GRIN-Global Administrator Guide

Revision Date

April 17, 2017

Tip

This guide provides an overview to the GRIN-Global Admin Tool and provides other information useful to GG administrators. Change notes pertaining to this document are summarized in the appendix. Refer to the online GG Bug Report for information about known bugs and their “workarounds.”

The Table of Contents contains links to the document’s sections.

Comments/Suggestions:

Please contact feedback@ars-grin.gov with any suggestions or questions related to this document.

Who Should Use This Guide?

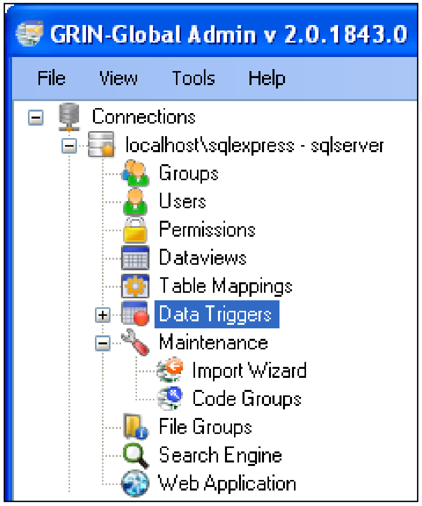
Personnel responsible for administering GRIN-Global should become familiar with the contents of this guide. The guide provides detailed instructions for using the GRIN-Global Updater as well as the GRIN-Global Admin Tool.

GRIN-Global consists of a collection of programs. The Updater is the program used to install or upgrade the other GRIN-Global programs. (Beginning with version 1.9.x, the Curator Tool is installed via a self-extracting exe file.)

The Admin Tool handles many diverse functions. Using the GRIN-Global Admin Tool, an administrator can:

- add user accounts and edit GRIN-Global users' settings such as passwords, permissions, etc.
- review, edit, and create dataviews which are used in the Curator Tool, the AT's Import Wizard, and the GRIN-Global Public Website
- use Table Mappings to associate a dataview field with a table field
- import .dll files (see the *Data Triggers* section)
- use the Import Wizard to import data into GRIN-Global as well as review existing data
- add / edit / delete GRIN-Global Code Groups
- configure the GRIN-Global Public Website settings

The following screen illustrates the main Admin Tool components:



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Introduction to the GRIN-Global Suite of Applications

GRIN-Global has been developed jointly by the **USDA Agricultural Research Service**, **Bioversity International**, and the **Global Crop Diversity Trust**.

GRIN-Global is a new version of the Germplasm Resource Information Network (GRIN), providing the world's crop genebanks with a powerful, but easy-to-use plant genetic resource (PGR) information management system.

GRIN-Global can be implemented different ways, ranging from a simple genebank inventory application on a single PC to a widely distributed system supporting online user searching and germplasm ordering. GRIN-Global:

- Operates over a network or on "stand-alone" personal computers
- Supports Microsoft SQL Server, PostgreSQL, Oracle, and MySQL databases
- Enables maximum flexibility in delegating user rights

Main GRIN-Global Software Components

GRIN-Global consists of a suite of applications. Refer to the online GG Installation Guide for complete installation directions. Also included in the document are links to the most recent source for the GG Updater file and other software.

Note Versions of the Curator Tool before version 1.9.x were installed via the GG Updater; beginning with 1.9.x, the CT is installed via its self-extracting installation file.

The following list summarizes the main components:

- **GRIN-Global Web Application (also known as the "middle tier")**
  Web site and web services used for interacting with all GRIN-Global data. Makes calls into the database and search engine as requested.

- **GRIN-Global Admin Tool**
  Windows application for administering GRIN-Global. Requires a direct database connection.

- **GRIN-Global Curator Tool**
  Windows application, designed primarily for curators and genebank personnel, for viewing and manipulating GRIN-Global data. Uses GG web service.

- **GRIN-Global Search Tool**
  Windows application for performing searches of GRIN-Global data. Uses GG web service (which in turn calls search engine).

- **GRIN-Global Updater**
  Windows application for updating all the GG server applications. Will also update itself as needed.

GRIN-Global Documents and Resources

Besides this Administrator's Guide, there are other resources documenting the GRIN-Global system. Please refer to the GRIN-Global wiki pages, especially the Training page. where there are many links to documents and resources including additional training exercises and videos. The primary document that Curator Tool users should read is the Curator Tool User Guide, also available o the training page.

Data Dictionary

The GRIN-Global Data Dictionary is an online google doc.

Note The dictionary details information on the dataviews (and their tables) of primary interest to genebank personnel who input and view the GRIN-Global germplasm curatorial data. This dictionary does not include information about system-type tables.

GRIN-Global Schema Overview

GRIN-Global Database

GRIN-Global requires underlying database management software. Four open-source database software engines are currently supported by GRIN-Global. GG data can be stored in any of the following: Microsfot's SQL Server, MySQL, PostgreSQL, and Oracle.

Schema Goals

GRIN-Global borrows a considerable amount of its conceptual schema from the GRIN system. However, several changes have been made to accommodate goals of the GRIN-Global schema. These goals include:

- Discoverability – intuitive, non-abbreviated, descriptive names for tables and columns
- Auditability – ability to audit data in all tables
- Multilingual – support for multiple languages simultaneously
- Multiple Database Engine Support – conform to database engine specific limitations for all four database engines
- Consistency – overall naming and data typing consistency

Discoverability

The following conventions were adhered to as closely as possible when naming tables and fields (in English):

- Table and field names use full words instead of abbreviations whenever possible
- Tables that are related logically usually begin with the same word. e.g.: accession, accession_name, accession_action, etc.

Prefix	Tables
accession_	Accession
inventory_	Inventory
order_request_	Order
taxonomy_	Taxonomy
crop_	Crop
web_	Public Website
sys_ and app_	GRIN-Global System

- Prefixes and/or suffixes are applied to field names to logically categorize fields with similar functionality: **is_ / _id / _code / _date** etc.

Auditability

All auditable tables in GRIN-Global contain fields explicitly for auditing purposes:

- Who created the record (created_by) and when (created_date)
- Who last modified the record (modified_by) and when (modified_date)
- Who currently owns the record (owned_by) and when they received ownership (owned_date)

These fields are auto-populated by the Middle Tier when data is being saved. The user cannot override the values in these fields. Auditing applies to the cooperator record of the user who manipulated the data, that is, the **created_by**, **modified_by**, and **owned_by** fields contain cooperator_id values.

Generally, the owner of a record is the same UserID who created the record. However, this is not always true. {More information on ownership can be found in the Curator Tool Users Guide under "Ownership.") Some exceptions are:

- Ownership has been transferred since the record was initially created. This is possible only through the owner explicitly transferring ownership.

- A record exists in sys_table_relationship that defines an "ownership" relationship with a parent table. The "owner" of the newly created record will be assigned the same value as the **owned_by** field value in the parent table record. For example, an accession_action record will be marked as being owned by the owner of the accession, not the creator of the accession_action record itself.

Multilingual

GRIN-Global supports displaying data in multiple languages for system-level data. That is, if the system requires text to be displayed that is not actual GRIN-Global data, that text should be in the appropriate language for the current user. This is accomplished by using a table ending with "_lang" as a child table. Some of the language tables included in GRIN-Global are:

- code_value_lang
- crop_trait_code_lang
- sys_lang
- sys_dataview_lang
- sys_table_field_lang

Multiple Database Engine Support

GRIN-Global currently works with four different database engines. (This is true for version 1.0.7. Interim releases have been requested from the GG development team in the US since 1.0.7 was released. Those interim versions had the supporting dataviews only for Microsoft SQL Server.) Since a genebank may already be invested in a particular database engine (with staff to support it, existing servers, etc.), this flexibility allows GRIN-Global to run in almost any IT environment. The following database engines are supported:

Database Engine (version)*	Related Website
SQL Server (2008)	http://www.microsoft.com/sqlserver/en/us/default.aspx
Oracle XE (10g)	http://www.oracle.com/technetwork/developer-tools/sql-developer/overview/index.html
MySQL (5.1)	http://dev.mysql.com/downloads/workbench/5.2.html
PostgreSQL (8.3)	http://www.pgadmin.org/

* version displayed here or later versions

Note GRIN-Global may or may not work on different *versions* from those listed above.

Consistency

GRIN-Global strives to be consistent in the naming, semantics, and patterns used in the schema. The schema uses the following conventions:

Convention	Description
All tables have a single primary key field.	The key's type is integer; keys are auto-generated.
_id	Primary key field names always start with the table name and end with "_id." Example: **accession.accession_id**
_id	Foreign key field names always contain the foreign table name and end with "_id." Example: **accession.taxonomy_species_id** (taxonomy_species is the foreign table name)
Names are in lowercase	containing only a-z and underscores (_)
_map	Tables which represent a many-to-many relationship usually end with "_map"
_lang	Tables which represent language-specific data always end with "_lang"
sys_ / app_	System-specific tables always start with sys_ or app_
web_	Web-specific tables always start with "web_"
Table names – limited to 27 characters; Field names – limited to 30 characters	Conforms to the Oracle limitation of 30 characters for object names. (Since a table name + "_id" is always used for the primary key field, the max length for a table name is 30 – 3 (length of "_id") = 27
"_date	Fields that contain date and time based data end with "_date" and are stored as an actual DateTime data type
_code	Fields that contain coded values end with "_code" and are always stored as character data with a max length of 20.
is_	Fields that represent Boolean data begin with "is_" Boolean data is always stored as "Y" for yes and "N" for no; always stored as a non-nullable character field of length 1.
	Most primary tables define a sensible unique compound key comprised of the actual data fields

System-Related Tables

System tables are tables GRIN-Global needs to function properly, but do not have anything to do with the actual genebank data. They are broken down into two major sections:

- sys_* tables represent tables required by all applications to function properly
- app_* tables represent tables required by certain applications to function properly

The flexibility of GRIN-Global is due to the data stored in the system tables. As a whole, the system tables represent the following:

- User Interface customization
- Data presentation and manipulation extensibility
- Data workflow customization
- Language localization
- Security – including users, permissions, and groups
- Downloadable content
- Cached information about the schema itself

Friendly Names

The "friendly" names are the headings used in one's own language as compared to table field names (the actual field names as defined in the physical database). A SQL query that lists the "friendly" names used for the table field names is included in the Appendix. See SQL Code on page **Error! Bookmark not defined.**.

Note

GG's default language is English. However, when installed, the GG database includes four other languages: Spanish, French, Russian, and Arabic. Switching the interface to display in one of these embedded languages is quite simple. Furthermore, languages can be added to the database. For complete instructions for adding another language to GG or for editing column headings, refer to the separate guide: http://www.ars-grin.gov/npgs/gringlobal/docs/gg_language_notes.pdf

GRIN-Global Schema Tables & Fields

The GRIN-Global data dictionary is available online at GG-dictionary. The dictionary contains table and field names as well as descriptions of every field in the GRIN-Global schema.

There is some sample SQL in this guide's appendix, for downloading the GRIN-Global dataview / field names.

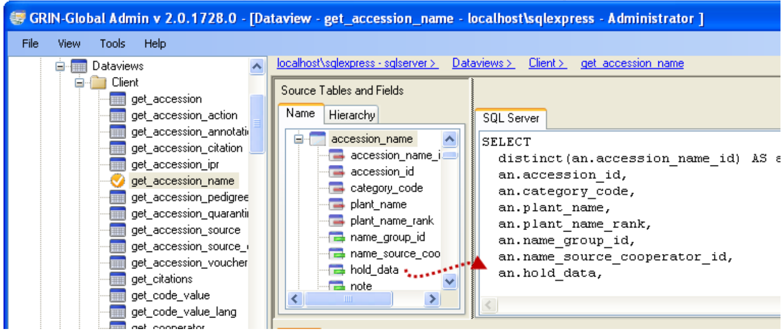
Schema Changes

GRIN-Global is designed to be very flexible and meet the needs of many genebanks. Much of the schema was designed form the U.S. GRIN schema, with modifications and suggestions contributed by many international users. If there are fields that your organization will be not using, it is recommended that you leave them in the schema. You can modify dataviews in the GRIN-Global Admin Tool so that the fields are never displayed.

If you need additional fields, you will need to use your database management tool such as SQL Server Management Studio, Oracle, etc. to add the new field to a table. You then will use the Admin Tool to incorporate that field. The general steps to follow are:

1. Make schema change in SSMS (or whatever database tool you are using)

2. In the Admin Tool, run **Table Mappings | Inspect Schema for Unmapped Tables…**
3. Load the dataview in the Admin Tool Dataview Editor
4. Drag the new field(s) onto the **SQL Server** pane



GRIN-Global Admin v 2.0.1728.0 - [Dataview - get_accession_name - localhost\sqlexpress - Administrator]

```
SELECT
  distinct(an.accession_name_id) AS a
  an.accession_id,
  an.category_code,
  an.plant_name,
  an.plant_name_rank,
  an.name_group_id,
  an.name_source_cooperator_id,
  an.hold_data,
```

5. In the Dataview Editor, edit the field friendly name(s).

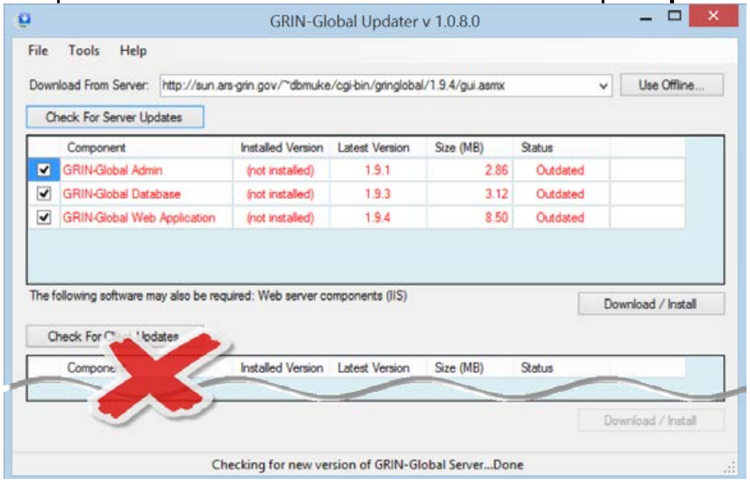
When any change is made to GRIN-Global, the date-time stamp of the transaction is not based on the PC's clock but on Greenwich Meant Time (GMT).

Installing GRIN-Global (Updater)

Updater Program

The first step in installing the GRIN-Global program suite is to install the **Updater** program. When you are ready to install the Updater program, refer to the GRIN-Global Installation Guide for detailed directions. However, before proceeding with the installation, we recommend that you read the remaining part of this overview to get familiar with the general features of the Updater.

After the **Updater** program is installed, you will use it to install GRIN-Global's server components. The screen shown here is a sample **Updater** window:



GRIN-Global Updater v 1.0.8.0

Download From Server: http://sun.ars-grin.gov/~dbmuke/cgi-bin/gringlobal/1.9.4/gui.asmx

	Component	Installed Version	Latest Version	Size (MB)	Status
☑	GRIN-Global Admin	(not installed)	1.9.1	2.86	Outdated
☑	GRIN-Global Database	(not installed)	1.9.3	3.12	Outdated
☑	GRIN-Global Web Application	(not installed)	1.9.4	8.50	Outdated

The following software may also be required: Web server components (IIS)

	Compone	Installed Version	Latest Version	Size (MB)	Status

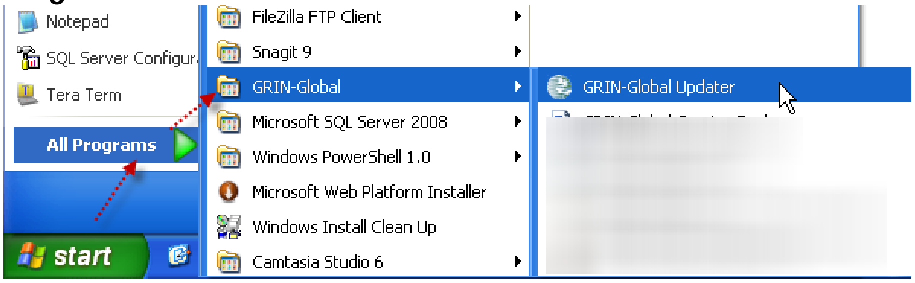
Checking for new version of GRIN-Global Server...Done

Beginning with version 1.9.x, the Curator Tool is installed via its self-extracting .exe file; the GG Updater program is *not* used to install the CT.

Installing GRIN-Global (Updater)

For users who will only be using the GG Public Website, no installation is necessary. The user's browser needs to be pointed to the URL of the organization's GG website.

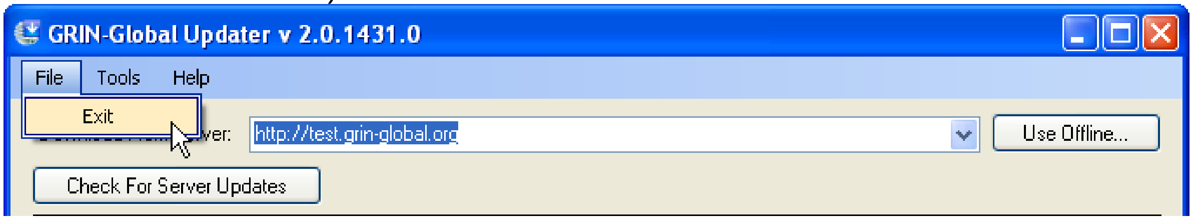
When the Updater is installed properly on your PC, its menu option will display on the **Start Programs** menu:



Updater Options

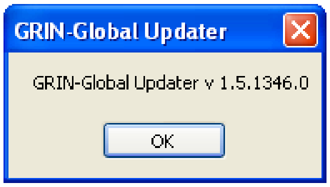
There are three items on the Updater menu – **File**, **Tools,** and **Help**.

File has just one option: **Exit**. Use this option to stop running the **Updater.** (You can also use the Windows' Close icon.)



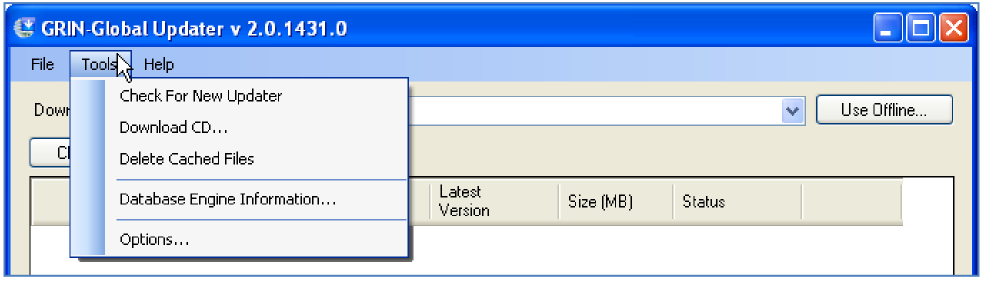
http://test.grin-global.org

(Since Help is so simple, we'll explain it before discussing Tools.) Use **Help** to determine the version.



GRIN-Global Updater v 1.5.1346.0

Under **Tools**, you can check for the latest version of the Updater, delete any cached files, obtain information about the database engines available to you on your PC, and access other options.



Tools Menu

Check for New Updater

Select **Tools | Check for New Updater** to download the latest version of the Updater. However, this option should not be necessary since the Updater automatically checks for a new version when it is invoked.

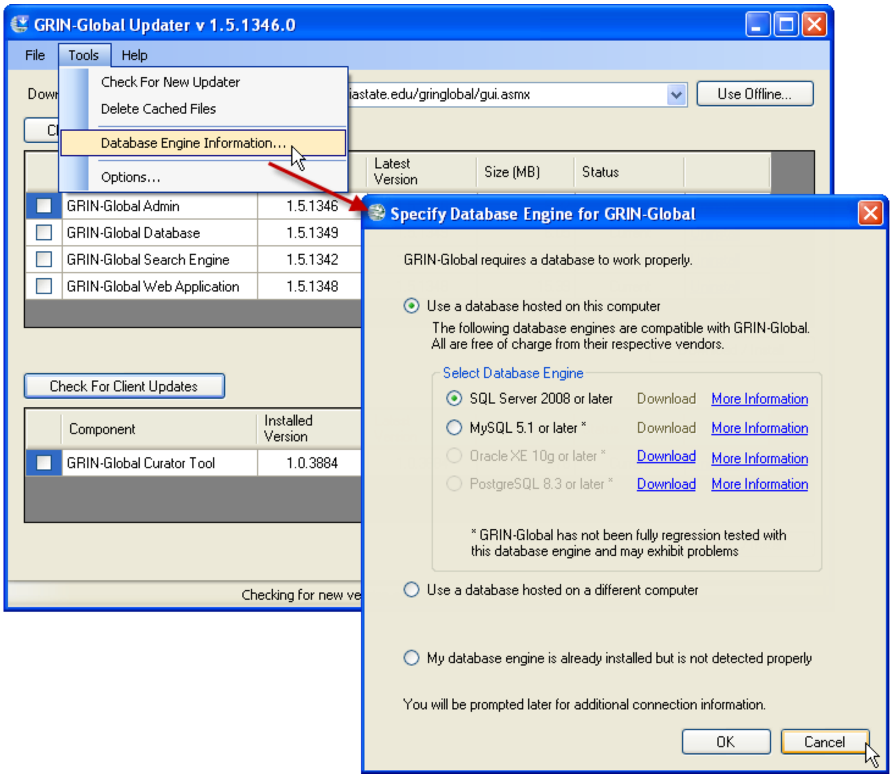
Delete Cached Files

When you click the **Download/Install** button on the Updater window, you start the downloading of files into a “download cache.” The downloaded files vary, depending on which component(s) you select to download. Eventually, when the files have been successfully installed, they are moved from the download cache to an “installer cache.” This “**Delete Cached Files**” option frees up the hard drive space used by these cache files.

(The “Delete Cached Files” option is equivalent to the **Tools | Options | Download Cache | Delete Selected** command.)

Database Engine Information…

Use this option to either switch to a different database engine or to repair the connection to the current database engine when the engine is not functioning properly.



		Latest Version	Size (MB)	Status
☐	GRIN-Global Admin	1.5.1346		
☐	GRIN-Global Database	1.5.1349		
☐	GRIN-Global Search Engine	1.5.1342		
☐	GRIN-Global Web Application	1.5.1348		

	Component	Installed Version
☐	GRIN-Global Curator Tool	1.0.3884

GRIN-Global requires a database to work properly.

● Use a database hosted on this computer

The following database engines are compatible with GRIN-Global. All are free of charge from their respective vendors.

●	SQL Server 2008 or later	Download	More Information
○	MySQL 5.1 or later *	Download	More Information
○	Oracle XE 10g or later *	Download	More Information
○	PostgreSQL 8.3 or later *	Download	More Information

* GRIN-Global has not been fully regression tested with this database engine and may exhibit problems

○ Use a database hosted on a different computer

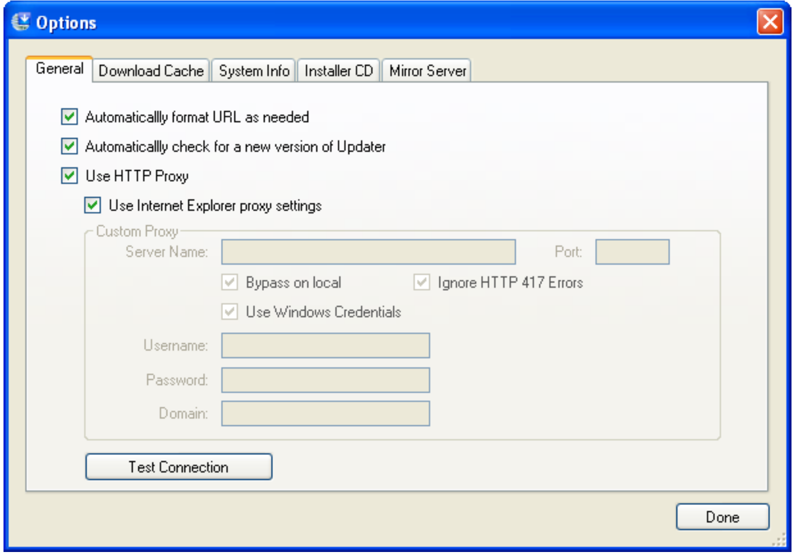
○ My database engine is already installed but is not detected properly

You will be prompted later for additional connection information.

Tools | Options

General

GRIN-Global can be configured to be routed through a proxy server.



☑ Automaticallly format URL as needed

☑ Automaticallly check for a new version of Updater

☑ Use HTTP Proxy

☑ Use Internet Explorer proxy settings

Custom Proxy

Server Name:

Port:

☑ Bypass on local

☑ Ignore HTTP 417 Errors

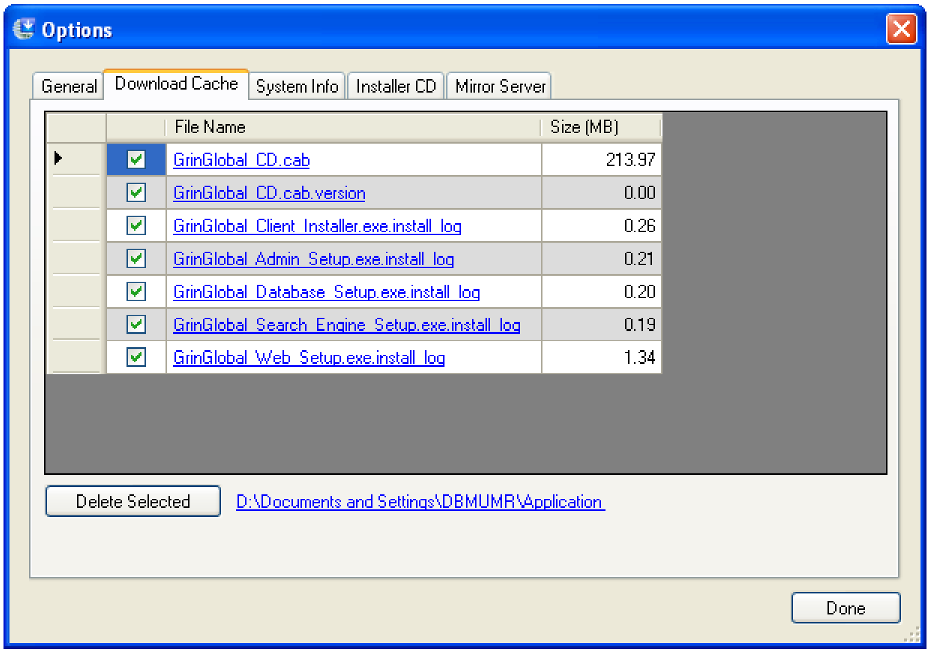
☑ Use Windows Credentials

Username:

Password:

Domain:

Download Cache



	File Name	Size (MB)
☑	GrinGlobal_CD.cab	213.97
☑	GrinGlobal_CD.cab.version	0.00
☑	GrinGlobal_Client_Installer.exe.install_log	0.26
☑	GrinGlobal_Admin_Setup.exe.install_log	0.21
☑	GrinGlobal_Database_Setup.exe.install_log	0.20
☑	GrinGlobal_Search_Engine_Setup.exe.install_log	0.19
☑	GrinGlobal_Web_Setup.exe.install_log	1.34

D:\Documents and Settings\DBMUMR\Application

When you click the **Download/Install** button on the Updater window, files begin downloading into a “download cache.” The files downloaded vary, depending on which component(s) you select to download. Eventually, when the files have been successfully installed, they are moved from the download cache to an “installer cache.”

The download cache makes it possible to resume from the point where the last download stopped if the download doesn't fully complete.

In this screen, you can delete any files that have downloaded, but which are not yet installed.

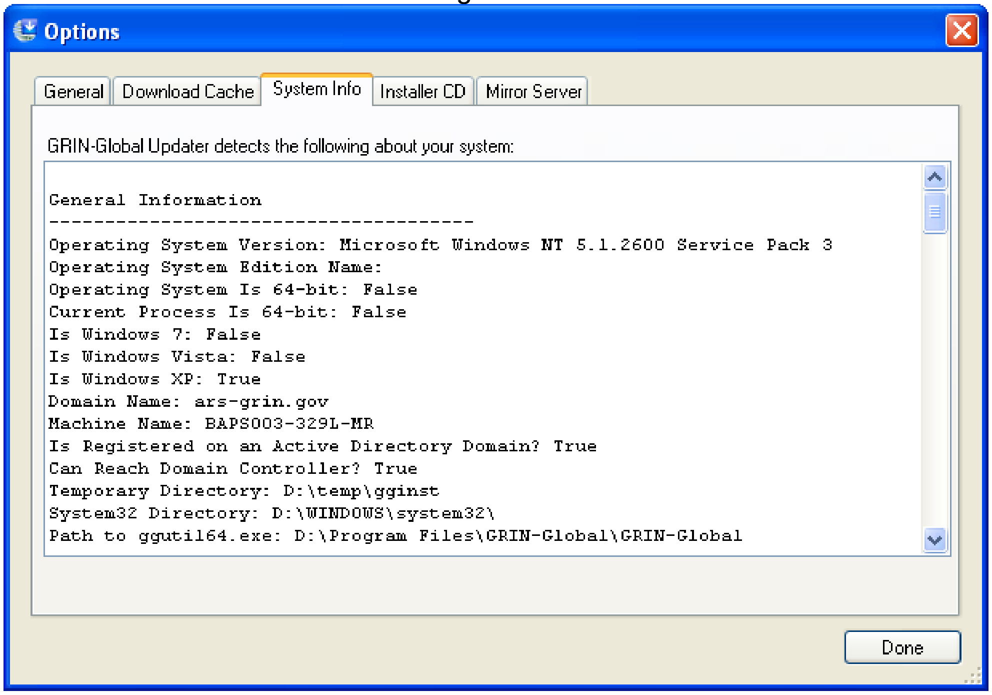
When the download has completed, the Updater runs the files from this download cache folder (i.e., ".exe" files are executed and the ".msi" files are installed.) After the files have completely installed, they are moved from the download cache to an "installer cache."

Note The installer cache is not shown anywhere in the Updater interface. It is in a backup area. If problems do arise, the files in this cache could be manually reinstalled to load the last successfully updated version.

To show the download cache in Windows Explorer, click the link next to "Delete Selected." From there, "move up" one folder (to the parent folder) to display an "installed" folder. The installer cache resides here.

System Info

Details are displayed about the user's local PC as the Updater program sees them. These details are useful for troubleshooting installation issues.

