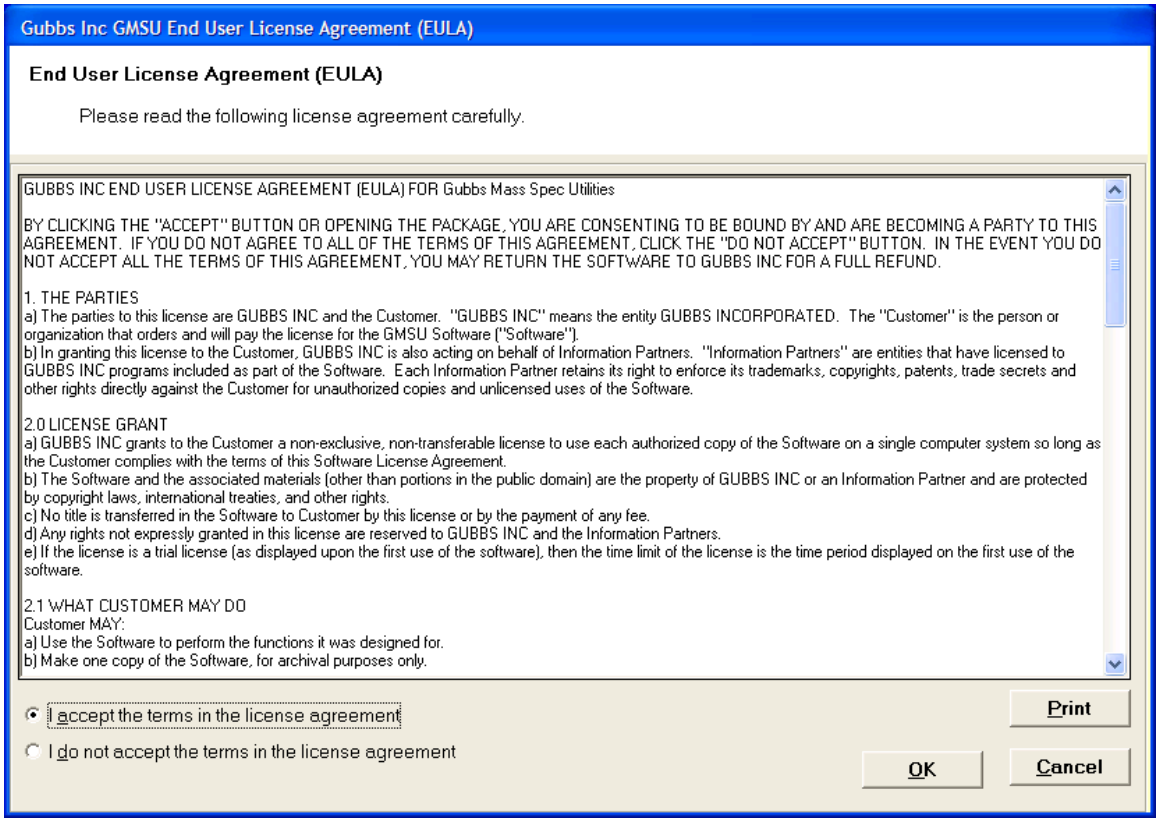
This informational window is displayed



In some instances, the user may be presented with one or more dialog boxes similar to this one. The user should always choose 'Yes'.

12.2 End User License Agreement (EULA)

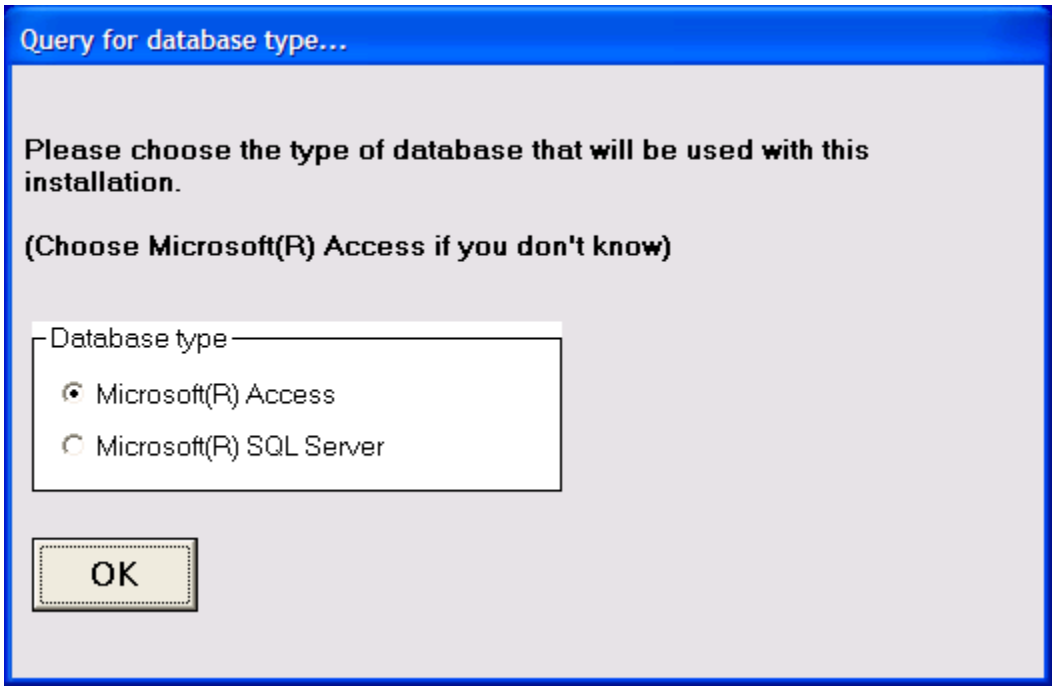
The user will be presented with the EULA. If the user does not agree to the EULA, the installation cannot continue.



12.3 Query for database type

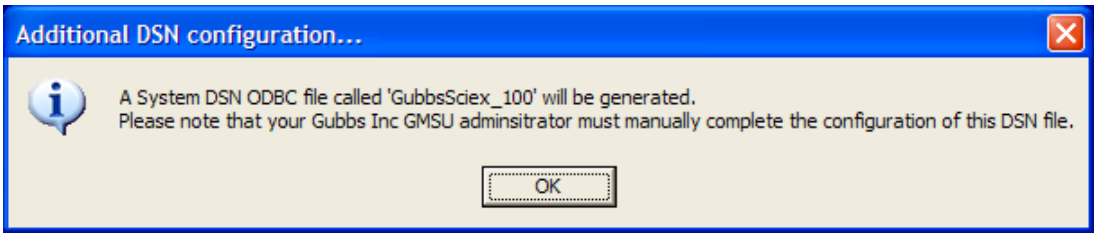
The user will presented with the dialog boxes in this section only with an original installation on a workstation. If the installation is on a workstation on which GMSU\QC had already been installed, then these dialog boxes will not be presented.

Setup will create a System DSN ODBC file used by GMSU\QC to communicate with the GMSU\QC database. The user will be asked which database type will be used with GMSU\QC.



12.3.1 MS SQL Server

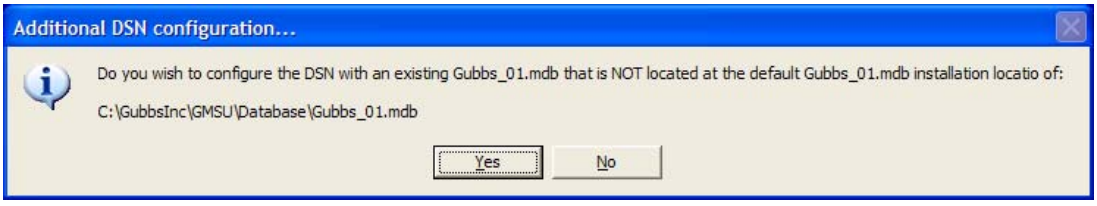
If the user chooses SQL Server, then the following prompt will appear:



This prompt informs the user that an IT administrator must configure the GubbsSciex_100 DSN file that has been created. See Section 19 for further details.

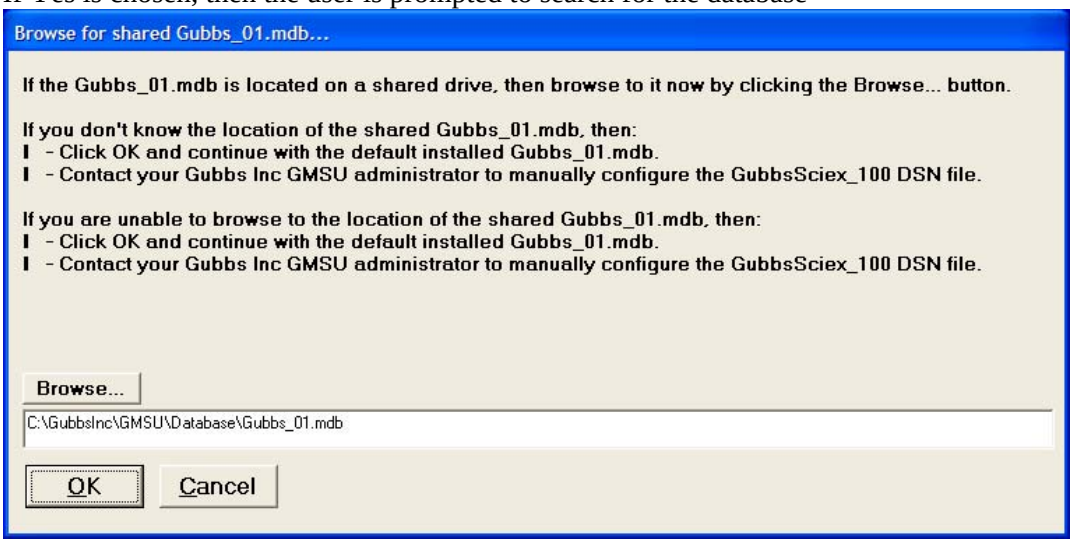
12.3.2 MS Access

If the user chooses MS Access, the following prompts will appear:

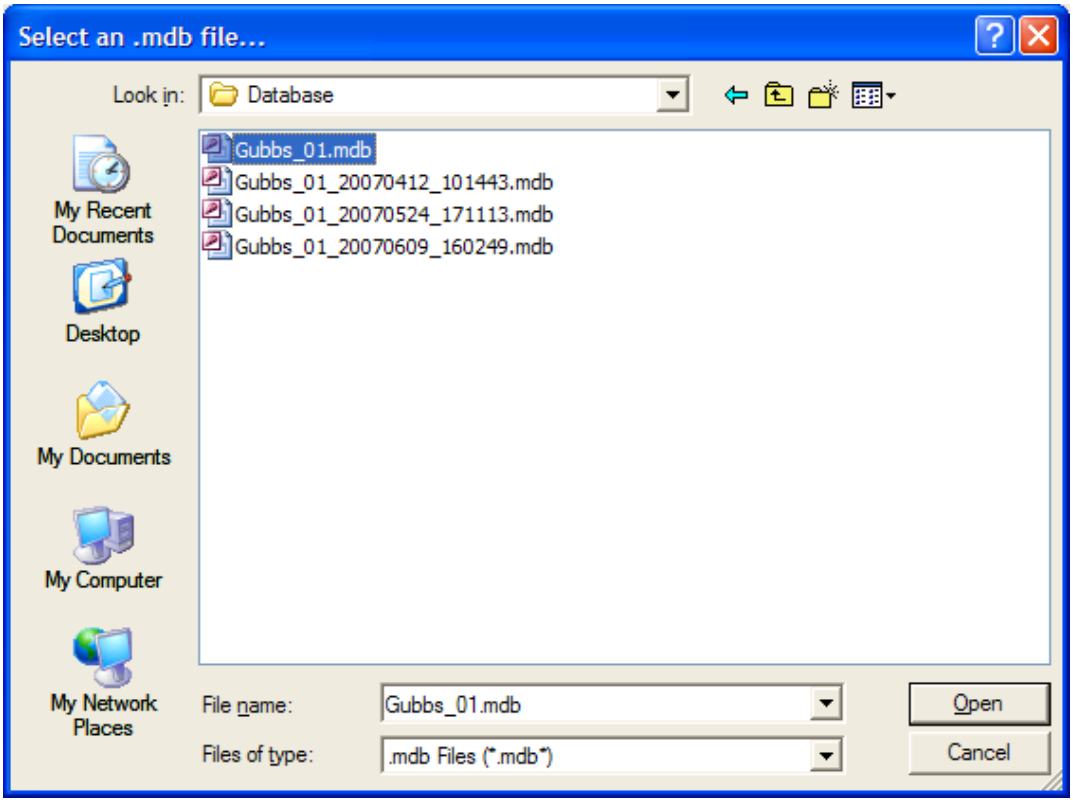


Choose Yes if there is an existing network-level GMSU\QC database (typically named Gubbs_01.mdb) that exists and it is wished to use that existing database

If Yes is chosen, then the user is prompted to search for the database



When the database is found, select it. GMSU\QC Setup will create a DSN file configured to communicate with that database.

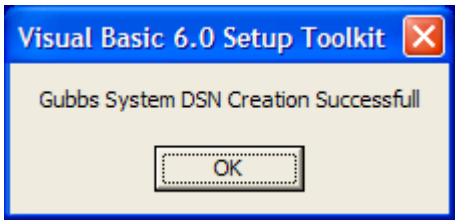


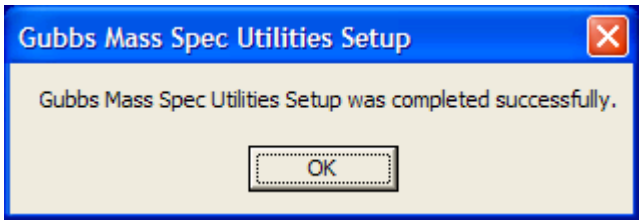
If No is chosen at dialog box shown at the beginning of Section12.3.2, then GMSU\QC Setup will create a DSN file configured to communicate with that database installed in the default location (C:\GubbsInc\GMSU\Database\).

NOTE: If for some reason Setup cannot create the System DSN described in this section, Setup will inform the user that DSN creation was unsuccessful. If this should happen, then the DSN file will need to be created manually according Section 17 for MS Access or Section 19 for MS SQL Server.

12.4 Installation Finish

When the installation is finished, the user will be presented with the following dialog boxes:





12.5 Additional Actions Performed by Setup

In addition to installing the GMSU\QC software, Setup.exe will perform the following tasks:

12.5.1 Directory creation

Setup.exe will create a C:\GUBBSINC\GMSU\ directory and several subdirectories related to GMSU\QC operation. If the directories already exist, then they will not be re-created and existing files within these directories will not be deleted or modified.

The GMSU\QC setup.exe will create the following GMSU\QC directories.

C:\GUBBSINC\GMSU\
C:\GUBBSINC\GMSU\Database\ [1,2]
C:\GUBBSINC\GMSU\Export\ [3]
C:\GUBBSINC\GMSU\CompoundLists\ [3]
C:\GUBBSINC\GMSU\ChromatographyMethods\ [4]
C:\GUBBSINC\GMSU\Manuls\

The folder …\Database\ is the location in which the GMSU\QC database is originally stored [1,2]. GMSU\QC setup.exe places the GMSU\QC database 'Gubbs_01.mdb' here.

The folder …\Export\ is the location in which text file reports will be stored (for Sciex HT Acquisition Tools).

The folder …\CompoundLists\ is the location in which Automaton™ compound lists are stored (for Sciex HT Acquisition Tools).

The folder …\ChromatographyMethods\ is the location in which Permeability Calculator chromatographic methods are stored (if chromatographic methods are generated by the user in an HT environment).

The folder …\Manuals\ is the location in which GMSU\QC Manuals are stored. GMSU\QC setup.exe places current manuals in this directory.

[1] If Microsoft Access is to be used as the backend database
[2] If MS Access is to be used in a multi-user environment, see Section 15.1
[3] Location of temporary .doc and .pdf files when generating PDF reports in the PK Calculator module.
[4] Used only by the Permeability Calculator module

Notes:

- If the GMSU\QC database is to be shared by multiple instances of GMSU\QC, it is HIGHLY RECOMMENDED that all local installation GMSU\QC directory structures are not modified once created by GMSU\QC setup.exe. The database stores some local directory structure variables and assumes that all local installation directory structures are identical.

12.5.2 Installation of PDF-XChange® print driver

Setup will install a print driver named 'PDF-XChange for GubbsInc'. This print driver is used by the PK Calculator module if the user chooses to generate a report in PDF format.

12.5.3 GMSU\QC_01.ini file creation

12.5.3.1 Original Installation

Setup will create a GMSU\QC_01.ini file in C:\GUBBSINC\GMSU\.

12.5.3.2 Subsequent Installation

If GMSU\QC_01.ini already exists in C:\GUBBSINC\GMSU\. Setup will not overwrite the file.

12.5.4 Gubbs_01.mdb file creation

12.5.4.1 Original Installation

Setup.exe will create a Gubbs_01.mdb file in C:\GUBBSINC\GMSU\Database\.

12.5.4.2 Subsequent Installations

If Gubbs_01.mdb already exists in C:\GUBBSINC\GMSU\Database\, Setup will not overwrite the file.

13 GMSU\QC Licensing

GMSU\QC is exclusively distributed by Thermo Scientific™. Thermo Scientific manages the licensing of GMSU\QC under the brand Thermo Scientific QuickCalc™.

When a newly-installed GMSU\QC application is installed, the user will be prompted to enter licensing information. Two types of licenses are available for GMSU\QC: Full License and Evaluation License (good for 60 days).

13.1 Licensing Process

The licensing process is as follows:

13.1.1 License prompt

The user will be presented with the following prompt.

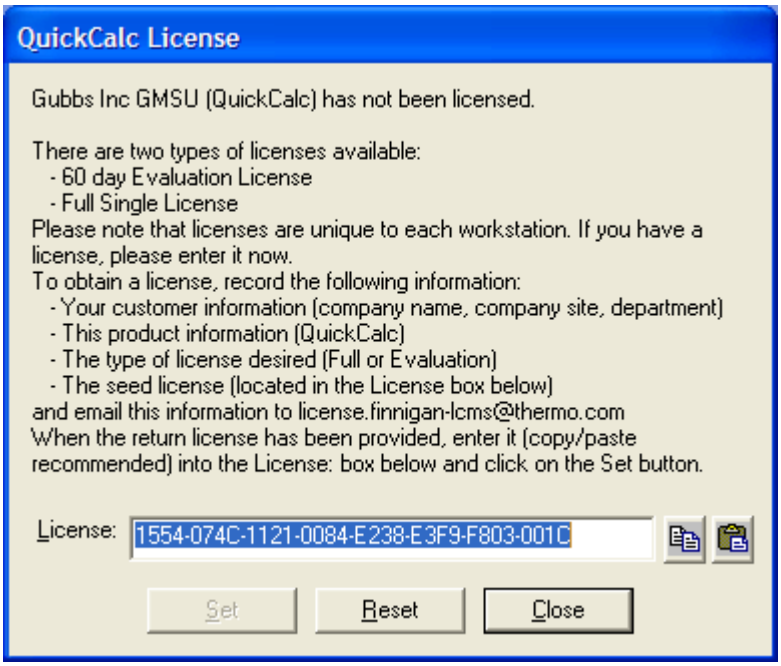


Figure 1 License Prompt

13.1.2 Record information

The user must record the following information:

- Customer information:
  - Company name
  - Company site
  - Department
- This product information
  - QuickCalc
- The type of license desired
  - Full or Evaluation

- The seed license
  - Located in the License: text box

13.1.3 Email to Thermo Scientific

The recorded information must be emailed to:

License.finnigan-lcms@thermo.com

13.1.4 Return license key emailed back

Thermo Scientific will respond to the email with a return license key.

13.1.5 Enter the return license

Open GMSU\QC and, at the QuickCalc License prompt, enter the return license.

If the key is not accepted, please:

- Report the problem to License.finnigan-lcms@thermo.com
  OR
- Contact your Thermo Scientific representative immediately

14 Physical Location of GMSU\QC database Gubbs_01.mdb

If MS SQL Server is to be used as the GMSU\QC database, then this section may be ignored.

14.1 Stand-alone Environment

If GMSU\QC is to be used as a stand-alone application and the GMSU\QC database will not be shared by other users, then it is recommended that the GMSU\QC database Gubbs_01.mdb be left in its original installation location of C:\GUBBSINC\GMSU\Database\.

14.2 Multi-user Environment

In order for GMSU\QC to be used in a multi-user environment, the Gubbs_01.mdb file must be located in a shared directory to which all GMSU\QC users have access. The preferable location for Gubbs_01.mdb is on a network directory, but it can also reside on a local directory that has been shared out to all GMSU\QC users. If a network directory will be used, it is at this point that the network directory should be defined for the next installation step Section 15.

15 Windows Share Permissions and Directory Permissions

The person installing GMSU\QC must be logged onto the workstation with an account that has permissions to modify directory shares and permissions on the local workstation.

If GMSU\QC is to be configured such that multiple instances of GMSU\QC will share the same database and access the same acquired data, a shared directory must be configured according to the following guidelines. This directory can be a directory on a network file server, or the appropriate local directories of a single data acquisition workstation can be shared. Please see Appendix A Thermo Environment

Multiuser System Configuration, for a detailed discussion on configuring GMSU\QC in a multiuser environment.

Please note that Section 15.1 deals mainly with Sciex Analyst users. Thermo data is not typically moved from local data acquisition workstations to network directories (other than for backup procedures).

The following instructions assume that a network file server directory will be configured (Thermo users should see Section 15.2).

15.1 Shared Network Data Directory (if applicable) (pertains to Sciex data)

Identify a location to which GMSU\QC files will be stored. At this location, generate the following directories:

NOTE: The easiest way to perform this process is to simply copy a local \GubbsInc\... directory set to the network.

\\[network]\GubbsInc\GMSU\QC\
\\[network]\GubbsInc\GMSU\QC\Database\ [1]
\\[network]\GubbsInc\GMSU\QC\Export\ [3]
\\[network] GubbsInc\GMSU\QC\CompoundLists\ [2,3]
\\[network]\GubbsInc\GMSU\QC\Data\ [2]
\\[network]\GubbsInc\GMSU\QC\ChromatographyMethods\ [3,4]

The folder \\…\Database\ is the location in which the GMSU\QC database is stored [1].
The folder \\…\Export\ is the location in which text file reports are stored.
The folder \\…\CompoundLists\ is the location in which compound lists are stored.
The folder \\…\Data\ is the location in which acquired .wiff files are copied. Note that if a network repository of acquired data already exists, that is acceptable. The acquired data directory location is configured as a variable within the GMSU\QC Configuration Utility (for Sciex environment only).
The folder \\…\ChromatographyMethods\ is the location in which Permeability Calculator chromatographic methods is stored (if a chromatographic method is generated by the user).

[1] If Microsoft Access is to be used as the backend database
[2] Sciex environment only
[3] Optional. If this information will be specific to an instrument, then local directories may be configured in GMSU\QC Configuration (assumes local data directories are configured as described in Section 12.5.1).
[4] Used only by the Permeability Calculator module in a HT acquisition environment

15.1.1 Copy files

At a minimum, copy GMSU\QC_01.mdb to \\[network]\GubbsInc\GMSU\QC\Database\.

15.1.2 Share settings

Share the …\GMSU\QC\ directory and configure GMSU\QC users to have a minimum of CHANGE share permissions.

15.1.3 Directory permission settings

Configure directory permissions at the …\GMSU\QC\ and configure the subdirectories to inherit. At a minimum, users must be able to read and write to these directories (MODIFY permissions).

Note: If the directory to which acquired data is stored is something other than a GMSU\QC directory, users must be able to read and write to this directory (Display HT Chromatography acquisition chromatogram text files are written to this directory).

15.1.4 GubbsSciex_100 System DSN ODBC file

Remember that the network Gubbs_01.mdb will be used when configuring the MS Access GubbsSciex_100 System DNS ODBC file described in Section 17.

15.1.5 GMSU\QC clients referencing the shared directory

Use UNC Path

The administrator must set the Configuration Utility – [Module] – Use UNC Path value to 'Yes'. This will force GMSU\QC to refer and store all references to data files using the UNC path (e.g. \\gubbslap03\Xcalibur\) rather than the drive-letter reference (e.g. C:\Xcalibur\).