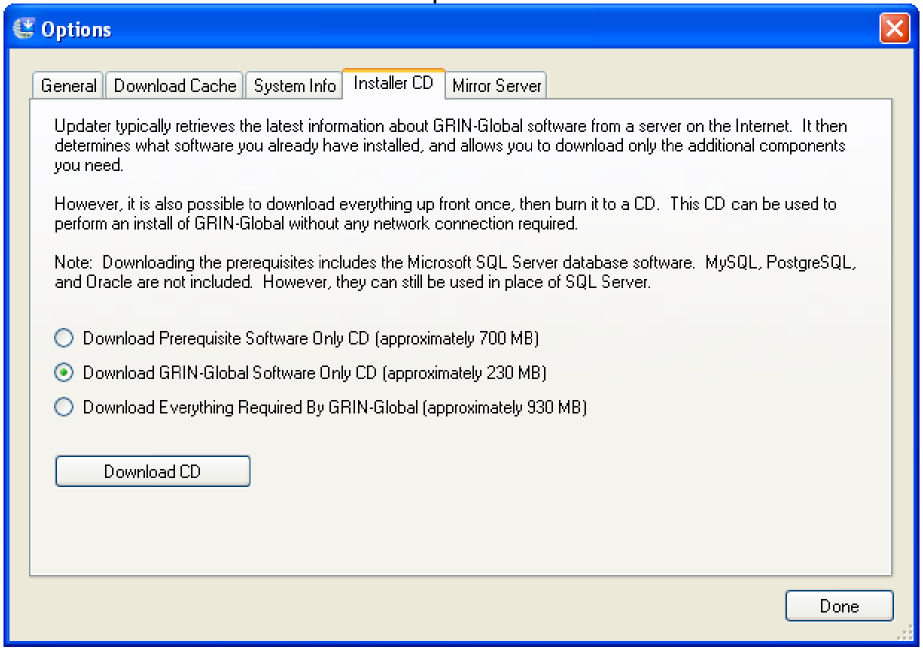


GRIN-Global Updater detects the following about your system:

```
General Information
----------------------------------------
Operating System Version: Microsoft Windows NT 5.1.2600 Service Pack 3
Operating System Edition Name:
Operating System Is 64-bit: False
Current Process Is 64-bit: False
Is Windows 7: False
Is Windows Vista: False
Is Windows XP: True
Domain Name: ars-grin.gov
Machine Name: BAPS003-329L-MR
Is Registered on an Active Directory Domain? True
Can Reach Domain Controller? True
Temporary Directory: D:\temp\gginst
System32 Directory: D:\WINDOWS\system32\
Path to ggutil64.exe: D:\Program Files\GRIN-Global\GRIN-Global
```

Installer CD

Use this tab to download various parts of the GRIN-Global suite.



Updater typically retrieves the latest information about GRIN-Global software from a server on the Internet. It then determines what software you already have installed, and allows you to download only the additional components you need.

However, it is also possible to download everything up front once, then burn it to a CD. This CD can be used to perform an install of GRIN-Global without any network connection required.

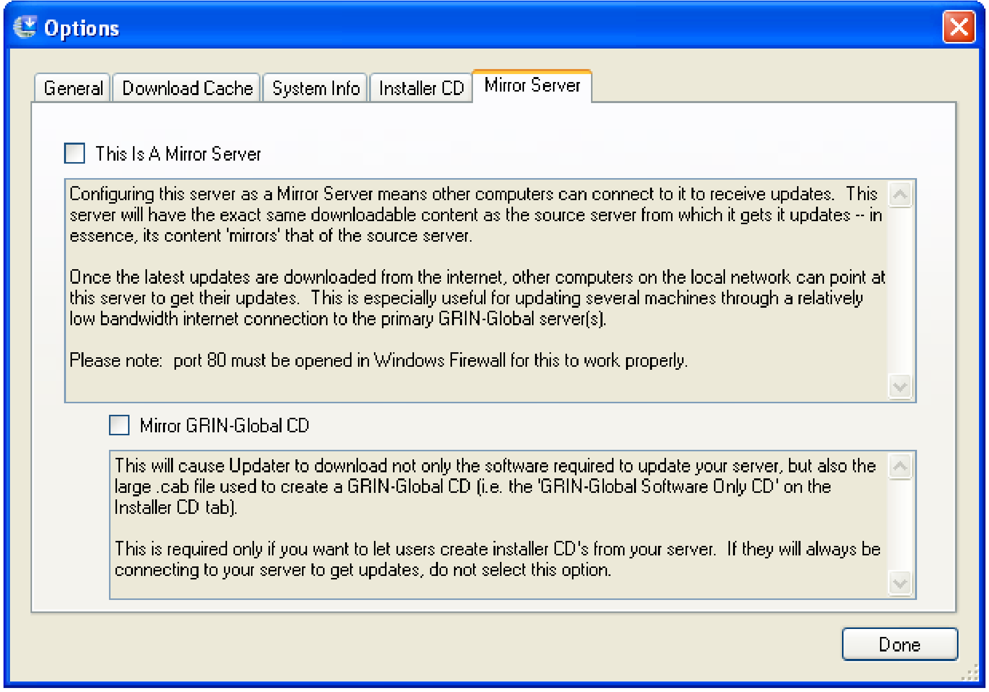
Note: Downloading the prerequisites includes the Microsoft SQL Server database software. MySQL, PostgreSQL, and Oracle are not included. However, they can still be used in place of SQL Server.

○ Download Prerequisite Software Only CD (approximately 700 MB)
● Download GRIN-Global Software Only CD (approximately 230 MB)
○ Download Everything Required By GRIN-Global (approximately 930 MB)

Refer to the Installation Guide for aditional details.

Mirror Server

The **Mirror Server** alternatives are fully explained in its window:



□ This Is A Mirror Server

Configuring this server as a Mirror Server means other computers can connect to it to receive updates. This server will have the exact same downloadable content as the source server from which it gets it updates -- in essence, its content 'mirrors' that of the source server.

Once the latest updates are downloaded from the internet, other computers on the local network can point at this server to get their updates. This is especially useful for updating several machines through a relatively low bandwidth internet connection to the primary GRIN-Global server(s).

Please note: port 80 must be opened in Windows Firewall for this to work properly.

□ Mirror GRIN-Global CD

This will cause Updater to download not only the software required to update your server, but also the large .cab file used to create a GRIN-Global CD (i.e. the 'GRIN-Global Software Only CD' on the Installer CD tab).

This is required only if you want to let users create installer CD's from your server. If they will always be connecting to your server to get updates, do not select this option.

The mirroring doesn't add any overhead if the **Mirror GRIN-Global CD** checkbox isn't checked. It mirrors things after it installs them, so the files have already been downloaded. The exception to this is when the **Mirror GRIN-Global CD** checkbox *is* checked. Then a very large (120 MB) file is downloaded.

GG User Files

Overview

When the GRIN-Global Curator Tool is installed on a User's PC, several files are installed on the PC's hard drive which affect user settings. The advantage of these files is that they can be configured by a GG administrator (or a user).

Several folders are installed during the CT installation:

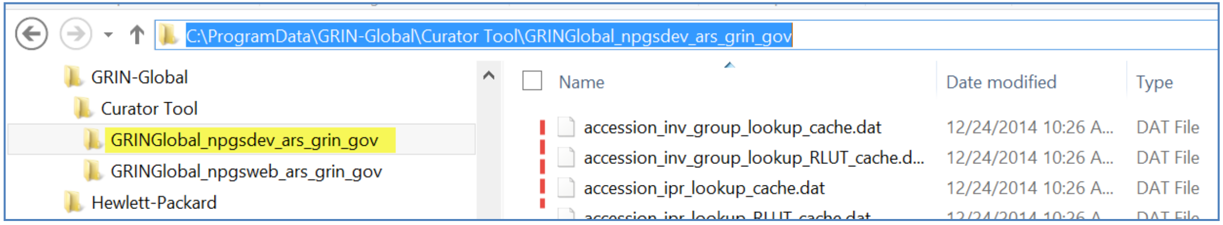
- C:\ProgramData\GRIN-Global\Curator Tool
  (3 .txt files are stored here – see the note below)

Note

Three files are placed into the **C:\ProgramData\GRIN-Global\Curator Tool** folder when the CT is installed and are considered are considered "master copies." The three files: **AppSettings.txt**, **ReportsMapping.txt**, and **WebServiceURL.txt**. are placed there during CT installation. When the user starts the Curator Tool *the first time*, the master copies of those three files are then copied from the **ProgramData…** directory to the **username…** directory (such as **C:\Users\MartyR\AppData\Roaming\GRIN-Global\Curator Tool**)

- C:\ProgramData\GRIN-Global\Curator Tool\GRINGlobal_*servername*
  (current _cache.dat files are stored here)

  Example:



C:\ProgramData\GRIN-Global\Curator Tool\GRINGlobal_npgsdev_ars_grin_gov

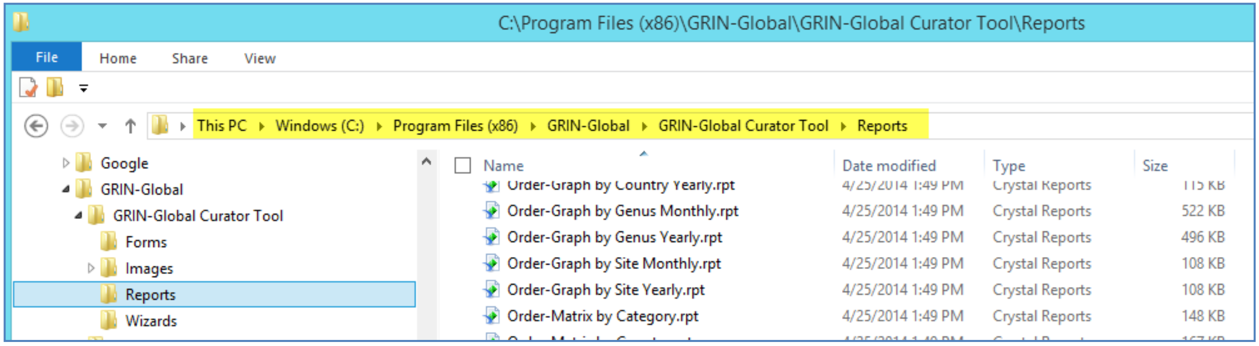
GRIN-Global
Curator Tool
GRINGlobal_npgsdev_ars_grin_gov
GRINGlobal_npgsweb_ars_grin_gov
Hewlett-Packard

Name	Date modified	Type
accession_inv_group_lookup_cache.dat	12/24/2014 10:26 A...	DAT File
accession_inv_group_lookup_RLUT_cache.d...	12/24/2014 10:26 A...	DAT File
accession_ipr_lookup_cache.dat	12/24/2014 10:26 A...	DAT File
accession_ipr_lookup_RLUT_cache.dat	12/24/2014 10:26 A...	DAT File

- Related: [A folder not created during the CT installation (but created and populated the *first* time the user starts the Curator Tool)
  C:\Users\*username*\AppData\Roaming\GRIN-Global\Curator Tool

  (The 3 working .txt files are stored here)

- **C:\Program Files (x86)\GRIN-Global\GRIN-Global Curator Tool**
  Among other folders and files, the .rpt files for reports to be used by the Curator Tool are stored under this folder in a folder called "**Reports**"

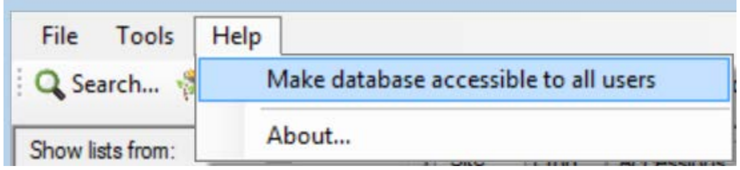


C:\Program Files (x86)\GRIN-Global\GRIN-Global Curator Tool\Reports

This PC ▸ Windows (C:) ▸ Program Files (x86) ▸ GRIN-Global ▸ GRIN-Global Curator Tool ▸ Reports

Name	Date modified	Type	Size
Order-Graph by Country Yearly.rpt	4/25/2014 1:49 PM	Crystal Reports	115 KB
Order-Graph by Genus Monthly.rpt	4/25/2014 1:49 PM	Crystal Reports	522 KB
Order-Graph by Genus Yearly.rpt	4/25/2014 1:49 PM	Crystal Reports	496 KB
Order-Graph by Site Monthly.rpt	4/25/2014 1:49 PM	Crystal Reports	108 KB
Order-Graph by Site Yearly.rpt	4/25/2014 1:49 PM	Crystal Reports	108 KB
Order-Matrix by Category.rpt	4/25/2014 1:49 PM	Crystal Reports	148 KB

The user must have read/write privileges for these folders. A GG administrator who installs the CT on the user's PC can use the CT's Help command to "**Make database accessible to all users**"

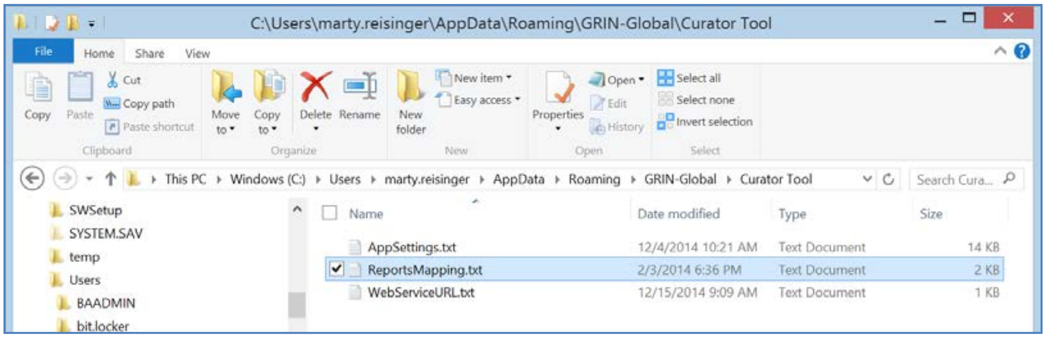


Note

This Help command does not (yet) adjust the user read/write settings for the **C:\ProgramData\GRIN-Global\Curator Tool\GRINGlobal_*servername*** folder. To manually adjust the **Program Data…** folder's settings, log on as the PC's *Windows* Administrator and adjust the **Properties | Security** settings so that the user can Read, Write, Modify.

CT User Files

File	Purpose
AppSettings.txt	Controls certain CT user settings such as application-level settings for the GUI controls
ReportsMapping.txt	Associates a .report file (".rpt") with a dataview file (".dataview")
WebServiceURL.txt	This file indicates which servers are available to the CT


C:\Users\marty.reisinger\AppData\Roaming\GRIN-Global\Curator Tool

This PC › Windows (C:) › Users › marty.reisinger › AppData › Roaming › GRIN-Global › Curator Tool

Name	Date modified	Type	Size
AppSettings.txt	12/4/2014 10:21 AM	Text Document	14 KB
☑ ReportsMapping.txt	2/3/2014 6:36 PM	Text Document	2 KB
WebServiceURL.txt	12/15/2014 9:09 AM	Text Document	1 KB

AppSettings.txt

The AppSettings.txt file controls certain CT user settings such as:

(1) customized treeview names
(2) virtual node definitions
(3) a few miscellaneous application setting definitions.
(4) which reports display in the CT Order Wizard **Printing** dropdown

When the CT is installed on a PC, this .txt file is copied into the following folder: **C:\ProgramData\GRIN-Global\Curator Tool**.

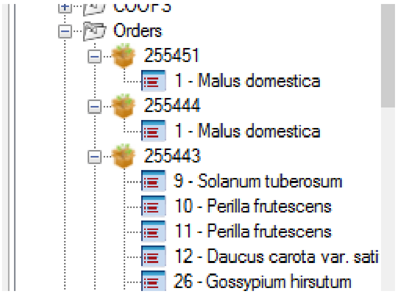
On the server there is also an app_setting table which establishes "default settings" for each user. As the CT loads itself into memory, it will read the app_setting table first and then the

AppSettings.txt file. The AppSettings.txt file entries will override the table entries. The local AppSettings.txt file "trumps" the settings in the app_setting table.

Customized Treeview Name

The list items can be assigned custom names that may include the contents from a field as well as text. In the following example, all order request items in a list will display their sequence number and the taxonomy. The following statement will alter the name of the Order_Request_Item_IDs:

```
#     ORDER_REQUEST_ITEM_ID_NAME_FORMULA =
{get_order_request_item.sequence_number} + " - " +
{get_order_request_item.external_taxonomy}
```

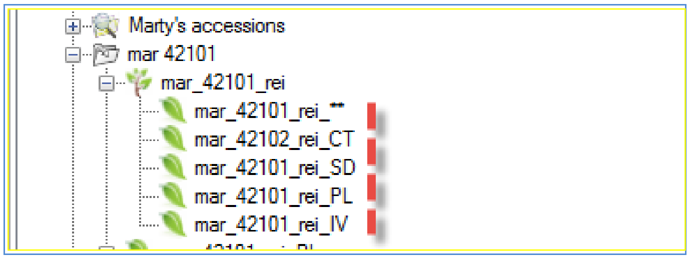


Orders
255451
1 - Malus domestica
255444
1 - Malus domestica
255443
9 - Solanum tuberosum
10 - Perilla frutescens
11 - Perilla frutescens
12 - Daucus carota var. sati
26 - Gossypium hirsutum

The syntax of the statement is *item*_ID_NAME_FORMULA = {field1} + "text" +…

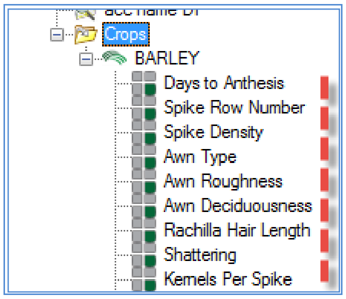
Treeview Virtual Node Definitions

A "virtual node" can be automatically generated for a list item. For example, when accession items are in a list, their respective inventory items are displayed when the "+" symbol is clicked. In this example, the accession **mar 42101 rei** has five inventory items listed:



Marty's accessions
mar 42101
mar_42101_rei
mar_42101_rei_**
mar_42102_rei_CT
mar_42101_rei_SD
mar_42101_rei_PL
mar_42101_rei_IV

CROP_ID_VIRTUAL_NODE_DATAVIEW = get_crop_trait



Crops
BARLEY
Days to Anthesis
Spike Row Number
Spike Density
Awn Type
Awn Roughness
Awn Deciduousness
Rachilla Hair Length
Shattering
Kernels Per Spike

Application Setting Definitions

A few settings can be set. [tbd]

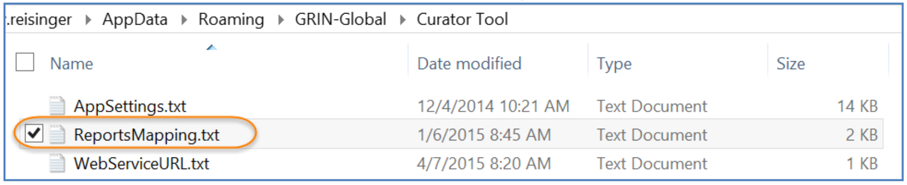
ux_numericupdownMaxRowsReturned = 10000

ux_numericupdownQueryPageSize = 1000

ux_checkboxOptimizeLUTForSpeed = true

ReportsMapping.txt

The **ReportsMapping.txt** file must be stored on the user's PC in the folder:
C:\Users\*username*\AppData\Roaming\GRIN-Global\Curator Tool

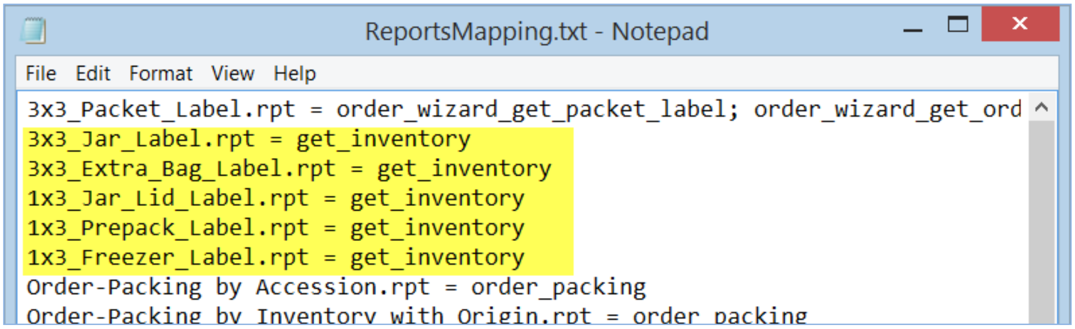


.reisinger ▸ AppData ▸ Roaming ▸ GRIN-Global ▸ Curator Tool

□ Name	Date modified	Type	Size
AppSettings.txt	12/4/2014 10:21 AM	Text Document	14 KB
☑ ReportsMapping.txt	1/6/2015 8:45 AM	Text Document	2 KB
WebServiceURL.txt	4/7/2015 8:20 AM	Text Document	1 KB

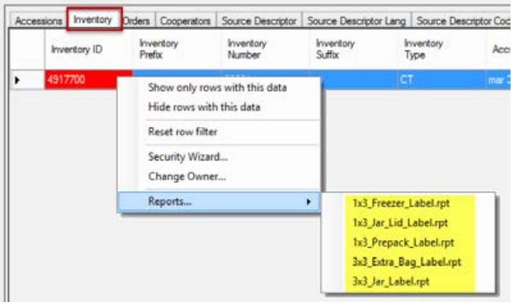
The ReportsMapping.txt file is used to associate a .report file with an ".rpt" with dataview file(s) (.dataview). A report may be designed to work with more than one dataview. By setting up this mapping file correctly, the user will not be inundated with many report files when invoking reports – instead, only the appropriate reports will be displayed in the menu or dropdown.

For example, in the ReportsMapping.txt file shown below, there are five reports associated with the get_inventory dataview:

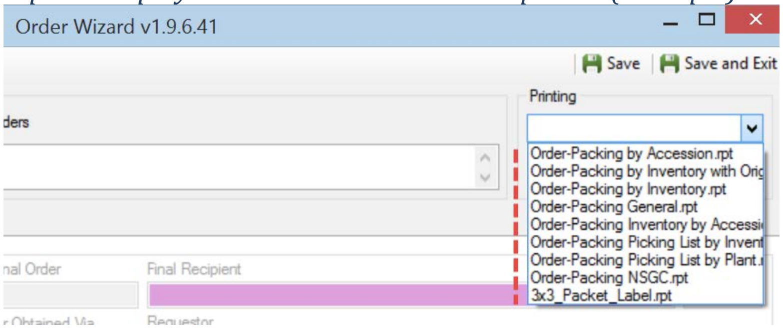


```
3x3_Packet_Label.rpt = order_wizard_get_packet_label; order_wizard_get_ord
3x3_Jar_Label.rpt = get_inventory
3x3_Extra_Bag_Label.rpt = get_inventory
1x3_Jar_Lid_Label.rpt = get_inventory
1x3_Prepack_Label.rpt = get_inventory
1x3_Freezer_Label.rpt = get_inventory
Order-Packing by Accession.rpt = order_packing
Order-Packing by Inventory with Origin.rpt = order packing
```

When working in the Inventory dataview, the user will see the five reports listed (in alphabetical order) when he invokes the **Reports…** menu option:



Reports Displayed in the Order Wizard Dropdown (Example)



Order-Packing by Accession.rpt
Order-Packing by Inventory with Orig
Order-Packing by Inventory.rpt
Order-Packing General.rpt
Order-Packing Inventory by Accessi
Order-Packing Picking List by Invent
Order-Packing Picking List by Plant.r
Order-Packing NSGC.rpt
3x3_Packet_Label.rpt

The statement below, when included in the ReportsMapping.txt file, will display reports in the Order Wizard dropdown:

> OrderWizardCrystalReports = Order-Packing by Accession.rpt; Order-Packing by Inventory with Origin.rpt; Order-Packing by Inventory.rpt; Order-Packing General.rpt; Order-Packing Inventory by Accession.rpt; Order-Packing Picking List by Inventory.rpt; Order-Packing Picking List by Plant.rpt; Order-Packing NSGC.rpt; 3x3_Packet_Label.rpt

If the statement has a # preceding it, the # made it a comment – delete the #.

Creating Reports Using Crystal Reports

To create a new Crystal Reports "CR report," you start by saving an Excel file created by exporting some sample data from a CT dataview. This indicates to Crystal Reports what data fields with which it has to work. Later, when using the report in the CT, the CT sends data selected by the user to the CR report in the form it is expecting.

The following are the basic steps needed to create a new report:

- Choose a dataview on which to base the report; drag some sample data from the CT to Excel
- Save that data to a file as type: Excel 97-2003 Workbook (*.xls)
- Open SAP Crystal Reports
- Select Report Wizard
- Create New Connection
- Access/Excel (DAO)
- Database Type: Excel 8.0
- Database name: … browse to the saved .xls file
- Finish

From there it is a matter of selecting fields to use in the report from Sheet1$. Look for tutorials on how to do format your data in Crystal Reports.

After creating the CR report, the saved report file (extension ".rpt") must be stored in the CT report directory on each PC where it is to be used. That directory is:

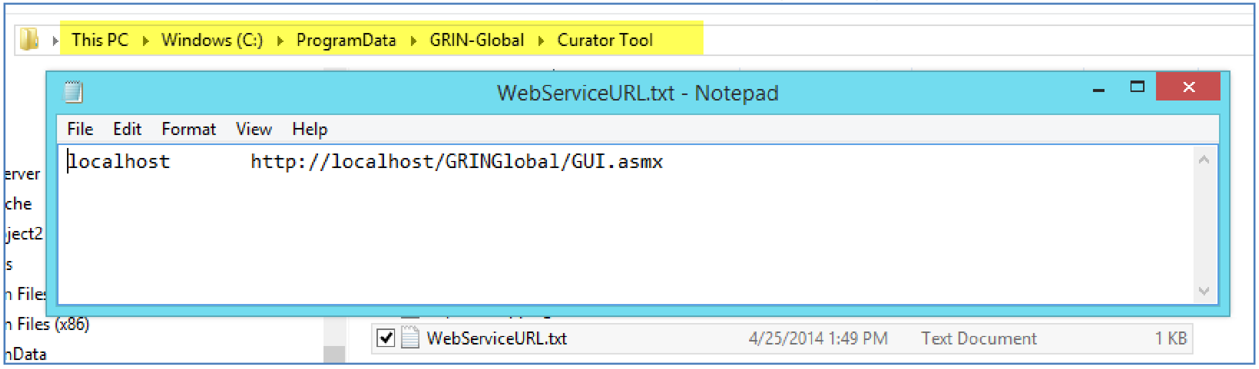
C:\Program Files (x86)\GRIN-Global\GRIN-Global Curator Tool\Reports

The last step is edit a file on the PC which indicates to the CT which report goes with which dataview. This is the **ReportsMapping.txt** file in the folder

C:\Users\*username*\AppData\Roaming\GRIN-Global\Curator Tool (see the ***Reports Mapping*** section).

WebServiceURL.txt

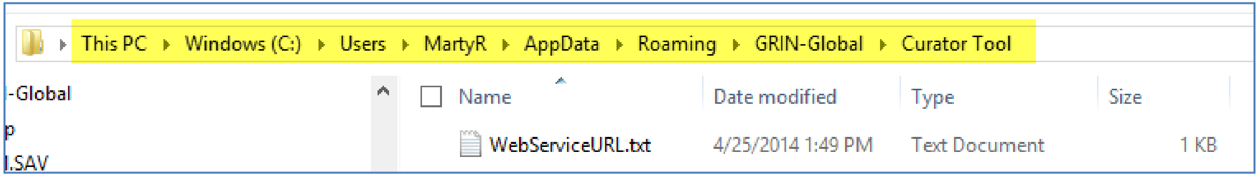
When the CT is initially installed, a copy of this file is installed at **C:\Program Data\GRIN-Global\Curator Tool**. The default file contains the following setting:


This PC ▸ Windows (C:) ▸ ProgramData ▸ GRIN-Global ▸ Curator Tool
WebServiceURL.txt - Notepad
File Edit Format View Help
erver
che
ject2
s
h Files
h Files (x86)
hData

```
localhost       http://localhost/GRINGlobal/GUI.asmx
```

☑ WebServiceURL.txt 4/25/2014 1:49 PM Text Document 1 KB

When the user starts up the CT, a copy of this file is copied to the user's CT folder, such as: **C:\Users\MartyR\AppData\Roaming\GRIN-Global\Curator Tool**

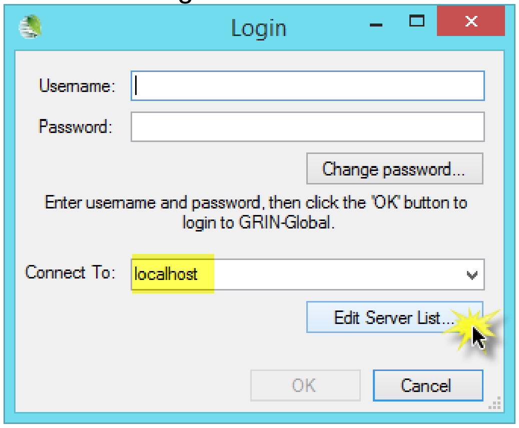

This PC ▸ Windows (C:) ▸ Users ▸ MartyR ▸ AppData ▸ Roaming ▸ GRIN-Global ▸ Curator Tool
-Global
p
l.SAV

□ Name	Date modified	Type	Size
WebServiceURL.txt	4/25/2014 1:49 PM	Text Document	1 KB

When starting the CT, this file controls what GRIN-Global servers display in the Login window. If the user has previously added a server to his list, he can select it from a list of servers.

A GG administrator can copy this **WebServiceURL.txt** file onto each user's PC instead of the user or the administrator manually setting up the server connections on each PC via the User login screen.

The default login window when no servers have been set up:

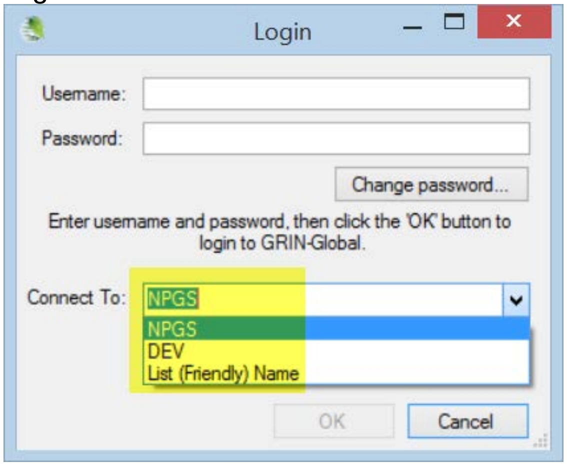


Enter username and password, then click the 'OK' button to login to GRIN-Global.