15.2 Shared Local Data Directory (if applicable)

GMSU\QC is especially useful when it is configured in a manner that all users have access to the raw chromatographic data (.wiff, .raw, .sld). This type of access is most easily attained when the raw data are stored on a centralized network server. However, it is recognized that the Thermo chromatographic raw data file structure mostly is not amenable to manual movement of data to a network directory. In addition, some Sciex administrators may not wish to include a manual raw data copy step in their data reporting process.

Therefore, if it is desired to use GMSU\QC in a manner that all users have access to local chromatographic raw data, administrators must perform the following steps:

15.2.1 Share the raw data directory (e.g. C:\XCalibur\ or D:\Analyst Data\Projects\)

- The raw data directory must be shared to GMSU\QC users.
- Give the share an intuitive name, such as 'XCalibur' or 'Analyst'
    - Note: For Thermo data:
        - the share MUST be C:\XCalibur\
        - the share MUST be named 'Xcalibur'
- GMSU\QC users must be granted a minimum of CHANGE share permissions.

15.2.2 Configure raw data directory security permissions

The directory security permissions of the raw data directory must be configured such that GMSU\QC users have a minimum of MODIFY permissions.

15.2.3 GMSU\QC clients referencing the shared directory

Two options are available for all GMSU\QC clients to reference the shared directory: Note: For Thermo data, both options MUST be executed.

15.2.3.1 Use UNC Path

The administrator may set the Configuration Utility – [Module] – Use UNC Path value to 'Yes'. This will force GMSU\QC to refer and store all references to data files using the UNC path (e.g. \\gubbslap03\Xcalibur\) rather than the drive-letter reference (e.g. C:\Xcalibur\).

15.2.3.2 Use mapped drive letters

The administrator may map the shared drive on each GMSU\QC client workstation. Administrators must take care that the same letter is used at ALL GMSU\QC clients, INCLUDING data acquisition workstations.

NOTE: Please note in this configuration that, if users are processing data at a data acquisition workstation, they must browse to the MAPPED LETTER when opening data.

It is recommended that each client workstation map to the same drive letter.

15.2.4 Database Location (for MS Access only)

If the data files (.wiff, .sld, .raw) are being stored locally, administrators may still wish to store the GMSU\QC MS Access database Gubbs_01.mdb on a networked file server. If so, Section 15.1 should be followed, except only a directory (e.g. \\[network]\[share]\GubbsInc\GMSU\QC\Database\) need be created and the database copied there.

16 Database Configuration – Microsoft® Access

If MS Access is to be used as the backend database, follow the instructions in this section.

- Setup will place a copy of the Gubbs_01.mdb in the C:\GUBBSINC\GMSU\Database\ directory.
- If GMSU\QC Setup could not automatically configure a DSN ODBC file, then configure an appropriate DSN File according to Section 17.

17 DSN Configuration – Microsoft® Access

If Setup.exe could not create the GubbsSciex_100 System DSN ODBC file, then the administrator must manually create the DSN file according to this section.

GMSU\QC communicates with the MS Access database via a system DSN named GubbsSciex_100. Create the DSN according to the following procedure:

17.1 ODBC Data Source Administrator

Open the Data Source Administrator and select the System DSN tab

- Windows XP: via Control Panel – Administrative Tools – Data Sources

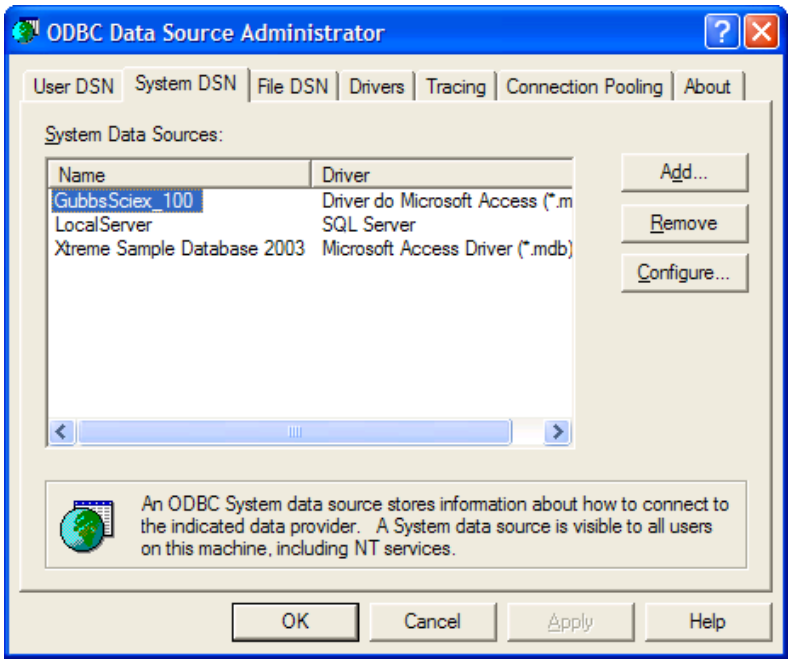


Figure 2 MS Access DNS - Data Source Administrator

17.2 Create New Data Source

Click on the Add… button to start the Create a New Data Source Wizard, select “Driver do Microsoft Access (*.mdb), and click on Finish

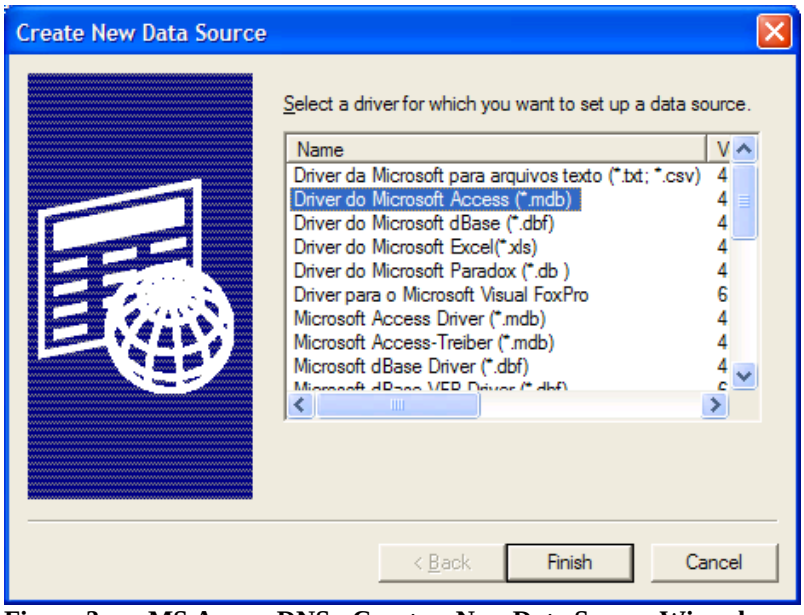


Figure 3 MS Access DNS - Create a New Data Source Wizard

17.3 ODBC Setup

At the ODBC Microsoft Access Setup window, enter the Data Source Name and Description as shown in Figure 4. IMPORTANT: The Data Source Name must be entered exactly as shown.

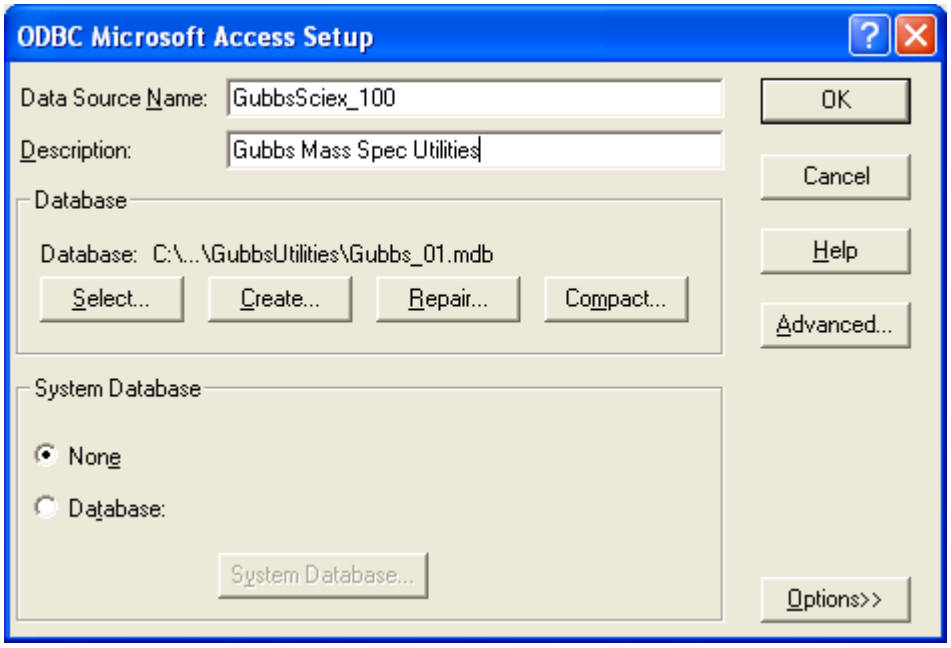


Figure 4 MS Access DNS - ODBC Microsoft Access Setup

17.4 Select database

Click on the Select… button, navigate to the Gubbs_01.mdb, and click on OK

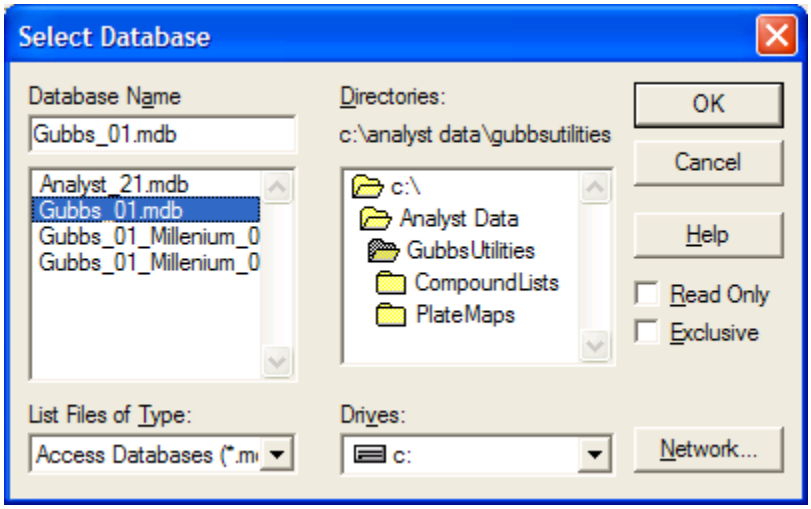


Figure 5 MS Access DNS - Select Database

Click on the OK button to complete the DSN configuration process.

18 Database Configuration – Microsoft® SQL Server

If Microsoft SQL Server is to be used as the backend database, follow the instructions in this section.

18.1 Create a SQL Server database using the MS Access Upsizing Wizard

Setup will place a copy of the Gubbs_01.mdb in C:\GUBBSINC\GMSU\Database\.

Open this file in MS Access and run the Upsizing Wizard

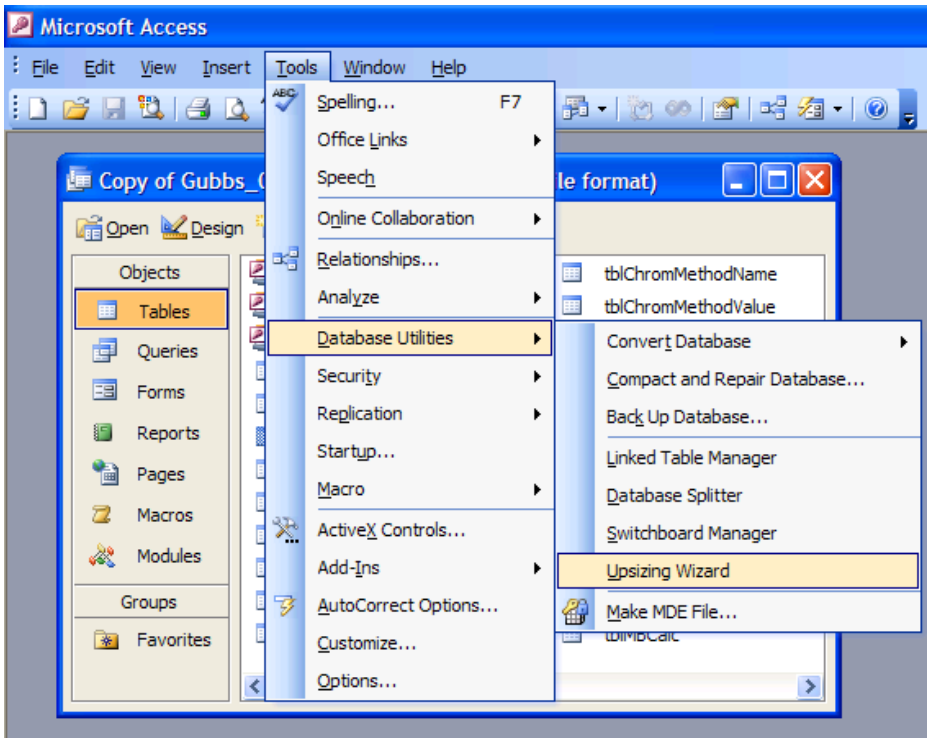


Figure 6 MS Access Upsizing Wizard

The following figures show the parameters to choose when performing the Upsize action

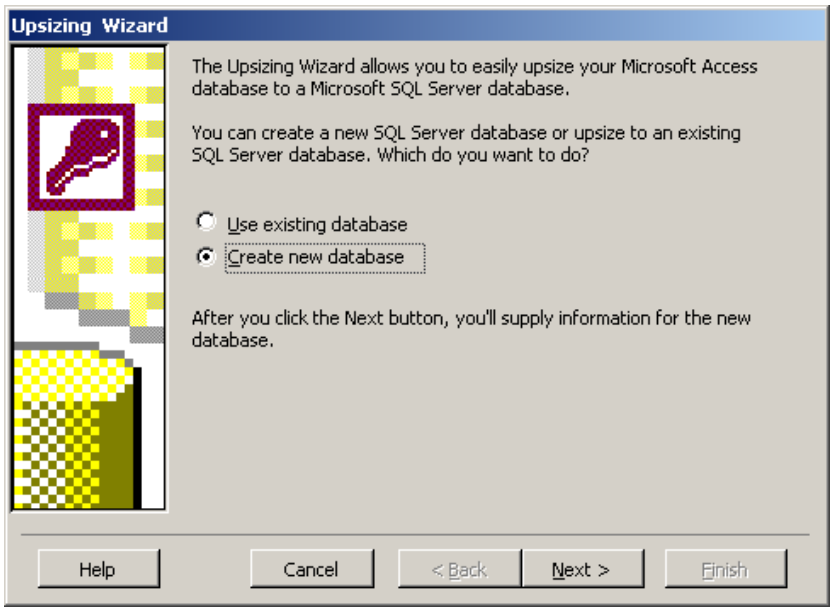


Figure 7 MS Access Upsizing Wizard - Choose Create new database

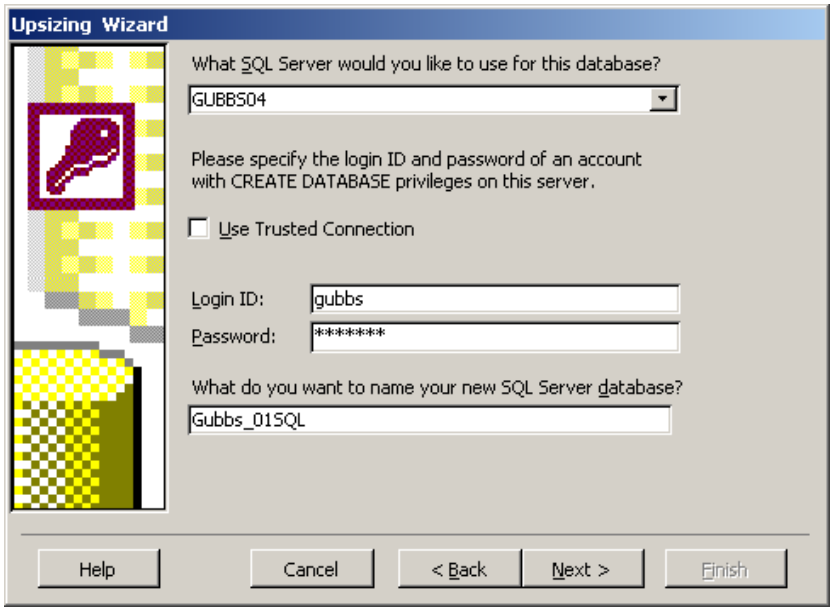


Figure 8 MS Access Upsizing Wizard - Connection settings

Here, enter a login ID and password of an account with sufficient permissions to create a database (e.g. sa), modify records and alter tables. A GMSU\QC user account will be generated at a later step. The database name can be of your choosing.

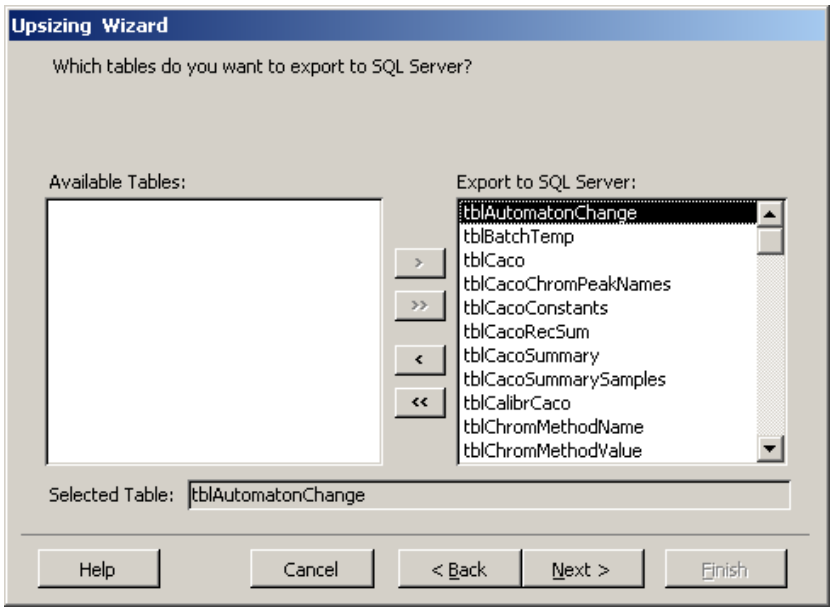


Figure 9 MS Access Upsizing Wizard - Export all tables

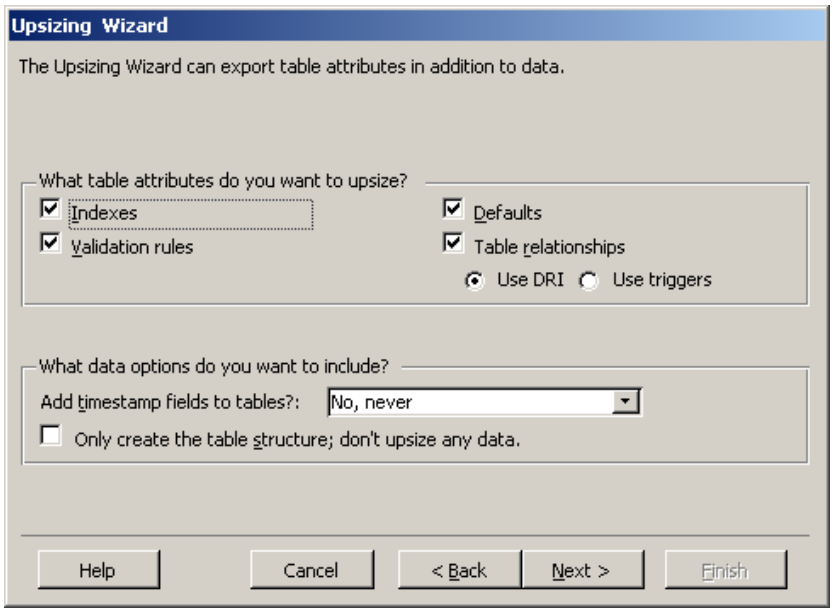


Figure 10 MS Access Upsizing Wizard – Export attributes

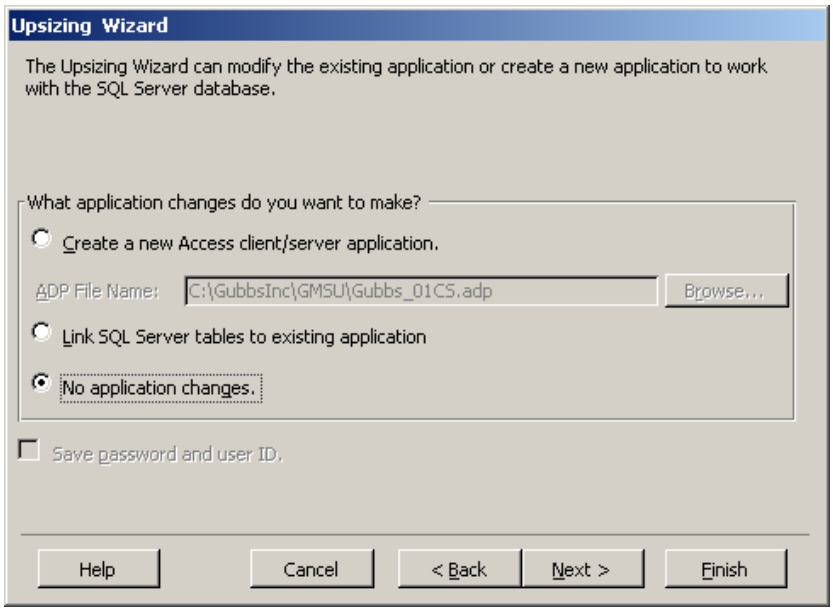


Figure 11 MS Access Upsizing Wizard – No application changes

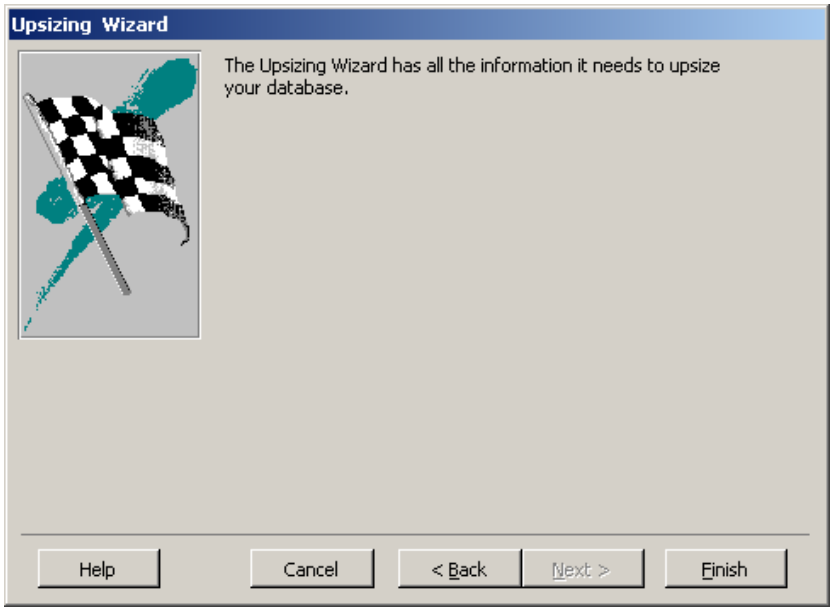


Figure 12 MS Access Upsizing Wizard - Finish

At this point the Upsizing Wizard will generate a report which may be discarded.

18.2 Create a GMSU\QC database account

In SQL Server, create a GMSU\QC database account. The account name and password can be of your choosing.