Connect To: localhost

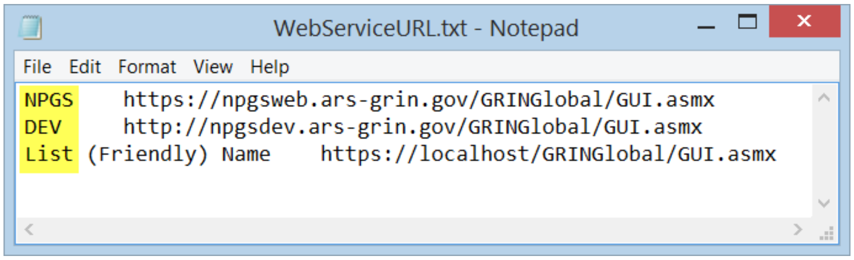
(Click on the **Edit Server List** button to set up.)

Login window after servers have been set up:



Enter username and password, then click the 'OK' button to login to GRIN-Global.

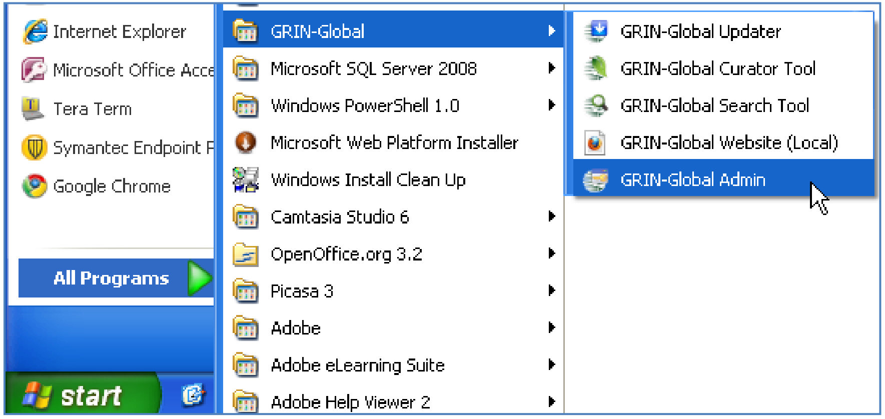
Corresponding **WebServiceURL.txt** file in the user's folder (such as **C:\Users\MartyR\AppData\Roaming\GRIN-Global\Curator Tool):**



```
NPGS     https://npgsweb.ars-grin.gov/GRINGlobal/GUI.asmx
DEV      http://npgsdev.ars-grin.gov/GRINGlobal/GUI.asmx
List (Friendly) Name     https://localhost/GRINGlobal/GUI.asmx
```

Admin Tool Overview

In Windows 7, when the Admin Tool is installed properly on your PC, its menu option will display on the **Start Programs** menu:

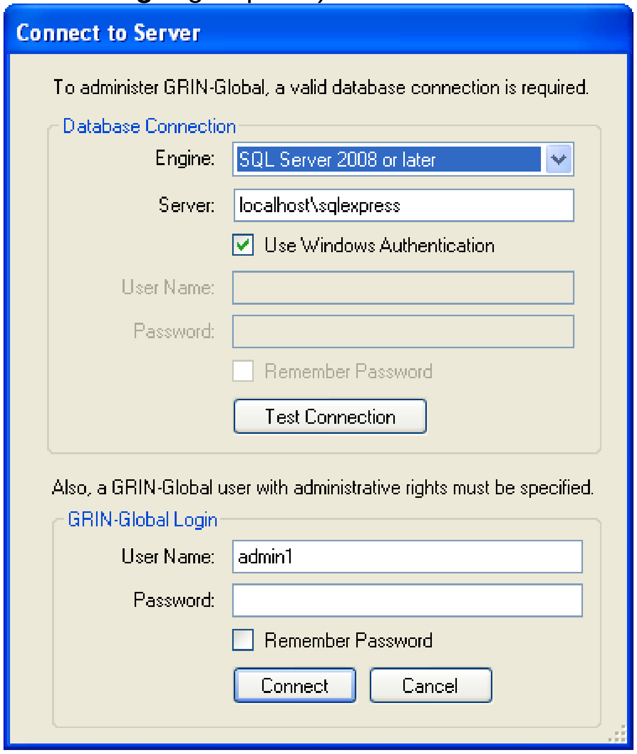


In Windows 8.1, there is a tile for the start screen.

Opening Screen

The Admin Tool's initial screen requires two logins:

- one used for authenticating against the database engine (in the **Database Connection** group box)
- one to authenticate against the security records within GRIN-Global itself (in the **GRIN-Global Login** group box).


Connect to Server

To administer GRIN-Global, a valid database connection is required.

Database Connection

Engine: SQL Server 2008 or later

Server: localhost\sqlexpress

☑ Use Windows Authentication

User Name:

Password:

□ Remember Password

Test Connection

Also, a GRIN-Global user with administrative rights must be specified.

GRIN-Global Login

User Name: admin1

Password:

□ Remember Password

Connect   Cancel

Database Connection

Currently, the only GRIN-Global users allowed to use the Admin Tool are those users who are members of the group named “Administrators.”

For the database engines other than non-SQL Server, you should probably provide the same UserID/password that was specified when the database engine was installed. Typical passwords are:

• mysql	root
• postgresql	postgres
• oracle	SYS

It's not required to be the superuser/root userID, but those are always created at install time for those engines.

Server

This is the server name that hosts the database engine. Some engines, such as SQL Server, expect an “instance name” (shown below as “sqlexpress”) as part of the server name. For other engines, the port must be specified. Examples:

SQL Server:	localhost\sqlexpress
MySQL:	localhost:3306
Oracle:	localhost:1521
PostgreSQL:	localhost:5432

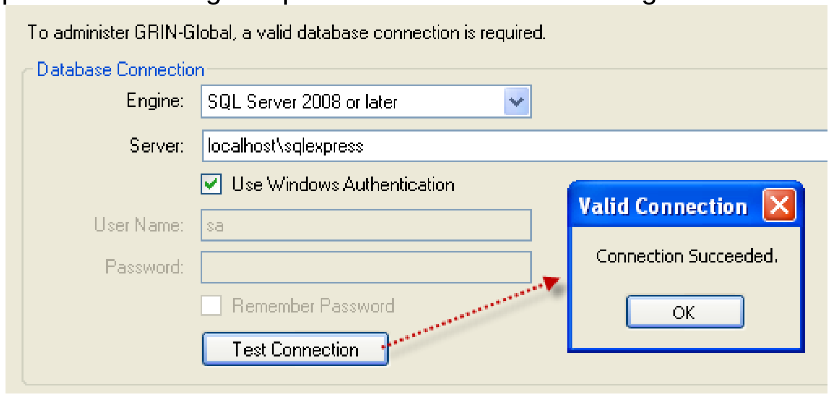
Windows Authentication

Windows authentication should be used wherever possible.

However, only Microsoft SQL Server can use Windows Authentication. All other database engines must specify a username and password that is specific to that database (i.e. not the same as their Windows login).

Test Connection

Click the **Test Connection** button to validate that the specified engine / server / username / password settings all point to a valid database engine and that the credentials are correct.



To administer GRIN-Global, a valid database connection is required.

Database Connection

Engine: SQL Server 2008 or later

Server: localhost\sqlexpress

☑ Use Windows Authentication

User Name: sa

Password:

□ Remember Password

Connection Succeeded.

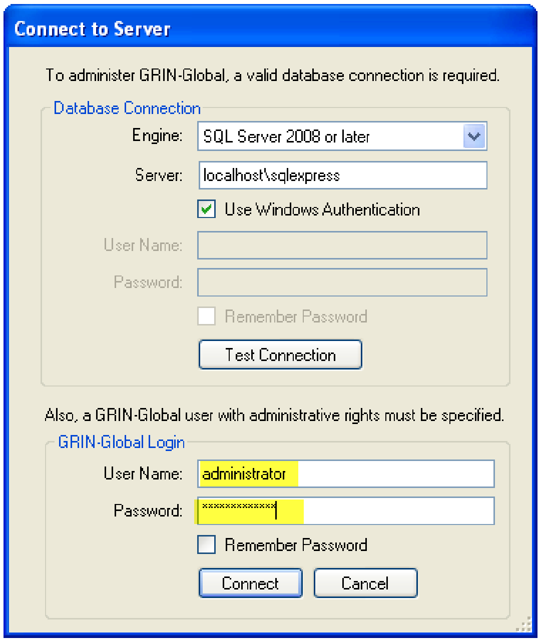
If you did not receive a “Connection Succeeded" message, then either the server name or the UserID/password combination was incorrect.

Verify that the servername and instance (or port) is correct. A SQL Server connection typically has an "instance name" with the server whereas the other three supported database engines include a port (see “Server” on page 27).

See also for detailed connection trouble-shooting suggestions.

GRIN-Global Login

Use **administrator** for both the user name and password.



Connect to Server

To administer GRIN-Global, a valid database connection is required.

Database Connection

Engine: SQL Server 2008 or later

Server: localhost\sqlexpress

☑ Use Windows Authentication

User Name:

Password:

□ Remember Password

Also, a GRIN-Global user with administrative rights must be specified.

GRIN-Global Login

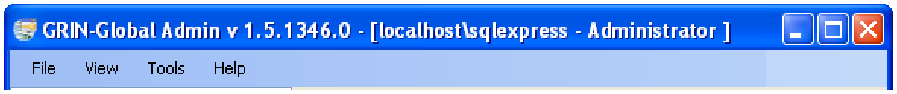
User Name: administrator

Password: *************

□ Remember Password

Admin Tool Menu

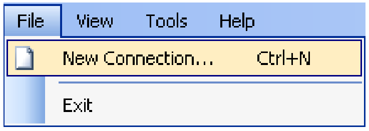
The Admin Tool menu items are:



GRIN-Global Admin v 1.5.1346.0 - [localhost\sqlexpress - Administrator]

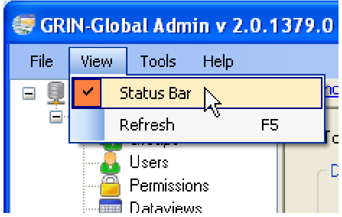
File | New Connection

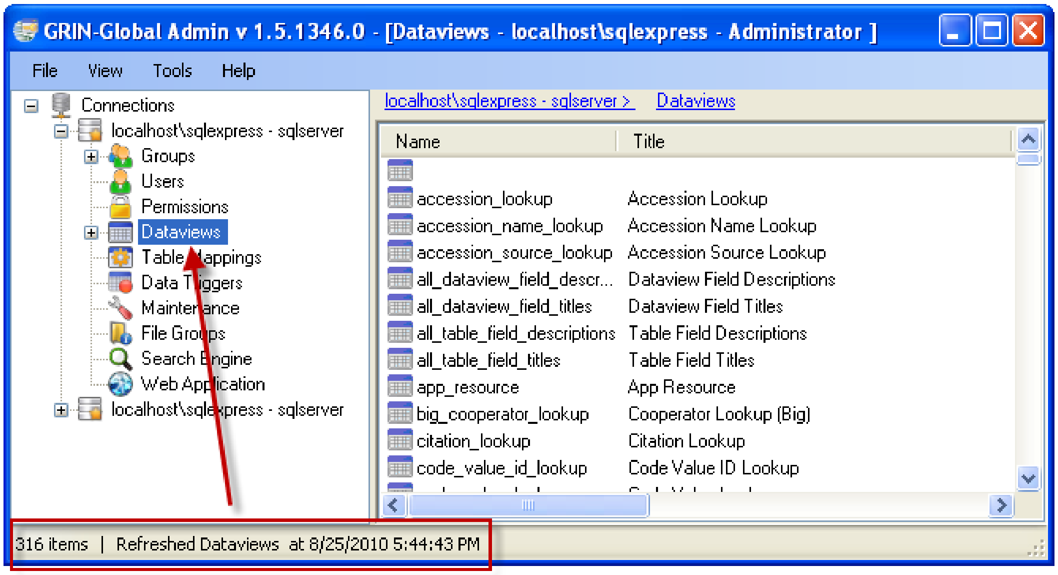
Use **New Connection** to point the Admin Tool to a different server. The Admin Tool defaults to localhost (the topmost node in the treeview on the left). If you make a new connection to a remote server, a second node will be added.



View | Status Bar

When **Status Bar** is checked, the status bar displays information pertaining to the currently selected item (node) in the treeview.



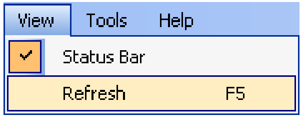

GRIN-Global Admin v 1.5.1346.0 - [Dataviews - localhost\sqlexpress - Administrator]
File
View
Tools
Help
Connections
localhost\sqlexpress - sqlserver
Groups
Users
Permissions
Dataviews
Table Mappings
Data Triggers
Maintenance
File Groups
Search Engine
Web Application
localhost\sqlexpress - sqlserver
localhost\sqlexpress - sqlserver >
Dataviews

Name	Title
accession_lookup	Accession Lookup
accession_name_lookup	Accession Name Lookup
accession_source_lookup	Accession Source Lookup
all_dataview_field_descr...	Dataview Field Descriptions
all_dataview_field_titles	Dataview Field Titles
all_table_field_descriptions	Table Field Descriptions
all_table_field_titles	Table Field Titles
app_resource	App Resource
big_cooperator_lookup	Cooperator Lookup (Big)
citation_lookup	Citation Lookup
code_value_id_lookup	Code Value ID Lookup

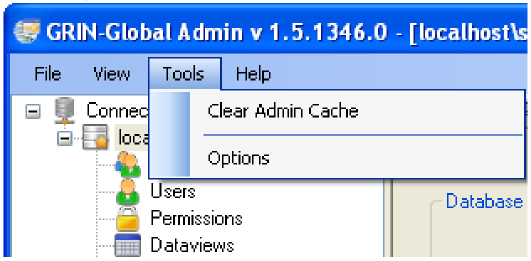
316 items | Refreshed Dataviews at 8/25/2010 5:44:43 PM

View | Refresh

Refresh (F5) redisplays your current form. For example, if you're viewing Permissions information, it reloads the permission info – if you are reviewing dataview info, it reloads that.



Tools | Clear Admin Cache

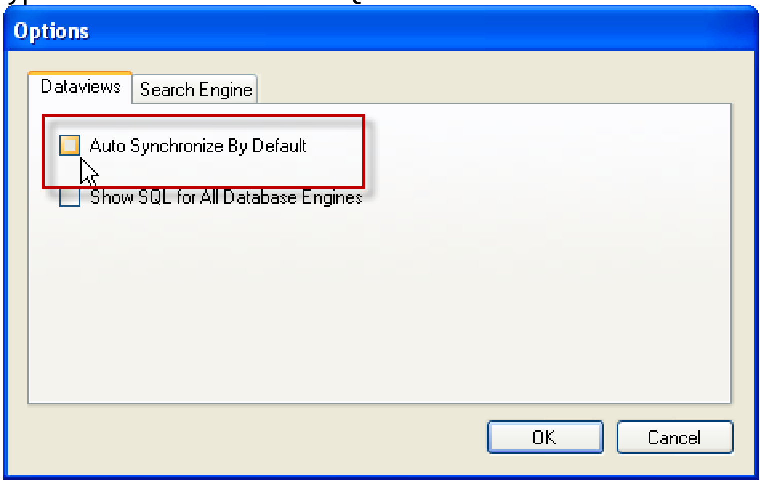


The **Clear Admin Cache** option clears the internal cache used by the Admin Tool. (See **Delete Cached Files** on page 15.)

Tools | Options

Auto Synchronize By Default Checkbox

Under **Tools | Options | Dataviews**, select the **Auto Synchronize By Default** checkbox if you want the changes in your SQL to be reflected in the gridviews automatically such as when you type in a new field in the SQL text.

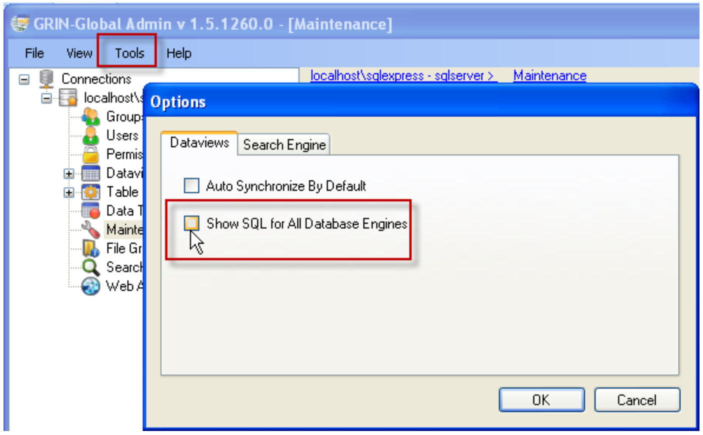


□ Auto Synchronize By Default

□ Show SQL for All Database Engines

Show SQL for All Database Engines Checkbox

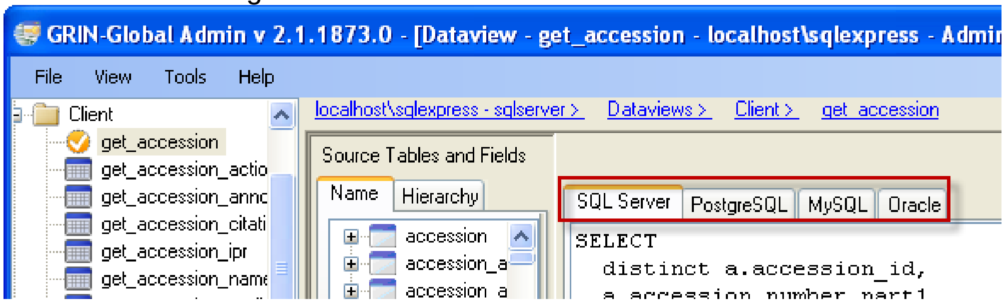
Under **Tools | Options | Dataviews**, select the **Show SQL for ALL Database Engines** checkbox to write SQL statements for the four database engines. If you will only be using SQL Server, leave this box unchecked.



□ Auto Synchronize By Default

□ Show SQL for All Database Engines

If your organization will be working with more than one database engine, then ensure that this checkbox is checked. Otherwise, if a dataview is changed, only the SQL for the active database engine will be saved.

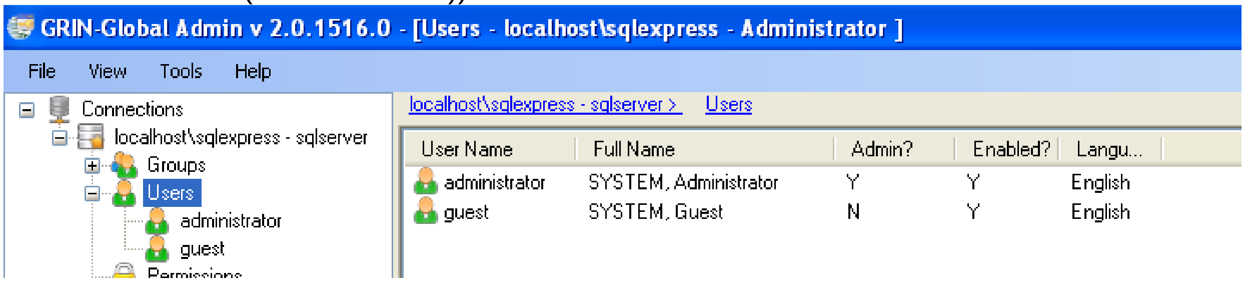


```
SELECT
  distinct a.accession_id,
  a.accession_number_part1
```

Adding Users

By completing the various **Users** windows, you as the administrator can indicate what permissions the UserID will have and in which groups the UserID will be included. Within the User management windows, you can indicate the User's ID, password, contact information, etc.

Initially there are two users: **administrator** and **guest**. (In later AT versions, the installation procedure began including two additional users which currently are not being used: **fbowner** and **fbsubmitter**. (fb – "feedback"))


GRIN-Global Admin v 2.0.1516.0 - [Users - localhost\sqlexpress - Administrator]

User Name	Full Name	Admin?	Enabled?	Langu...
administrator	SYSTEM, Administrator	Y	Y	English
guest	SYSTEM, Guest	N	Y	English

Default Users

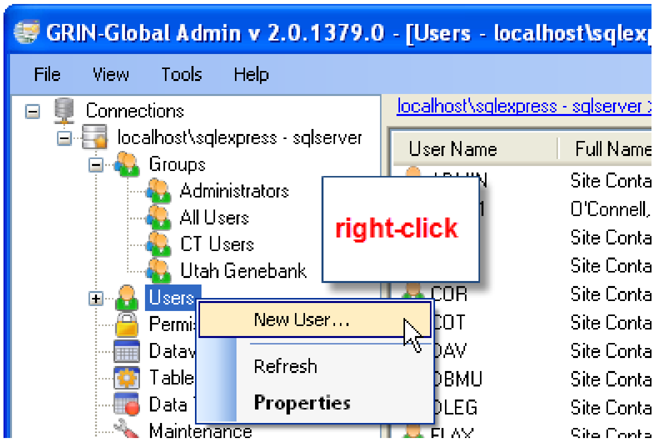
- **administrator -** full access to the GRIN-Global system. The administrator can add/edit users, etc.
- **guest -** needed for the Public Website; enables users who do not register or login to use some of the basic functions of the GRIN-Global Public Website.

  (Also, visitors can create new logins via the web site's Register functionality. To keep web-based user logins separate from actual GRIN-Global logins, an entirely separate user table exists. This means registering a user via the web site does NOT create a valid login that can be used via the CT.)

Tip ***Do not delete the default users!***

Adding a New User to GRIN-Global

To add a new user, right-click on **Users** in the left panel of the Admin window; select **New User…** from the menu:


GRIN-Global Admin v 2.0.1379.0 - [Users - localhost\sqlex

right-click

At a minimum, you should establish/select the following when adding a new user:

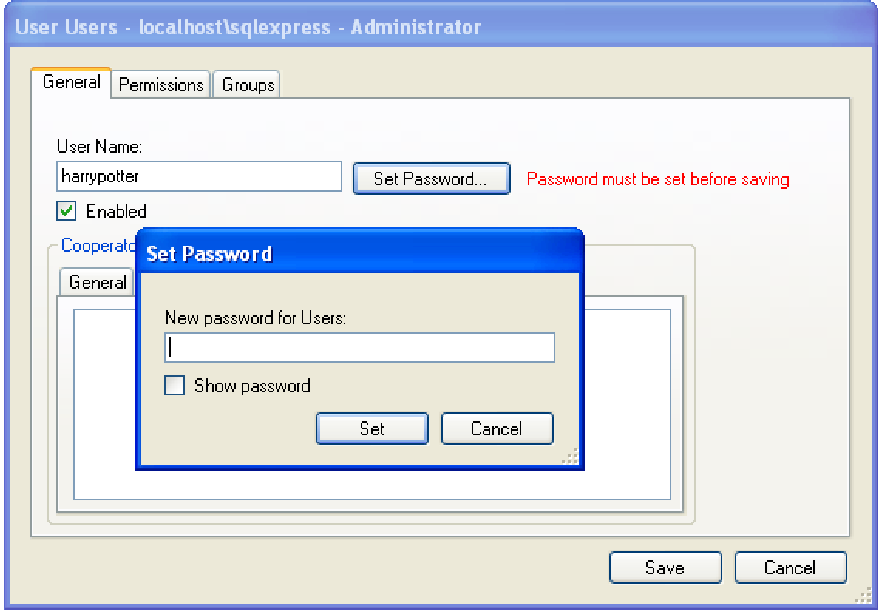
- User Name and Password
- Geography and Site codes
- Enabled (checkbox)
- Active (checkbox) (if this user will be an active cooperator)
- Groups: CT Users

General and Contact Information

Creating a User Name and Password Recommendations

First step in creating a new user is to assign a **User Name** and **Password**. We recommend not using any whitespace or special characters in the User Name. Each organization has enforces different password rules – setting password parameters is explained in the Web Application section.

Input a **User Name**; click the **Set Password** button.
Click the **Save** button before proceeding.



User Users - localhost\sqlexpress - Administrator

User Name: harrypotter

Password must be set before saving

☑ Enabled

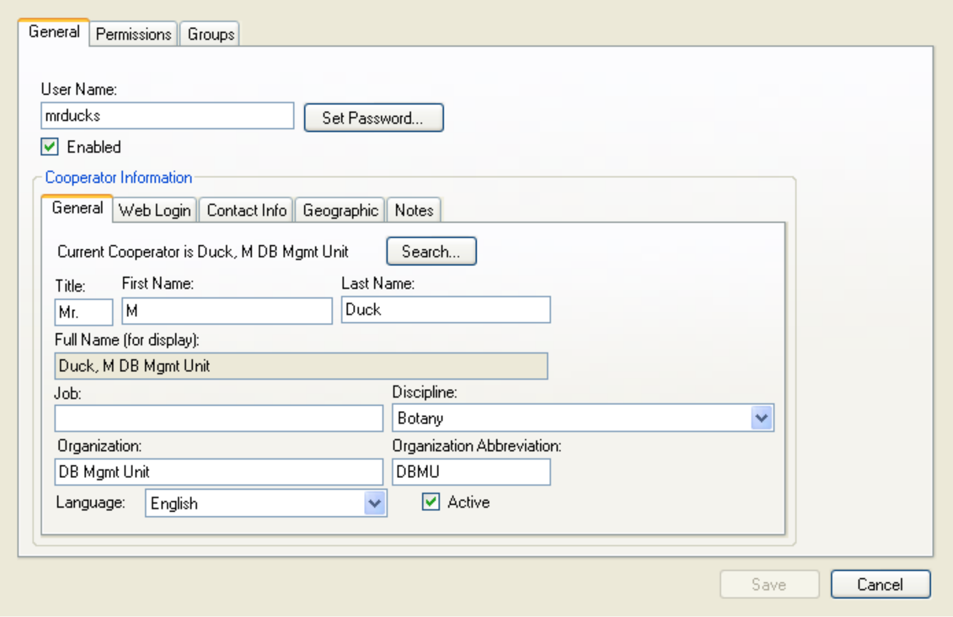
Cooperato

Set Password

New password for Users:

□ Show password

Complete the fields displayed on the **General** and **Contacts** tab with the user's relevant information. (**Web Login** will be discussed later.) Use the **Search** button if there is the likelihood that the new user is already in the system as an existing cooperator.



User Name: mrducks

☑ Enabled

Current Cooperator is Duck, M DB Mgmt Unit

Title: Mr.

First Name: M

Last Name: Duck

Full Name (for display): Duck, M DB Mgmt Unit

Job:

Discipline: Botany

Organization: DB Mgmt Unit

Organization Abbreviation: DBMU

Language: English

☑ Active

Enabled

When selected, the “Enabled” checkbox indicates that the user will be allowed to login to the Curator Tool.

Active Users

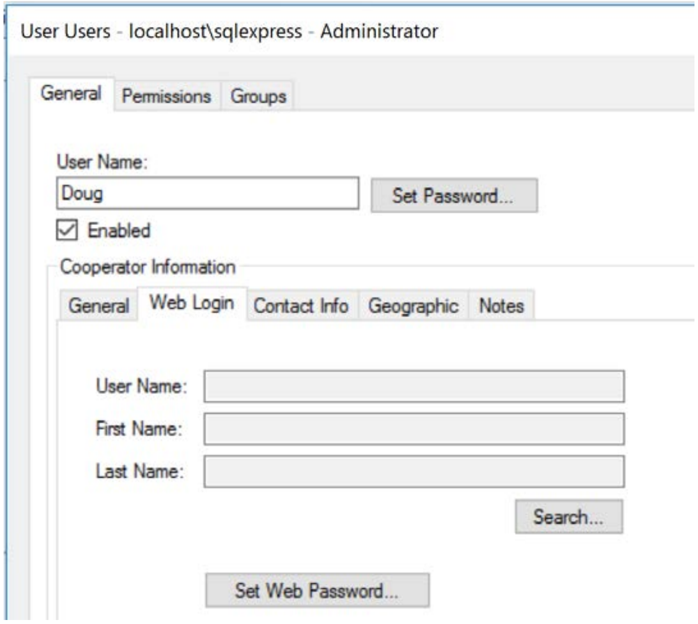
The **Active** checkbox indicates the UserID is associated with an active cooperator, meaning it is not a historical one – any data created or modified by this user will be tagged by his **CooperatorID**.

Web Login Tab

At the **Web Login** tab, you can perform two main tasks: (1) you can associate a Public Website UserID with a Curator Tool UserID and (2) reset a password for a Public Website user.

Initially, the Web Login information is grayed out:

Adding Users


User Users - localhost\sqlexpress - Administrator

General | Permissions | Groups

User Name: Doug

☑ Enabled

Cooperator Information

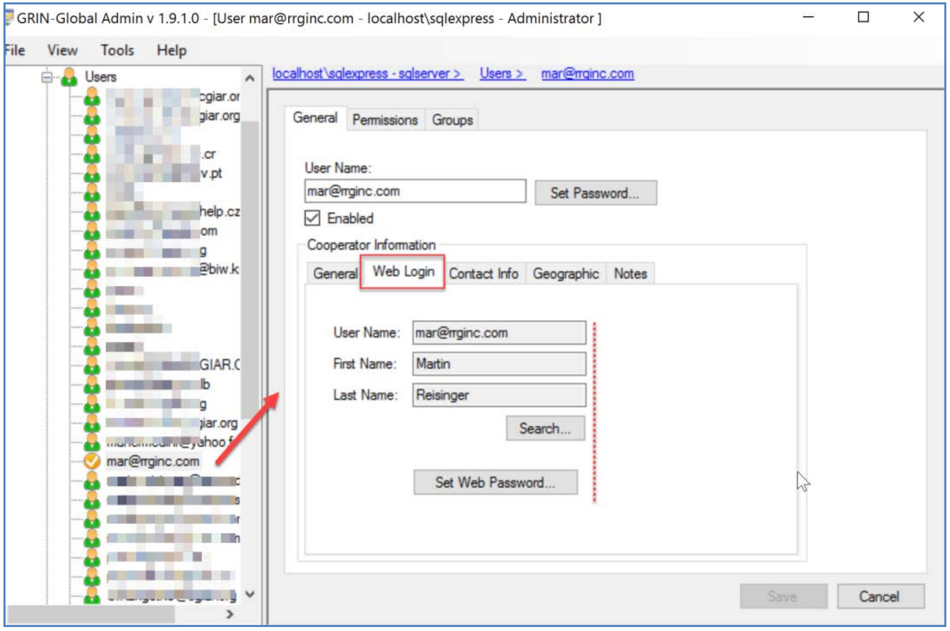
General | Web Login | Contact Info | Geographic | Notes

User Name:

First Name:

Last Name:

Assigning a Web Login for Internal (Genebank) Users
The Public Website was designed for users who need to search for accessions and perhaps order them, typically external general users, researchers, breeders, etc. Genebank staff will also use the Public Website to search for accessions and display descriptors information, taxonomy, etc. Over time the Public Website has been modified to include additional features which are only appropriate to internal users, that is, users working in the genebank. When a CT user's User Name is configured with a Web Login, that user can then access on the Public Website special reports and the Tools menu option.