Add the account to the GMSU\QC database and assign the account the following ROLES:

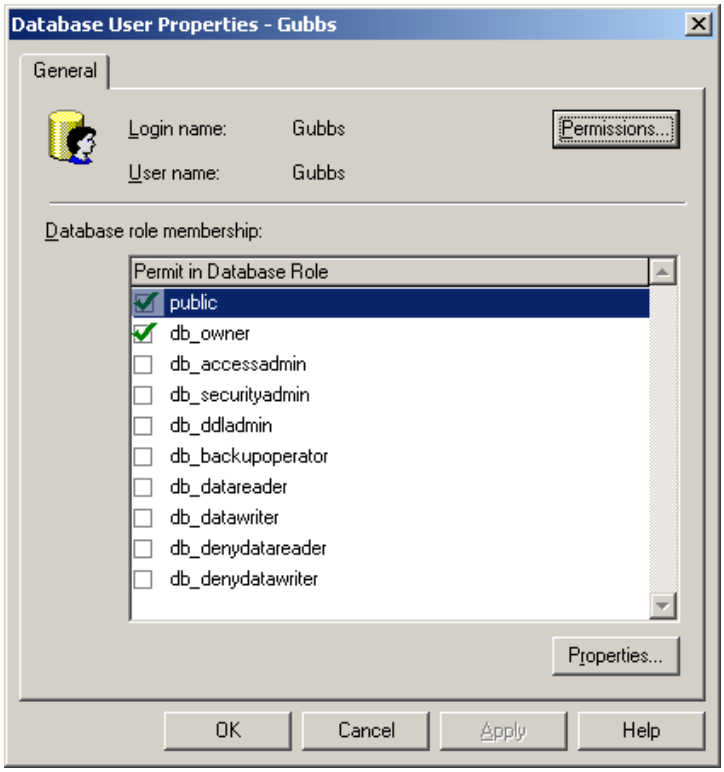


Figure 13 MS SQL Server GMSU\QC account roles

18.3 Record the user account and password information

Record the user account and password information on a sheet of paper. The user account and password information is needed to update the GMSU\QC_01.ini file described in Section 20.

18.4 Local Data Source Name (DSN)

GMSU\QC communicates with the SQL Server database via a system DSN. Create the DSN according to the procedure described in Section 19.

19 DSN ODBC File Configuration – Microsoft® SQL Server

If MS SQL Server is to be used as the backend database, follow the instructions in this section.

If Setup.exe could not create the GubbsSciex_100 System DSN ODBC file, then the administrator must manually create the DSN file according to this entire section.

If Setup.exe was successful in creating the GubbsSciex_100 System DNS ODBC file, then the administrator must complete the configuration starting with Step 19.3 of this section.

GMSU\QC communicates with the SQL Server database via a system DSN named GubbsSciex_100. Create the DSN according to the following procedure:

19.1 ODBC Data Source Administrator

Open the Data Source Administrator and select the System DSN tab

- Windows XP: via Control Panel – Administrative Tools – Data Sources

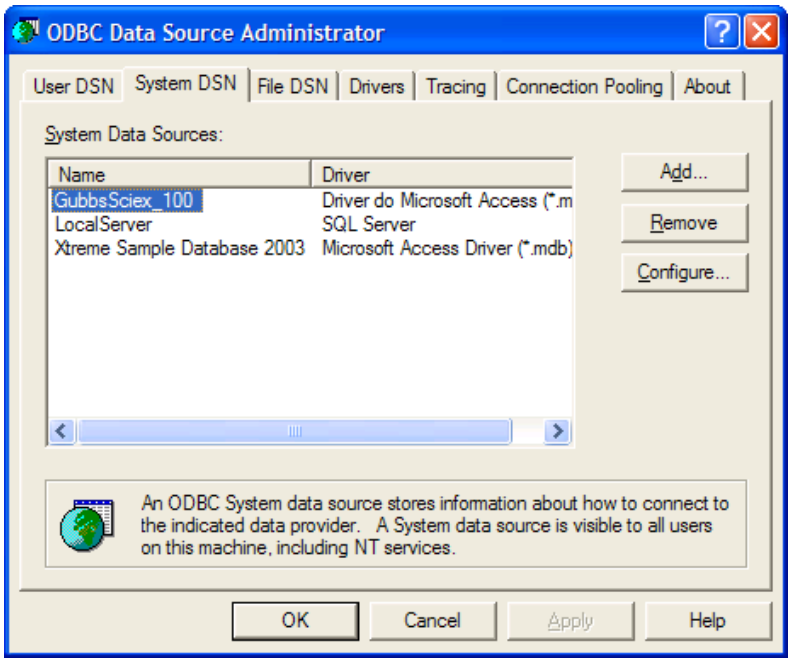


Figure 14 SQL Server DNS - Data Source Administrator

19.2 Create new data source

Click on the Add… button to start the Create a New Data Source Wizard, select “SQL Server”, and click on Finish

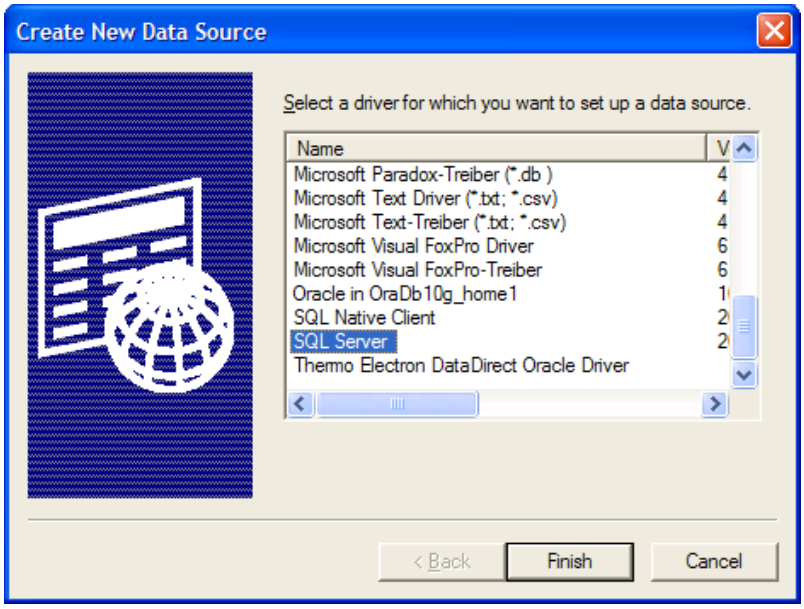


Figure 15 SQL Server DNS - Create a New Data Source Wizard

19.3 Create a new data source

At the Create a new data source window, enter ‘GubbsSciex_100’ as Name and Description as shown. Choose the server on which the GMSU\QC SQL Server database was generated, then click Next

IMPORTANT: The Data Source Name must be entered exactly as shown.

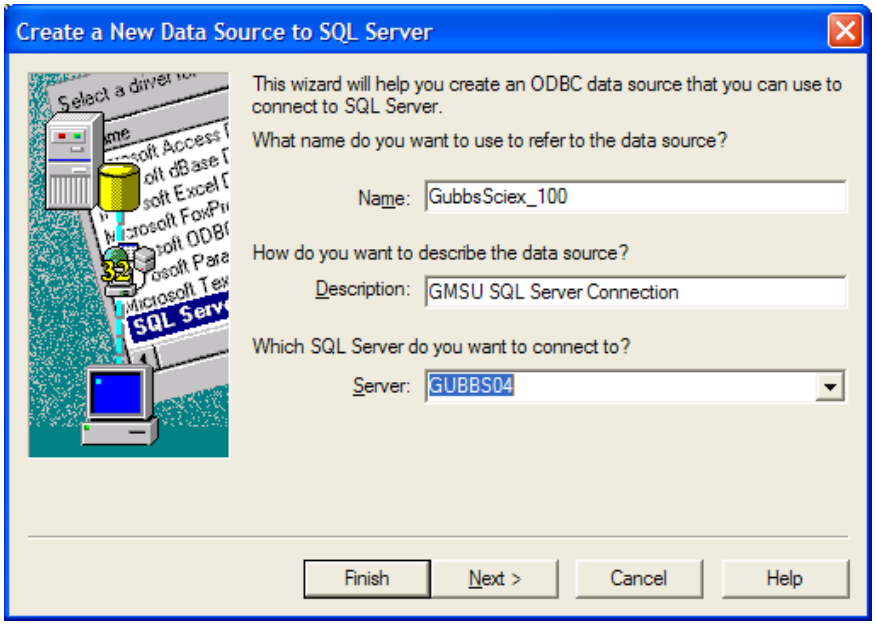


Figure 16 SQL Server DNS - Create a new data source

19.4 Enter connection parameters

Configure the next window as shown. Enter the userid and password combination created in Section 18.2. Then click Next.

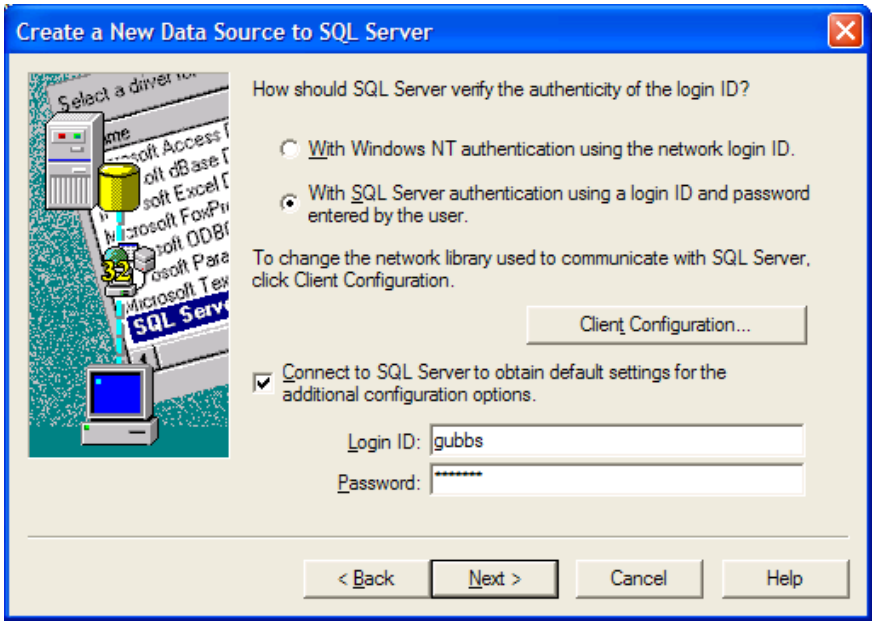


Figure 17 SQL Server DNS - Enter connection parameters

19.5 Additional parameters

Enter additional parameters as shown in the next two figures, then click Next and Finish:
NOTE: Ensure that the default database is the GMSU\QC database.

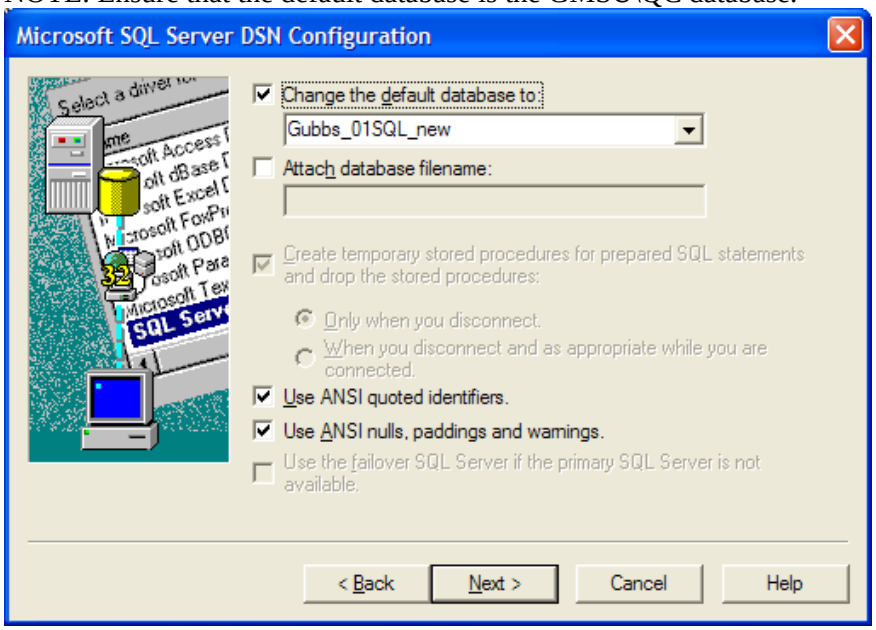


Figure 18 SQL Server DNS - Enter additional parameters

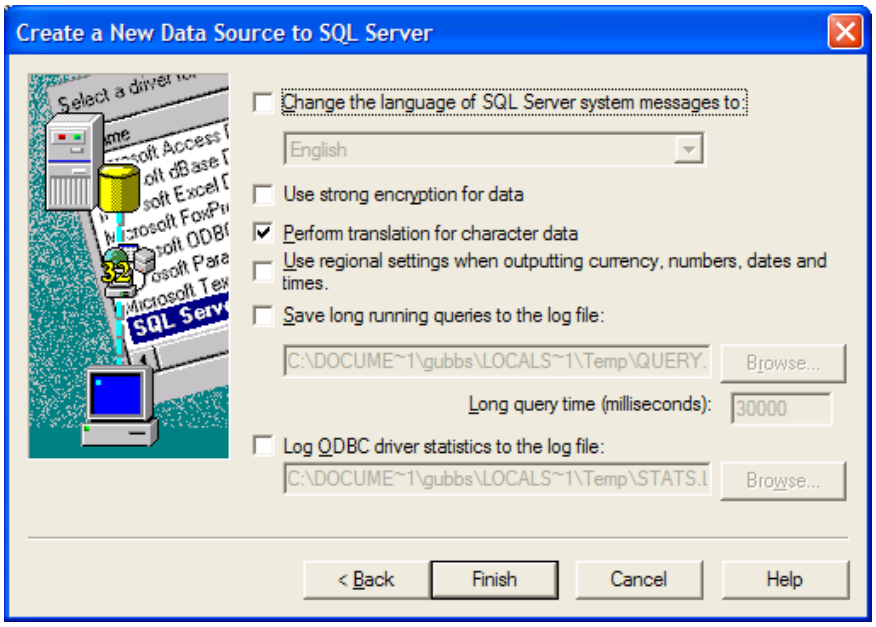


Figure 19 SQL Server DNS - Enter additional parameters

19.6 Test connection

Test the connection by clicking on the 'Test Data Source' button

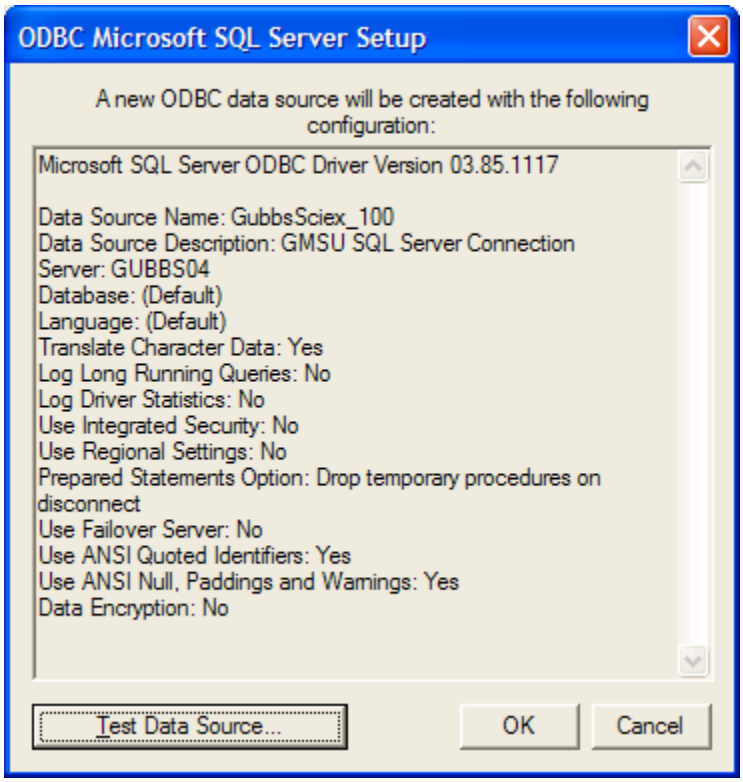


Figure 20 SQL Server DNS - Test connection

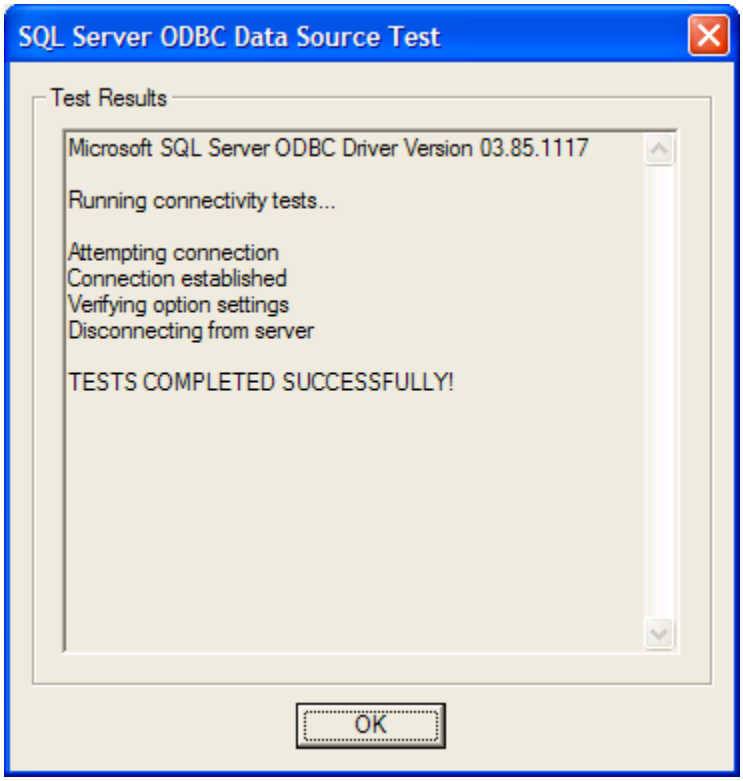


Figure 21 SQL Server DNS - Test connection

If the last line does note read “TESTS COMPLETED SUCCESSFULLY”, then contact your GMSU\QC administrator before proceeding.

Click on the OK button to complete the DSN configuration process.

20 GMSU\QC_xx.ini

Setup will create an .ini file (named GMSU\QC_xx where 'xx' is a number) located in the directory C:\GUBBSINC\GMSU\. The following is an example of the GMSU\QC .ini file:

boolAccess	TRUE
boolSQLServer	FALSE
UserID	Gubbs
Pswd	201 236 212 219 197 221 163
DSN	GubbsSciex_100

Please note that if the original client GMSU\QC installation version was prior to GMSU\QC 2.0.50, then the DSN line in the client .ini file will not exist. If it is desired to configure test instances of GMSU\QC according to Section 23, then the DSN line must be entered manually to the .ini file according to the following procedure:

- Open GMSU\QC_01.ini in Notepad or a suitable text file reader (MS Word is NOT recommended)
- Add a line after the Pswd line
- Enter DSN
- Enter a tab
- Enter GubbsSciex_100
- Save then close the file

20.1 MS Access GMSU\QC_xx.ini configuration

The default .ini content is for a MS Access installation. Please note that the UserID and Pswd entries of the .ini file may be ignored. Ensure that the .ini file has the following content:

boolAccess	True
boolSQLServer	False
UserID	[USERID]
Pswd	[PASSWORD]
DSN	GubbsSciex_100

Note: UserID is ignored
Pswd is ignored

20.2 SQL Server GMSU\QC_xx.ini configuration

If SQL Server is to be used as database, ensure that the .ini file has the following content:

boolAccess	False
boolSQLServer	True
UserID	[USERID]
Pswd	[PASSWORD]
DSN	GubbsSciex_100

Note: [USERID] is the SQL Server account generated in Section 18.2.
[PASSWORD] is the password of the SQL Server account generated in Section 18.2 and encrypted using the Gubbs Inc Password Encryption Tool (described in Section 21)

IMPORTANT: The Gubbs Inc Password Encryption Tool MUST be used to encrypt the password. Copy the encrypted password form the Password Encryption Tool into the Pswd portion of the .ini file (remember to include the trailing space in the encrypted password obtained from the Encryption Tool).

21 Gubbs Inc Password Encryption Tool

Setup will place a file named GubbsIncPswd_01.xls in the installation directory. Open this file to display the Gubbs Inc Password Encryption Tool. Copy the encrypted password to the .ini file if necessary (remember to include the trailing space in the encrypted password obtained from the Encryption Tool).

22 UpdateGMSU\QCDatabase.xls (UGD)

UpdateGMSU\QCDatabase should be run when a subsequent version of GMSU\QC is installed on an existing GMSU\QC client workstation. If GMSU\QC database is part of a multi-user environment, UGD needs to be executed only once. UGD does not need to be run when the system is initially installed and configured.

If it is unknown if UGD has been executed, simply open GMSU\QC. GMSU\QC will prompt the user if UGD needs to be executed.

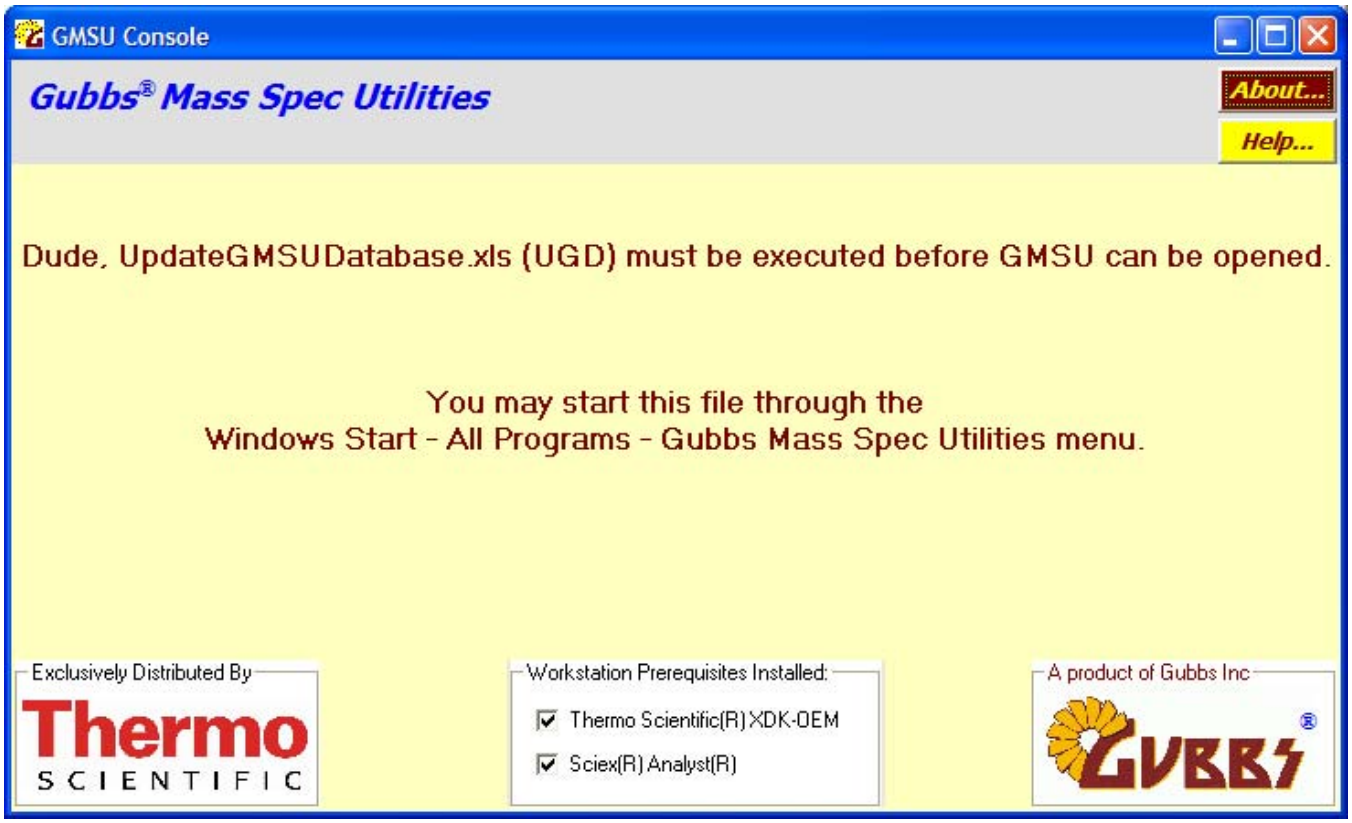


Figure 22 GMSU\QC UGD notification

NOTE: Ensure that the workstation Excel Macro Security (Tools – Macro – Security) is set to Medium. If Macro Security is set to High, then UGC will not run.