GRIN-Global Admin v 1.9.1.0 - [User mar@rrginc.com - localhost\sqlexpress - Administrator]

localhost\sqlexpress - sqlserver > Users > mar@rrginc.com

General | Permissions | Groups

User Name: mar@rrginc.com

☑ Enabled

Cooperator Information

General | Web Login | Contact Info | Geographic | Notes

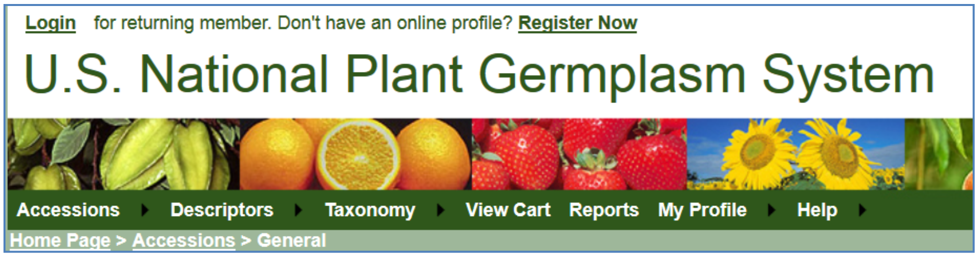
User Name: mar@rrginc.com

First Name: Martin

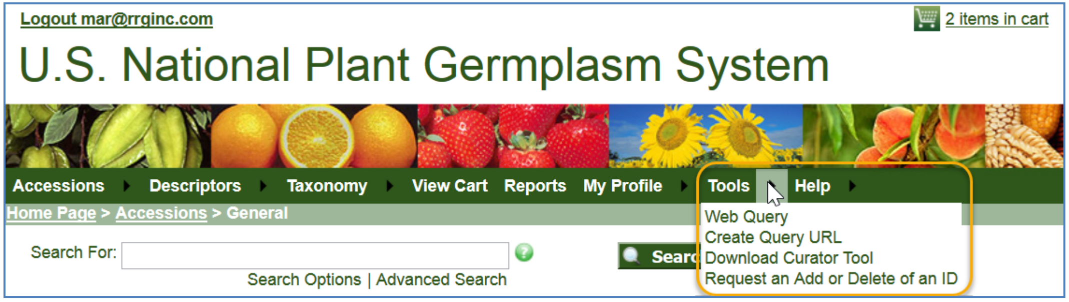
Last Name: Reisinger

The GG Administrator can complete this screen after the user has created his Public Website account, or can create it when creating or modifying the Curator Tool account.

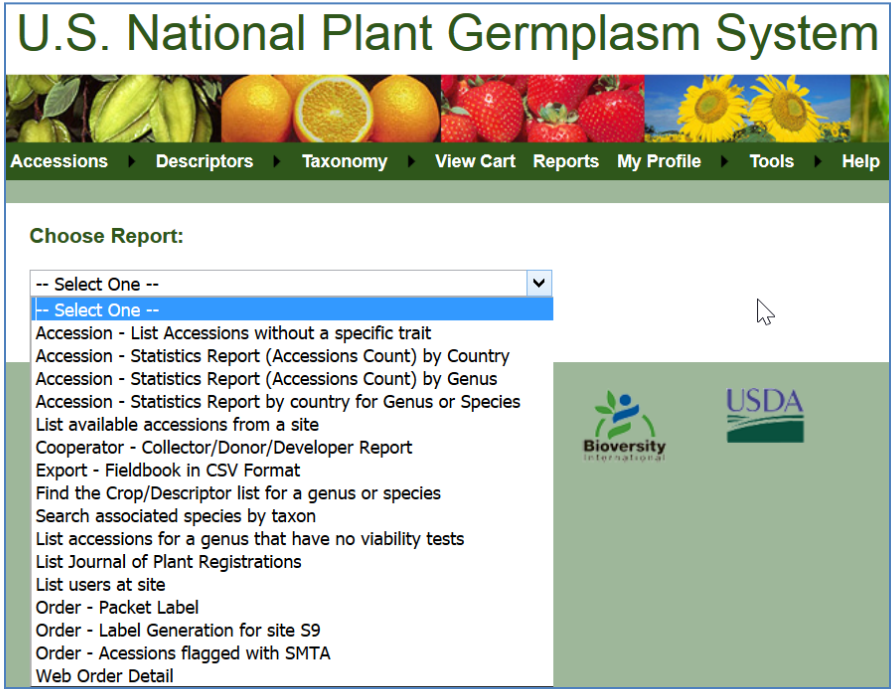
Before the CT user has logged in:


Login for returning member. Don't have an online profile? Register Now
U.S. National Plant Germplasm System
Accessions
Descriptors
Taxonomy
View Cart
Reports
My Profile
Help
Home Page > Accessions > General

After she has logged in:



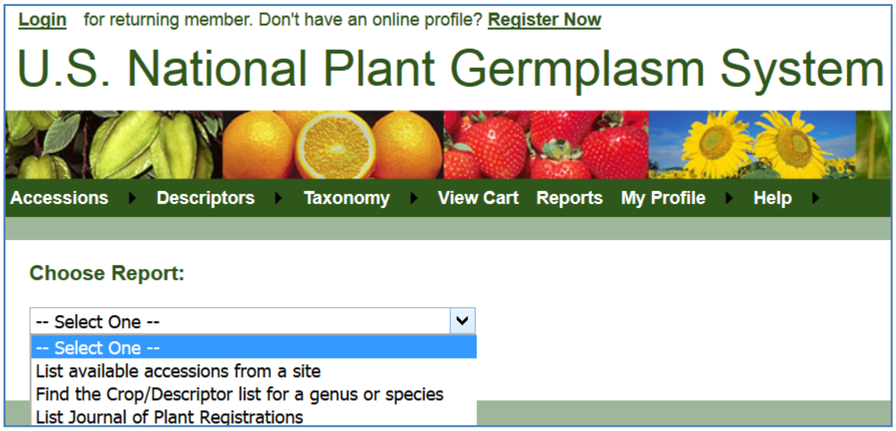
At the National Plant Germplasm System, these are the reports currently available when logged in versus what is available to the public users:



Choose Report:

-- Select One --

- -- Select One --
- Accession - List Accessions without a specific trait
- Accession - Statistics Report (Accessions Count) by Country
- Accession - Statistics Report (Accessions Count) by Genus
- Accession - Statistics Report by country for Genus or Species
- List available accessions from a site
- Cooperator - Collector/Donor/Developer Report
- Export - Fieldbook in CSV Format
- Find the Crop/Descriptor list for a genus or species
- Search associated species by taxon
- List accessions for a genus that have no viability tests
- List Journal of Plant Registrations
- List users at site
- Order - Packet Label
- Order - Label Generation for site S9
- Order - Acessions flagged with SMTA
- Web Order Detail


Login for returning member. Don't have an online profile? Register Now
U.S. National Plant Germplasm System
Accessions
Descriptors
Taxonomy
View Cart
Reports
My Profile
Help

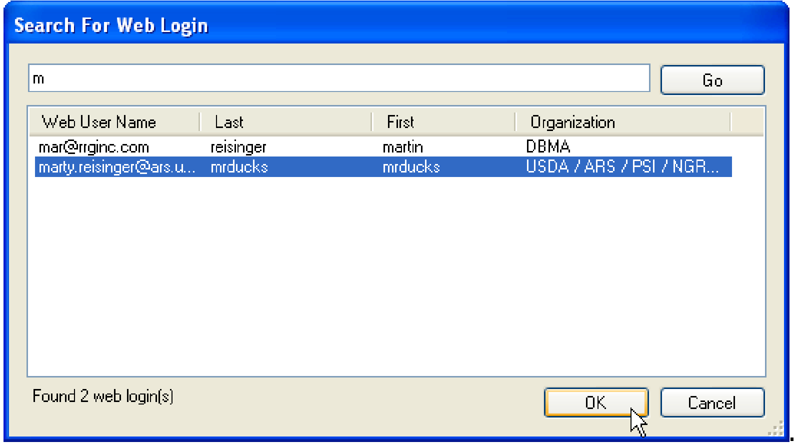
Choose Report:

-- Select One --

- -- Select One --
- List available accessions from a site
- Find the Crop/Descriptor list for a genus or species
- List Journal of Plant Registrations

To associate a Web Login with a CT User account

Use the **Search** button and then select an *existing* Web User from the list of possible matches:



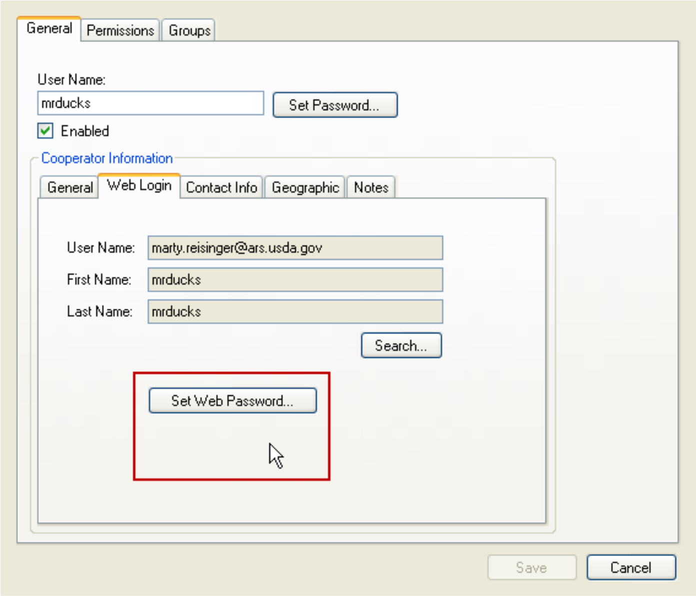
m

Web User Name	Last	First	Organization
mar@rrginc.com	reisinger	martin	DBMA
marty.reisinger@ars.u...	mrducks	mrducks	USDA / ARS / PSI / NGR...

Found 2 web login(s)

To Reset a Public Website User Password

First select the desired **UserName** if not already selected, and then click the **Set Web Password**… button:



User Name: mrducks

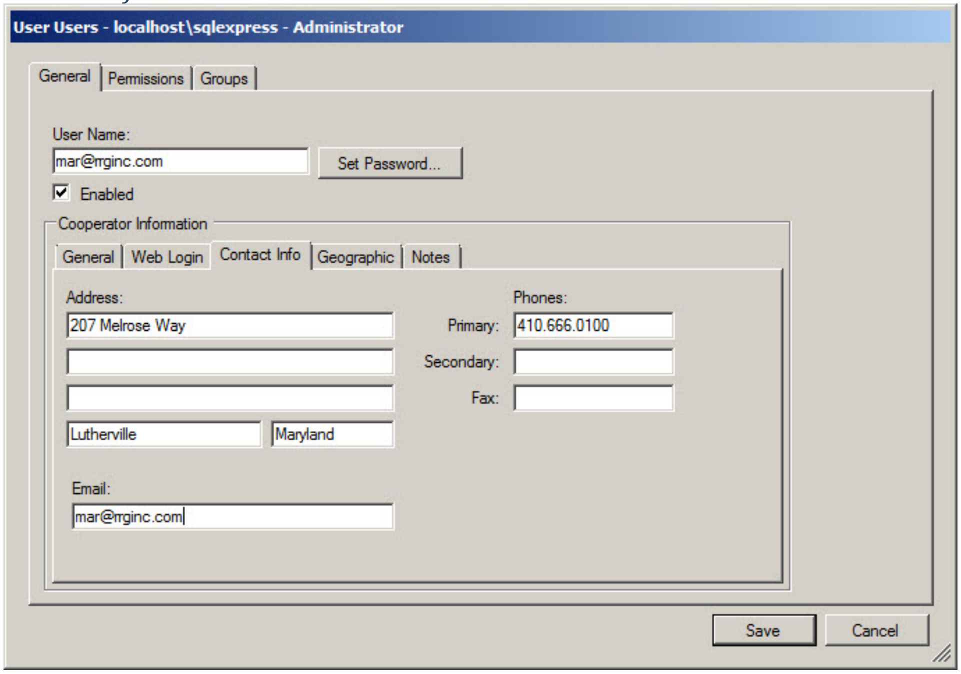
☑ Enabled

User Name: marty.reisinger@ars.usda.gov

First Name: mrducks

Last Name: mrducks

Contact Info Tab



User Name: mar@rrginc.com

☑ Enabled

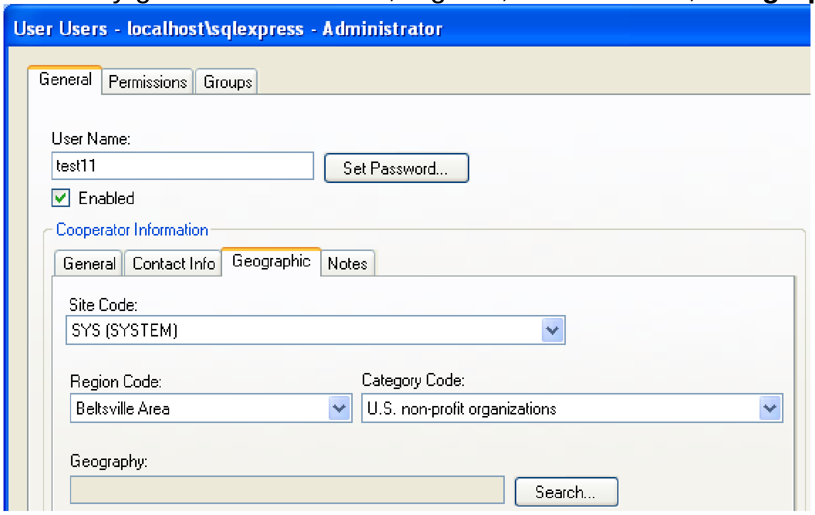
Address:
207 Melrose Way
Lutherville
Maryland

Phones:
Primary: 410.666.0100
Secondary:
Fax:

Email:
mar@rrginc.com

Geographic Tab

The **Geographic** tab has several text boxes available for classifying sites by **Site Code**, **Region**, **Category Code**, or **Geography**. Some organizations, especially smaller ones, may not have a need to use these classifications, whereas others may find that these can later be used to filter by genebank locations, regions, etc. However, **Geography** is a required field.



User Users - localhost\sqlexpress - Administrator

User Name: test11

☑ Enabled

Cooperator Information

Site Code: SYS (SYSTEM)

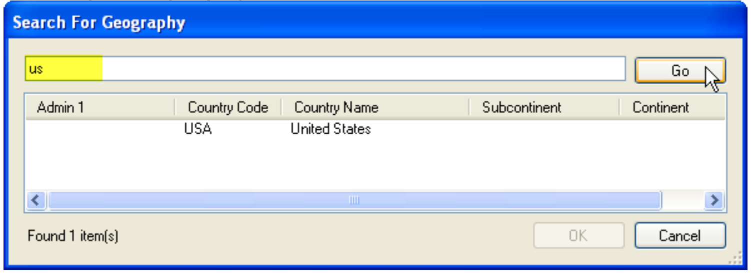
Region Code: Beltsville Area

Category Code: U.S. non-profit organizations

Geography:

GRIN-Global is installed with only one Geography record. The exception to this occurs when during the database installation via Updater, the GG administrator invokes the (Shift + Ctrl) option to install the GRIN Geography table.

Click the **Search** button; on the **Search For Geography** window, input text to search for existing Geography data.



Search For Geography

us

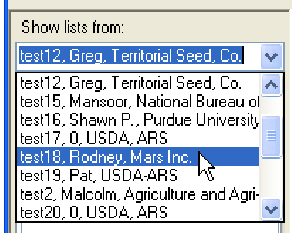
Admin 1	Country Code	Country Name	Subcontinent	Continent
	USA	United States		

Found 1 item(s)

Site Code

Site Codes are optional but are frequently used, especially in larger institutes with multiple physical locations. However, site codes can be used to separate users into teams or virtual groups.

Users with the same **Site Code** can share lists within the Curator Tool. (They select another user's lists via **Show lists from** dropdown.) Also, when necessary, a Curator Tool user can copy a list from one account to another, simply by selecting a different account from the **Show lists from** dropdown:



Show lists from: test12, Greg, Territorial Seed, Co.

test12, Greg, Territorial Seed, Co.
test15, Mansoor, National Bureau of
test16, Shawn P., Purdue University
test17, 0, USDA, ARS
test18, Rodney, Mars Inc.
test19, Pat, USDA-ARS
test2, Malcolm, Agriculture and Agri-
test20, 0, USDA, ARS

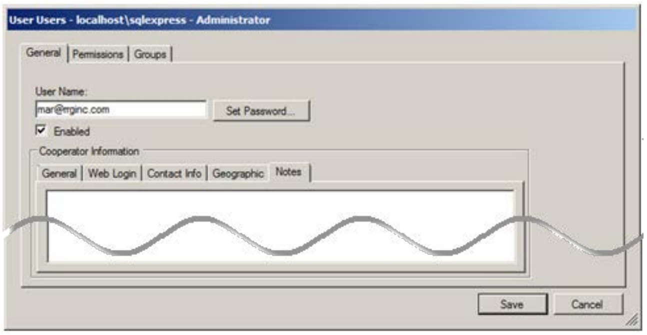
Initially, when GRIN-Global is installed, only one **Site Code** is installed: **SYS (System)**. Site records can be added at any time after the initial installation via either the Admin Tool's Import Wizard or the Curator Tool.

Tip

If your organization allows individuals to have multiple user accounts, a user with multiple accounts could set up his or her accounts to have certain defaults. For example, one account could be set up to display Order-related dataviews only. The same user could use that account for ordering, and another account for organizing accessions.

Notes

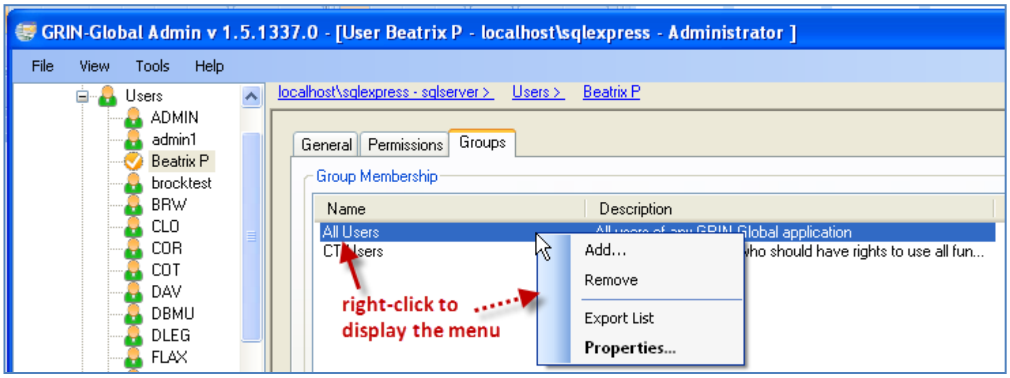
Use the **User | General | Notes** tab to input any user notes.


User Users - localhost\sqlexpress - Administrator
General | Permissions | Groups
User Name:
mar@erginc.com
Set Password...
☑ Enabled
Cooperator Information
General | Web Login | Contact Info | Geographic | Notes
Save
Cancel

Adding Users to Groups

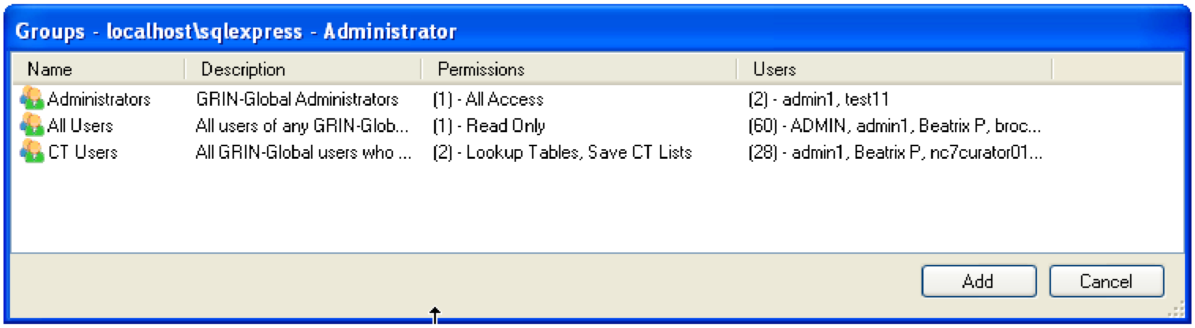
Users may be added to a group at any time; they also may be assigned to a group when the **User Name** is being created. (See the ***Groups*** section for more details.)

To assign the user to a group, click on the **User Name**; click on the **Groups** tab; right-click in the list; then select **Add…**.


GRIN-Global Admin v 1.5.1337.0 - [User Beatrix P - localhost\sqlexpress - Administrator]
File
View
Tools
Help
Users
ADMIN
admin1
Beatrix P
brocktest
BRW
CLO
COR
COT
DAV
DBMU
DLEG
FLAX
localhost\sqlexpress - sqlserver >
Users >
Beatrix P
General
Permissions
Groups
Group Membership
Name
Description
All Users
All users of any GRIN-Global application
CT Users
who should have rights to use all fun...
Add...
Remove
Export List
Properties...
right-click to display the menu

Select the groups to which the **User Name** will be added (use Ctrl- or Shift- to select multiple groups); click the **Add** button.

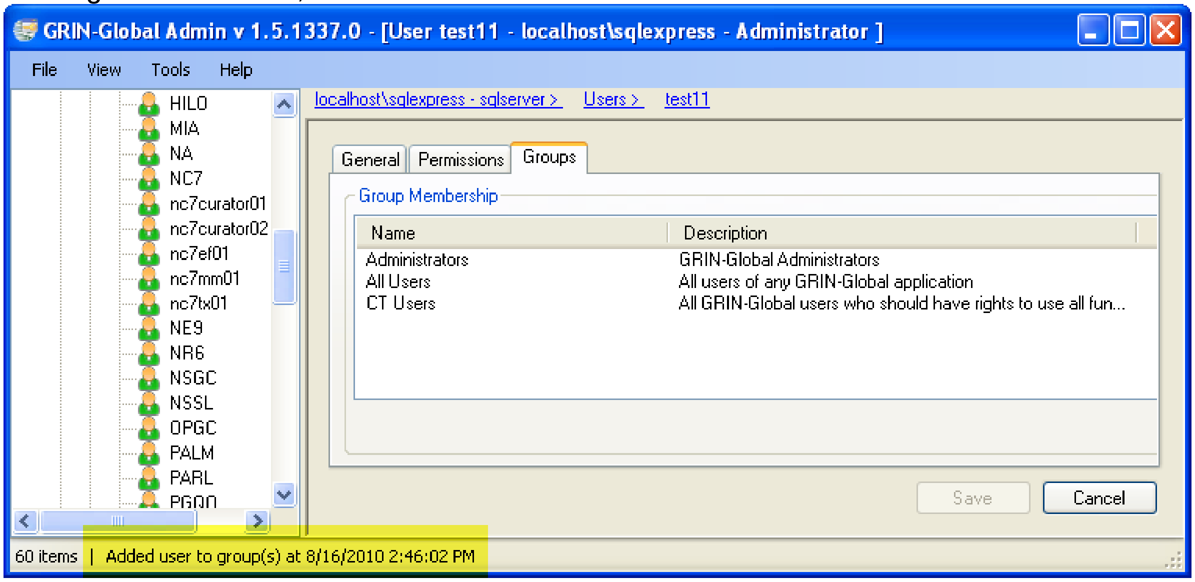
Groups


Groups - localhost\sqlexpress - Administrator

Name	Description	Permissions	Users
Administrators	GRIN-Global Administrators	(1) - All Access	(2) - admin1, test11
All Users	All users of any GRIN-Glob...	(1) - Read Only	(60) - ADMIN, admin1, Beatrix P, broc...
CT Users	All GRIN-Global users who ...	(2) - Lookup Tables, Save CT Lists	(28) - admin1, Beatrix P, nc7curator01...

Note The web application (Public Website) allows a user to be anonymous. That account is the “**guest**” account. It should never be a member of the **CT Users** or **Administrators** groups.

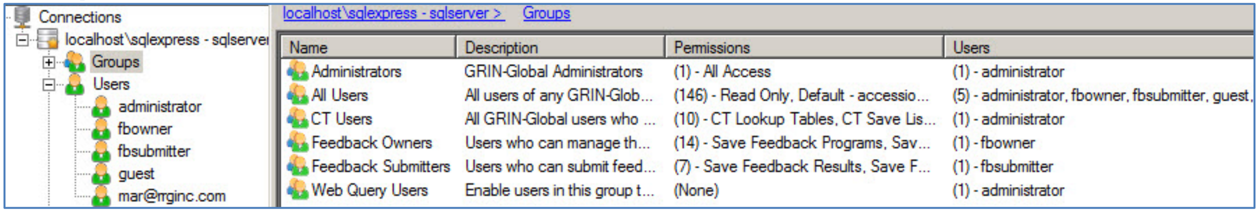
When a user has been successfully added to a group, the program will display a relevant message in the bottom, left corner of the window.


GRIN-Global Admin v 1.5.1337.0 - [User test11 - localhost\sqlexpress - Administrator]

Name	Description
Administrators	GRIN-Global Administrators
All Users	All users of any GRIN-Global application
CT Users	All GRIN-Global users who should have rights to use all fun...

60 items | Added user to group(s) at 8/16/2010 2:46:02 PM

Groups



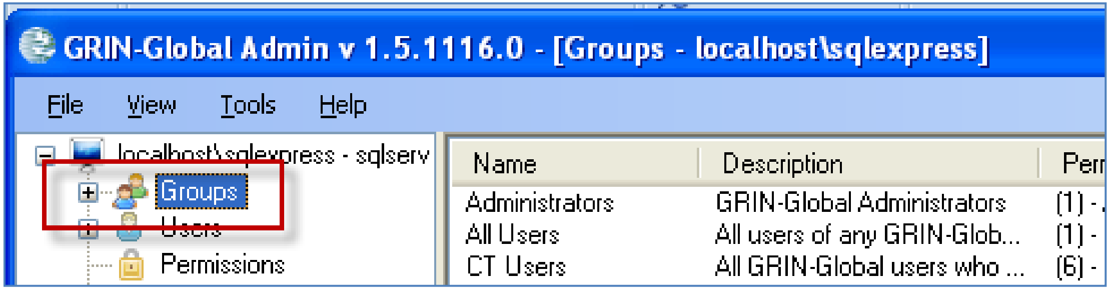
Name	Description	Permissions	Users
Administrators	GRIN-Global Administrators	(1) - All Access	(1) - administrator
All Users	All users of any GRIN-Glob...	(146) - Read Only, Default - accessio...	(5) - administrator, fbowner, fbsubmitter, guest,
CT Users	All GRIN-Global users who ...	(10) - CT Lookup Tables, CT Save Lis...	(1) - administrator
Feedback Owners	Users who can manage th...	(14) - Save Feedback Programs, Sav...	(1) - fbowner
Feedback Submitters	Users who can submit feed...	(7) - Save Feedback Results, Save F...	(1) - fbsubmitter
Web Query Users	Enable users in this group t...	(None)	(1) - administrator

With the Admin tool’s **Groups** feature, you establish (or edit) user groups who will have similar security privileges (“assigned permissions”). At installation, six default groups are created:

1. **Administrators** – users with full, unrestricted access to all GRIN-Global resources
2. **All Users** – every GRIN-Global user will be a member of this group

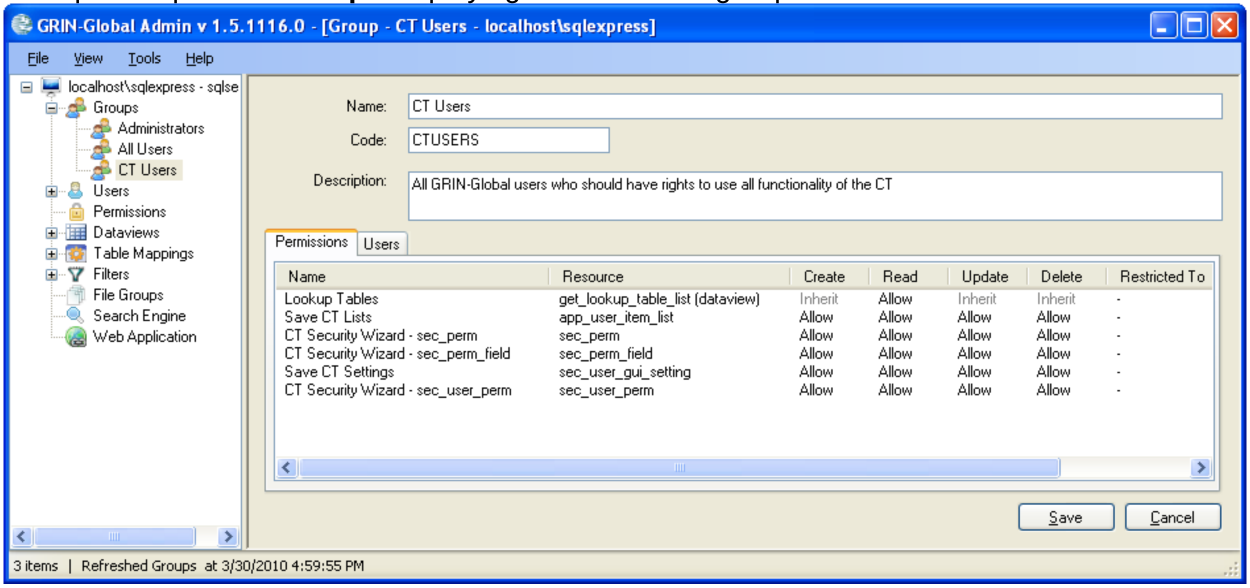
3. **CT Users** – all GRIN-Global users who will have access to run the Curator Tool
4. **Feedback Owners** – not functional yet
5. **Feedback Submitters** – not functional yet
6. **Web Query Users** – users who are given access to the Web Query feature located under the Tools menu option on the Public Website

Click the ⊞ box to the left of **Groups** to expand its list.