Setup will create UpdateGMSU\QCDatabase.xls in the installation directory. UGD may be accessed through the Windows Start – All Programs – Gubbs Mass Spec Utilities menu:

22.1 Description of UGD contents

When UGD is opened, the user will see two worksheets. The first worksheet named ‘Sheet 1’ contains the Execute Update button used to execute the database update (see Figure 23).

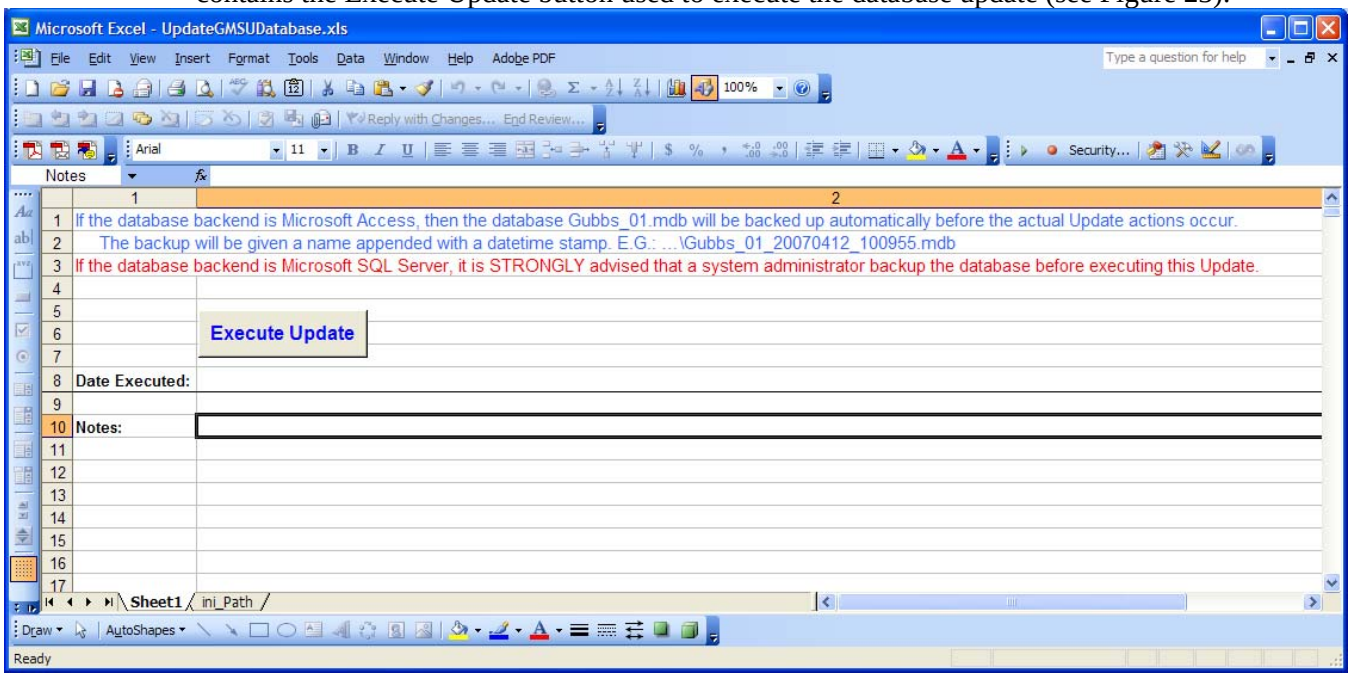


Figure 23 UGD Worksheet ‘Sheet 1’

The second worksheet named ‘ini_Path’ contains the path of the .ini file that contains the name of the DSN file used to connect to the database (see Figure 24). See Section 20 for a description of the GMSU\QC .ini file.

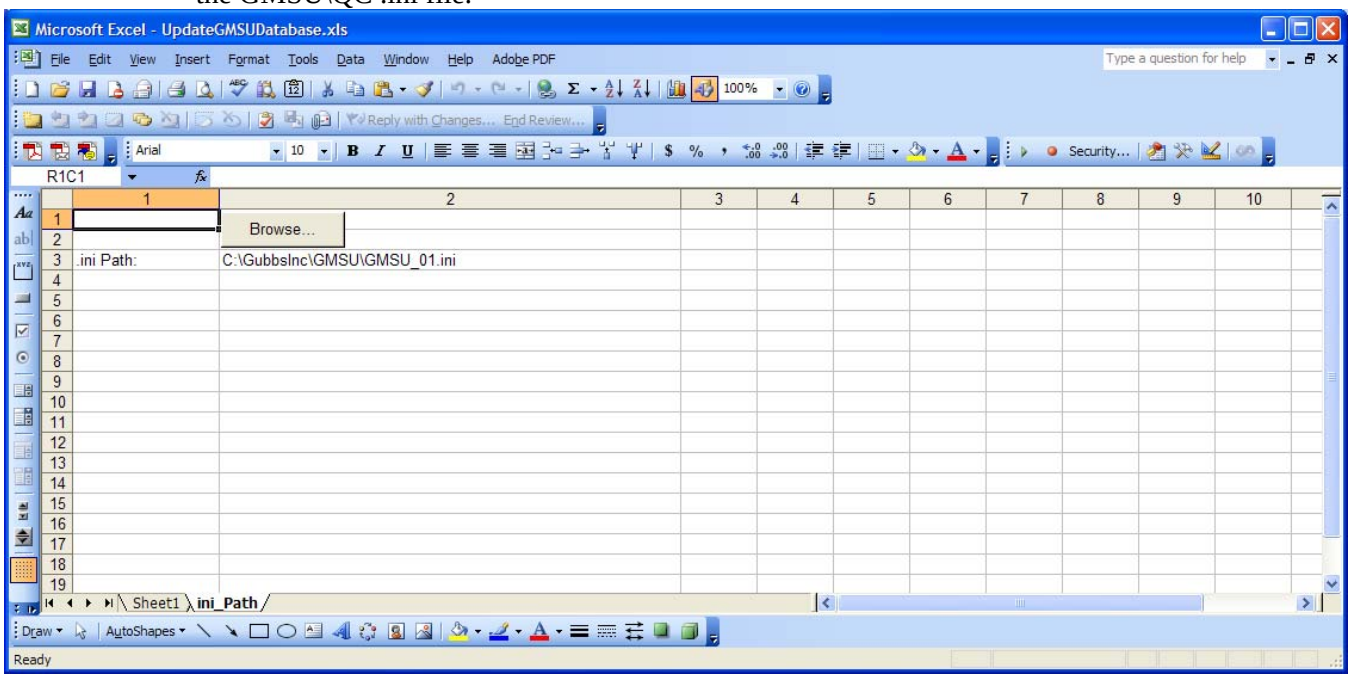


Figure 24 UGD Worksheet ‘ini_Path’

22.2 Procedure

22.2.1 Open UGD

22.2.2 Select the sheet ‘ini_Path’ and ensure ini_Path is correct

The default entry for ini_Path is the path and file created by Setup. The administrator must modify this entry if any of the following is true:

- The administrator has moved the .ini file to a different location
- The administrator has configured several instances of GMSU\QC databases (e.g. for testing purposes) according to Section 23.

22.2.3 Select the sheet ‘Sheet 1’ and click on the Execute Update button

After clicking the Execute Update button, the date of execution and Notes about the update event will be record in ‘Sheet 1’

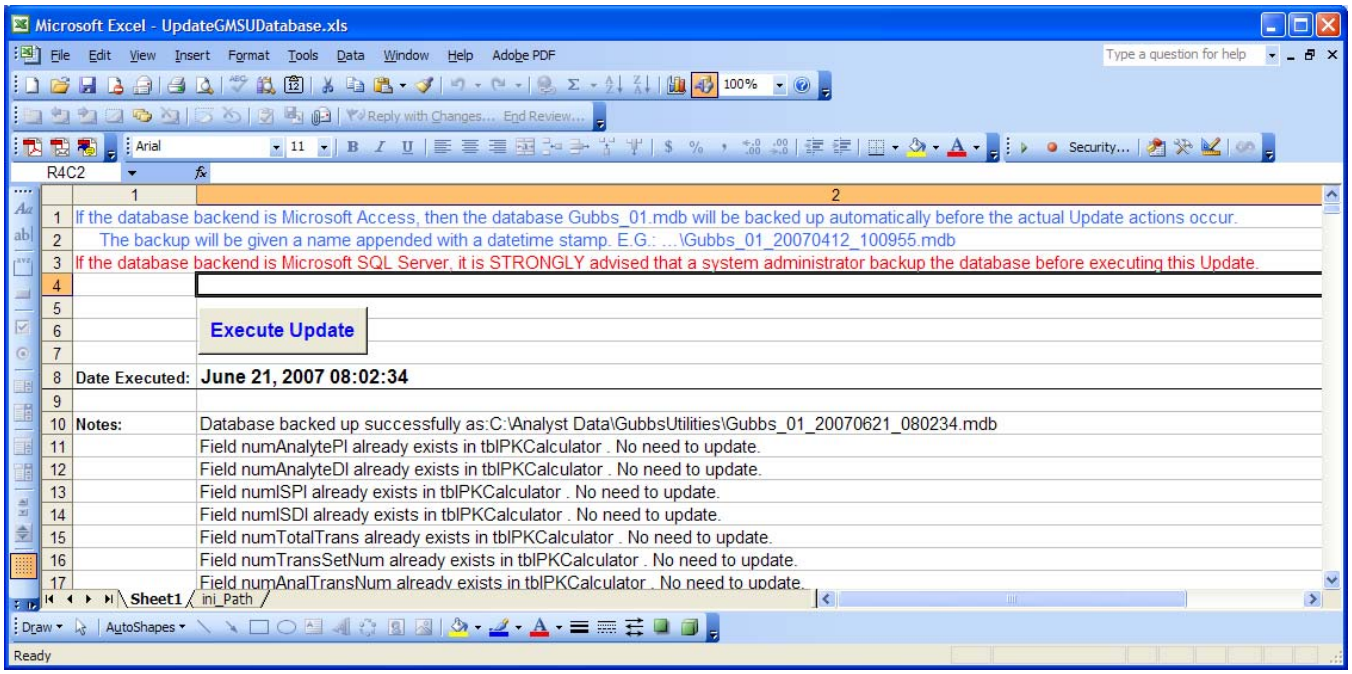


Figure 25 UGD – After Execute Update

If a database update event has occurred, then the SQL statement used to generate the change will be shown

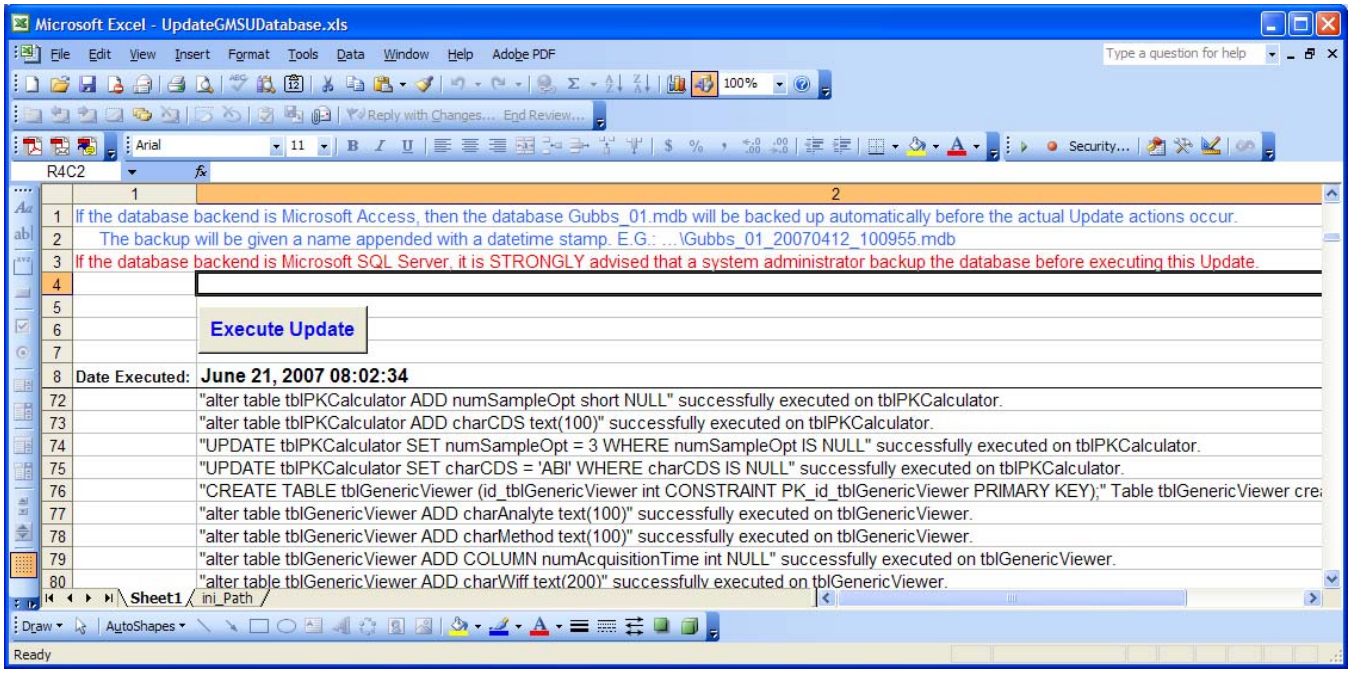


Figure 26 UGD – SQL Statements

22.2.4 Post execution review

If UGD experienced any problems during the database update, then that event will be shown in red font and the admin will be prompted to contact Gubbs Inc.

The administrator should review the results of Sheet 1 and look for red font and report any anomalies to Gubbs Inc

If the administrator wishes to save the results of the update, he/she should save UGD using SAVE AS and rename the Excel file.

23 Configuring Test and Production GMSU\QC Database Instances

Administrators have the ability to configure different instances of GMSU\QC databases. This would be useful if users wish to maintain, for example, a testing database and a production database.

23.1 Procedure

The followings steps describe the procedure for configuring a testing database.

23.1.1 Copy GMSU\QC database table.

Create a copy of the GMSU\QC database table and give it a descriptive name (e.g. GMSU\QC_TEST). If MS Access, it is suggested to place the copy in C:\GUBBSINC\GMSU\Database\.

23.1.2 Create a new GMSU\QC DSN file

Create a new GMSU\QC DSN file according to Section 17 (for MS Access) or Section 19 (for MS SQL Server), except do the following:

- Point the new DSN file to the new database copy (e.g. GMSU\QC_TEST)
- Name the new DSN file something different (e.g. GMSU\QC_TEST)

23.1.3 Copy GMSU\QC_01.ini

- Create a copy of the GMSU\QC_01.ini file (it suggested to leave it in C:\GUBBSINC\GMSU\)
- Name the file something descriptive (e.g. GMSU\QC_TEST.ini)

23.1.4 Modify the new .ini file

- Open the new .ini file in Notepad
- If the .ini file does not contain a last line of:
-

  DSN GubbsSciex_100

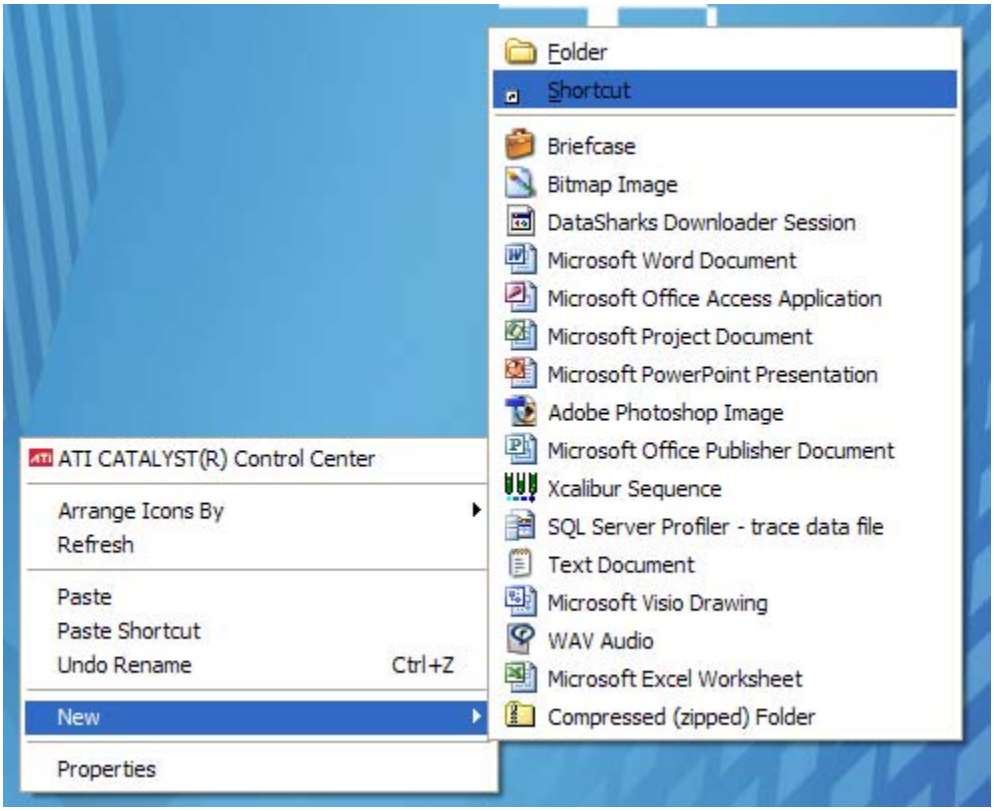
  then create the line (Note: DSN and GubbsSciex_100 are separated by a tab)
- Change the DSN entry to the DSN name created in Section 23.1.2. E.g.

  DSN GMSU\QC_TEST

  (Note: DSN and GMSU\QC_TEST are separated by a tab)

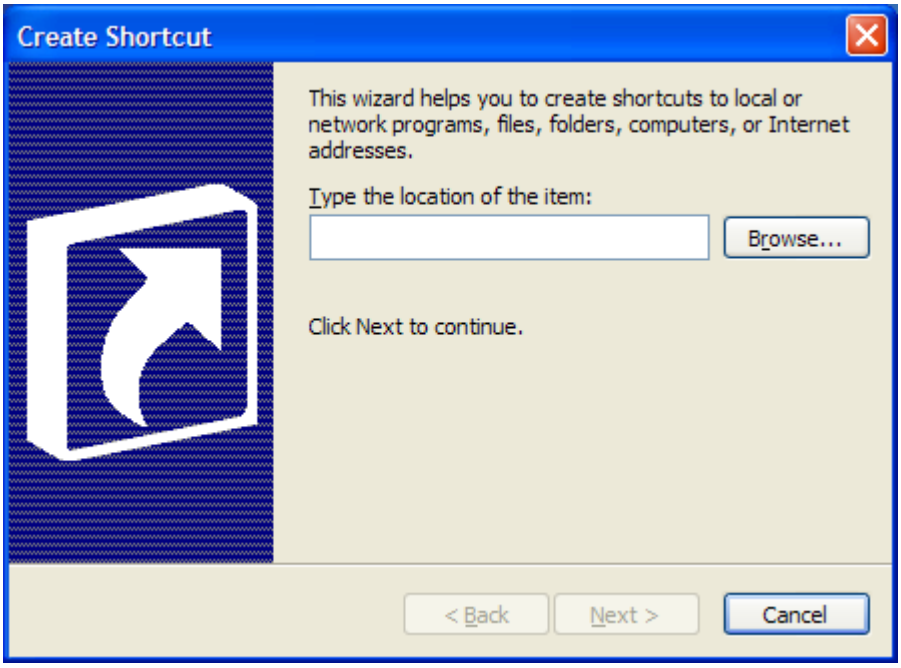
23.1.5 Create a shortcut

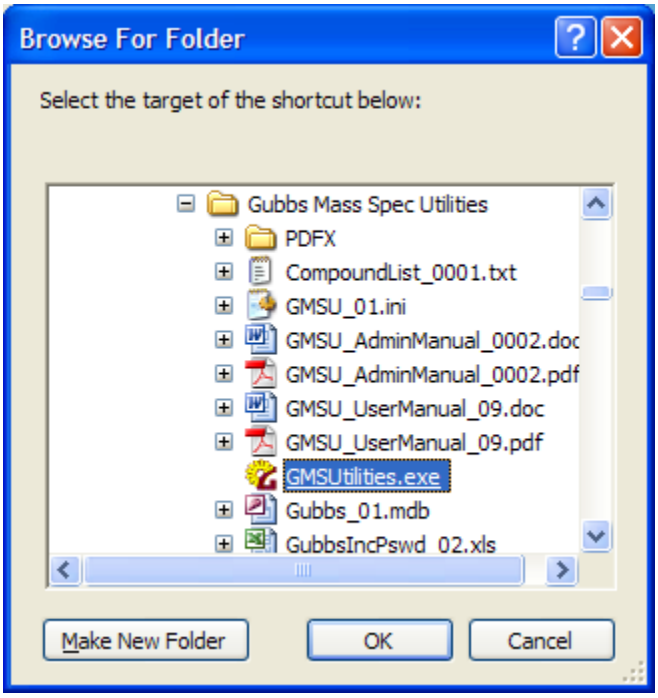
On the Windows desktop, right-click and choose New - Shortcut



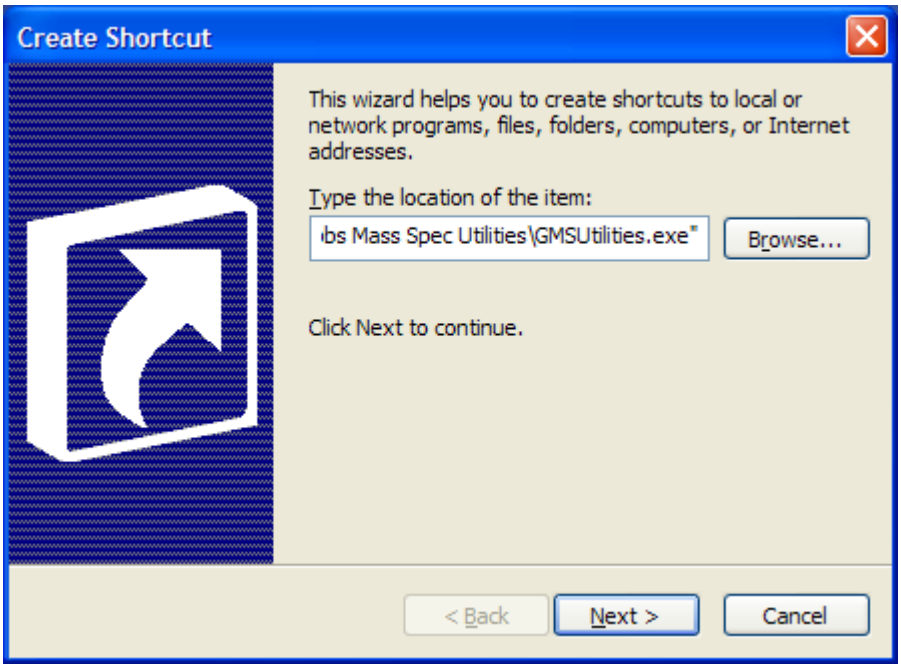
23.1.6 Browse to GubbsMassSpec.exe

At the browse window, browse to C:\Program Files\Gubbs Mass Spec Utilities\GMSU\QCtilities.exe