GRIN-Global Admin v 1.5.1116.0 - [Groups - localhost\sqlexpress]
File
View
Tools
Help
localhost\sqlexpress - sqlserv
Groups
Users
Permissions

Name	Description	Perr
Administrators	GRIN-Global Administrators	(1) - .
All Users	All users of any GRIN-Glob...	(1) -
CT Users	All GRIN-Global users who ...	(6) -

Example: Expanded **Groups** displaying the **CT Users** group



Name: CT Users

Code: CTUSERS

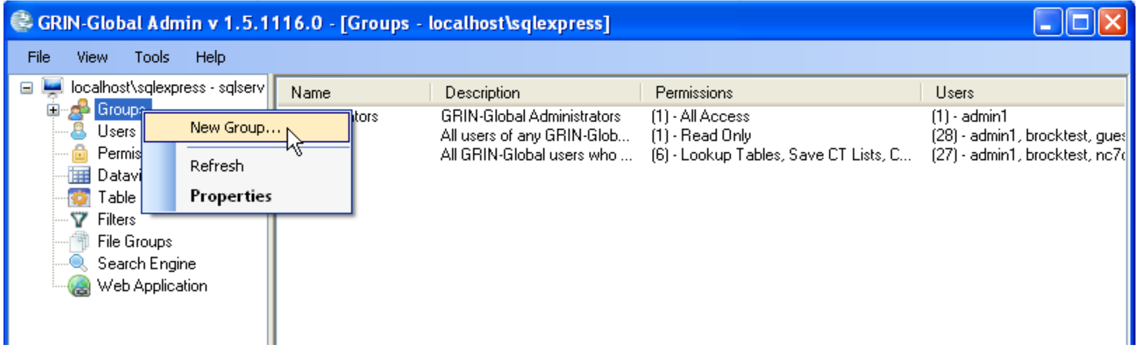
Description: All GRIN-Global users who should have rights to use all functionality of the CT

Name	Resource	Create	Read	Update	Delete	Restricted To
Lookup Tables	get_lookup_table_list (dataview)	Inherit	Allow	Inherit	Inherit	-
Save CT Lists	app_user_item_list	Allow	Allow	Allow	Allow	-
CT Security Wizard - sec_perm	sec_perm	Allow	Allow	Allow	Allow	-
CT Security Wizard - sec_perm_field	sec_perm_field	Allow	Allow	Allow	Allow	-
Save CT Settings	sec_user_gui_setting	Allow	Allow	Allow	Allow	-
CT Security Wizard - sec_user_perm	sec_user_perm	Allow	Allow	Allow	Allow	-

3 items | Refreshed Groups at 3/30/2010 4:59:55 PM

Creating a New Group

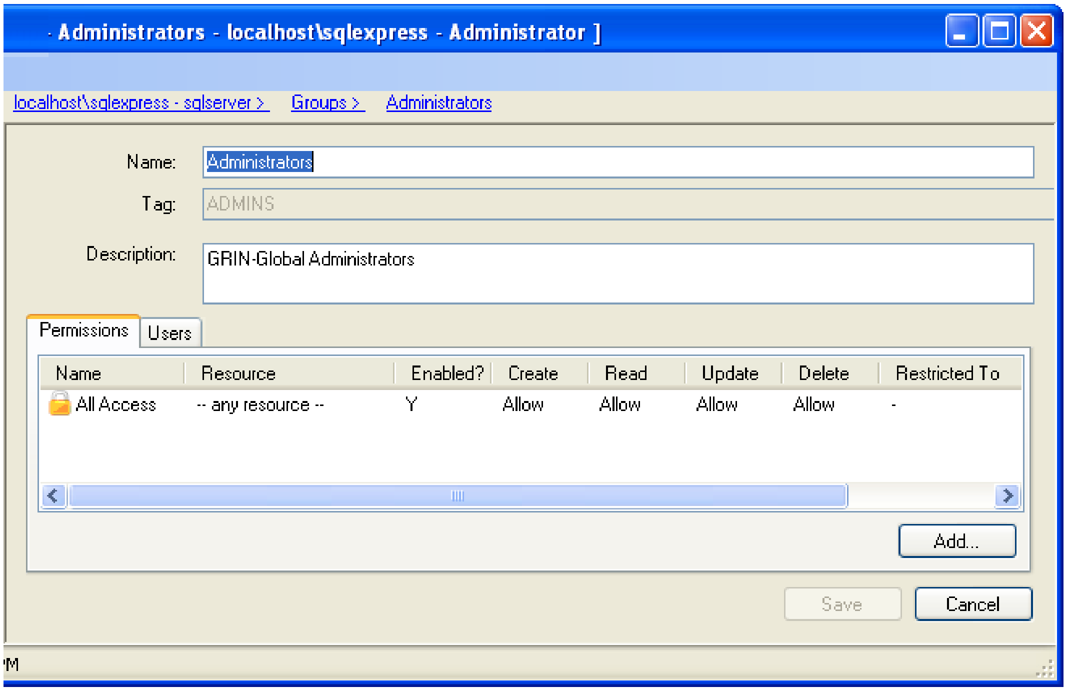
Right-click on **Groups** in the left panel; select **New Group…**



Name	Description	Permissions	Users
…tors	GRIN-Global Administrators	(1) - All Access	(1) - admin1
	All users of any GRIN-Glob…	(1) - Read Only	(28) - admin1, brocktest, gues
	All GRIN-Global users who …	(6) - Lookup Tables, Save CT Lists, C…	(27) - admin1, brocktest, nc7

Tip: Virtually every tree or list in the Admin Tool has a context menu associated with it. To perform primary functions, get more information, etc., right-click on any item in the left panel to review its context menu and available options.

The **Group – Groups** window displays. Input a meaningful **Name**, **Tag**, and **Description** for the group. In general, any **Tag** property on any form in the Admin Tool is simply a value that may be programmatically used by code. The **Tag** value here is used internally by the middle tier to grab "ADMINS" group to see if a user has administrative rights. (This is something hardcoded in the middle tier to grab the list of administrators.) The CTUSERS and ALLUSERS default groups have those tags. (ALLUSERS is used by the Admin Tool when creating a user –every user is added to ALLUSERS group). The maximum length for the **CODE** is 10 characters. Click **Save**.


Administrators - localhost\sqlexpress - Administrator]
localhost\sqlexpress - sqlserver >
Groups >
Administrators
Permissions
Users
Add...
Save
Cancel
'M

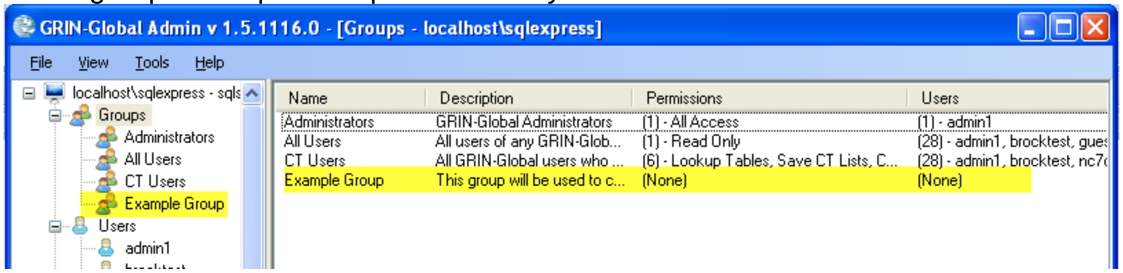
Name: Administrators

Tag: ADMINS

Description: GRIN-Global Administrators

Name	Resource	Enabled?	Create	Read	Update	Delete	Restricted To
All Access	-- any resource --	Y	Allow	Allow	Allow	Allow	-

A new group “Example Group” successfully added:

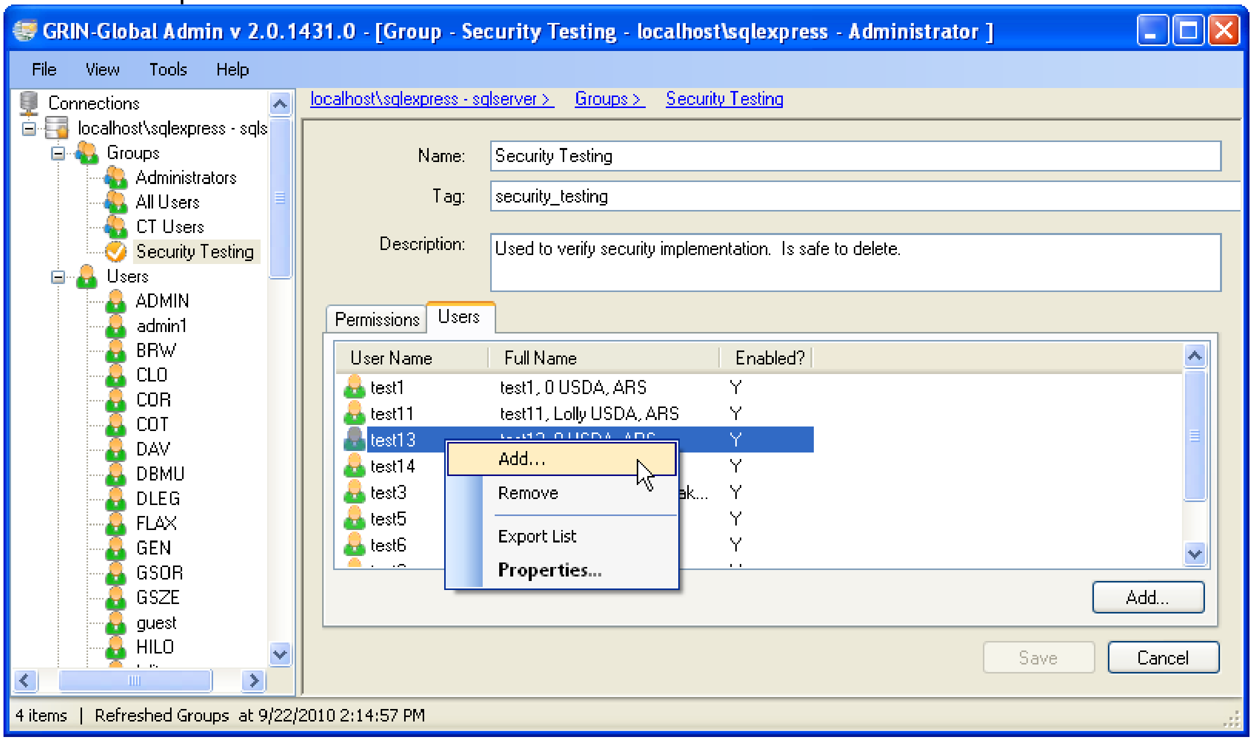


GRIN-Global Admin v 1.5.1116.0 - [Groups - localhost\sqlexpress]

Name	Description	Permissions	Users
Administrators	GRIN-Global Administrators	(1) - All Access	(1) - admin1
All Users	All users of any GRIN-Glob...	(1) - Read Only	(28) - admin1, brocktest, gues
CT Users	All GRIN-Global users who ...	(6) - Lookup Tables, Save CT Lists, C...	(28) - admin1, brocktest, nc7
Example Group	This group will be used to c...	(None)	(None)

Individual UserIDs are assigned to a Group either when the member is added as a new **User** or anytime after the Group name has been saved. (See **User | Groups** for details.)

The following screen example illustrates adding users to a new group. The administrator selected the **Example Group** in the left panel and then right-clicked to display the context menu with its **Add** option:



GRIN-Global Admin v 2.0.1431.0 - [Group - Security Testing - localhost\sqlexpress - Administrator]

Name: Security Testing

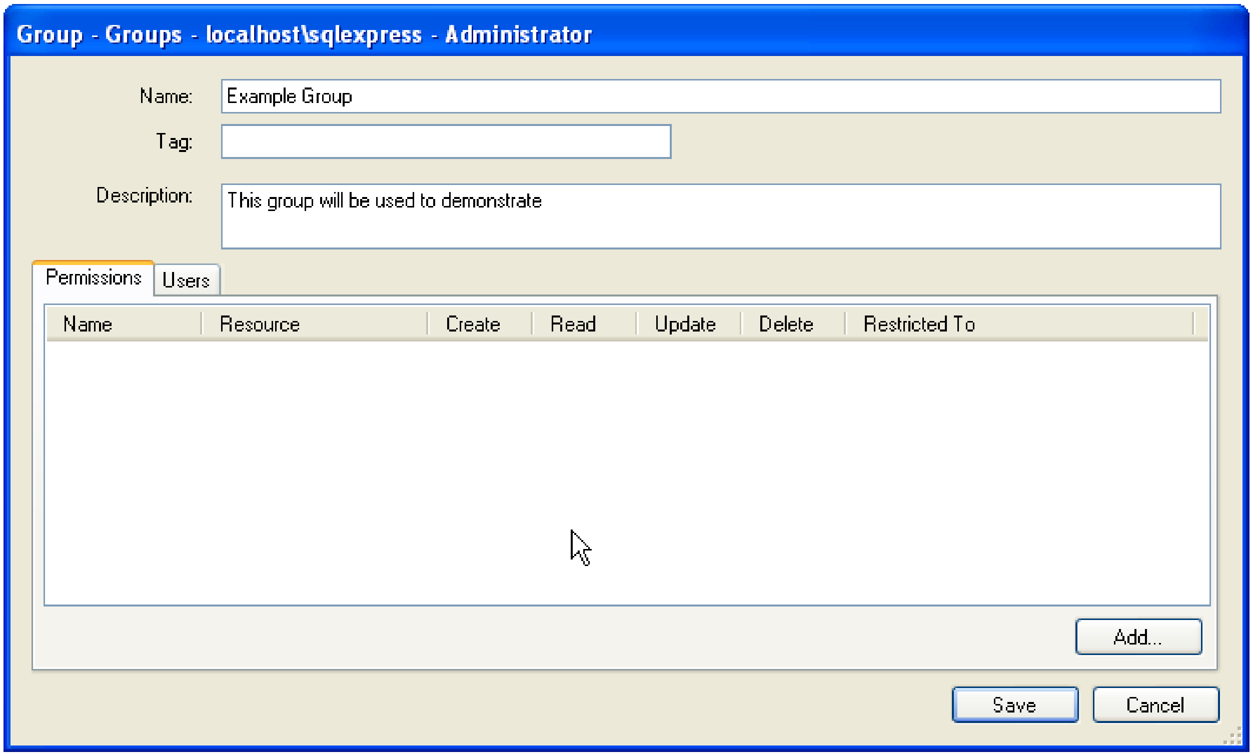
Tag: security_testing

Description: Used to verify security implementation. Is safe to delete.

User Name	Full Name	Enabled?
test1	test1, 0 USDA, ARS	Y
test11	test11, Lolly USDA, ARS	Y
test13	test13, 0 USDA, ARS	Y
test14		Y
test3	ak...	Y
test5		Y
test6		Y

4 items | Refreshed Groups at 9/22/2010 2:14:57 PM

Groups



Name: Example Group

Tag:

Description: This group will be used to demonstrate

Name	Resource	Create	Read	Update	Delete	Restricted To

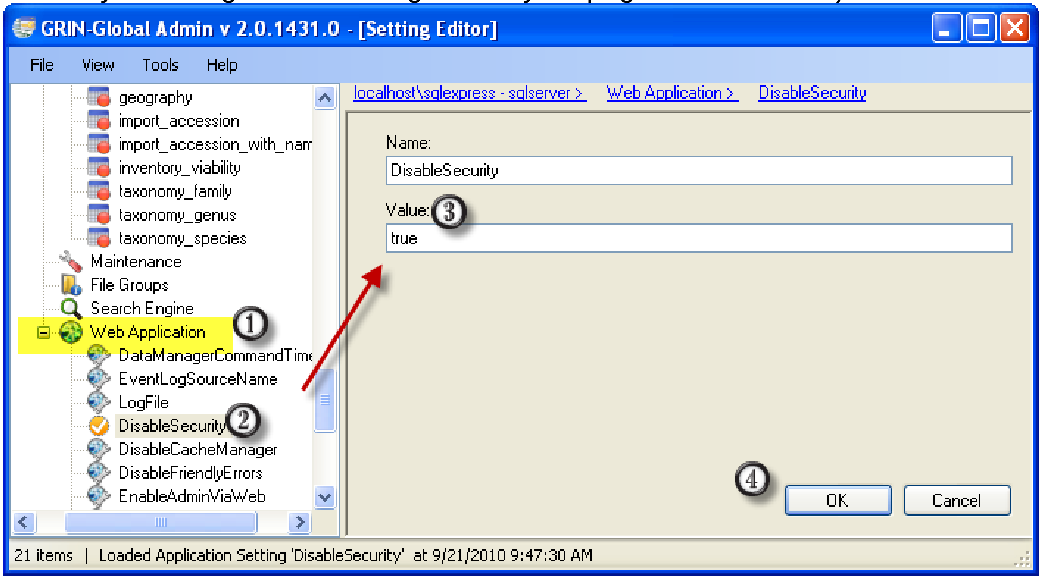
Security

Quick Guide for System Wide Security Implementation

(See the *Security Overview* section for details on GG's security options.)

Security Settings

1. Security is enabled by default. If you prefer to globally disable all security restrictions, in the Admin Tool, select **Web Application**; double-click on **DisableSecurity**; select **True**. (See "Globally Enabling and Disabling Security on page 52 for details.)

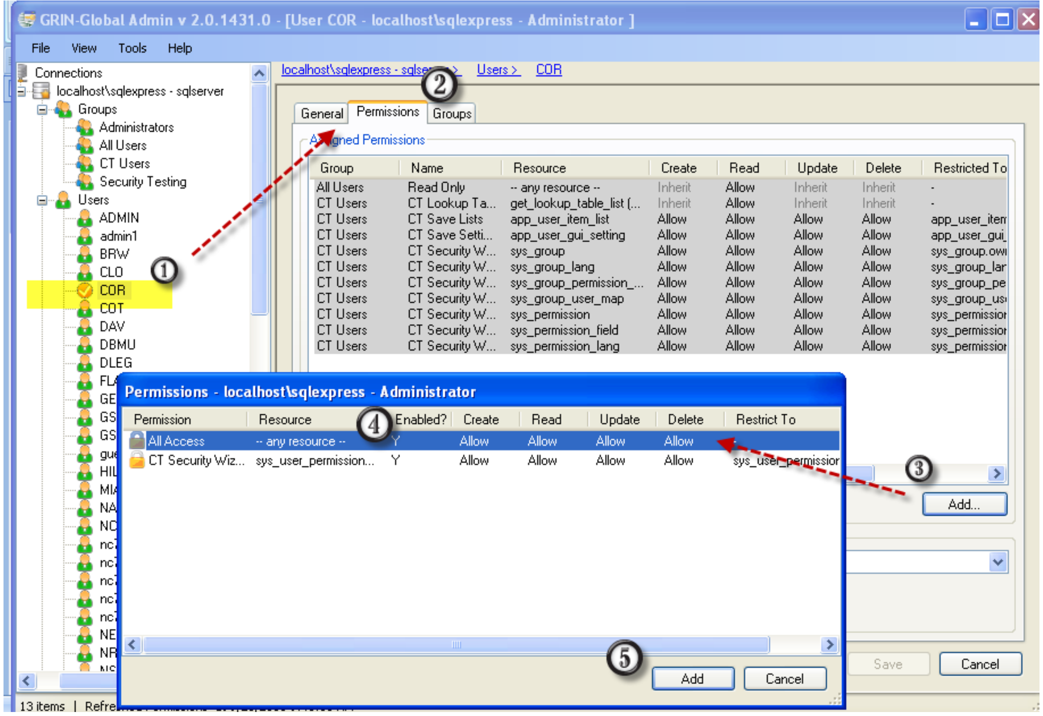


Name: DisableSecurity

Value: true

21 items | Loaded Application Setting 'DisableSecurity' at 9/21/2010 9:47:30 AM

Alternatively, if you keep security enabled (recommended), then individual logins cannot create new records until you either add the users to the **Administrators** group or grant the users **All access** permission.

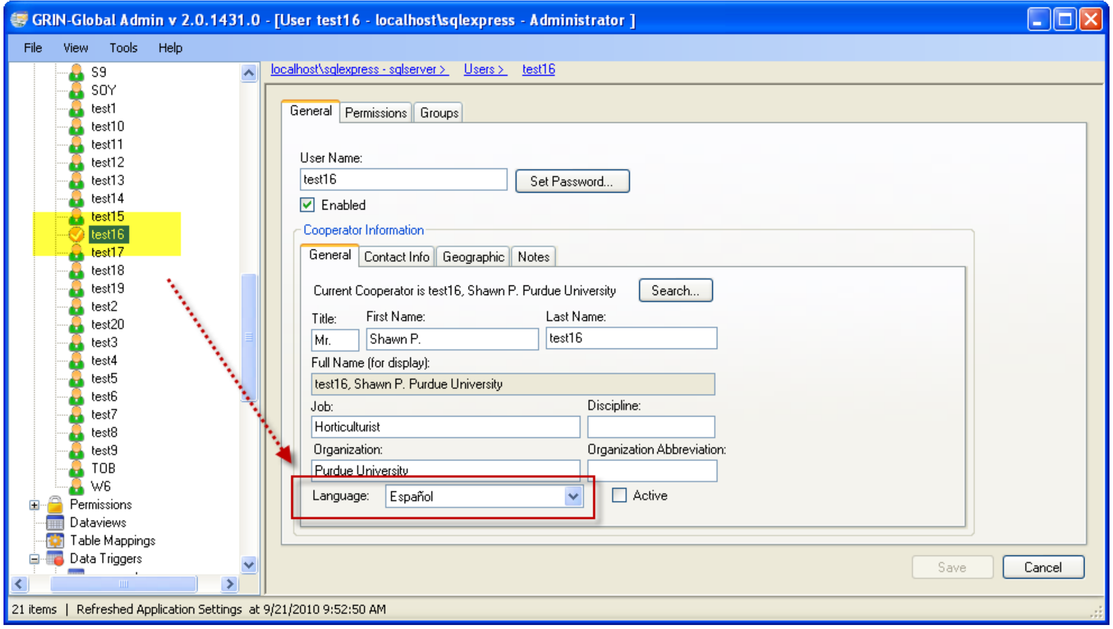


Group	Name	Resource	Create	Read	Update	Delete	Restricted To
All Users	Read Only	-- any resource --	Inherit	Allow	Inherit	Inherit	-
CT Users	CT Lookup Ta...	get_lookup_table_list (...	Inherit	Allow	Inherit	Inherit	-
CT Users	CT Save Lists	app_user_item_list	Allow	Allow	Allow	Allow	app_user_iten
CT Users	CT Save Setti...	app_user_gui_setting	Allow	Allow	Allow	Allow	app_user_gui_
CT Users	CT Security W...	sys_group	Allow	Allow	Allow	Allow	sys_group.owi
CT Users	CT Security W...	sys_group_lang	Allow	Allow	Allow	Allow	sys_group_lar
CT Users	CT Security W...	sys_group_permission_...	Allow	Allow	Allow	Allow	sys_group_pe
CT Users	CT Security W...	sys_group_user_map	Allow	Allow	Allow	Allow	sys_group_us
CT Users	CT Security W...	sys_permission	Allow	Allow	Allow	Allow	sys_permissior
CT Users	CT Security W...	sys_permission_field	Allow	Allow	Allow	Allow	sys_permissior
CT Users	CT Security W...	sys_permission_lang	Allow	Allow	Allow	Allow	sys_permissior

Permission	Resource	Enabled?	Create	Read	Update	Delete	Restrict To
All Access	-- any resource --	Y	Allow	Allow	Allow	Allow	-
CT Security Wiz...	sys_user_permission...	Y	Allow	Allow	Allow	Allow	sys_user_permissior

User Language Settings

Within the Admin Tool, you can easily change the language setting:
(**Users** | *username* | **General** (tab) **| Language**)



User Name: test16

☑ Enabled

Current Cooperator is test16, Shawn P. Purdue University

Title: Mr.

First Name: Shawn P.

Last Name: test16

Full Name (for display): test16, Shawn P. Purdue University

Job: Horticulturist

Discipline:

Organization: Purdue University

Organization Abbreviation:

Language: Español

□ Active

21 items | Refreshed Application Settings at 9/21/2010 9:52:50 AM

Security Overview

As the administrator for your organization, you establish the security infrastructure needed to handle your organization’s particular requirements.

Typically, the administrator will set up broad permission groups, such as “All Curator Tool Users,” and initially assign each user to that group. The administrator may also create less inclusive groups to handle permissions to handle unique situations. Besides modifying permissions by *group*, an administrator can modify permissions by *user*.

When discussing security, two broad concepts must be understood:

- permissions
- ownership

In order to manage an organization’s security needs, the Curator and Admin Tools are used in tandem to customize permission settings at the following levels:

- group
- user
- dataview
- table
- row

Most permissions settings are typically handled by the GRIN-Global administrator and details are explained within this Administrator’s Guide. However, there are some permission settings at the dataview and row levels handled in the Curator Tool that are explained in the Curator Tool User Guide.

Ownership

The concept of ownership is fully explained in the Curator Tool Users Guide, under “Security.”

Tip

Much of the security that is desired may be set within the Curator Tool by users. For records they own, they can establish permissions and assign ownership rights to other users. In many case, these security parameters in the Curator Tool are adequate for an organization’s security needs.

Permissions

For each user, permissions are applied to:

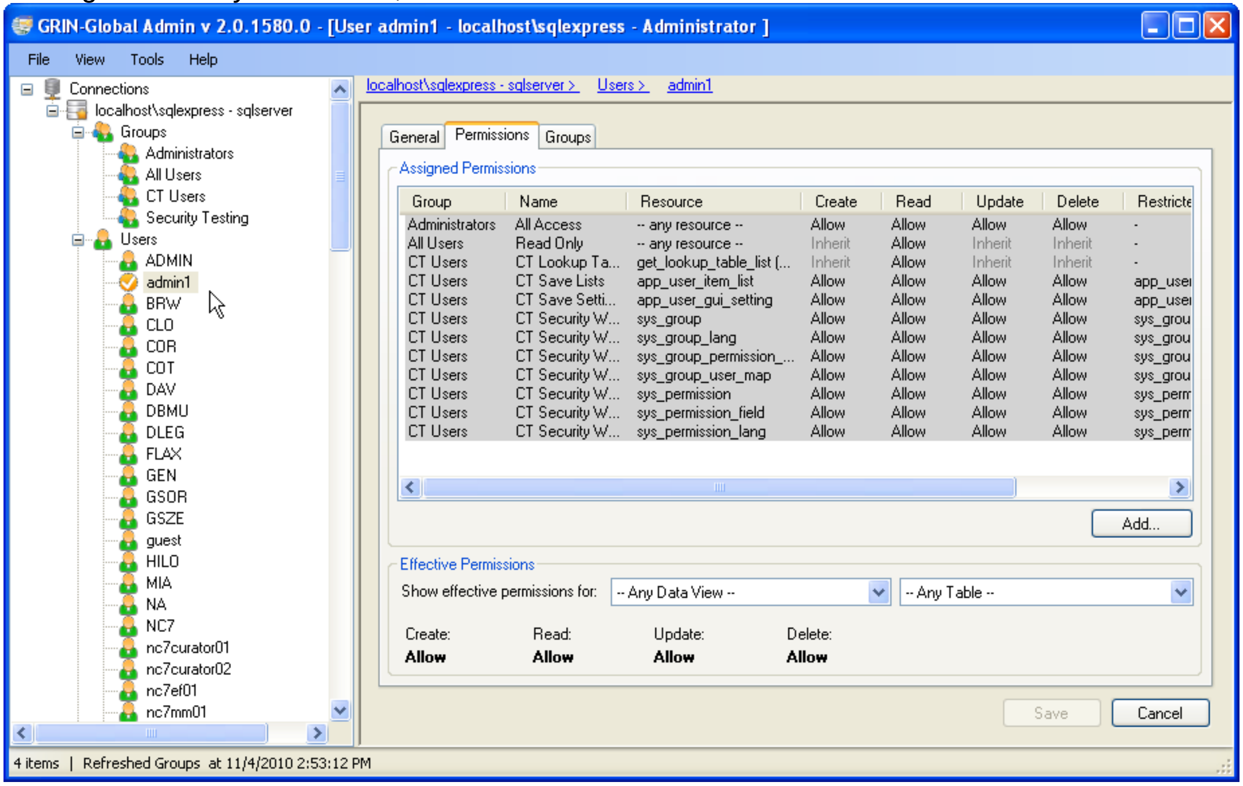
- a specific table
- a specific dataview
- database-wide

For instance, there is an **All Access** permission applied database-wide that gives Create/Read/Update/Delete rights. The **Administrators** group has this permission. (One of the default accounts, **administrator**, is a member of this group.)

In the example below, **admin1** has been selected. Because **admin1** belongs to the **Administrators** group, it has permission to do everything.

Admin1 is also a member of the **All Users** and **CT Users** groups. Since those permissions are also used when calculating Admin1’s rights to a resource, they are displayed on this form.

Grayed-out rows indicate permissions assigned to a group in which the user belongs. Therefore, in this window, the permission cannot be edited or removed. White rows indicate the permission is assigned directly to the user; it can be edited or removed in this window.



Group	Name	Resource	Create	Read	Update	Delete	Restricte
Administrators	All Access	-- any resource --	Allow	Allow	Allow	Allow	-
All Users	Read Only	-- any resource --	Inherit	Allow	Inherit	Inherit	-
CT Users	CT Lookup Ta...	get_lookup_table_list (...	Inherit	Allow	Inherit	Inherit	-
CT Users	CT Save Lists	app_user_item_list	Allow	Allow	Allow	Allow	app_usei
CT Users	CT Save Setti...	app_user_gui_setting	Allow	Allow	Allow	Allow	app_usei
CT Users	CT Security W...	sys_group	Allow	Allow	Allow	Allow	sys_grou
CT Users	CT Security W...	sys_group_lang	Allow	Allow	Allow	Allow	sys_grou
CT Users	CT Security W...	sys_group_permission_...	Allow	Allow	Allow	Allow	sys_grou
CT Users	CT Security W...	sys_group_user_map	Allow	Allow	Allow	Allow	sys_grou
CT Users	CT Security W...	sys_permission	Allow	Allow	Allow	Allow	sys_perm
CT Users	CT Security W...	sys_permission_field	Allow	Allow	Allow	Allow	sys_perm
CT Users	CT Security W...	sys_permission_lang	Allow	Allow	Allow	Allow	sys_perm

Show effective permissions for: -- Any Data View -- -- Any Table --

Create:	Read:	Update:	Delete:
Allow	**Allow**	**Allow**	**Allow**

Granularity

Granularity refers to the level of detail to which you can permissions, ranging from full control where the user can create, edit, and delete data to read-only access.

- Permissions may be applied at the table level:
  - Tom can update table X
- Permissions may be applied to different actions:
  - Mary can insert into table X but not update or delete from it
- Permissions may be applied at the table + hardcoded value level:
  - Alicia can update table X if the records she is trying to update all have an entry date of 1/1/2005 or greater
  - Charles can insert into table X if the record he is trying to insert has its WaterLevel of 3 or less
- Permissions may be applied at the table + field level:
  - Louie can update table X if the records he is trying to update are Maize records
  - Kenny can delete from table X if the records he is trying to update are over 2 years old
- Permissions may be applied at the table + multiple field + hardcoded value level:
  - George can update table X if the records he is trying to update are Maize records AND the entry date is after 1/1/2005 AND the records are owned by Sally

Permission Defined

A permission restricts or grants access to a resource in GRIN-Global. A resource is defined as a specific table, dataview, or row. A permission defines four kinds of rights:

A permission of type:	**Has the ability to:**
Create	Insert new data
Read	Read existing data
Update	Update existing data
Delete	Delete existing data

Each right can have one of three values:

Value	**Description**
Allow	Allows access
Deny	Denies access
Inherit	Neither allows nor denies access; access is situational; it is inherited from a previous definition

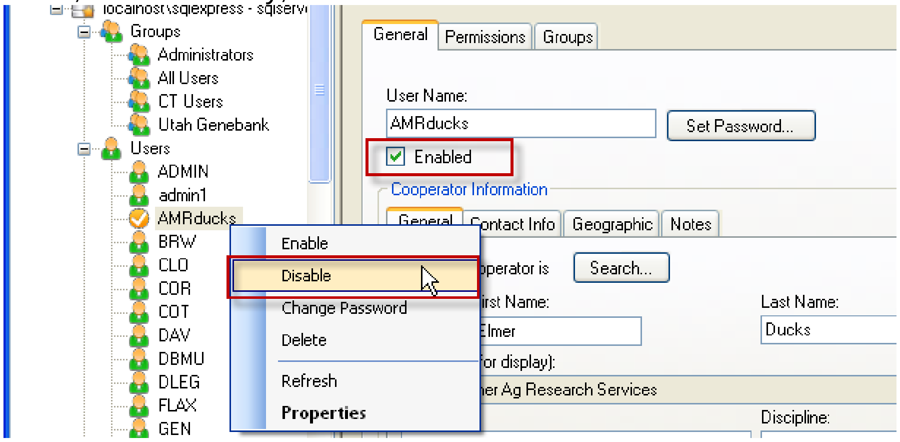
A permission can be applied to either a specific user or a specific group.

A permission can also have restrictions placed on it – meaning a permission is applied only if the field values in the "current" row meet the criterion. This is how row-level permissions are supported in GRIN-Global, by applying a restriction to a permission.

Disabling Permissions

Permissions can be complex. Sometimes it is simpler to disable permissions and then test security, instead of deleting the user(s) and then recreating them again.

To disable a user's permission settings, select the user, right-click, and select **Disable** from the menu, or alternatively, uncheck the **Enabled** box.



User Name: AMRducks

☑ Enabled

perator is

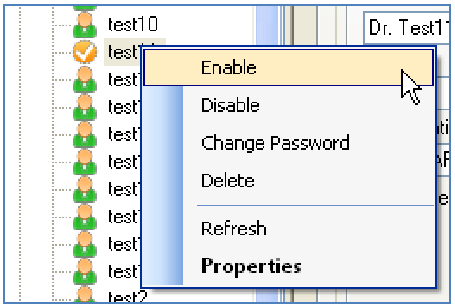
irst Name: Elmer

Last Name: Ducks

or display):

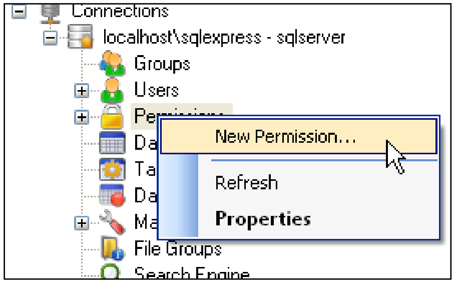
ner Ag Research Services

Conversely, when permissions have been disabled, select the username and then either select the **Enabled** checkbox on the **Permissions** window, or right-click and select **Enable** from the context menu.

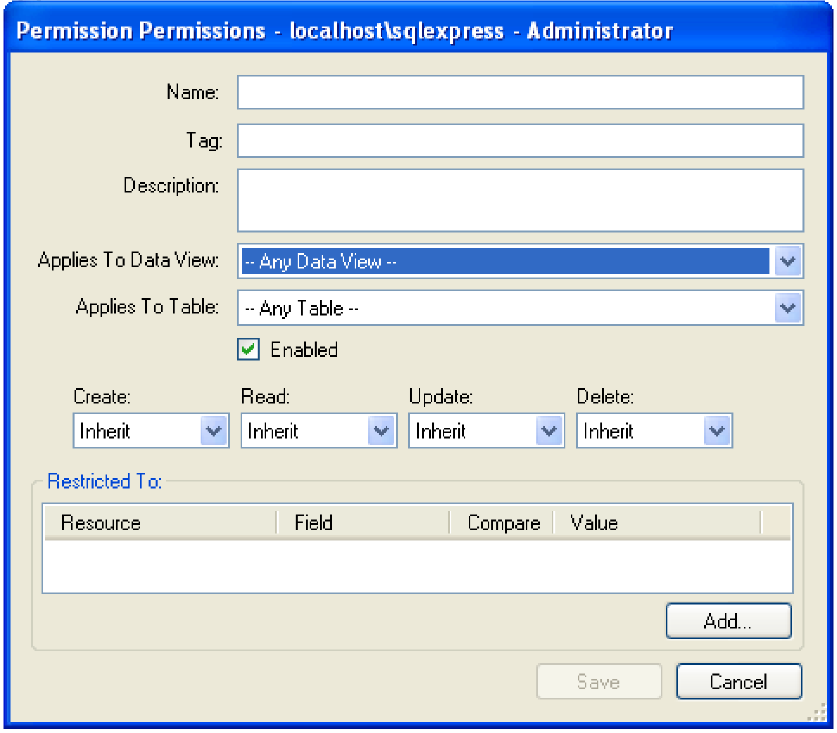


Setting Up a New Permission

To create a new Permission, right-click on the **Permissions** node; select **New Permission…**



Complete the **Name** field (**Tag** and **Description** fields are optional); select from one of the **Applies To…** alternatives.


Permission Permissions - localhost\sqlexpress - Administrator

Name:

Tag:

Description:

Applies To Data View: -- Any Data View --

Applies To Table: -- Any Table --

☑ Enabled

Create:	Read:	Update:	Delete:
Inherit	Inherit	Inherit	Inherit

Restricted To:

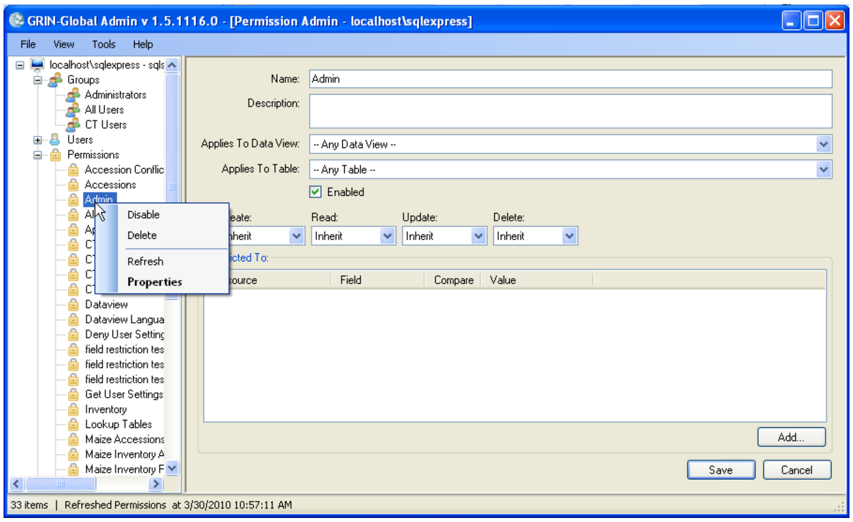
Resource	Field	Compare	Value

"Applies to Dataview" vs. "Applies to Table"

These two alternatives provide two basic levels of controlling access. Usually the "applies to table" will be used, but "applies to dataview" is useful in certain situations.

"Applies to dataview" denotes the permission affecting a dataview–if the user has an ALLOW permission to read the cooperator *table*, but a DENY permission on the get_cooperator *dataview*, he won't obtain any data when he tries to retrieve data via get_cooperator.

"Applies to table" affects the permission to the table regardless of what dataview is trying to access it.



GRIN-Global Admin v 1.5.1116.0 - [Permission Admin - localhost\sqlexpress]

Name: Admin

Description:

Applies To Data View: -- Any Data View --

Applies To Table: -- Any Table --

☑ Enabled

eate:	Read:	Update:	Delete:
herit	Inherit	Inherit	Inherit

icted To:

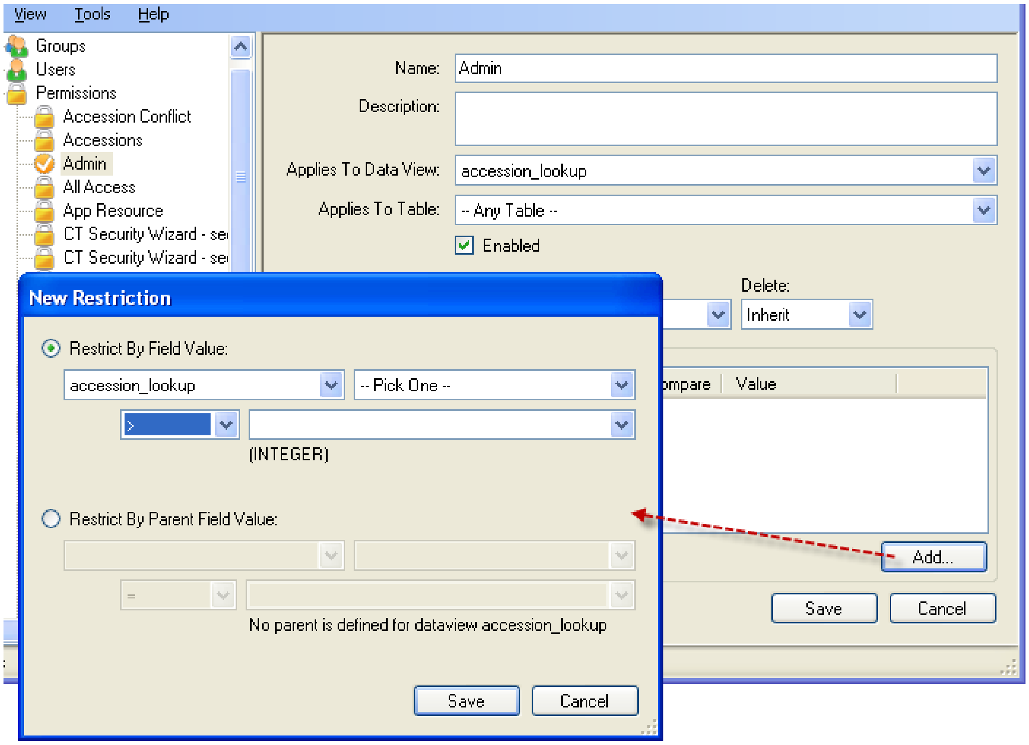
ource	Field	Compare	Value

33 items | Refreshed Permissions at 3/30/2010 10:57:11 AM

Setting Restrictions at the Row Level (Add …New Restriction)

Permissions can be assigned not only at the table level, but also at the row level. For instance, student A should only be able to update accessions owned by Curator 1. This would be done by adding a restriction to the permission (i.e., you're restricting the permission to just rows that match the criterion specified) saying that accession.owned_by = <cooperator id for Curator 1>)

Permissions



Name: Admin

Description:

Applies To Data View: accession_lookup

Applies To Table: -- Any Table --

☑ Enabled

Delete: Inherit

ompare | Value

New Restriction

● Restrict By Field Value:

accession_lookup | -- Pick One --

> |

(INTEGER)

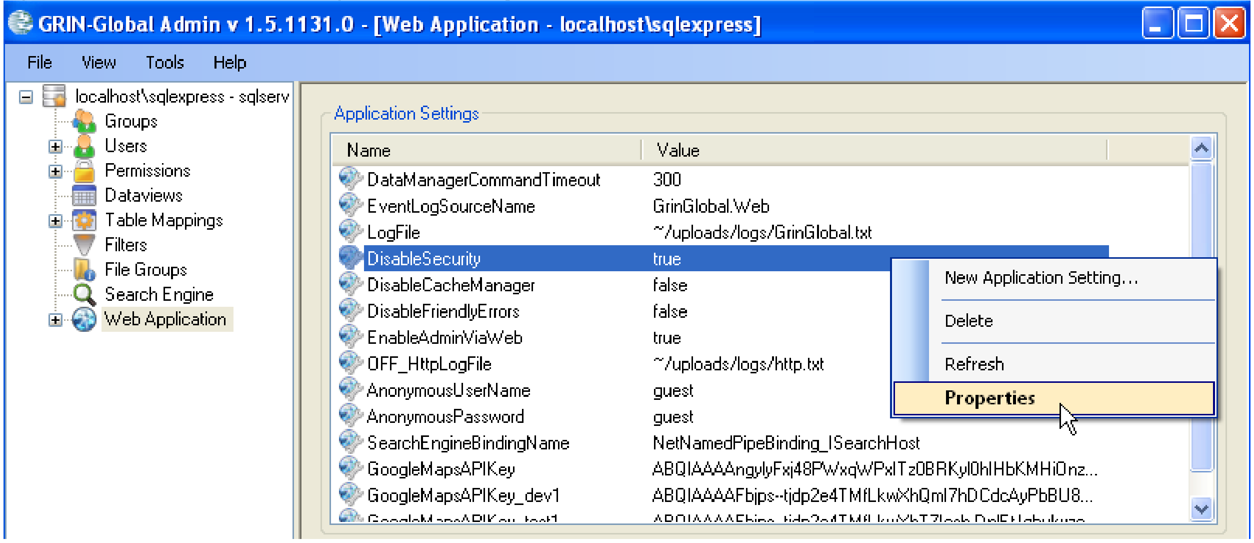
○ Restrict By Parent Field Value:

=

No parent is defined for dataview accession_lookup

Globally Enabling and Disabling Security

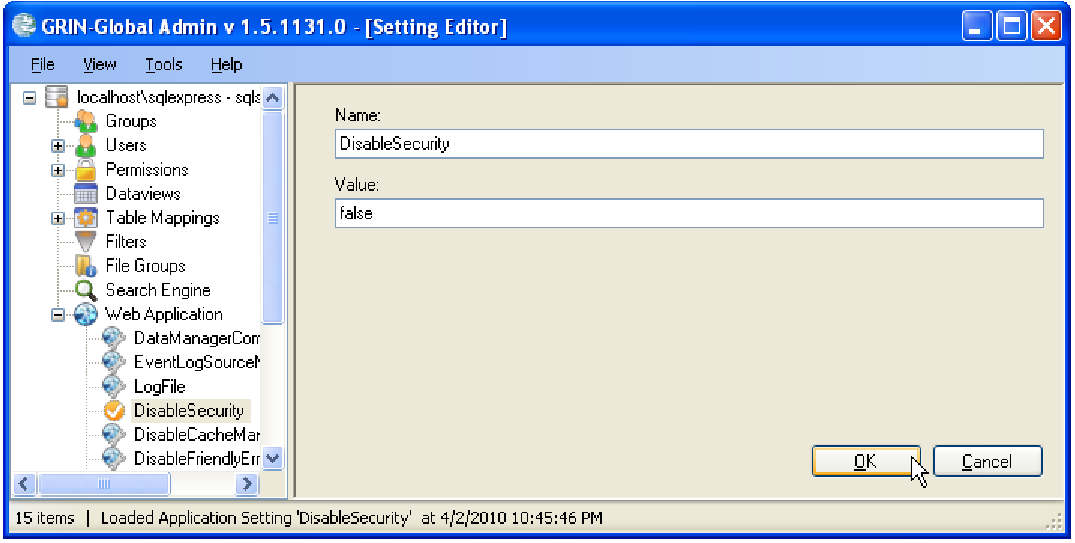
Only the administrators of the installation can enable security. On the web application node, right-click **DisableSecurity;** select **Properties**.



Application Settings

Name	Value
DataManagerCommandTimeout	300
EventLogSourceName	GrinGlobal.Web
LogFile	~/uploads/logs/GrinGlobal.txt
DisableSecurity	true
DisableCacheManager	false
DisableFriendlyErrors	false
EnableAdminViaWeb	true
OFF_HttpLogFile	~/uploads/logs/http.txt
AnonymousUserName	guest
AnonymousPassword	guest
SearchEngineBindingName	NetNamedPipeBinding_ISearchHost
GoogleMapsAPIKey	ABQIAAAAngylyFxj48PWxqWPxITz0BRKyl0hIHbKMHiOnz...
GoogleMapsAPIKey_dev1	ABQIAAAAFbjps--tjdp2e4TMfLkwXhQml7hDCdcAyPbBU8...

Change the **Value:** entry to **false**; click **OK**.



Name: DisableSecurity

Value: false

15 items | Loaded Application Setting 'DisableSecurity' at 4/2/2010 10:45:46 PM

Same Computer Requirement for Certain Administrative Rights
For editing anything in the Data Triggers, Search Engine, or Web Application nodes, the Admin Tool must be run on the same computer where the web application / search engine are installed. (Some of the properties that you are changing require administrative rights to do so, and that requires a local login.) If you try to edit any of those and you're not on the same physical box, a message box will display indicating that you must be on the same computer and prevent you from changing (or possibly even viewing) anything.

To edit any of the other nodes, only a database connection is needed.

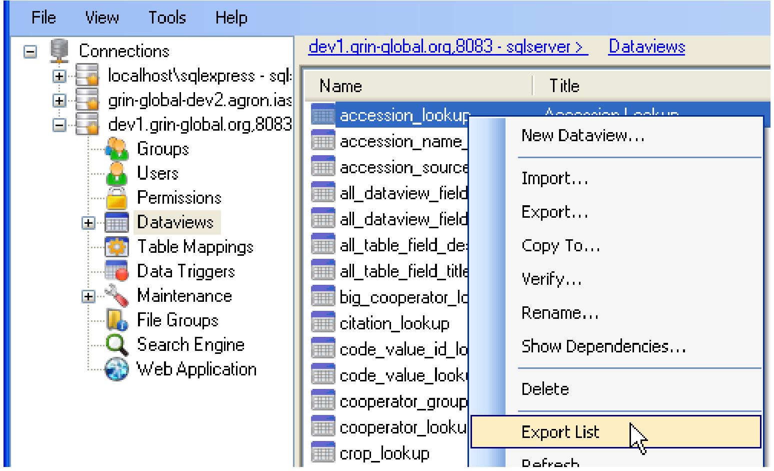
Dataviews

Dataviews: Overview
GRIN-Global dataviews are a means for dynamically adding new queries to the Curator Tool. A GRIN-Global Dataview is essentially a stored SQL Query with some peripheral information. A dataview consists of the following components:

Component	Description
SQL Query Definitions	A SQL statement for each of the supported database engines -- SQL Server, MySQL, PostgreSQL, and Oracle (this statement was true for version 1.0.7, but is not currently valid for later GG releases.)
SQL Parameter Definitions	For passing user specified values to the SQL queries at run time
Field Mappings	For associating a dataview field with a specific table and column in the database, so that data in that field can be updated by the user
Language Information	Language-specific Title and Description for column headings displayed in the Curator Tool, Search Tool, and Import Wizard
Flags and Settings	Denotes if the dataview is read only, user visible, etc.

Dataviews

Using the Admin Tool's dataview editor, you can list and modify any dataview available in the system as well as create new dataviews and delete existing ones. To produce a list of all dataviews, right-click any dataview name and select **Export List**.



Note The Dataview editor is used for editing *dataviews*, not *table schema* properties. Use the database's associated database management tool, such as SQL Server Management Studio, to make changes to the actual schema.

Tip Occasionally you will need to edit a dataview. Before making changes to any existing dataview, it is recommended that you first export the dataview that will be edited. Keep this as a backup in case later it needs to be restored. Consider including the date as part of its filename when you export it.

Dataview Fields

Dataview fields are mapped to provide additional information, such as language-specific column headers, read-only or editable status, foreign key lookups, etc.

Fields are updatable via a dataview only when the following is true:

1. They are mapped to a specific table and field
2. The Table Mappings for that table and field are not marked as read-only
3. The Primary Key for that table is included in the dataview
4. The field is not marked as read-only in the dataview

Dataview Example: get_accession_name

The GRIN-Global application was designed with many dataviews which meet most organizations' needs. Of course, each organization is unique and will most likely modify existing dataviews or design new ones.

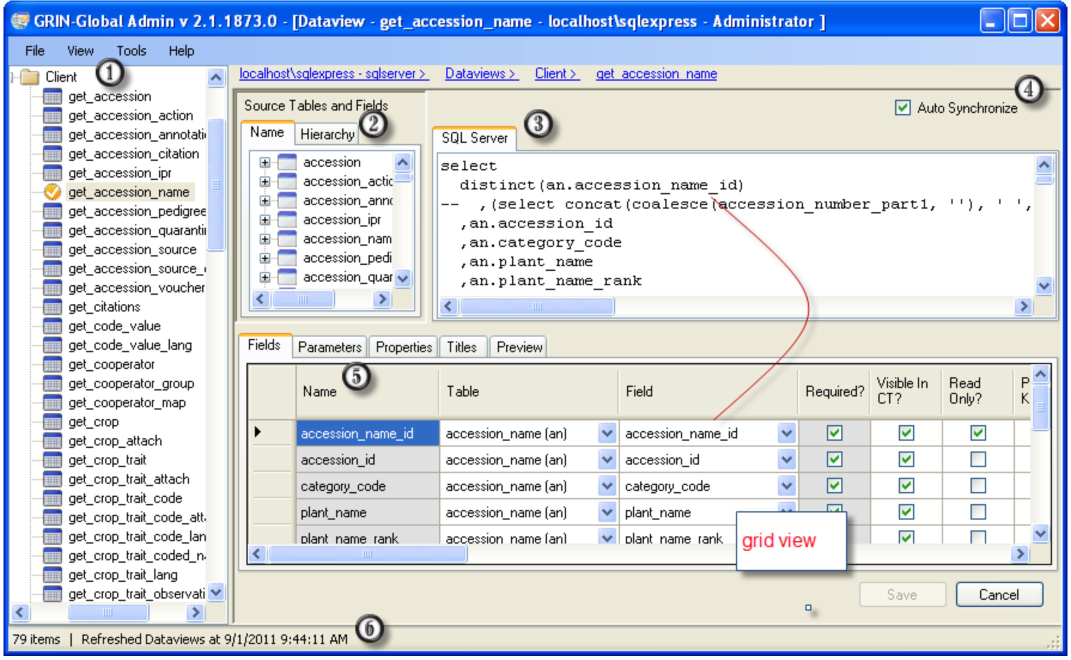
The simplest way to become familiar with dataviews is to review an existing dataview. The following screen illustrates a typical dataview within the Admin Tool's dataview editor.

Note The **Accession Name** dataview is being used as the example. The example is still relevant to this discussion, but the actual dataview name has been changed due to the schema changes after version 1.5. It was **get_accession_name**; the name has been changed to **get_accession_inv_name.**

Note

Refer to Tools | Options the section *Tools* **|** *Options* on page 30 for information when your organization needs to edit SQL for more than one database engine. This condition is relatively rare; for most organizations this will never be the norm as most organizations will use just one database.

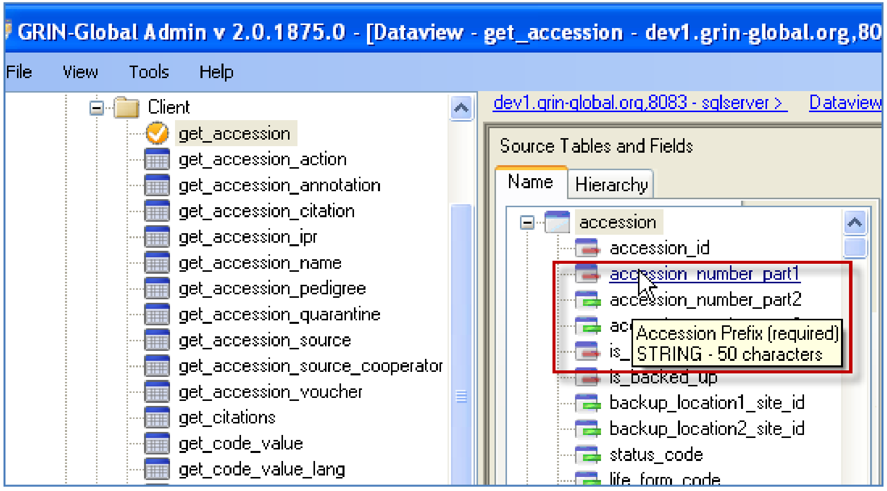
1. The left panel “tree view” lists the dataview names; in this example **get_accession_name** has been selected.



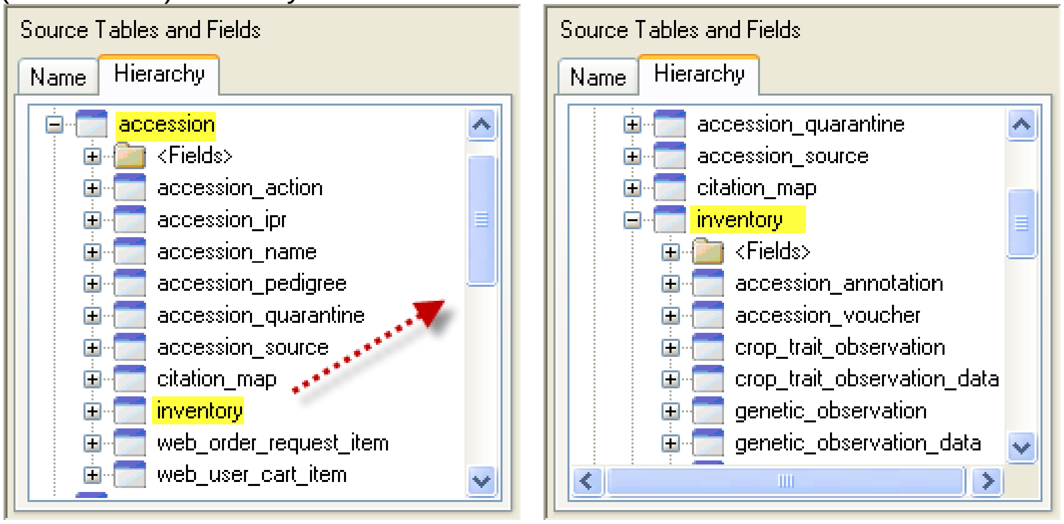
```
select
  distinct(an.accession_name_id)
--  ,(select concat(coalesce(accession_number_part1, ''), ' ',
  ,an.accession_id
  ,an.category_code
  ,an.plant_name
  ,an.plant_name_rank
```

Name	Table	Field	Required?	Visible In CT?	Read Only?	PK
accession_name_id	accession_name (an)	accession_name_id	☑	☑	☑	
accession_id	accession_name (an)	accession_id	☑	☑	☐	
category_code	accession_name (an)	category_code	☑	☑	☐	
plant_name	accession_name (an)	plant_name	☑	☑	☐	
plant_name_rank	accession_name (an)	plant_name_rank		☑	☐	

2. **Source Tables and Fields Panel**
This panel lists all of the tables and fields in the application. (Note that it is not directly related to the dataview currently being displayed, but is here to assist an administrator in building new SQL. More on using this later – many administrators may never use this panel.) The **Name** tab lists all dataviews in alphabetical order; when scrolling over a fieldname, the friendly name is displayed as well as other field attributes; also, the red icons indicate required fields.



The **Hierarchy** tab shows the parent child relationships between tables. The **Hierarchy** panel shows tables in their relationship hierarchy. If you expand accession, you'll see **accession_action** displayed and other accession "child" tables including **inventory** under it. If you expand **inventory**, additional tables are listed that are dependent ("children of") inventory.



3. The **SQL Server** Panel
   The **SQL** pane displays the SQL code that runs the selected dataview. Many administrators will not need to edit this SQL code. However, when an administrator needs to make additional edits to the SQL, such as adding a "WHERE" clause and possibly one or more parameters, she can edit the code in this panel or drag and drop fields or tables from the **Source Tables and Fields** Panel (see #2).

Tip

If you completely replace all the SQL in a dataview, the dataview loses all field information on a **Save** action. This was discovered when editing SQL outside the AT in order to test it using SSMS. One work-around is to *never completely* replace the SQL in a dataview. It is fine to replace the first half and then separately replace the second half, as long as you do use a single copy and paste operation.