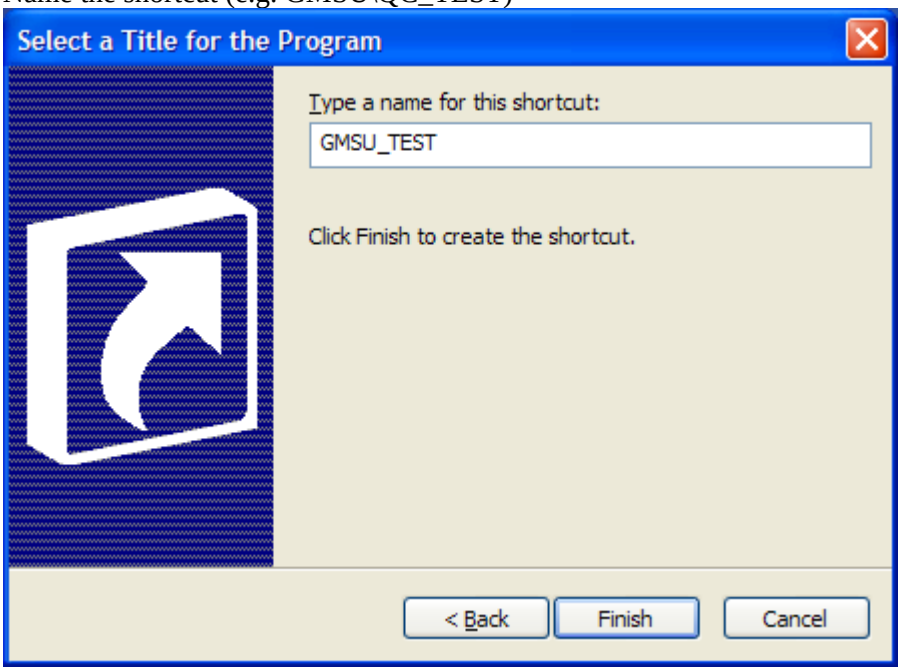
Click OK



Click Next

23.1.7 Name the shortcut

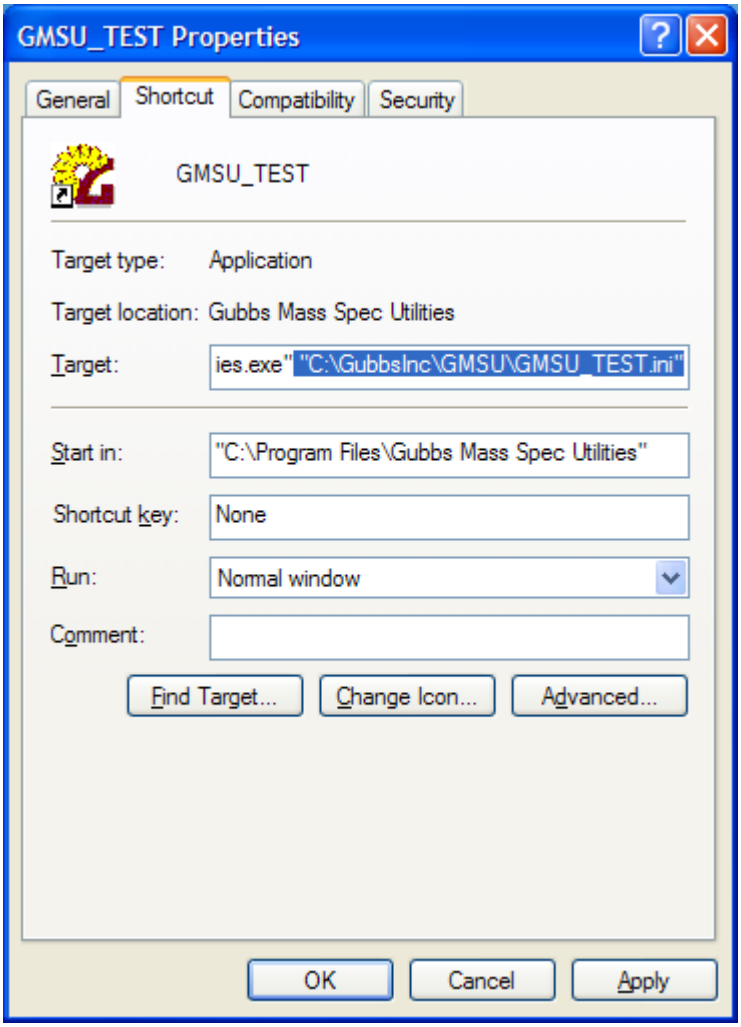
Name the shortcut (e.g. GMSU\QC_TEST)



Click Finish. A shortcut named GMSU\QC_TEST will appear on the desktop.

23.1.8 Modify the shortcut target

- Right-click on the shortcut and choose Properties
- Select the Target field and move the cursor to the end of the text
- Type a space and a quotation mark
- Type the path and name of GMSU\QC_TEST.ini
- Type a quotation mark
- Click OK



By clicking on the shortcut, GMSU\QC will load the GMSU\QC_TEST database instance.

24 GMSU\QC Configuration Default Parameters

Please note that this section may be ignored if the GMSU\QC installation is a subsequent installation on an existing GMSU\QC client workstation.

Several GMSU\QC configuration parameters must be configured in the Configuration Utility in order that GMSU\QC functions properly upon initial use. These parameters are defined in the following sections of the Administration Manual.

Note: If the Configuration Utility Section item in the table below will not be used, then the configuration section may be skipped.

Configuration Utility Section	Administration Manual Reference
Caco (for Permeability Calculator Module)	Section 26.1
Generic Viewer (for Generic Chromatographic Viewer Module)	Section 26.6
Global	Section 26.7
Hepatic Clearance	Section 26.8
PK Calculator	Section 26.13

25 Console

The GMSU\QC Console is the module from which users navigate to other modules. The Console contents may differ slightly from what is shown.

The Workstation Prerequisites Installed frame box will show the system prerequisite components currently installed on the system. If only Thermo components are found, then the Sciex HT Acquisition Tools item will not be shown.

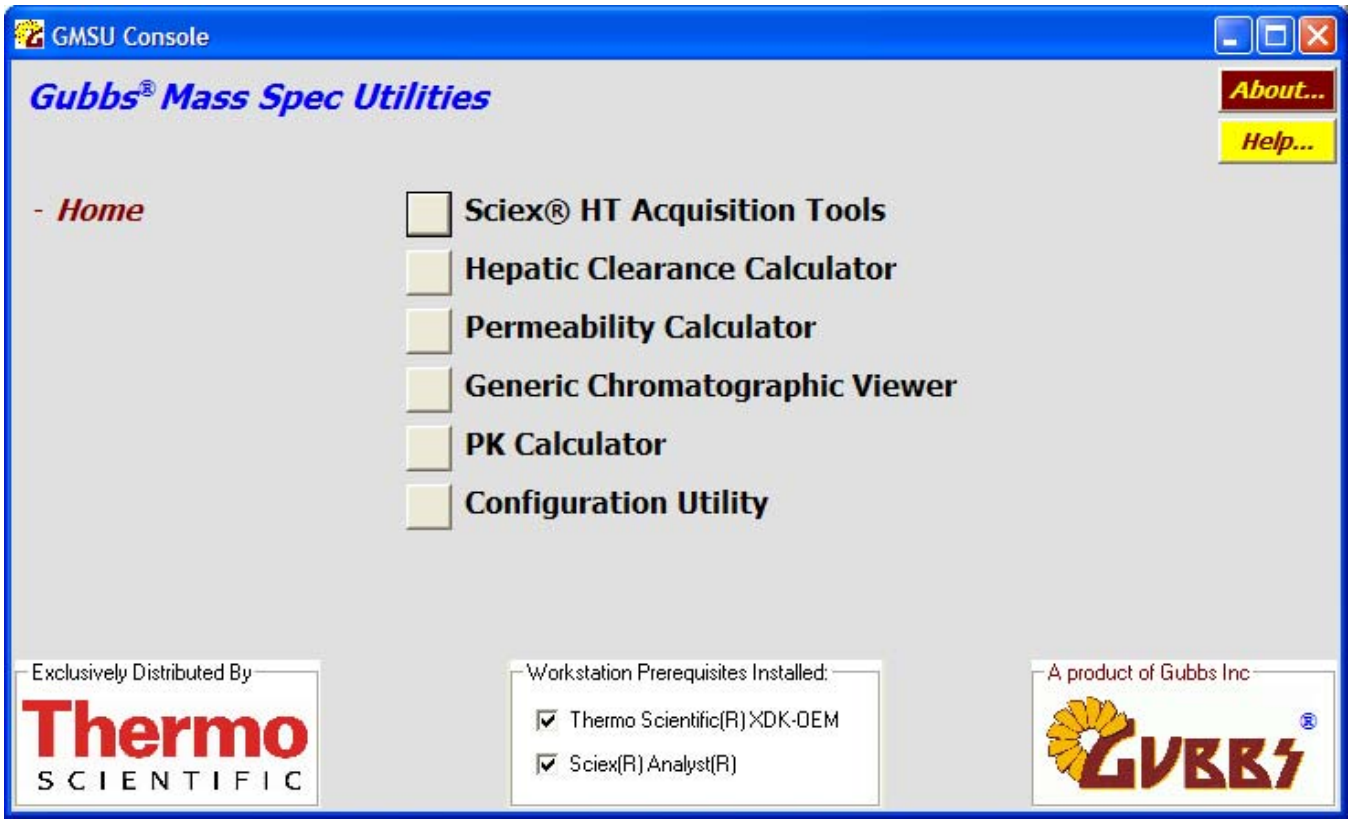


Figure 27 GMSU\QC Console

Users click on the appropriate buttons either to open a utility or to navigate to an additional hierarchical level.

26 Configuration Utility

It is recommended that administrators and/or power users peruse all the options listed in the Configuration Utility. The utility sections contain many parameters that are configurable by the user.

Administrators use the Configuration Utility to configure such things as global variables, contents of module dropdown lists, and units (e.g. mg/mL) of different parameters. Users choose the appropriate module to configure by choosing an item in the 'Choose a Category' list.

The initial view of the Configuration Utility is a non-editable mode. In order to edit a value, the user must select the value, then click the Edit button. The user will be prompted to enter a new value, after which the user will click the Save button.

26.1 Caco - Global

The Caco – Global window contains default paths and values specific to the Permeability Calculator. The parameters must be configured in order for proper GMSU\QC operation follow the figure

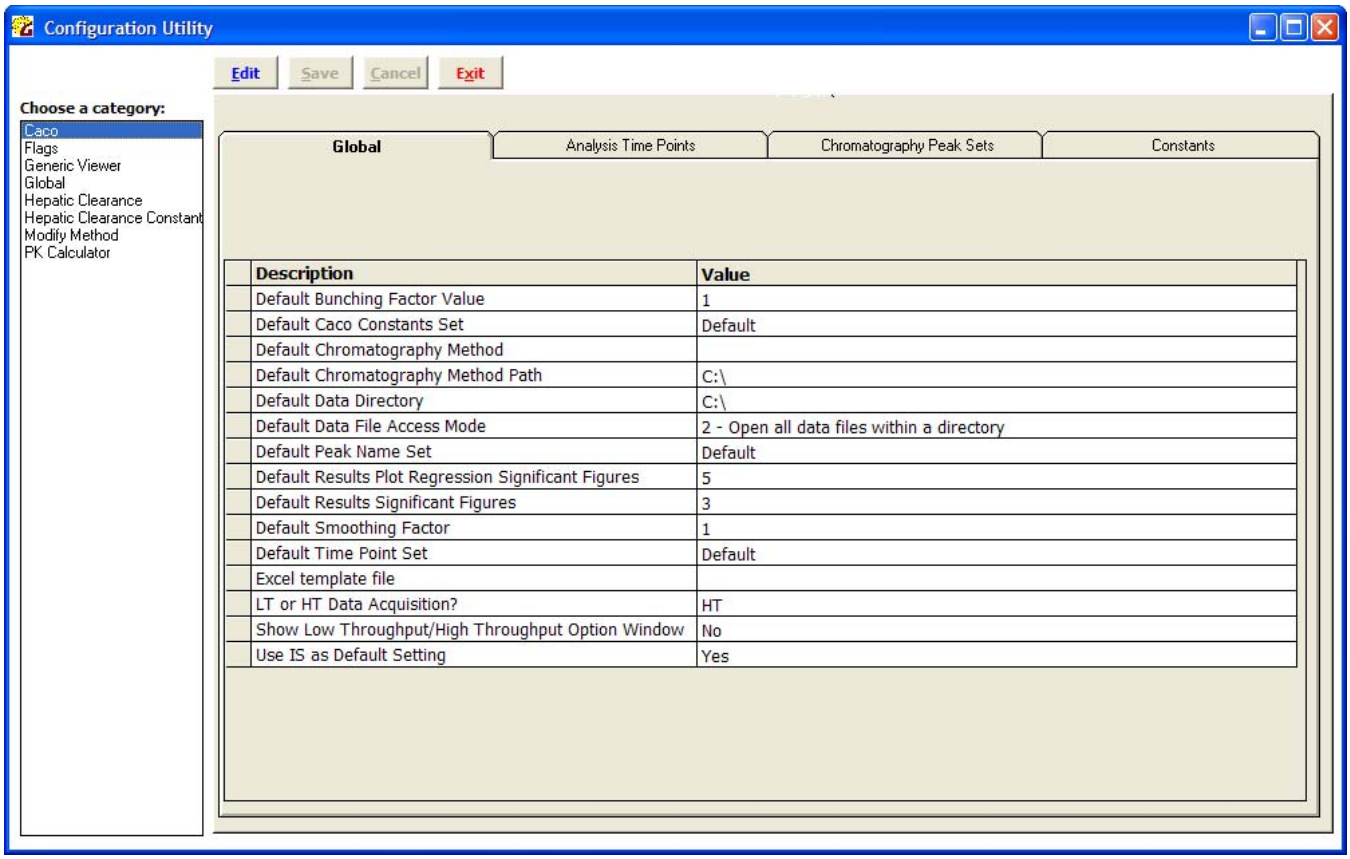


Figure 28 Configuration Utility – Caco (Permeability Calculator) – Global

26.1.1 Initial use parameter configuration

The following are parameters that must be configured upon initial GMSU\QC installation.

Note: If this module will not be used, then this section may be ignored.

26.1.1.1 Default Method Chromatography Path

- This directory is where Permeability Chromatographic Method text files (for HT Acquisition) are stored.
- This directory is created by GMSU\QC Setup (see Section 12.5.1):
  C:\GUBBSINC\GMSU\ChromatographyMethods\

26.1.1.2 Default Data Directory

- This directory is the root directory of where raw data is stored. This directory is shown initially when the Browse… button is clicked in the Permeability Calculator module.

26.1.1.3 Show Low Throughput/High Throughput Option Window

- Yes/No to view the LT/HT option window in the Permeability Calculator module.
- If both LT and HT acquisition data (see Section 3 for a description of LT and HT acquisition) will be viewed by users, then set this value to Yes.
- If not, set this value to No

26.1.1.4 LT or HT Data Acquisition

- Set value to LT if only LT acquisition data will be viewed.
- Set value to HT if only HT acquisition data will be viewed.
- This value is ignored if 'Show Low Throughput/High Throughput Option Window' is set to Yes

26.2 Caco – Analysis Time Points

The Analysis Time Points window is used to create Time Point Sets that will be assigned to analysis data files. 'Time Points' are defined as the assay time points in minutes.

Users click on the Edit button to configure a new Time Point Set. Users click on the Save button to actually create the Time Point Set. Once a Time Point Set has been created, it cannot be modified.

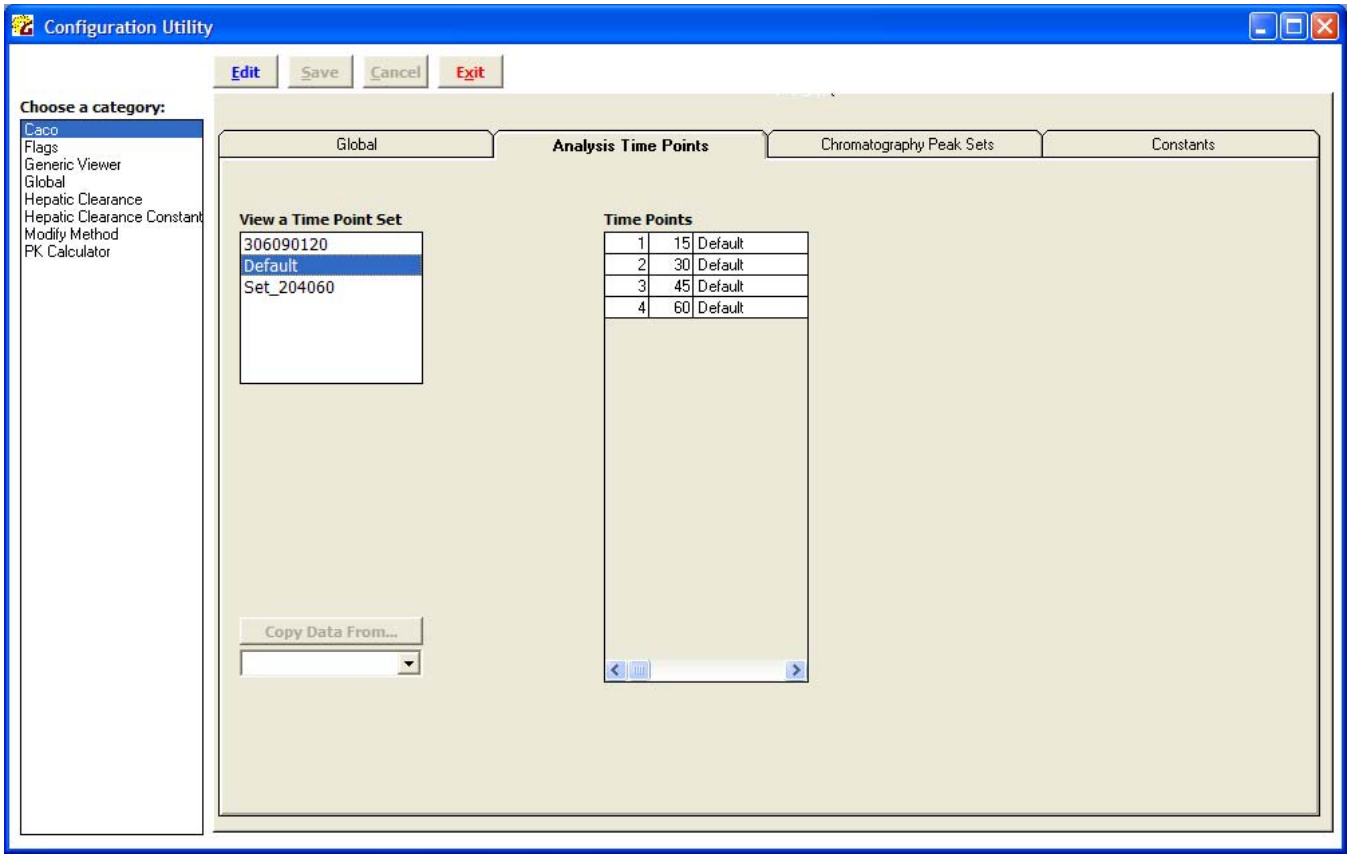


Figure 29 Configuration Utility – Caco (Permeability Calculator) – Analysis Time Points

26.3 Caco – Chromatography Peak Sets

The Chromatography Peak Sets window is used to create Chromatography Peak Sets that will be assigned to analysis data files. These sets provide identities of the chromatographic peaks of the acquired data.

Users click on the Edit button to edit an existing Chromatography Peak Set or configure a new Chromatography Peak Set.

Peak identities are assigned by selecting the appropriate Peak Name in the Peak Name list, then double-clicking the appropriate row in the

Users click on the Create New Set button to configure a new Chromatography Peak Set. Users click on the Execute button to actually create the Chromatography Peak Set, then click the Save button to save the set.

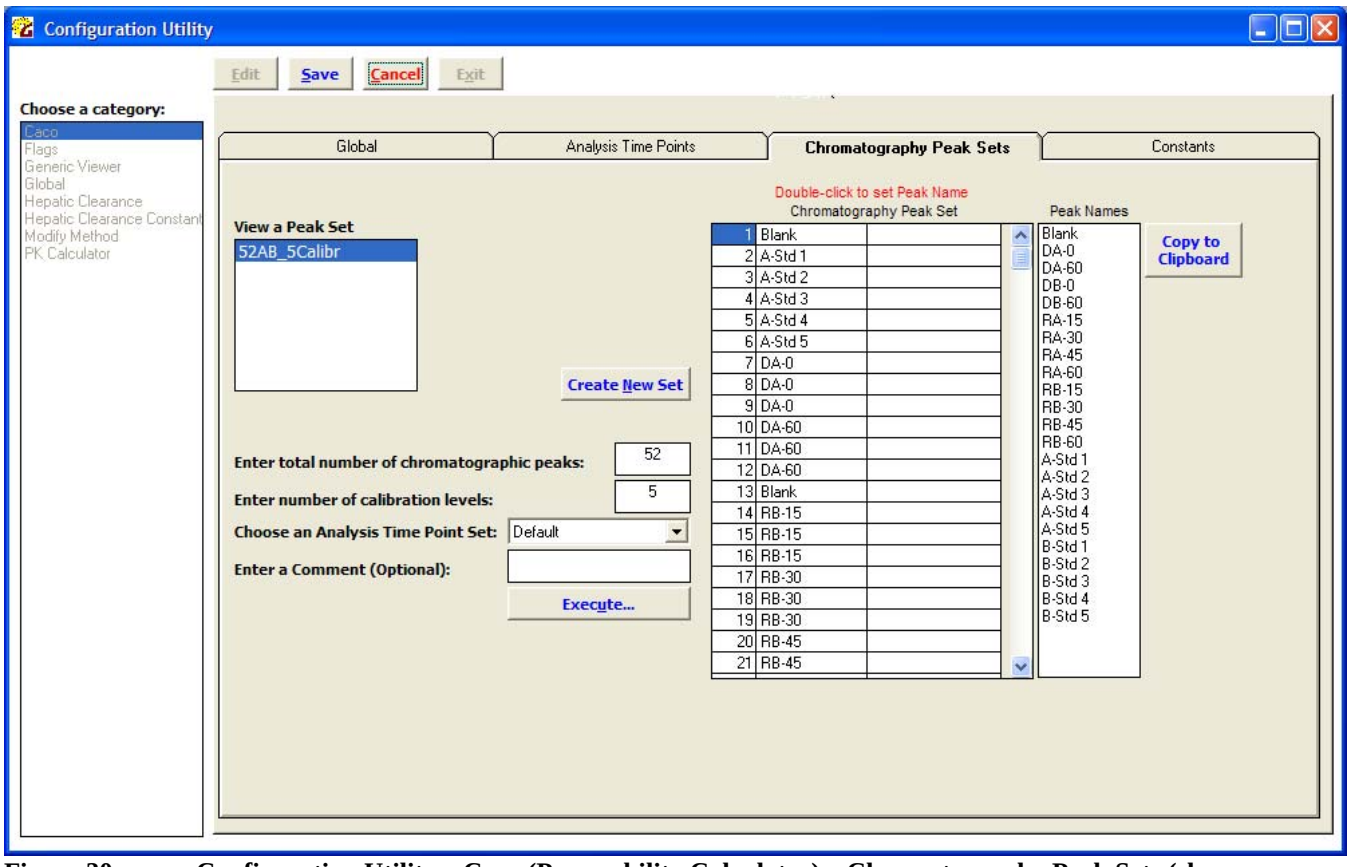


Figure 30 Configuration Utility – Caco (Permeability Calculator) – Chromatography Peak Sets (shown in Edit mode)

26.4 Caco – Constants

The Constants window is used to create Constants Sets that will be assigned to analysis data files. These sets include the various constants used in the calculation of Permeability Experiments.

Users click on the Edit button then Create New Set button to configure a new Constants Set. Users click on the Save button to actually create the Constants Set. Once a Constants Set has been created, it cannot be modified.