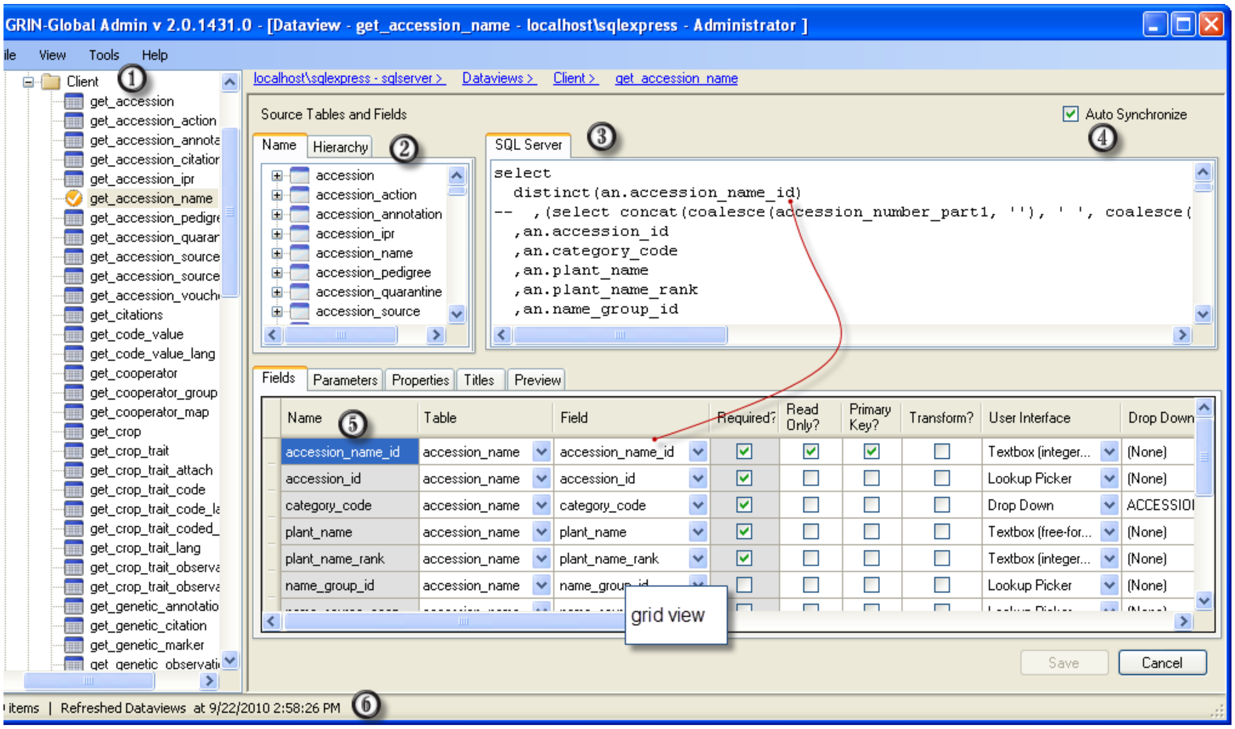
When the administrator is satisfied with her SQL edits, in the bottom panel (#5) she would use the **Preview** tab to run the SQL against the database to ensure the dataview returns the desired information. If satisfied, the administrator saves the SQL. After it is saved, the dataview is available to the Curator Tool.

4. **Auto Synchronize** Checkbox
   This checkbox will automatically inspect the **SQL Server** pane and the grid view contents as edits are made and keeps both synchronized with each other. (To see this feature, edit the SQL directly and it will auto-inspect two seconds after your most recent keystroke.)

To Change the Order of the Columns

You can rearrange column order in the dataview by moving the fields in the SQL Select clause – be sure that you the comma separators are correctly placed. The code displayed on the **SQL Server** tab in the following illustration is indicating the order in which the columns will be displayed. The same relative order is shown under #5, in the grid.

5. The **Fields** grid view provides additional information about the dataview fields being returned by an SQL query. Here the administrator can review the dataview and determine what fields are required, are visible in the Curator Tool, or are read-only; what field is the primary key; and how the dataview fields will be displayed in the Curator Tool (including the field headings in the valid languages). (Refer to the Transform? and User Interface topics (below) for detailed explanations of those columns.)



```
select
  distinct(an.accession_name_id)
--   ,(select concat(coalesce(accession_number_part1, ''), ' ', coalesce(
  ,an.accession_id
  ,an.category_code
  ,an.plant_name
  ,an.plant_name_rank
  ,an.name_group_id
```

Name	Table	Field	Required?	Read Only?	Primary Key?	Transform?	User Interface	Drop Down
accession_name_id	accession_name	accession_name_id	☑	☑	☑	□	Textbox (integer...	(None)
accession_id	accession_name	accession_id	☑	□	□	□	Lookup Picker	(None)
category_code	accession_name	category_code	☑	□	□	□	Drop Down	ACCESSIOI
plant_name	accession_name	plant_name	☑	□	□	□	Textbox (free-for...	(None)
plant_name_rank	accession_name	plant_name_rank	☑	□	□	□	Textbox (integer...	(None)
name_group_id	accession_name	name_group_id	□	□	□	□	Lookup Picker	(None)

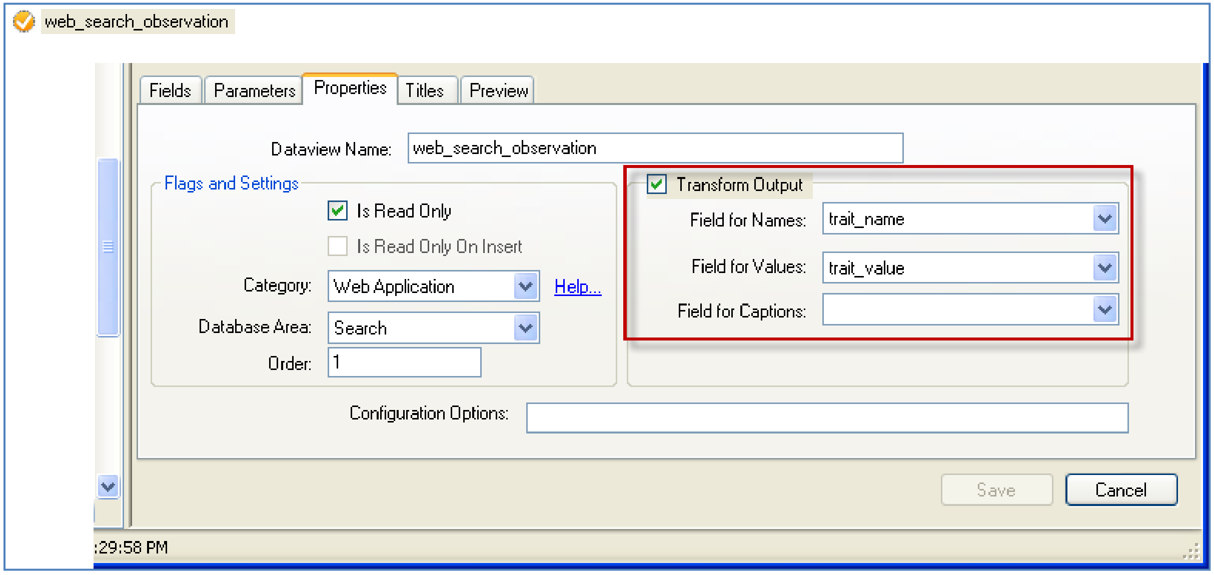
6. **Status Bar** displays information pertinent to the most recent action or selected object.

Transform?

This is rarely used. However, the **web_search_observation** dataview uses this functionality. (Open this dataview in the Admin Tool and inspect under the **Properties** tab the **Transform Output** section for an example.)

The search page on the GRIN-Global Public Website uses this feature to display observation data. (There is an option on the **Advanced Search** link. Users may want to see the traits column-wise instead of row-wise (they're stored row-wise). "Transforming" the dataview displays the data column-wise instead of row-wise.

In order for the transform feature to function properly, you must also specify which field(s) will be transformed (i.e., which ones do you group them by). The **Transform?** checkbox in the **Fields** tab serves this purpose. It indicates to the middle tier which fields to group records by when calculating unique values in the given **Field for Names** and **Field for Values** values.



Dataview Name: web_search_observation

Flags and Settings

☑ Is Read Only

□ Is Read Only On Insert

Category: Web Application Help...

Database Area: Search

Order: 1

☑ Transform Output

Field for Names: trait_name

Field for Values: trait_value

Field for Captions:

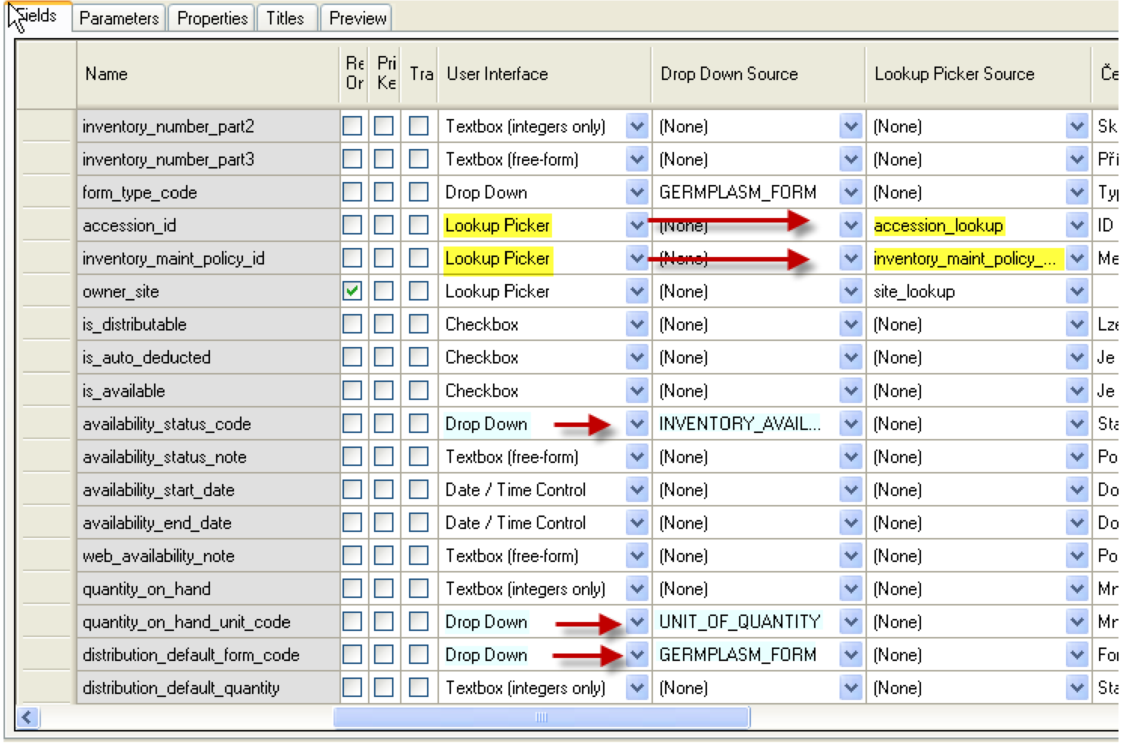
Configuration Options:

User Interface

The **User Interface** column indicates the type of, or the source of, the data for each field in the record. Three types of textboxes can be indicated (freeform, integers only, or decimals only) as well as **Checkbox** and **Date/Time controls** are possible options and are self-explanatory. The less intuitive options, **Lookup Picker** and **Drop Down**, are explained below.

Drop Down Source & Lookup Picker Source

When **User Interface** is set to "Lookup Picker," the "Lookup Picker Source" value is used. When the **User Interface** is set to "Drop Down," the value in Drop Down Source is used.

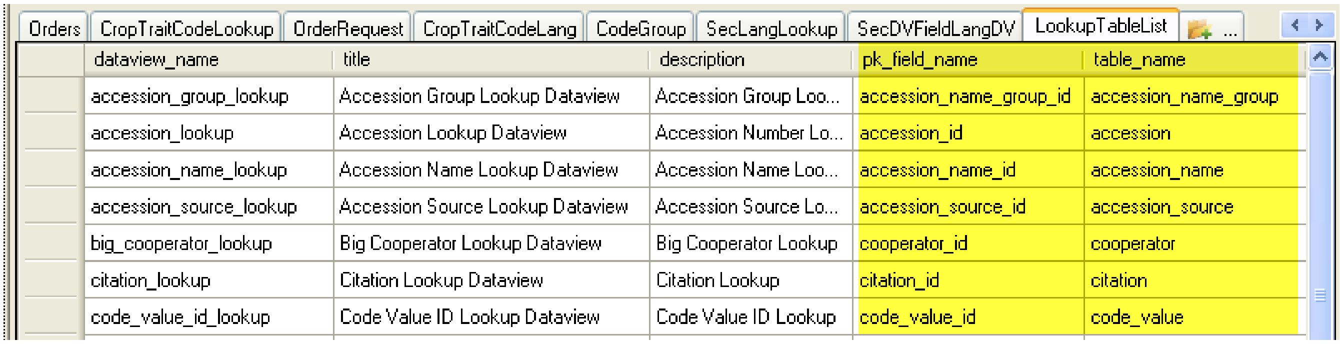


Name	Re Or	Pri Ke	Tra	User Interface	Drop Down Source	Lookup Picker Source	Če
inventory_number_part2	□	□	□	Textbox (integers only)	(None)	(None)	Sk
inventory_number_part3	□	□	□	Textbox (free-form)	(None)	(None)	Při
form_type_code	□	□	□	Drop Down	GERMPLASM_FORM	(None)	Ty
accession_id	□	□	□	Lookup Picker	(None)	accession_lookup	ID
inventory_maint_policy_id	□	□	□	Lookup Picker	(None)	inventory_maint_policy_...	Me
owner_site	☑	□	□	Lookup Picker	(None)	site_lookup	
is_distributable	□	□	□	Checkbox	(None)	(None)	Lze
is_auto_deducted	□	□	□	Checkbox	(None)	(None)	Je
is_available	□	□	□	Checkbox	(None)	(None)	Je
availability_status_code	□	□	□	Drop Down	INVENTORY_AVAIL...	(None)	Sta
availability_status_note	□	□	□	Textbox (free-form)	(None)	(None)	Po
availability_start_date	□	□	□	Date / Time Control	(None)	(None)	Do
availability_end_date	□	□	□	Date / Time Control	(None)	(None)	Do
web_availability_note	□	□	□	Textbox (free-form)	(None)	(None)	Po
quantity_on_hand	□	□	□	Textbox (integers only)	(None)	(None)	Mr
quantity_on_hand_unit_code	□	□	□	Drop Down	UNIT_OF_QUANTITY	(None)	Mr
distribution_default_form_code	□	□	□	Drop Down	GERMPLASM_FORM	(None)	Fo
distribution_default_quantity	□	□	□	Textbox (integers only)	(None)	(None)	Sta

If there is an entry in either the **Drop Down Source** or the **Lookup Picker Source** column, but **Drop Down Source** or **Lookup Picker (**the respective choice) is not selected in the field’s **User Interface** column, then the **-Source** column is ignored.

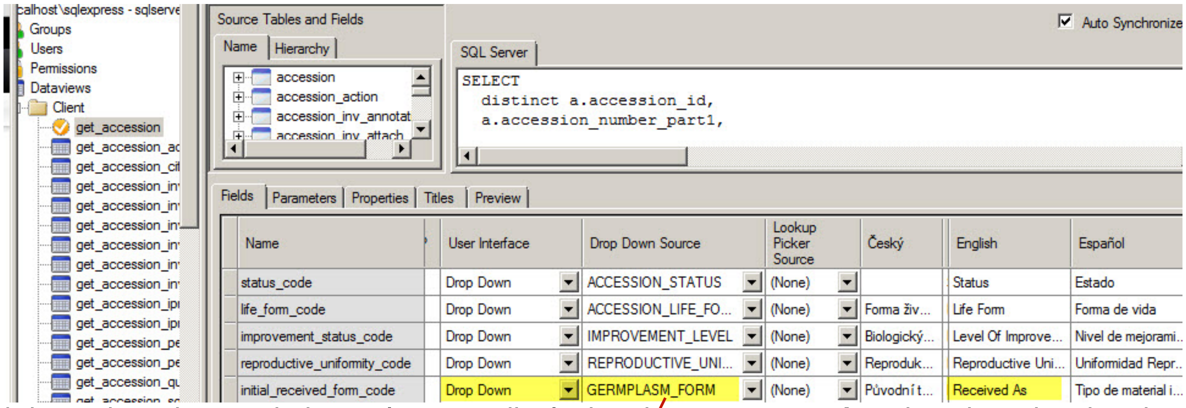
Fields marked with **Lookup Picker Source** are almost always foreign keys to another table. Also, these field names typically end with “**_id.**”

The **Lookup Picker Source** column gets its list of data from running the "get_lookup_table_list" dataview. This list includes all the dataviews having “Client” as their category and "Lookup Table" for their database area.



dataview_name	title	description	pk_field_name	table_name
accession_group_lookup	Accession Group Lookup Dataview	Accession Group Loo...	accession_name_group_id	accession_name_group
accession_lookup	Accession Lookup Dataview	Accession Number Lo...	accession_id	accession
accession_name_lookup	Accession Name Lookup Dataview	Accession Name Loo...	accession_name_id	accession_name
accession_source_lookup	Accession Source Lookup Dataview	Accession Source Lo...	accession_source_id	accession_source
big_cooperator_lookup	Big Cooperator Lookup Dataview	Big Cooperator Lookup	cooperator_id	cooperator
citation_lookup	Citation Lookup Dataview	Citation Lookup	citation_id	citation
code_value_id_lookup	Code Value ID Lookup Dataview	Code Value ID Lookup	code_value_id	code_value

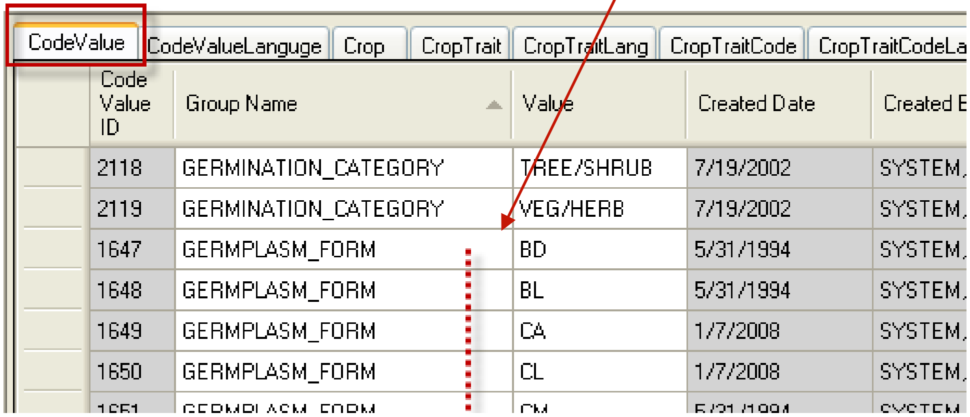
The **Drop Down Source** column gets its data from the **group_name** field **in the get_code_value** dataview.



```
SELECT
  distinct a.accession_id,
  a.accession_number_part1,
```

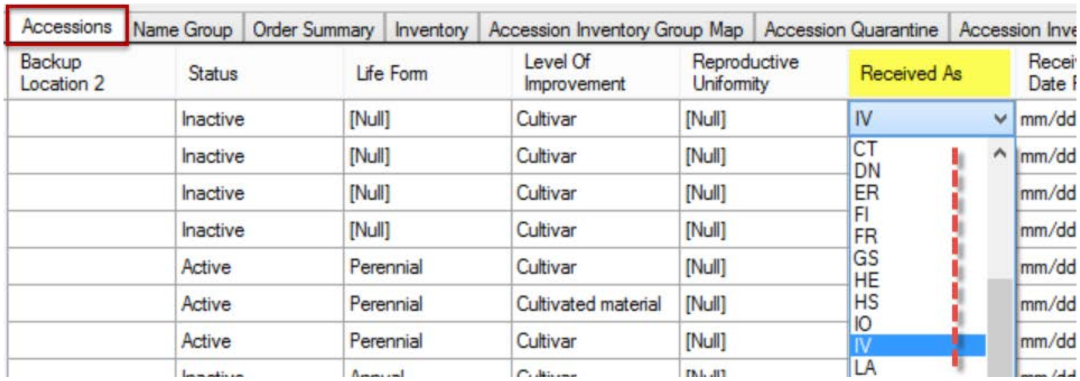
Name	User Interface	Drop Down Source	Lookup Picker Source	Český	English	Español
status_code	Drop Down	ACCESSION_STATUS	(None)		Status	Estado
life_form_code	Drop Down	ACCESSION_LIFE_FO...	(None)	Forma živ...	Life Form	Forma de vida
improvement_status_code	Drop Down	IMPROVEMENT_LEVEL	(None)	Biologický...	Level Of Improve...	Nivel de mejorami...
reproductive_uniformity_code	Drop Down	REPRODUCTIVE_UNI...	(None)	Reproduk...	Reproductive Uni...	Uniformidad Repr...
initial_received_form_code	Drop Down	GERMPLASM_FORM	(None)	Původní t...	Received As	Tipo de material i...

(Shown here is an Admin Tool screen displaying the **get_accession** dataview showing the Drop Down Source, **GERMPLASM_FORM**, for the initial_received_form_code field.)



Code Value ID	Group Name	Value	Created Date	Created E
2118	GERMINATION_CATEGORY	TREE/SHRUB	7/19/2002	SYSTEM,
2119	GERMINATION_CATEGORY	VEG/HERB	7/19/2002	SYSTEM,
1647	GERMPLASM_FORM	BD	5/31/1994	SYSTEM,
1648	GERMPLASM_FORM	BL	5/31/1994	SYSTEM,
1649	GERMPLASM_FORM	CA	1/7/2008	SYSTEM,
1650	GERMPLASM_FORM	CL	1/7/2008	SYSTEM,
1651	GERMPLASM_FORM	CM	5/31/1994	SYSTEM

(This is a Curator Tool screen using the **get_code_value** dataview showing **Group Name** values that have been stored in the code value table.)



Backup Location 2	Status	Life Form	Level Of Improvement	Reproductive Uniformity	Received As	Recei Date
	Inactive	[Null]	Cultivar	[Null]	IV	mm/dd
	Inactive	[Null]	Cultivar	[Null]		mm/dd
	Inactive	[Null]	Cultivar	[Null]		mm/dd
	Inactive	[Null]	Cultivar	[Null]		mm/dd
	Active	Perennial	Cultivar	[Null]		mm/dd
	Active	Perennial	Cultivated material	[Null]		mm/dd
	Active	Perennial	Cultivar	[Null]		mm/dd
	Inactive	Annual	Cultivar	[Null]		mm/dd

(This Curator Tool screen shows the **get_accession** dataview displaying the possible values for the **Received As** field ("Received As" is the English friendly name; the database name is "initial_received_form_code" field.))

Parameters

Parameters are values that must be specified at run time – that is, in order for the SQL query to run correctly, there are variables ("fill in blanks") that must be supplied with appropriate information.

On the **Parameters** tab, you can define the data type for each parameter. (This is required by the database engines and cannot be easily derived from the raw SQL).

Consider the following example.

Suppose you wanted the dataview to return all accession records that have a prefix of "PI."

Select * from accession where accession_number_part1 = 'PI';

If you also wanted to do the same process, but for those accessions starting with "BW," you would write:

Select * from accession where accession_ number_part1 = 'BW';

The only difference is the prefix value. We are essentially running the same query, but with different values for certain parts of the SQL than we did on the previous run. We can actually make the SQL run faster by using a parameter for this:

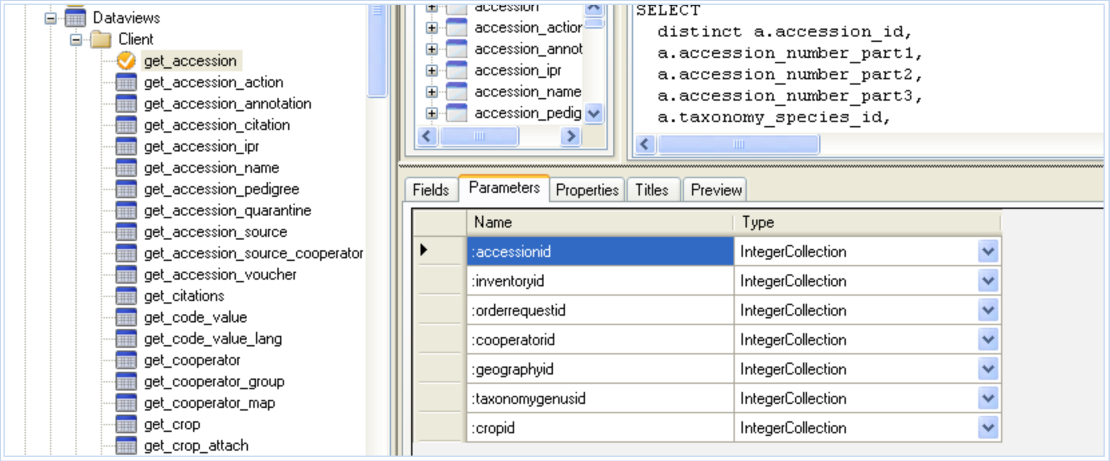
Select * from accession where accession_ number_part1 = :part1

NOTE: The parameter is always prepended with a moniker – colon (:), question mark (?), or at-sign (@). Different database engines use different ones, but GRIN-Global hides this variation so any can be used against any GG-supported database engine.

Using parameters also lets us prevent SQL injection attacks, as these typically work by providing carefully crafted values. For instance, if we don't use parameters and someone gives us the following value: '; delete * from accession; --

Select * from accession where accession_number_part1 = ''; delete * from accession;

The database engine would run a select, followed by a delete which would wipe out the table.



```
SELECT
  distinct a.accession_id,
  a.accession_number_part1,
  a.accession_number_part2,
  a.accession_number_part3,
  a.taxonomy_species_id,
```

Name	Type
:accessionid	IntegerCollection
:inventoryid	IntegerCollection
:orderrequestid	IntegerCollection
:cooperatorid	IntegerCollection
:geographyid	IntegerCollection
:taxonomygenusid	IntegerCollection
:cropid	IntegerCollection

Data Types

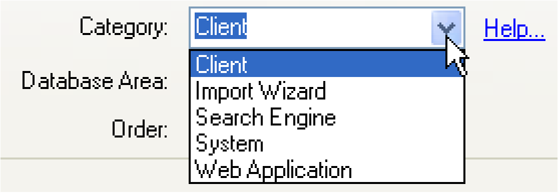
When parameters are used, the database needs to know which data type each is. The data types supported by GRIN-Global for SQL parameters are as follows:

Field	Description
String	Text
Integer	A whole number (i.e. no decimal point – 3, 7892, -12, etc)
DateTime	A date and optionally a time
Double	an approximate fractional number (i.e. decimal point – 3.222222222295, 4.01, etc)
Decimal	An exact fractional number (i.e. decimal point – 3.23, 40.9, etc)
IntegerCollection	A sequence of integers that should be put into the SQL as comma separated list. i.e. (47, 23, 99, 101)
StringCollection	A sequence of strings that should be put into the SQL as a comma separated list. i.e. ('hello', 'how', 'are', 'you')
StringReplacement	Performs an explicit replace on the SQL string itself. Necessary for providing values to sections of the SQL where the database engine does not allow a parameter, such as specifying a table name, a column name, a join type, etc. Should be used very sparingly.

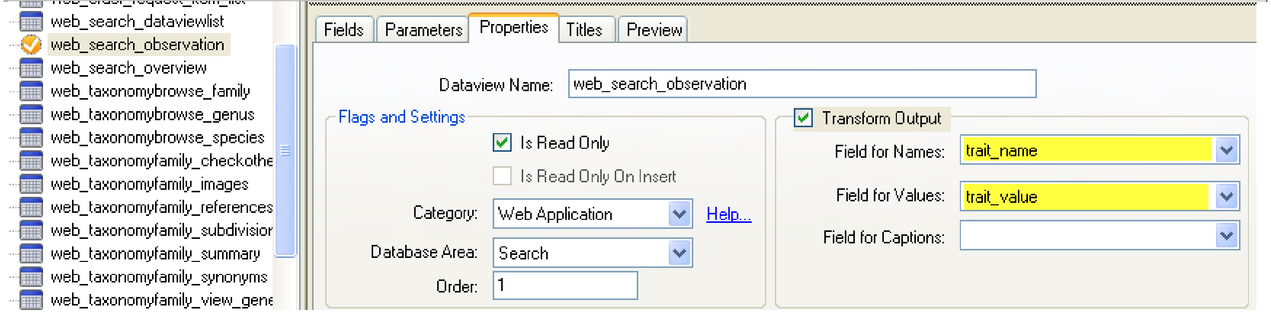
PostgreSQL is notoriously strict about the parameter types it accepts. MySQL is extremely permissive of types it accepts. SQL Server and Oracle are somewhere in the middle, as they generally will coerce types as needed. Recommendation: Always use the proper data type.

Properties

On the **Properties** tab, you can edit the dataview properties:

Item or Option	Notes
Dataview Name:	dataview name
Flags and Settings Is Read-Only	
Is Read-Only On Insert	This checkbox specifically supports the **Cooperator** dataview – the field should be updatable, but on initial record creation it should be read-only as its value is auto-populated by the middle tier based on business logic.
Category	The **Category** describes in a general sense how the dataview is being used**:**  Category: Client Help... Database Area: Order: Client Import Wizard Search Engine System Web Application **Database Area**: The search page uses this information to determine which dataviews will be shown in the Advanced Search link's dropdown for which

	"view to display results in" The **Order** determines the order in which they are displayed. 0 = first…
Transform Output	The search page on the GRIN-Global Public Website uses this feature to display observation data. (There is an option when on the Advanced Search link. Users may want to see the traits column-wise instead of row-wise (they're stored row-wise). "Transforming" the dataview makes it possible to show data column-wise instead of row-wise. This is rarely used. However, the web_search_observation dataview uses this functionality. Open it in the Admin Tool and inspect the Transform Output section for an example. See also Transform?