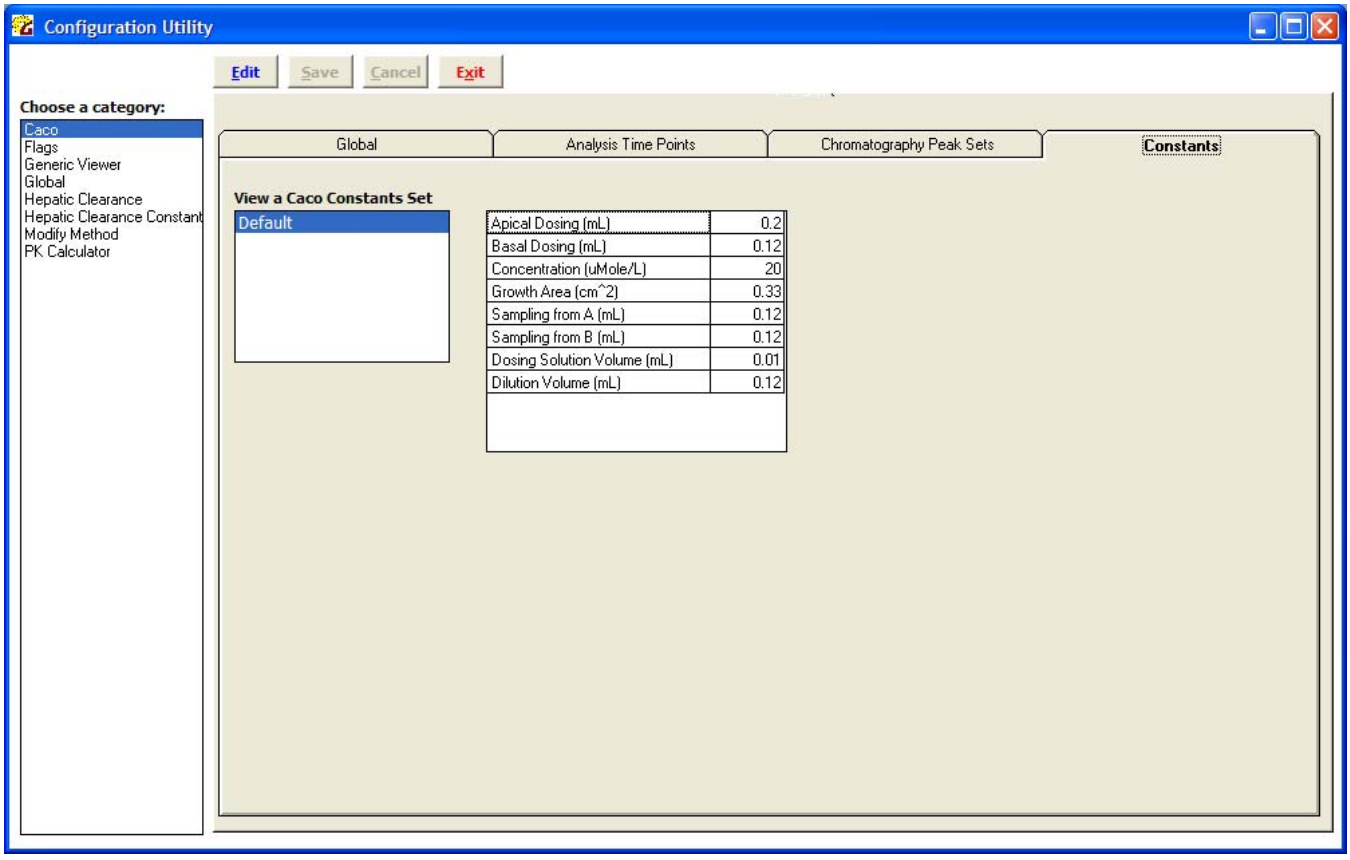


Figure 31 Configuration Utility – Caco (Permeability Calculator) – Constants

26.5 Flags

The Flags window configures the contents of the 'Chromatogr. Review' dropdown box of the Hepatic Clearance Calculator. 'Results Flags' are not configurable.

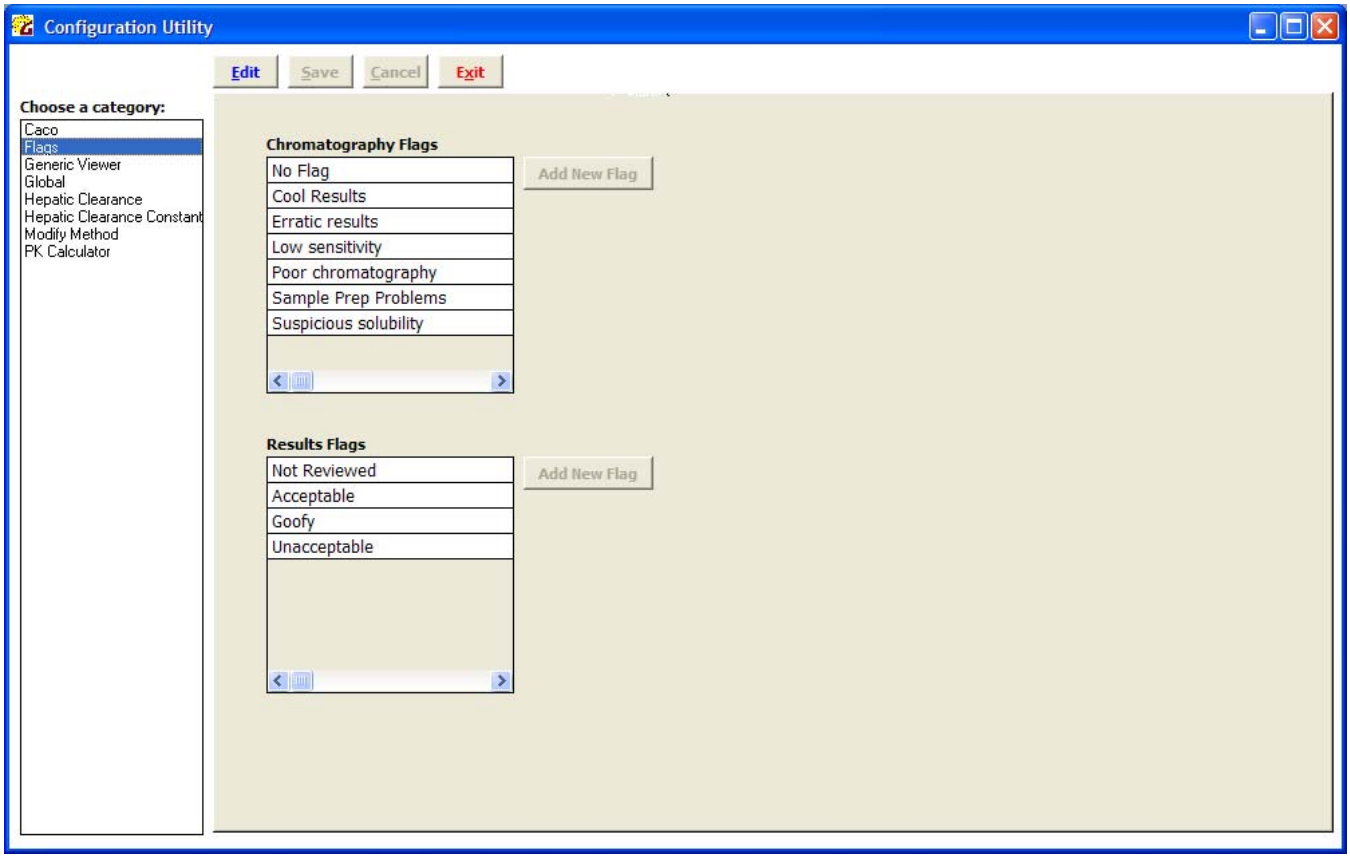


Figure 32 Configuration Utility - Flags

26.6 Generic Viewer

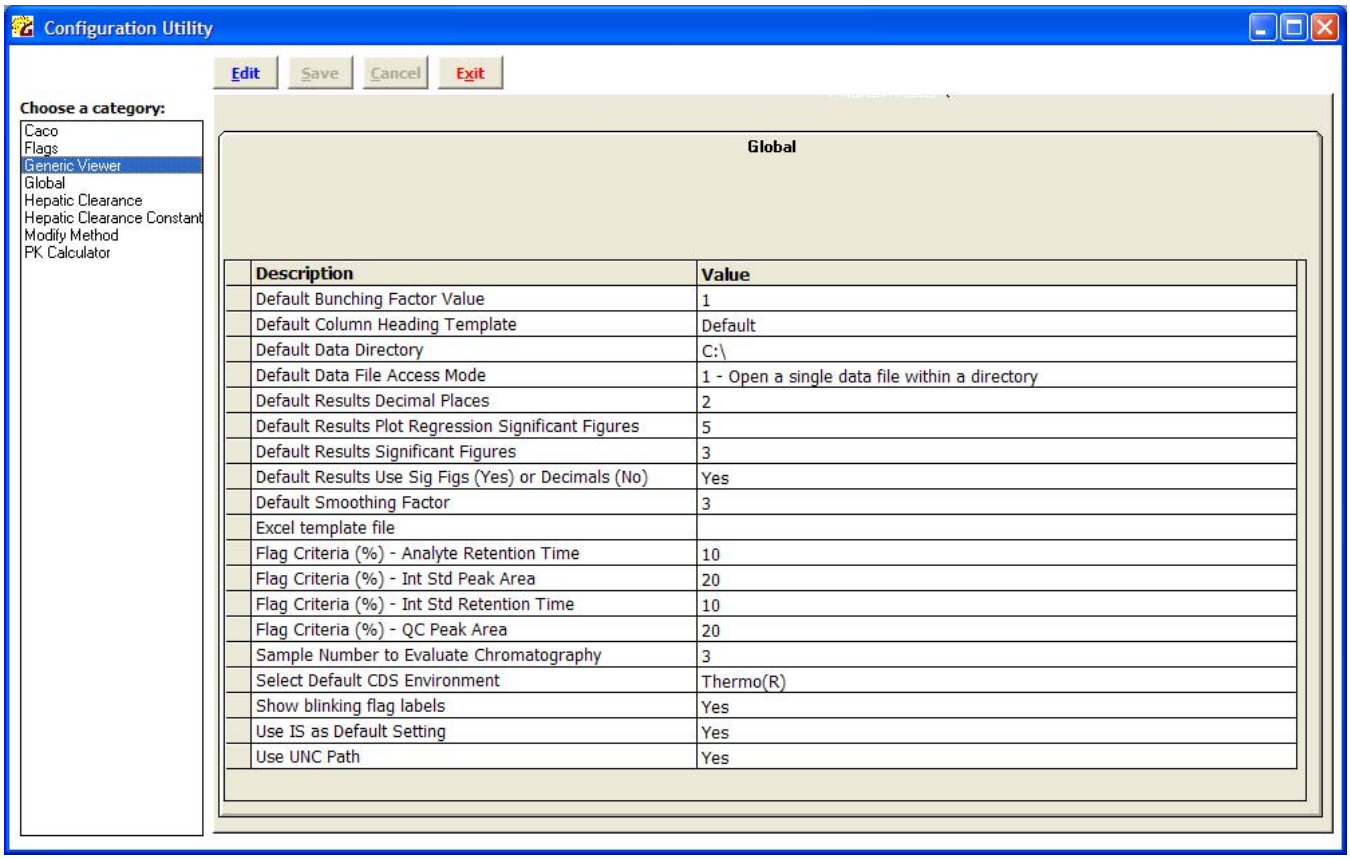


Figure 33 Configuration Utility – Generic Viewer

The Generic Viewer window contains global parameters concerning default directory paths of system components.

26.6.1 Initial use parameter configuration

The following are parameters that must be configured upon initial GMSU\QC installation.

Note: If this module will not be used, then this section may be ignored.

26.6.1.1 Default Data Directory

- This directory is the root directory of where raw data is stored. This directory is shown initially when the Browse… button is clicked in the Generic Chromatographic Viewer module.

26.6.1.2 Select Default CDS Environment

Used only if users will be viewing both Thermo and Sciex data. This setting governs the order in which 'File Type Filter' are displayed when the Browse… button is clicked.

- If the setting is 'Thermo(R)', then the default choice is '.sld'.
- If the setting is 'ABI(R)', then the default choice is '.wiff'.

26.6.1.3 Use UNC Path

If data acquisition files (.wiff or .sld) are to be stored at the local data acquisition workstations AND the administrator wishes to configure GMSU\QC in a multi-user environment, then Use UNC Path must be set to 'Yes'. Please see Appendix A Thermo Environment Multiuser System Configuration, for a detailed discussion on configuring GMSU\QC in a multiuser environment.

26.7 Global

The Global window contains global variables concerning default directory paths of system components.

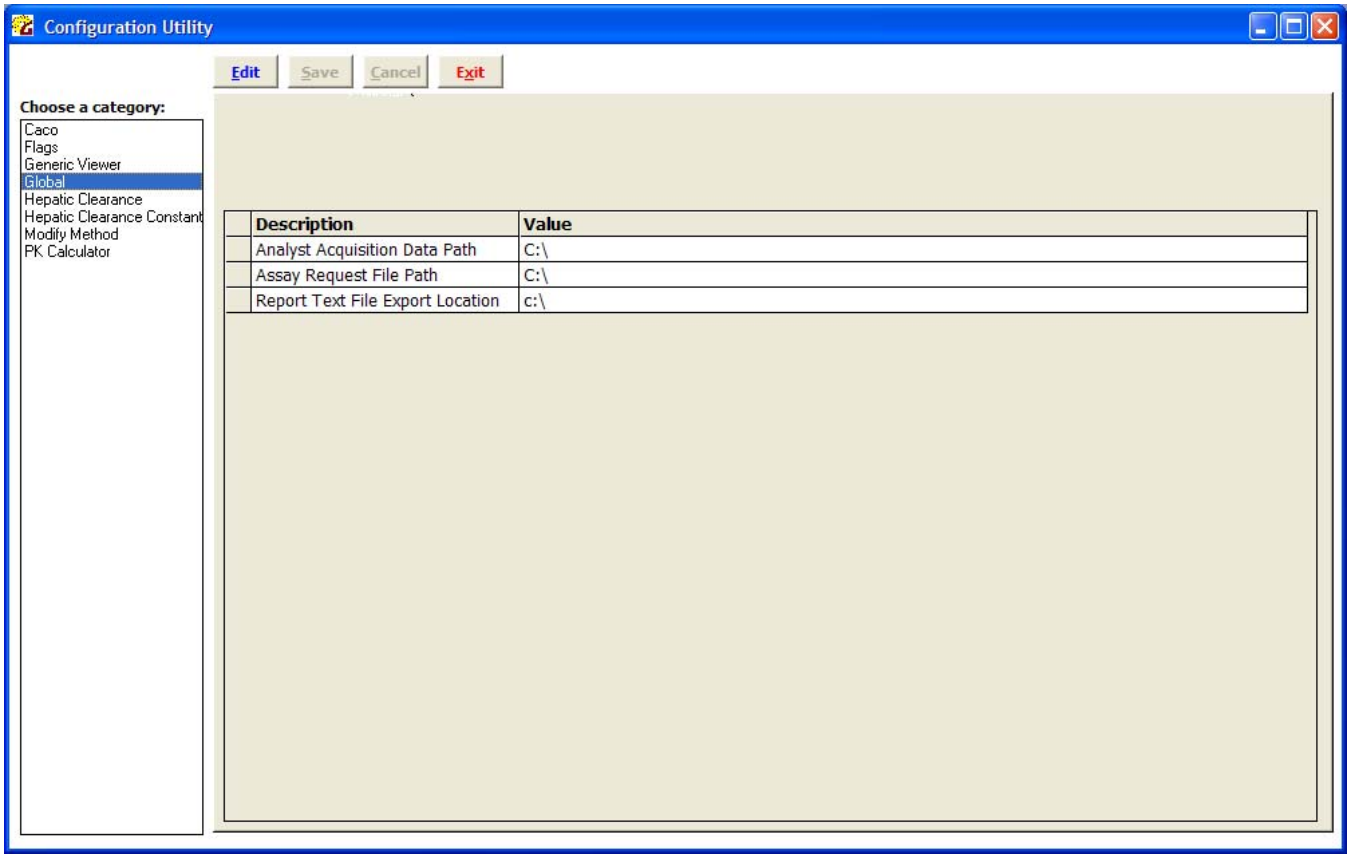


Figure 34 Configuration Utility - Global

The Global window contains global parameters concerning default directory paths of system components

26.7.1 Initial use parameter configuration

The following are parameters that must be configured upon initial GMSU\QC installation.

26.7.1.1 Analyst Acquisition Data Path

Note: This parameter is related to Sciex HT Acquisition Tools. If these tools will not be used, then this section may be ignored.

- This directory is the root directory of where Analyst raw data is stored.

26.7.1.2 Assay Request File Path

Note: This parameter is related to Sciex HT Acquisition Tools. If these tools will not be used, then this section may be ignored.

- This directory is the root directory of where Assay Request Files (or may be referred to as Compound Lists) are stored. The Compound List is essentially the text file used by Automaton™.
- This directory is generated by the GMSU\QC Setup.exe (see Section 12.5.1):

C:\GUBBSINC\GMSU\CompoundLists\

26.8 Hepatic Clearance Calculator

The Hepatic Clearance Calculator window contains default paths and values specific to the Hepatic Clearance Calculator Utility.

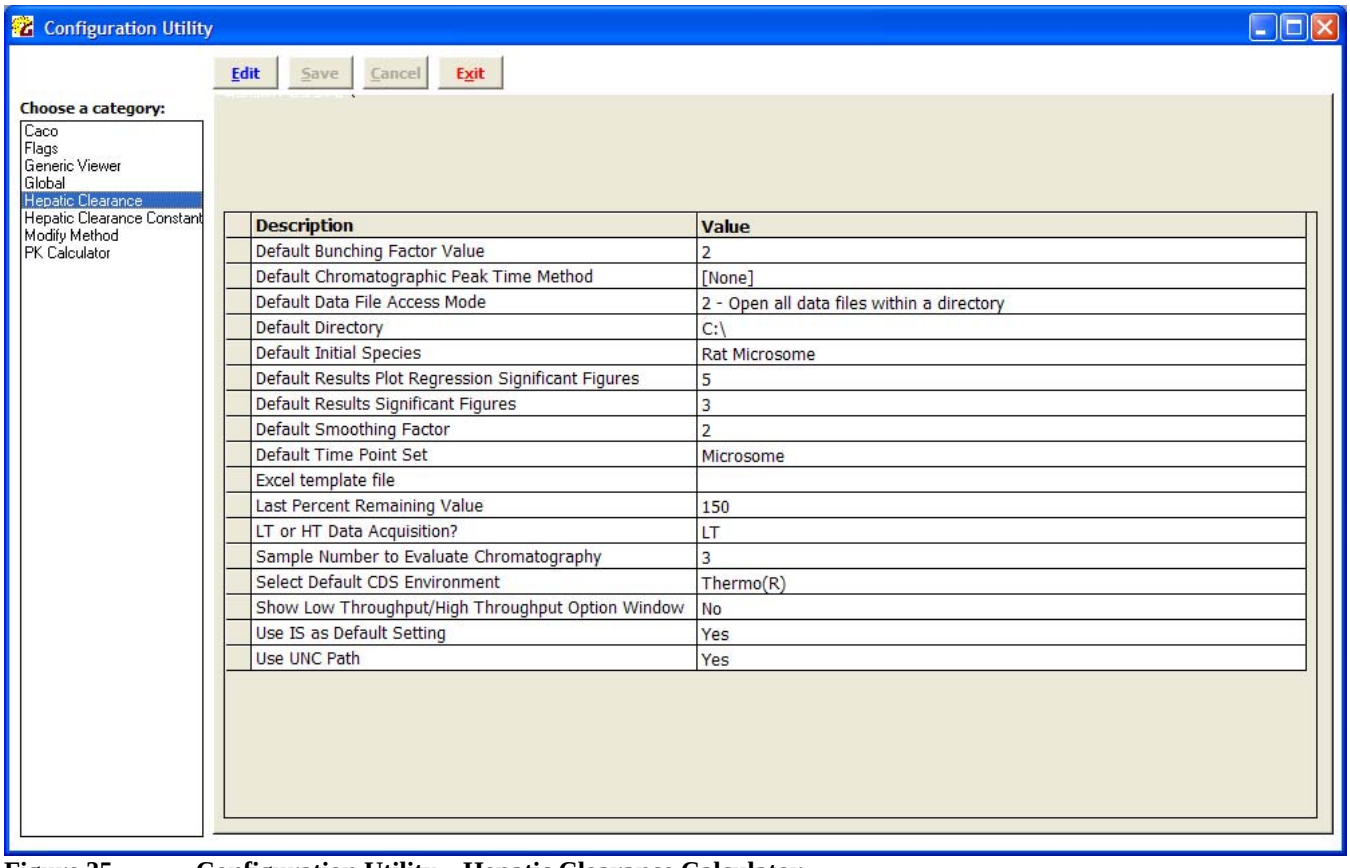


Figure 35 Configuration Utility – Hepatic Clearance Calculator

26.8.1 Initial use parameter configuration

The following are parameters that must be configured upon initial GMSU\QC installation.

Note: If this module will not be used, then this section may be ignored.

26.8.1.1 Default Data Directory

- This directory is the root directory of where raw data is stored. This directory is shown initially when the Browse… button is clicked in the Permeability Calculator module.

26.8.1.2 Select Default CDS Environment

Used only if users will be viewing both Thermo and Sciex data. This setting governs the order in which 'File Type Filter' are displayed when the Browse… button is clicked.

- If the setting is 'Thermo(R)', then the default choice is '.sld'.
- If the setting is 'ABI(R)', then the default choice is '.wiff'.

26.8.1.3 Use UNC Path

If data acquisition files (.wiff or .sld) are to be stored at the local data acquisition workstations AND the administrator wishes to configure GMSU\QC in a multi-user environment, then Use UNC Path must be set to 'Yes'. Please see Appendix A Thermo Environment Multiuser System Configuration, for a detailed discussion on configuring GMSU\QC in a multiuser environment.

26.9 Hepatic Clearance Calc. Expt. Constants – Existing Experiments Tab

Administrators use this window to configure species- and experiment-specific constants that are used during Hepatic Clearance value calculations. The contents of the Species dropdown boxes in the Hepatic Clearance Calculator are obtained from the Experiment list shown in Figure 36.

In this window, users configure constants, the contents of parameter labels, parameter units, Exception values, and (optional) a reference as to the origin of the constants.

As an aid to administrators when configuring new Experiments, users may copy data from one experiment to another.

To add additional experiments, use the Add Species/Type tab (see Section 26.10).

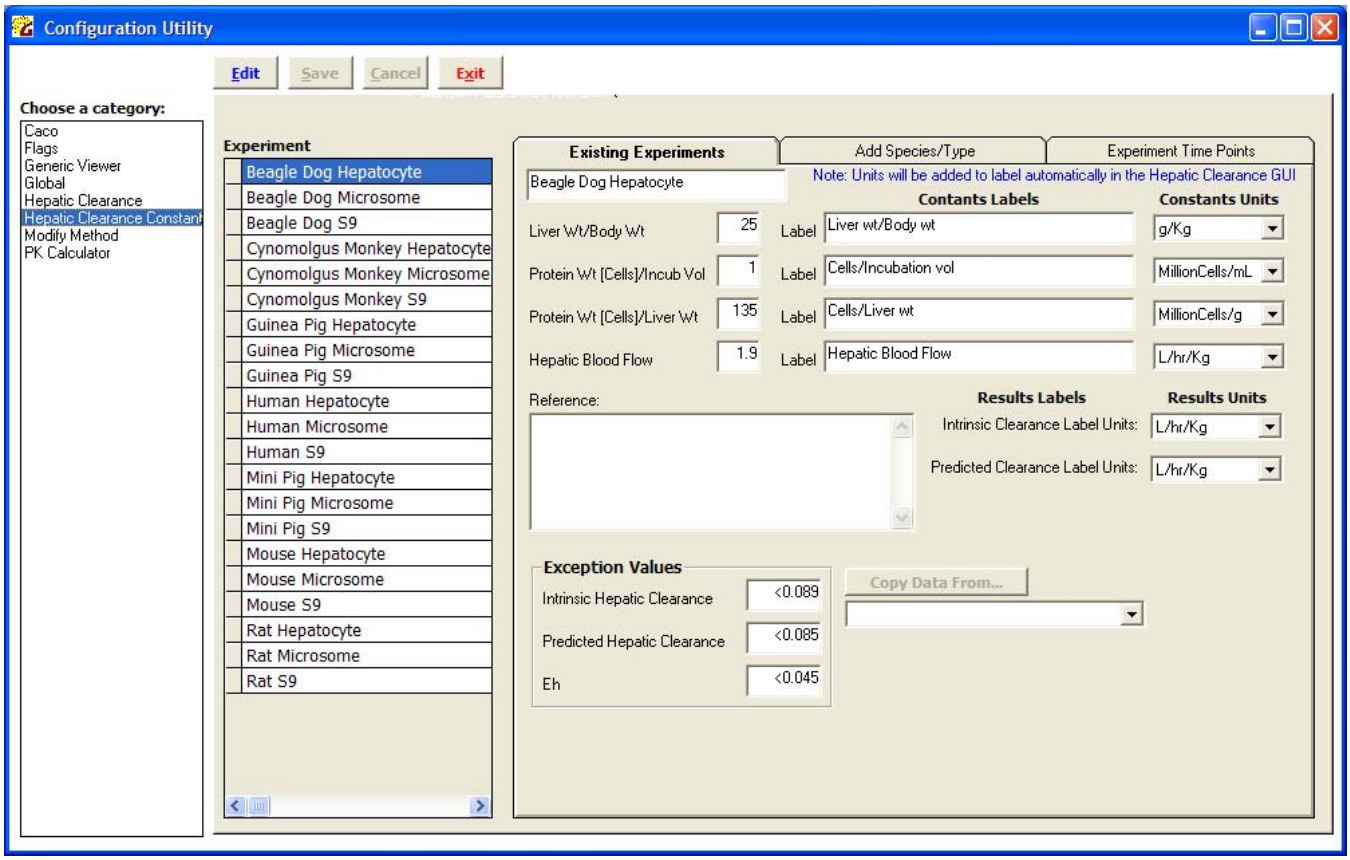


Figure 36 Configuration Utility – Hepatic Clearance Calc. Expt. Constants – Existing Experiments Tab

26.10 Hepatic Clearance Calc. Expt. Constants – Add Species/Type Tab

Here users add species and/or types. Once added, new experiments will be generated automatically.

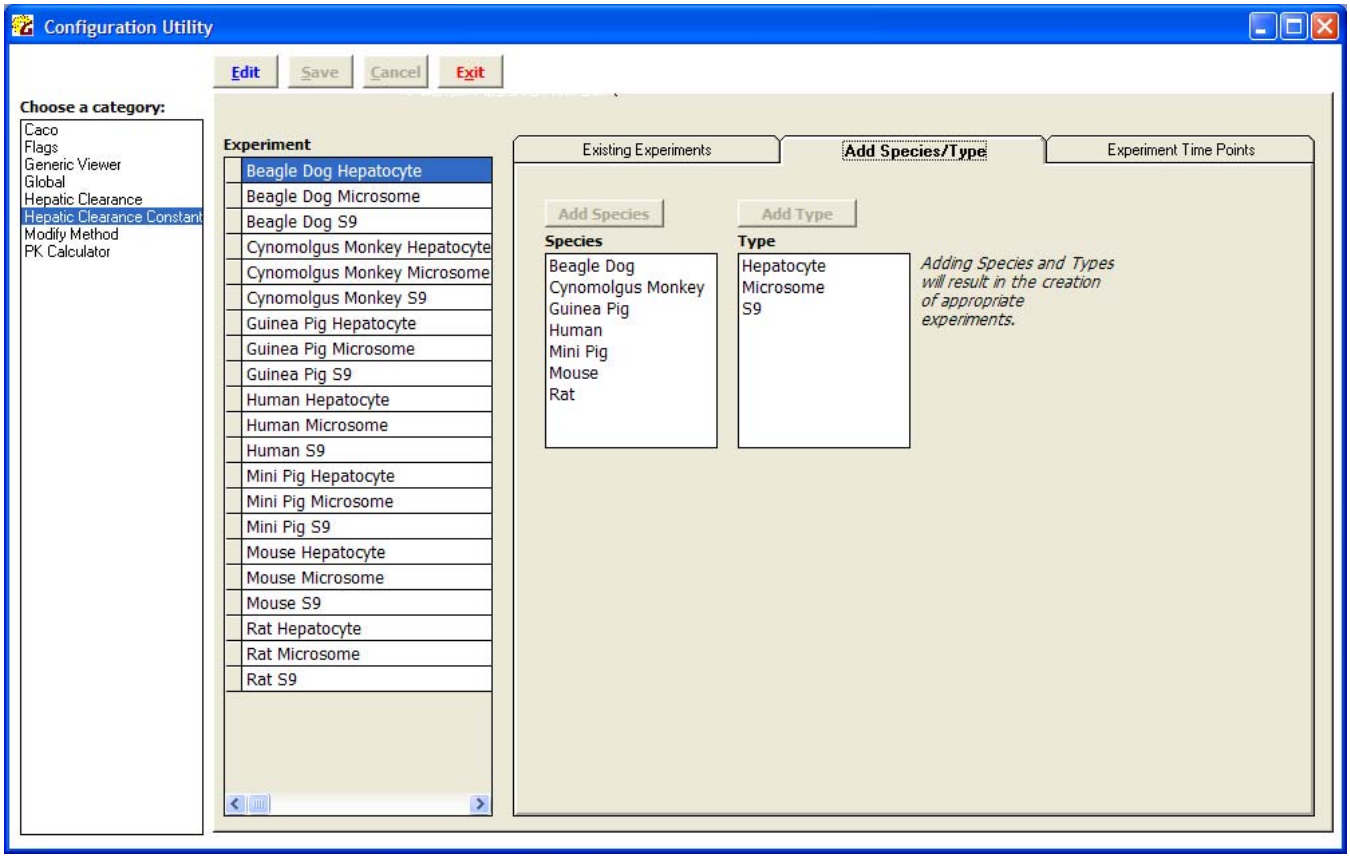


Figure 37 Configuration Utility – Hepatic Clearance Calc. Expt. Constants – Add Species/Type Tab

26.11 Hepatic Clearance Calc. Expt. Constants – Experiment Time Points Tab

The Analysis Time Points window is used to create Time Point Sets that will be assigned to analysis data files. 'Time Points' are defined as each chromatographic peak (for HT acquisition) or each chromatographic injection (for LT acquisition).

Users click on the Edit button to configure a new Time Point Set. Users click on the Execute button to actually create the Time Point Set and the Save button to save the set. Once a Time Point Set has been created, it cannot be modified.

In order to aid internal information technology (IT) department efforts to generate internal reports or transfer data to internal laboratory information management systems (LIMS), users may label peaks not used in actual regression analysis that are needed for additional internal process control information.

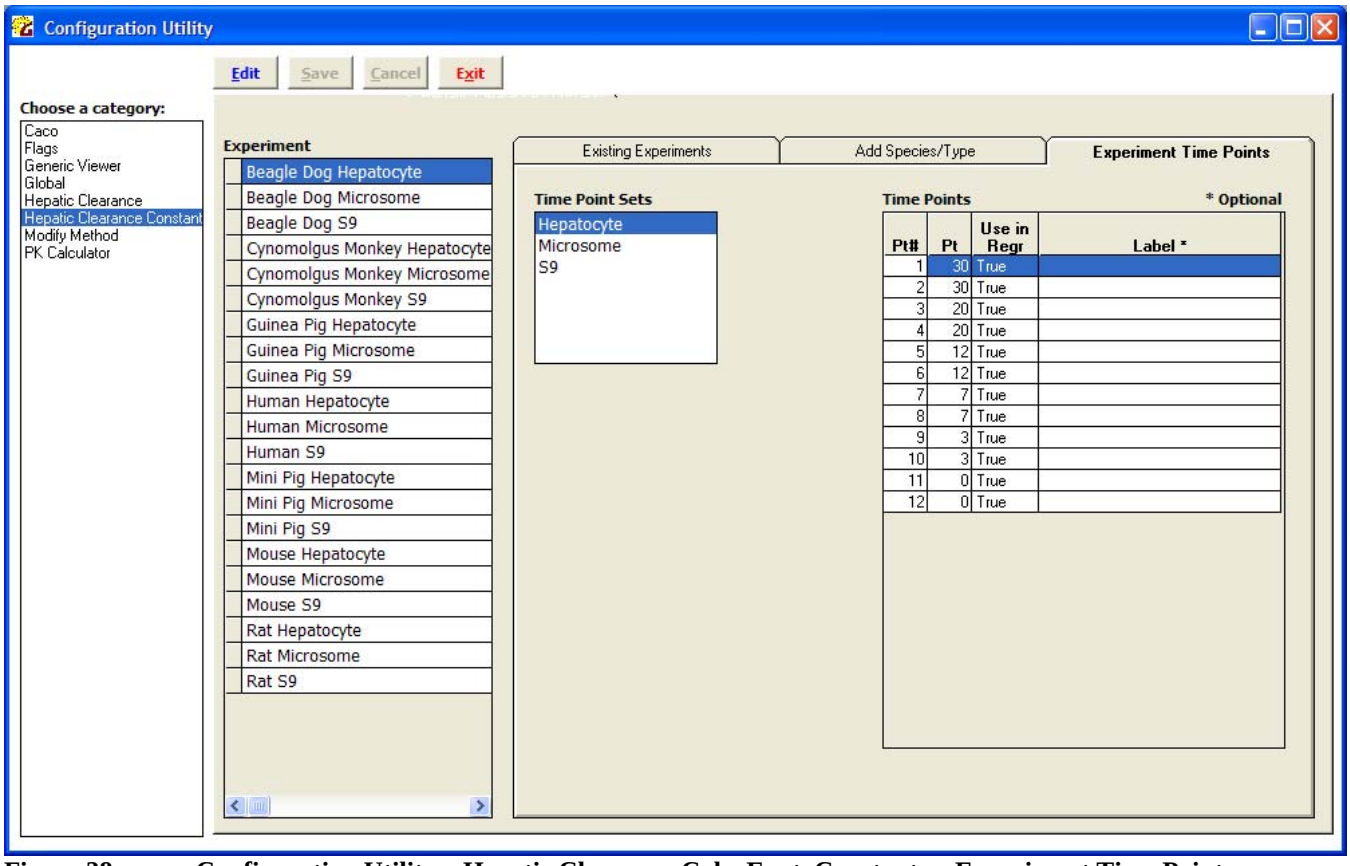


Figure 38 Configuration Utility – Hepatic Clearance Calc. Expt. Constants – Experiment Time Points Tab - Initial

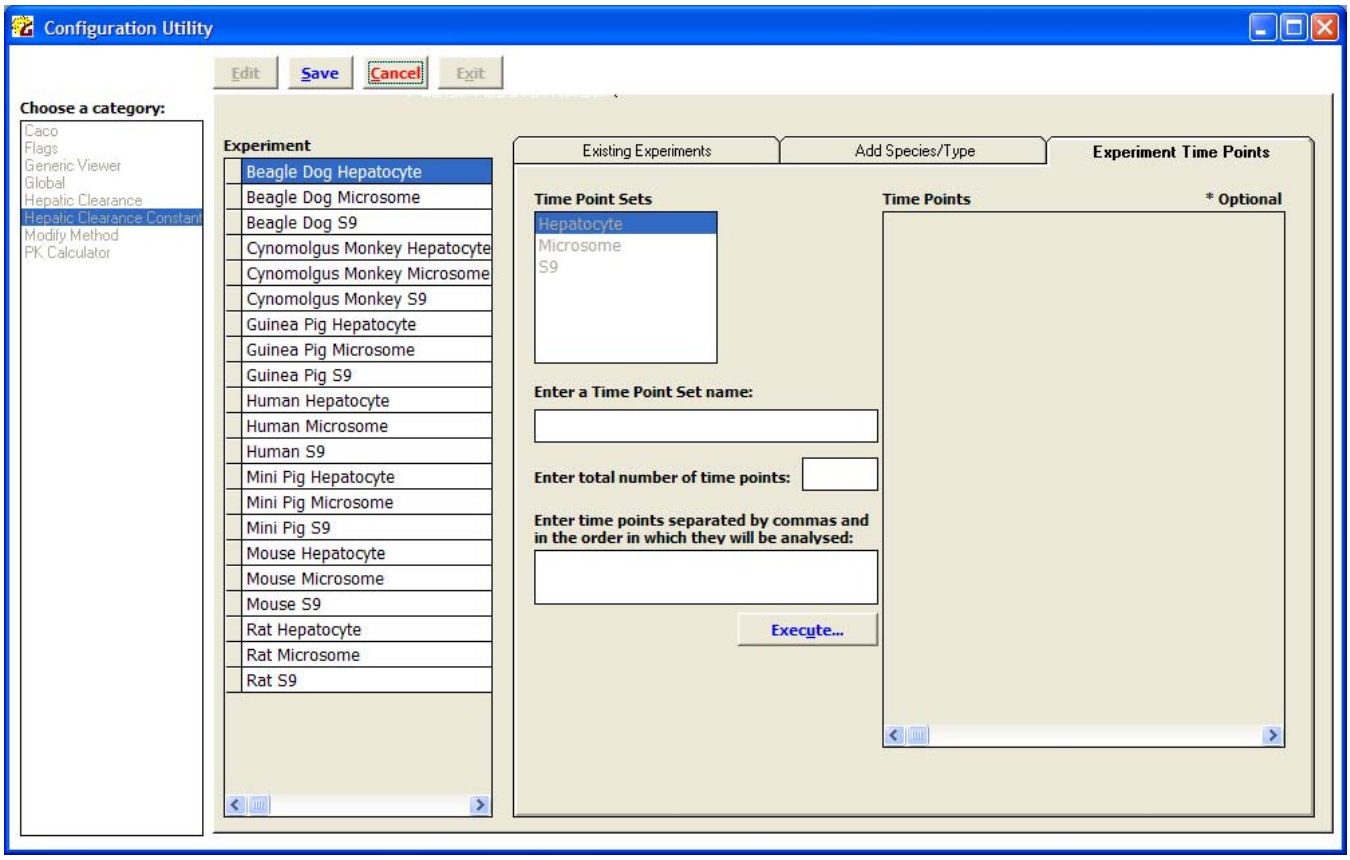


Figure 39 **Configuration Utility – Hepatic Clearance Calc. Expt. Constants – Experiment Time Points Tab – Edit Mode**

26.12 Modify Method

Note: This window pertains only to Sciex HT Acquisition Tools.

The Modify Method window contains the contents of the LC Sync dropdown box of the Modify Methods Utility. These contents are specific to Sciex instrumentation at this point in time.

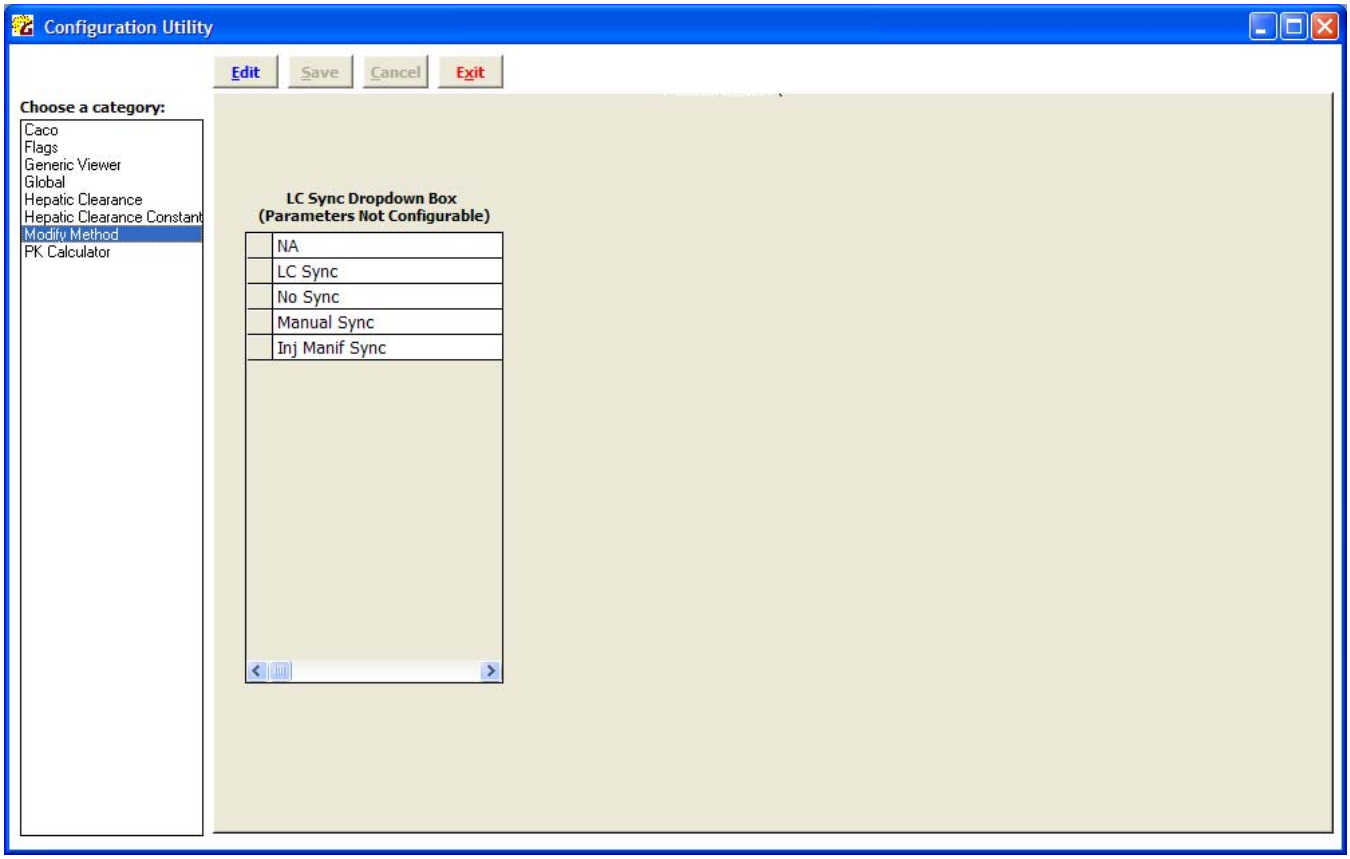


Figure 40 Configuration Utility – Modify Method

26.13 PK Calculator - Global

The PK Calculator window contains default paths and values specific to the PK Calculator Utility. Such values include default units for different PK values.

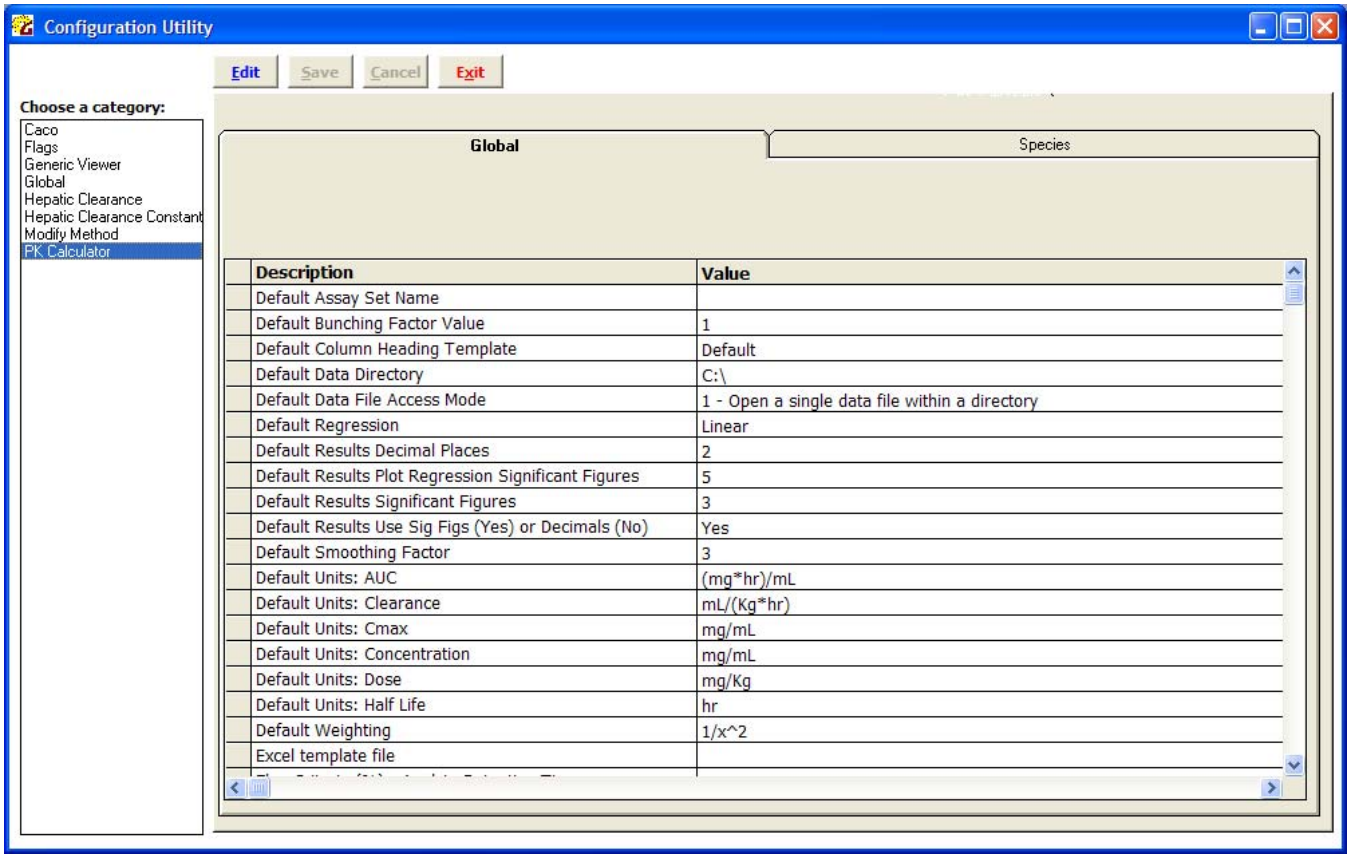


Figure 41 Configuration Utility – PK Calculator – Global

26.13.1 Initial use parameter configuration

The following are parameters that must be configured upon initial GMSU\QC installation.

Note: If this module will not be used, then this section may be ignored.

26.13.1.1 Default Data Directory

This directory is the root directory of where raw data is stored. This directory is shown initially when the Browse… button is clicked in the Permeability Calculator module.

26.13.1.2 Select Default CDS Environment

Used only if users will be viewing both Thermo and Sciex data. This setting governs the order in which 'File Type Filter' are displayed when the Browse… button is clicked.

- If the setting is 'Thermo(R)', then the default choice is '.sld'.
- If the setting is 'ABI(R)', then the default choice is '.wiff'.

26.13.1.3 Use UNC Path

If data acquisition files (.wiff or .sld) are to be stored at the local data acquisition workstations AND the administrator wishes to configure GMSU\QC in a multi-user environment, then Use UNC Path must be set to 'Yes'. Please see Appendix A Thermo Environment Multiuser System Configuration, for a detailed discussion on configuring GMSU\QC in a multiuser environment.

26.14 PK Calculator – Species

Administrators configure species that will appear in the PK Calculator Species dropdown boxes.

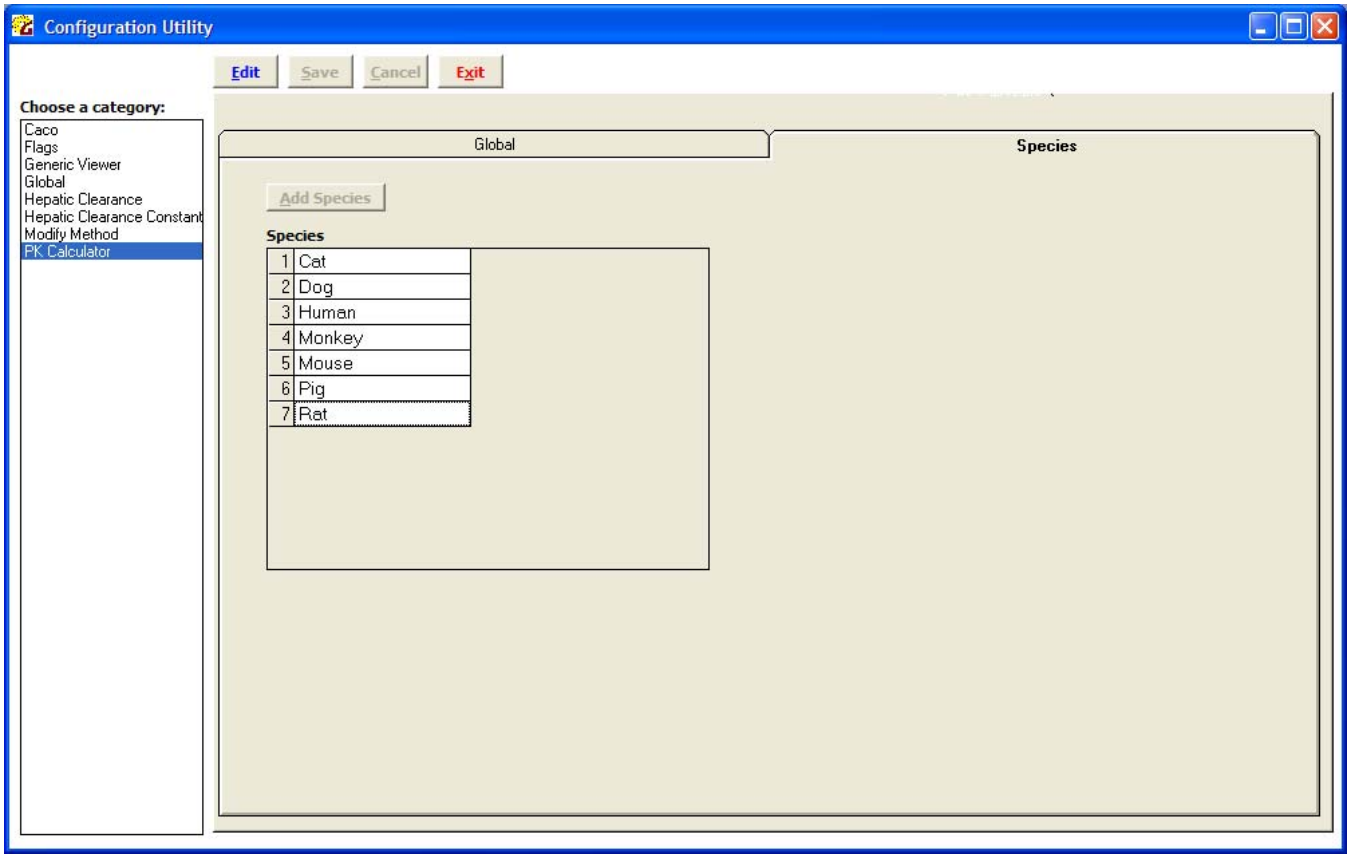


Figure 42 Configuration Utility – PK Calculator– Species

27 Database Table Structures and Definitions

GMSU\QC database table structures and definitions are contained in the document GMSU\QCDatabaseDefs located in C:\GUBBSINC\GMSU\Manuals\.

28 References

[1] R. O. Cole. Quantitation of Biofluids with High Speed HPLC/MS/MS: Early Discovery Applications. Invited Presentation, at "Early ADME and Toxicology in Drug Discovery: Techniques for accelerating and Optimizing Drug Candidate Selection", Berkley, CA, October 1998.

[2] Adam H. Brockman, Donna L. Hiller, and Roderic O. Cole. High Speed HPLC/MS/MS Analysis of Biological Fluids in Support of ADME Screens: A Practical Review. Current Opinion in Drug Discovery, 4(3), (2000), 432.

[3] Janiszewski JS, Rogers KJ, Whalen KM, Cole MJ, Liston TE, Duchoslav E, et al: A high capacity LC/MS system for the bioanalysis of samples generated from plate-based metabolic screening. Anal Chem 2001; 73:1495-1501.

[4] Z. Yan, J. Wu, L.E. Elvebak, A. Brockman: Validation of a Totally Commercially Available High Throughput -ADME System and Results for 60 Literature Compounds. Rapid Communications in Mass Spectrometry, Rapid Commun. Mass Spectrom. 2005; 19: 1191–1199.

Appendices

Appendix A Thermo Environment Multiuser System Configuration

It is highly recommended that, if there are any questions about the procedure of sharing a directory, local IT support is obtained since settings and permissions can vary depending on company IT policies. In fact, it is highly recommended that IT be informed that the following procedures are going to be performed.

Table of Contents

Section **Page**

1 Introduction

In the Thermo environment, data and processing method Windows™ directory locations are hard-coded into the Thermo sequence (.sld). For example, the location (path) of a .raw file may be recorded as C:\Xcalibur\data\02202008_122345\. Since GMSU\QC uses this path to process the .raw file, the drive letter "C:" is not helpful in a multiuser environment. If a user starts GMSU\QC on an office workstation and opens a Thermo data file (.sld file) that references 'C:\Xcalibur\data\02202008_122345\', GMSU\QC would fail because 'C:\Xcalibur\data\02202008_122345\' does not exist on the office workstation.

When the 'Use UNC Path' setting is changed to 'Yes' (see Section 6), GMSU\QC then replaces 'C:' with the network computer name when data references are stored in the GMSU\QC database. For example, if the data acquisition computer name is 'Fred', then GMSU\QC will store the .sld as the UNC path \\Fred\Xcalibur\data\02202008_122345\. In addition, all references to .raw and .pmd files made during data processing are converted to the UNC path. That way, when a user is processing data from an office workstation, GMSU\QC will open and process the data located on computer 'Fred'.

In order to operate GMSU\QC in a multiuser environment to process Thermo data, several Windows™ directory configuration and workstation configuration actions must be performed. This document lists those actions that need to be performed.

NOTE: If this procedure is performed after data has already been processed and saved using GMSU\QC, then previously saved data can only be VIEWED using the GMSU\QC installation on the data acquisition workstation from which the data were acquired. Please note that all data may still be REPORTED (e.g. a report generated) from any GMSU\QC installation.

2 Share the C:\Xcalibur\ Windows™ directory

It is highly recommended that, if there are any questions about the procedure of sharing a directory, local IT support is obtained.

- Name the share 'Xcalibur'
  - C\Xcalibur\ MUST be the share and it MUST be named 'Xcalibur'
- Give share permissions to whomever you wish

3 Place the Gubbs_01.mdb in a desired location

Later steps in this process will depend on where the Gubbs_01.mdb database is placed.

In a multiuser environment, the Gubbs_01.mdb database must be accessible to all users. This can be achieved by moving the database to a network location, or by sharing the Windows directory of the Gubbs_01.mdb database current default location.

These are the options for the Gubbs_01.mdb location:

3.1 A network location

Copy and paste the C:\GubbsInc\GMSU\Database\Gubbs_01.mdb to a suitable network location.

3.2 C:\GubbsInc\GMSU\Database\

This is the default location. If it is desired to leave the database here, then this directory must be shared.

3.2.1 Share the C:\...\Database\ directory

- Name the share 'GMSUDatabase_01'
- Give share permissions to whomever you wish

4 Actions to take on the additional (e.g. office) workstations

The following actions must be taken on the workstation of each additional GMSU\QC installation.

NOTE: It is HIGHLY RECOMMENDED that these actions are performed under a Windows account that has Administrator permissions. If these actions are performed under a non-administrator account, then it is possible these modifications may be specific to a user profile, rather than to all users.

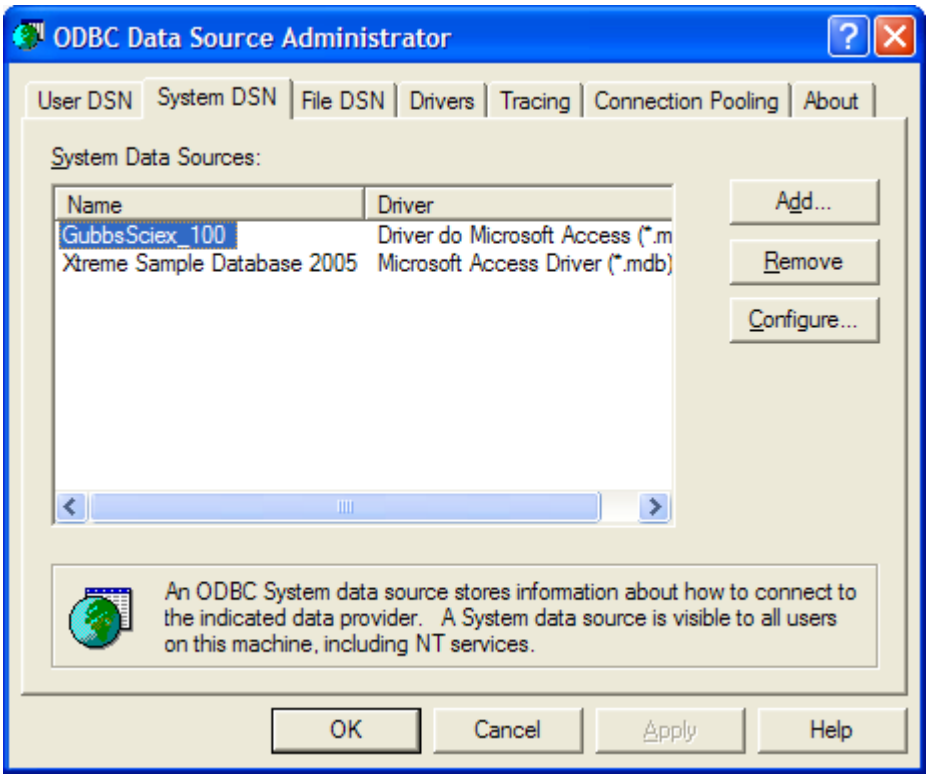
4.1 Modify the ODBC Datasource System DSN

The DSN on the workstation of each additional GMSU\QC installation must be modified to point to the location of the desired Gubbs_01.mdb database. Modify the DSN according to the following instructions:

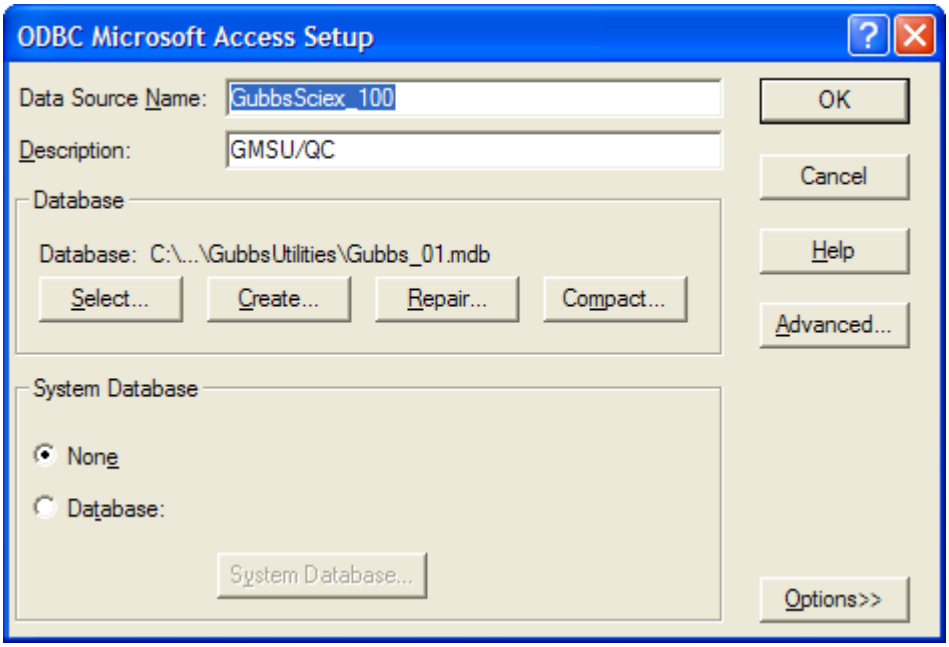
4.1.1 On the additional workstation (e.g. your office workstation), open the Control Panel (Start – Control Panel)

4.1.2 Open the Administrative Tools control panel

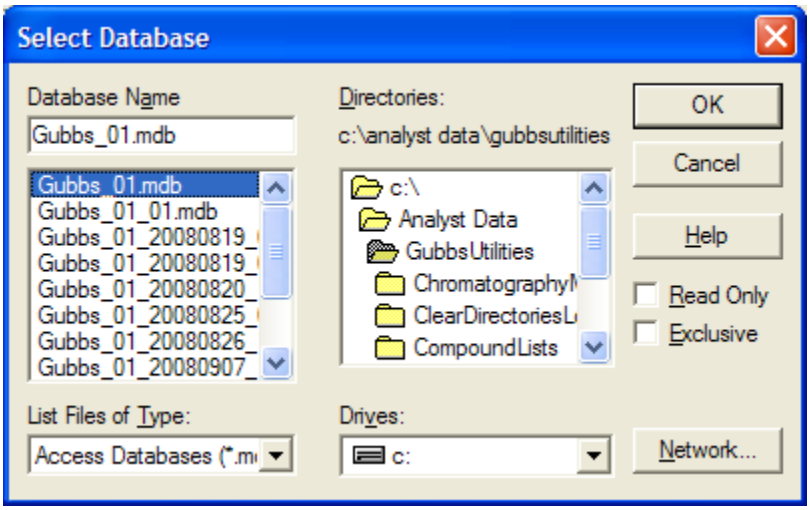
4.1.3 Open the Datasources (ODBC) item of the control panel and activate the System DSN tab



4.1.4 Choose the GubbsSciex_100 DSN and click the Configure… button



4.1.5 Click the Select… button



- Navigate to the directory that contains the location of the GMSU_01.mdb as performed in Section 3.
  - The Network… button will need to be used
- Select the Gubbs_01.mdb database
- Click OK

4.1.6 Exit the control panel

The configuration is finished. Click OK in the rest of the control panel windows to exit the control panel.

5 Actions to be taken on the Thermo data acquisition workstation

5.1 If Section 3.2 was executed (the Gubbs_01.mdb database was not moved from its default location), then no changes need to be performed on the data acquisition workstation.

5.2 If Section 3.1 was executed (the Gubbs_01.mdb database was copied and pasted to a network location), then repeat the steps listed in Section 4, but perform on the data acquisition workstation instead.

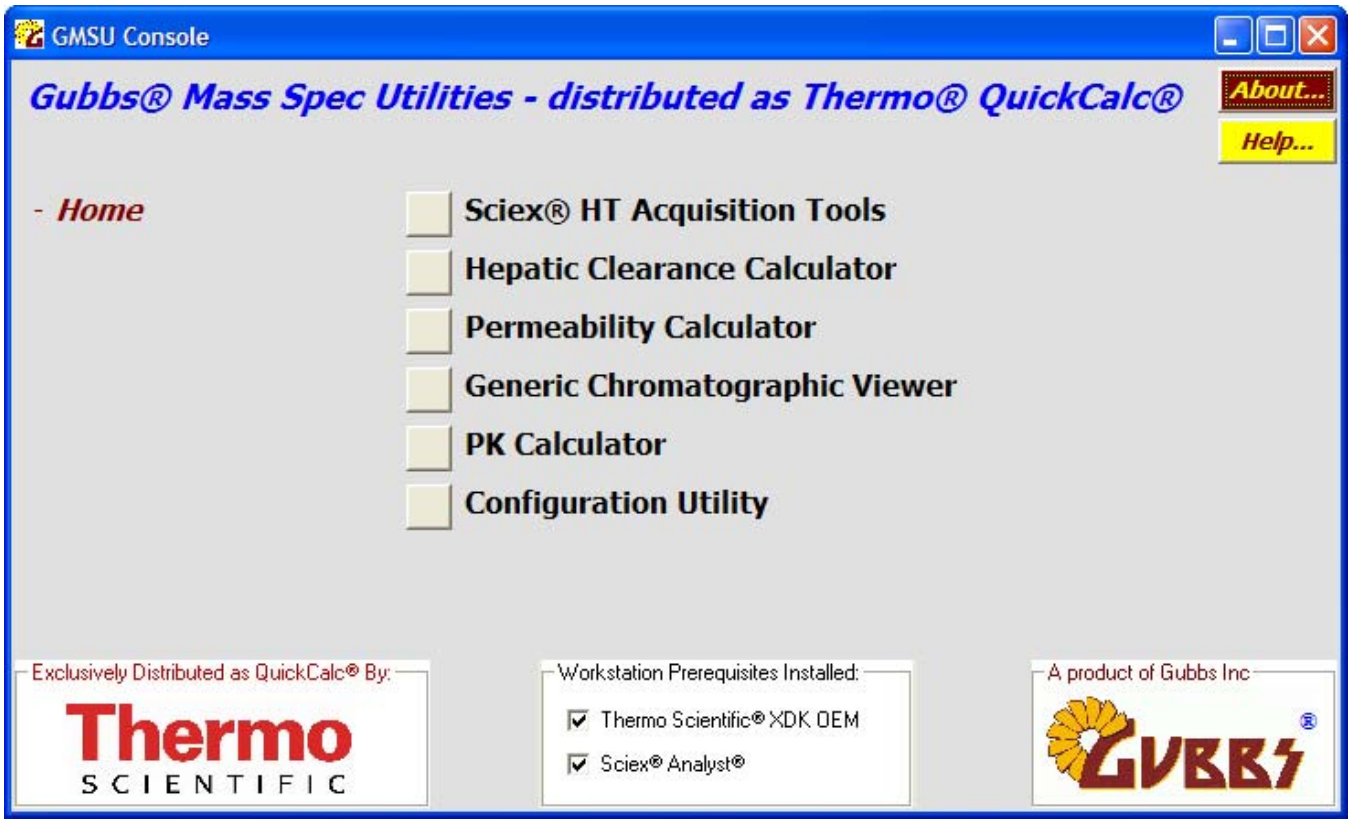
6 Actions to be performed ONCE using any installation of GMSU\QC

Once the workstation configuration steps have been completed, then GMSU\QC must be configured to operate in a multiuser environment. Each GMSU\QC module that will be used in a multiuser environment must be configured.

Since all GMSU\QC installations are now pointing to the same database, this section needs to be performed on once for each module. The changes will affect all GMSU\QC installations.

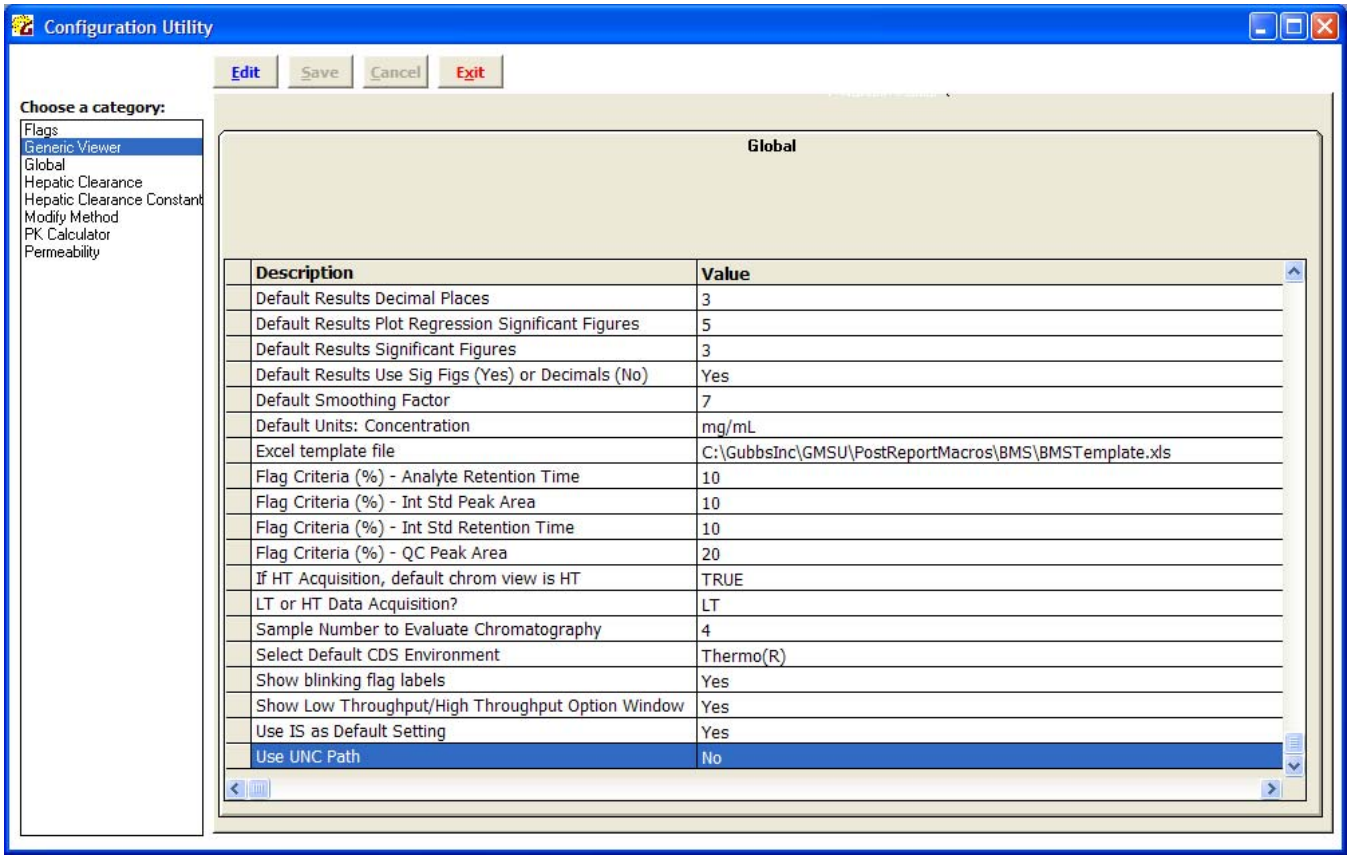
This process will be described using the Generic Chromatographic Viewer as an example.

6.1 Start GMSU\QC and open the Configuration Utility



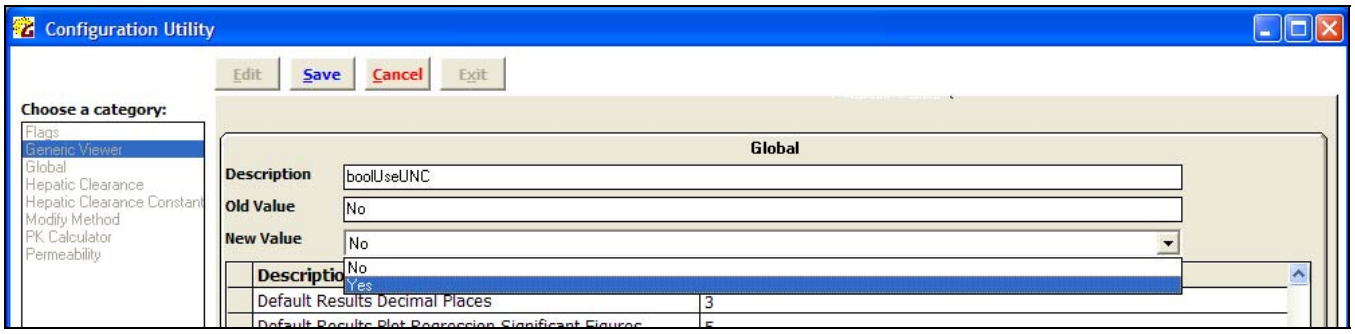
6.2 Select the Generic Viewer category

Scroll through the Global list until the 'Use UNC Path' item is found



6.3 Change the value to 'Yes'

- Select the 'Use UNC Path' item
- Click on the Edit button
- Select 'Yes' as the New Value
- Click on the Save button



6.4 Repeat the process (if applicable)

Repeat Section 6 for each module that will be used in a multiuser environment:

- Generic Viewer
- Hepatic Clearance
- PK Calculator
- Permeability