- web_search_dataviewlist
- web_search_observation
- web_search_overview
- web_taxonomybrowse_family
- web_taxonomybrowse_genus
- web_taxonomybrowse_species
- web_taxonomyfamily_checkothe
- web_taxonomyfamily_images
- web_taxonomyfamily_references
- web_taxonomyfamily_subdivisior
- web_taxonomyfamily_summary
- web_taxonomyfamily_synonyms
- web_taxonomyfamily_view_gene

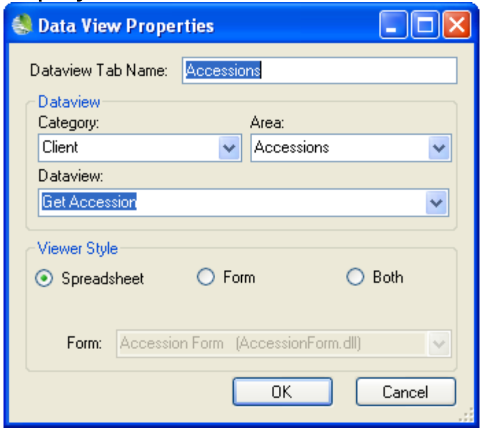
Dataview Name: web_search_observation

Flags and Settings
☑ Is Read Only
□ Is Read Only On Insert
Category: Web Application
Database Area: Search
Order: 1

☑ Transform Output
Field for Names: trait_name
Field for Values: trait_value
Field for Captions:

Titles and Descriptions

A title and a description can be given to each dataview for each language. The Curator Tool displays the title in the **Dataview** box in the Data View Properties window:



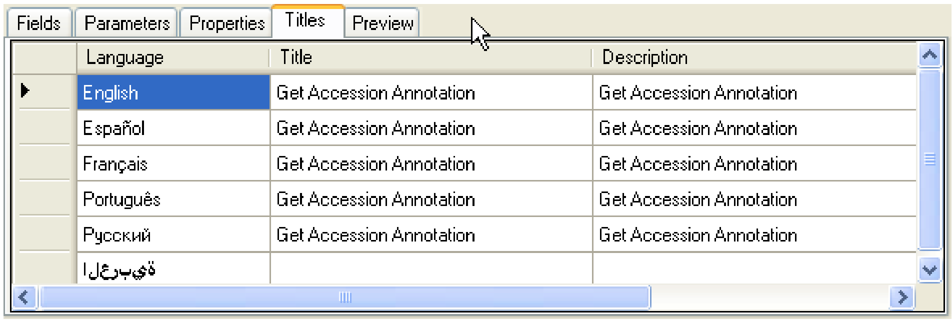
Dataview Tab Name: Accessions

Dataview
Category: Client
Area: Accessions
Dataview: Get Accession

Viewer Style
● Spreadsheet ○ Form ○ Both

Form: Accession Form (AccessionForm.dll)

Title and **Description** provide additional information about the dataview itself in a language-aware manner.



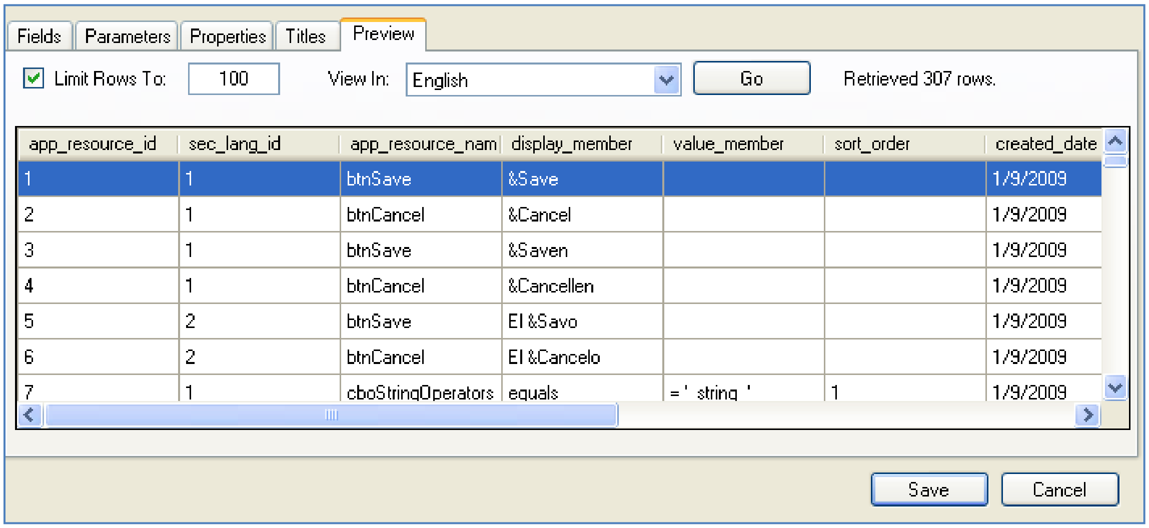
Language	Title	Description
English	Get Accession Annotation	Get Accession Annotation
Español	Get Accession Annotation	Get Accession Annotation
Français	Get Accession Annotation	Get Accession Annotation
Português	Get Accession Annotation	Get Accession Annotation
Русский	Get Accession Annotation	Get Accession Annotation
العربية		

Preview

Using **Preview**, you can interactively test your new dataview settings without first saving them. Preview uses the SQL, fields, and parameters that are specified in the form and executes the query. If parameters exist, a dialog window will prompt for the value(s) to be entered.

If there is a problem running the query, a message box will display showing the raw error from the database engine itself.

Results can be displayed in whichever language is chosen. The default language is the same language as the current user's language.



☑ Limit Rows To: 100

View In: English

Retrieved 307 rows.

app_resource_id	sec_lang_id	app_resource_nam	display_member	value_member	sort_order	created_date
1	1	btnSave	&Save			1/9/2009
2	1	btnCancel	&Cancel			1/9/2009
3	1	btnSave	&Saven			1/9/2009
4	1	btnCancel	&Cancellen			1/9/2009
5	2	btnSave	El &Savo			1/9/2009
6	2	btnCancel	El &Cancelo			1/9/2009
7	1	cboStringOperators	equals	= ' string '	1	1/9/2009

Importing and Exporting Dataviews

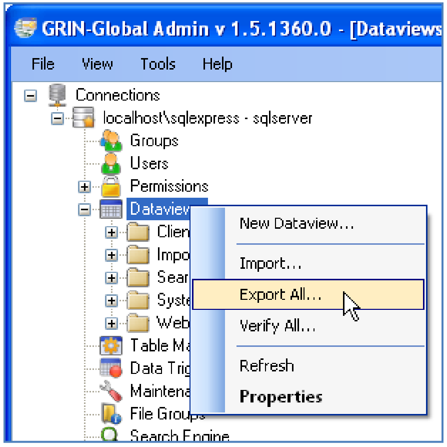
This capability is very practical, especially when an organization is initially configuring its GRIN-Global environment and the organization's many dataviews. Exporting/importing provides a handy method for using a dataview from one environment as the basis in another. This feature is also useful when a dataview is mistakenly altered by the administrator and needs to be replaced. A copy of a working dataview could be imported and then used as the basis to overlay and correct an improperly altered dataview.

Tip

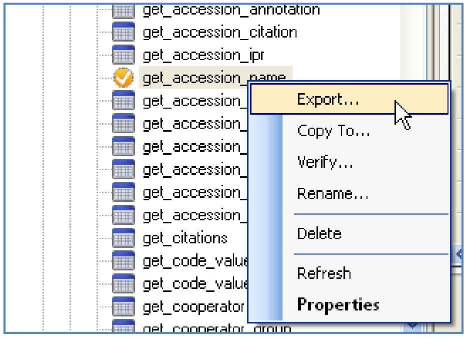
Any time you intend to use the GRIN-Global Updater to download any server component, first use the Admin Tool to export a copy of all of the dataviews for safe keeping. Similarly, immediately after updating server components via the Updater, export another copy of all of the dataviews. By following this tip, you will have a complete set of dataviews which will be available in case you need to restore a dataview that stops working after the software is updated.

Exporting Dataviews

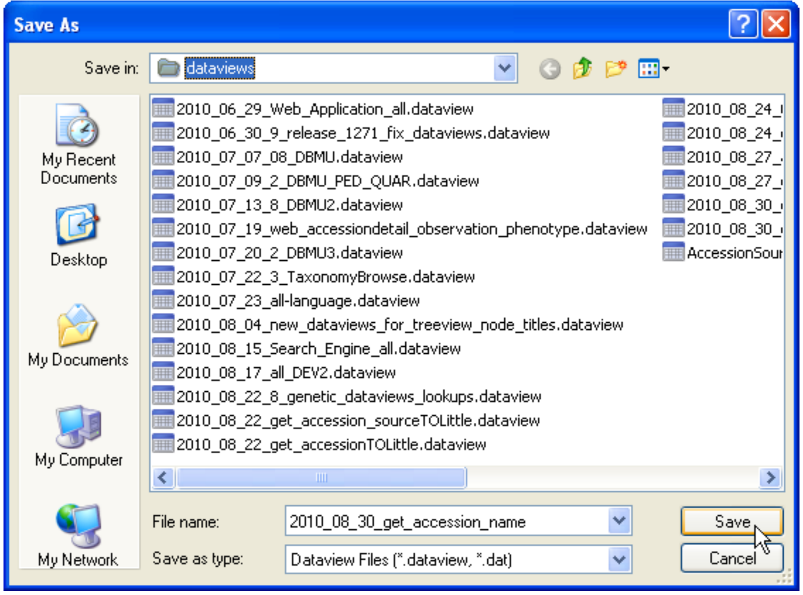
To export dataviews, right-click on either the **Dataview** node or one of the Categories below the Dataview node; select **Export All…** from the context menu.



If you are exporting a single dataview only, highlight the dataview name, right-click, and select **Export…** from the menu:



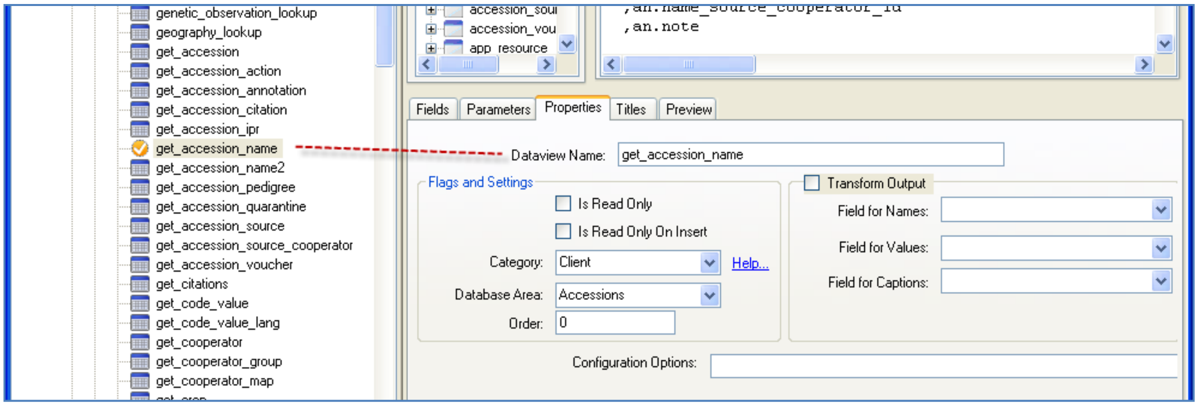
The suggested filename for the dataview will include the current date as the prefix as well as the dataview's name that was assigned to the dataview on the **Properties** tab.


Save As
My Recent Documents
Desktop
My Documents
My Computer
My Network
2010_06_29_Web_Application_all.dataview
2010_06_30_9_release_1271_fix_dataviews.dataview
2010_07_07_08_DBMU.dataview
2010_07_09_2_DBMU_PED_QUAR.dataview
2010_07_13_8_DBMU2.dataview
2010_07_19_web_accessiondetail_observation_phenotype.dataview
2010_07_20_2_DBMU3.dataview
2010_07_22_3_TaxonomyBrowse.dataview
2010_07_23_all-language.dataview
2010_08_04_new_dataviews_for_treeview_node_titles.dataview
2010_08_15_Search_Engine_all.dataview
2010_08_17_all_DEV2.dataview
2010_08_22_8_genetic_dataviews_lookups.dataview
2010_08_22_get_accession_sourceTOLittle.dataview
2010_08_22_get_accessionTOLittle.dataview
2010_08_24_
2010_08_24_
2010_08_27_
2010_08_27_
2010_08_30_
2010_08_30_
AccessionSour
Save
Cancel

Save in: dataviews

File name: 2010_08_30_get_accession_name

Save as type: Dataview Files (*.dataview, *.dat)



Dataview Name: get_accession_name

☐ Is Read Only

☐ Is Read Only On Insert

Category: Client

Database Area: Accessions

Order: 0

☐ Transform Output

Field for Names:

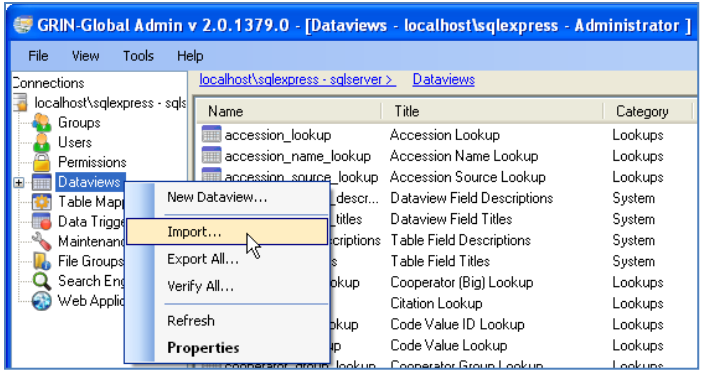
Field for Values:

Field for Captions:

Tip: To select multiple dataviews, use **Ctrl** or **Shift** as needed.

Importing Dataviews

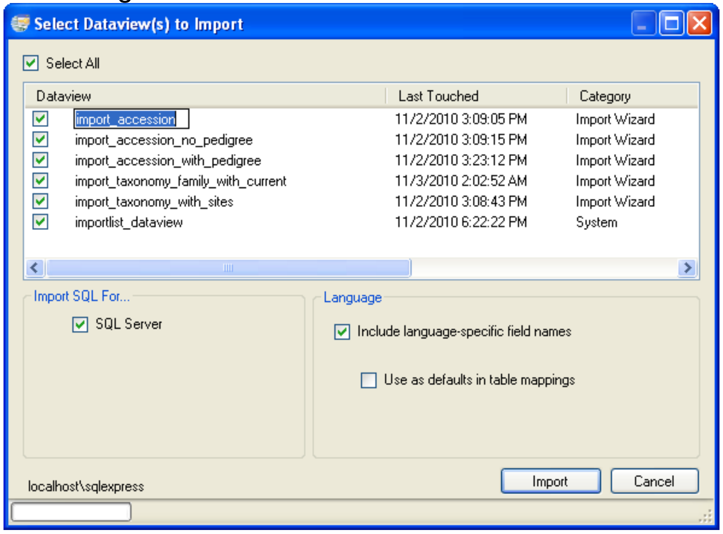
When importing dataviews, you may be either importing just a single dataview or multiple dataviews in the Admin Tool, select **Dataviews**; right-click and select **Import…**



Name	Title	Category
accession_lookup	Accession Lookup	Lookups
accession_name_lookup	Accession Name Lookup	Lookups
accession_source_lookup	Accession Source Lookup	Lookups
_descr...	Dataview Field Descriptions	System
_titles	Dataview Field Titles	System
criptions	Table Field Descriptions	System
s	Table Field Titles	System
okup	Cooperator (Big) Lookup	Lookups
	Citation Lookup	Lookups
kup	Code Value ID Lookup	Lookups
p	Code Value Lookup	Lookups
cooperator_group_lookup	Cooperator Group Lookup	Lookups

Importing a Dataview File Containing Multiple Dataviews

Some **.dataview** files will contain multiple dataviews. The following example illustrates one file containing six dataviews:



☑ Select All

	Dataview	Last Touched	Category
☑	import_accession	11/2/2010 3:09:05 PM	Import Wizard
☑	import_accession_no_pedigree	11/2/2010 3:09:15 PM	Import Wizard
☑	import_accession_with_pedigree	11/2/2010 3:23:12 PM	Import Wizard
☑	import_taxonomy_family_with_current	11/3/2010 2:02:52 AM	Import Wizard
☑	import_taxonomy_with_sites	11/2/2010 3:08:43 PM	Import Wizard
☑	importlist_dataview	11/2/2010 6:22:22 PM	System

☑ SQL Server

☑ Include language-specific field names

☐ Use as defaults in table mappings

localhost\sqlexpress

When importing, when appropriate, use **F2** to edit/rename the dataview name. By doing so, you can avoid overlaying an existing dataview name.

Language Checkboxes

As background, there are “friendly” names defined at two levels: at the *table*/field level and at the *dataview*/field level. The table/field friendly name is used as the default friendly name whenever a new dataview is created. For example, any dataview that points to accession.accession_id will automatically receive “Accession ID” for its English friendly name.

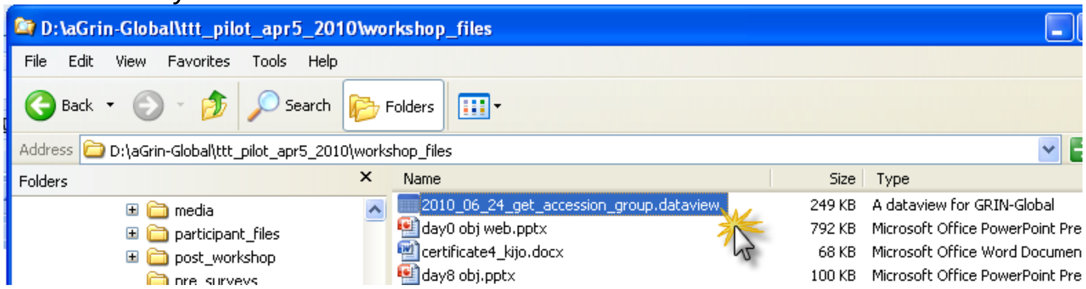
However, the person editing a dataview can change the friendly name to “'ACID” if desired and “ACID” will be stored as the friendly name used within that dataview. However, if another user creates a different dataview which also points to accession.accession_id, by default the field will be “Accession ID,” not “ACID.”

Why the duplication? The table/field friendly name is a “fallback” if nothing is specified at the dataview/field level. Almost all of the GRIN-Global dataviews currently use table/field as the friendly name source, so when we change the field’s name essentially all dataviews are updated at the same time. The dataview editor compares the friendly name the user entered for each field, and if it matches exactly what's in the table/field friendly name, it writes nothing (so the table/field one is actually used).

Selecting the “**Include language-specific field names”** checkbox pulls in the “friendly” names you see in columns in the Curator Tool. When unchecked, it will skip them (so a user can pull in a new dataview definition without overlaying their own “friendly” names.)

Selecting the “**Use as defaults in table mappings**” checkbox will write the table-level “friendly” name for each field. That is, the Admin Tool updates the default friendly name for any dataview which points at the field(s), not just the “friendly” name directly associated with the dataview. When unchecked, it does nothing at the table level for “friendly” names.

You can import a stored dataview when in Windows Explorer. The Admin Tool will launch when you double-click on the filename.



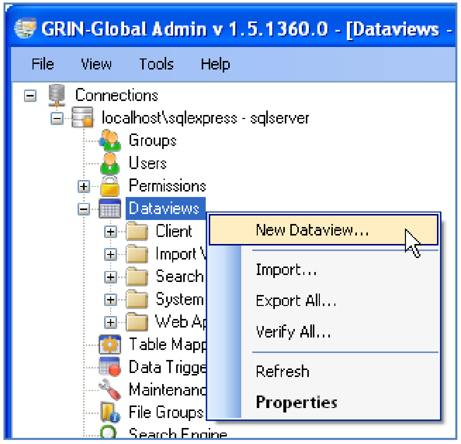
D:\aGrin-Global\ttt_pilot_apr5_2010\workshop_files

Address: D:\aGrin-Global\ttt_pilot_apr5_2010\workshop_files

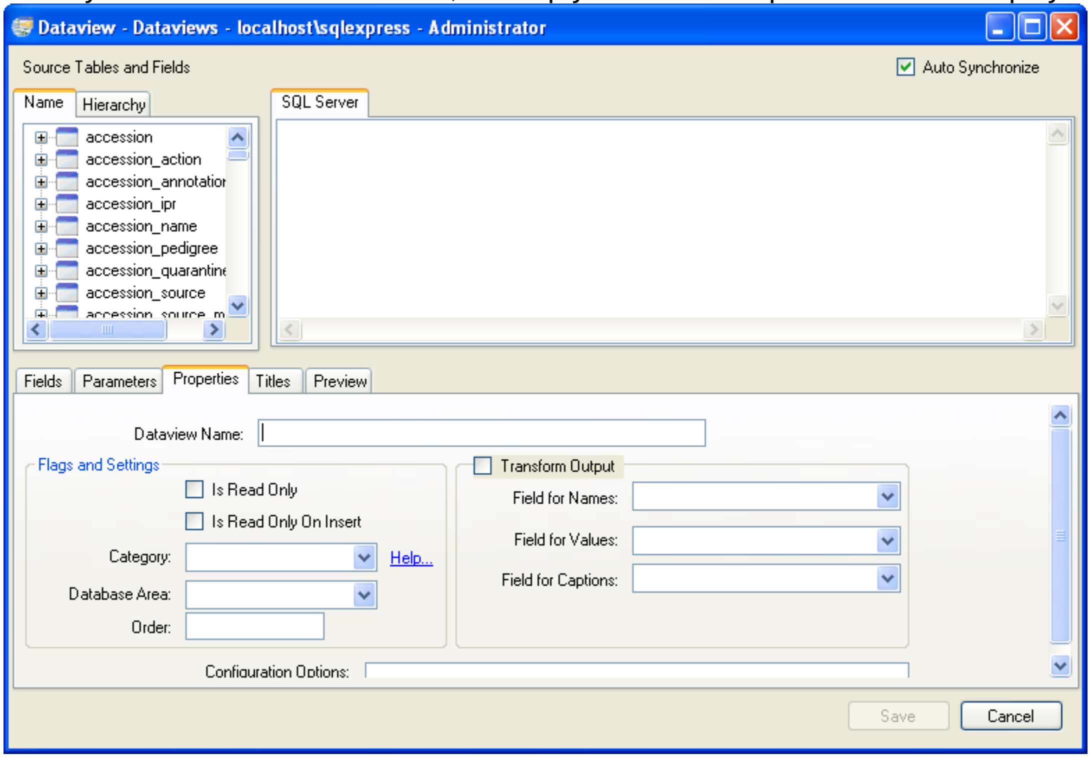
Name	Size	Type
2010_06_24_get_accession_group.dataview	249 KB	A dataview for GRIN-Global
day0 obj web.pptx	792 KB	Microsoft Office PowerPoint Pre
certificate4_kijo.docx	68 KB	Microsoft Office Word Documen
day8 obj.pptx	100 KB	Microsoft Office PowerPoint Pre

Creating New Dataviews

The recommended (and the easiest way to create a new dataview), is to copy an existing one and then edit it. However, a **New Dataview** option is available on the context menu when you right-click the **Dataviews** node.



When you select **New Dataview…**, an empty Dataview Properties window displays:



☑ Auto Synchronize

☐ Is Read Only

☐ Is Read Only On Insert

☐ Transform Output

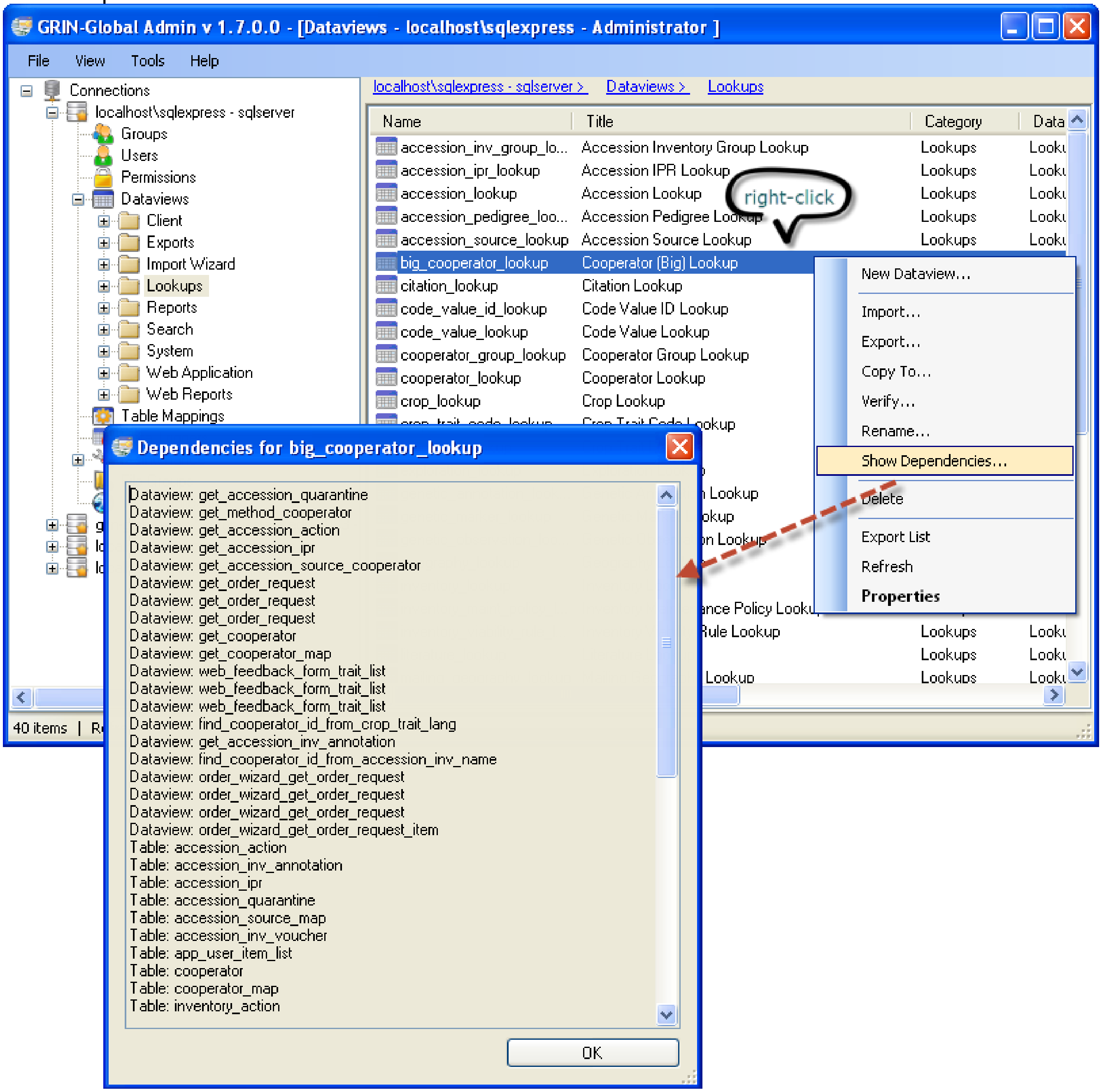
You would then proceed to complete the fields under the various tabs.

Determining Where Lookup Tables are Used

Dataview – Show Dependencies

You can determine what dataviews and tables use a lookup table by using the Show Dependencies option on the context menu.

In the AT, select **Dataviews | Lookups**. Then on the right-hand side, select the desired lookup dataview; right-click. A window will display the other dataview and tables in the schema that use this lookup table.



Name	Title	Category	Data
accession_inv_group_lo...	Accession Inventory Group Lookup	Lookups	Look
accession_ipr_lookup	Accession IPR Lookup	Lookups	Look
accession_lookup	Accession Lookup	Lookups	Look
accession_pedigree_loo...	Accession Pedigree Lookup	Lookups	Look
accession_source_lookup	Accession Source Lookup	Lookups	Look
big_cooperator_lookup	Cooperator (Big) Lookup		
citation_lookup	Citation Lookup		
code_value_id_lookup	Code Value ID Lookup		
code_value_lookup	Code Value Lookup		
cooperator_group_lookup	Cooperator Group Lookup		
cooperator_lookup	Cooperator Lookup		
crop_lookup	Crop Lookup		

Dataview: get_accession_quarantine
Dataview: get_method_cooperator
Dataview: get_accession_action
Dataview: get_accession_ipr
Dataview: get_accession_source_cooperator
Dataview: get_order_request
Dataview: get_order_request
Dataview: get_order_request
Dataview: get_cooperator
Dataview: get_cooperator_map
Dataview: web_feedback_form_trait_list
Dataview: web_feedback_form_trait_list
Dataview: web_feedback_form_trait_list
Dataview: find_cooperator_id_from_crop_trait_lang
Dataview: get_accession_inv_annotation
Dataview: find_cooperator_id_from_accession_inv_name
Dataview: order_wizard_get_order_request
Dataview: order_wizard_get_order_request
Dataview: order_wizard_get_order_request
Dataview: order_wizard_get_order_request_item
Table: accession_action
Table: accession_inv_annotation
Table: accession_ipr
Table: accession_quarantine
Table: accession_source_map
Table: accession_inv_voucher
Table: app_user_item_list
Table: cooperator
Table: cooperator_map
Table: inventory_action

Table Mappings

Table Mappings Overview

Table mappings are used by dataviews to associate a dataview field to a table field for the purposes of showing friendly column names, allowing updates, etc. The dataview editor, as well as the middle tier, associate dataview fields with specific table/fields in the database. This association makes possible the updating of the table field via the dataview.

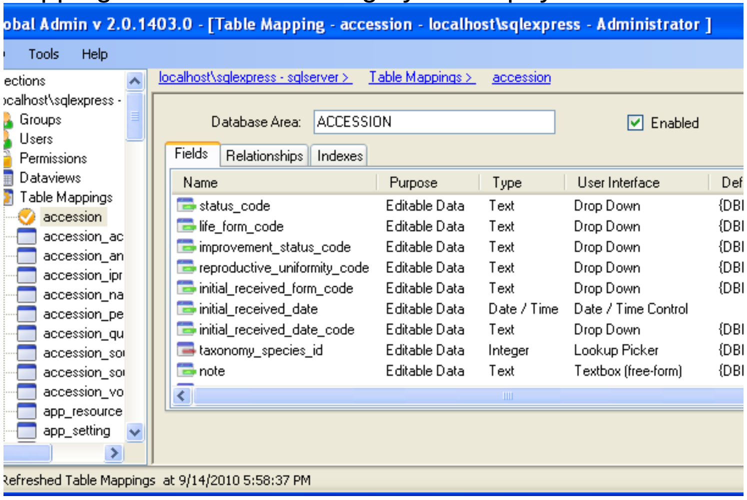
Since each database engine (SQL Server, My SQL, Oracle, PostgreSQL) stores information about its tables, constraints, foreign keys, and indexes differently, Table Mappings is a GRIN-Global utility which overcomes these individual differences and provides a common tool for the administrator.

Table and column Information, the “table mappings,” are required for every INSERT, UPDATE, or DELETE SQL statement issued to the database engine so that validation can be performed for data typing, maximum length, etc. Since these table mappings are costly to retrieve in real time with some of the database engines, part of the GRIN-Global database schema includes a place to cache table mapping information. These table mappings serve the following purposes:

Purpose	Description
Data Updatability	A field in a dataview must correspond to a given table mapping for that field to be updatable
Security	A permission that restricts down to the row level uses table mappings to specify the rows to which the permission apply
Language Information	Language-specific Title and Description values are used as defaults when defining a dataview

The Concepts of “Mapped” and “Unmapped”

In the Admin Tool, when a table is selected under **Table Mappings**, the **Fields** tab lists all the “mapped” fields for the selected table. However, there may be occasions when the GRIN-Global administrator has modified the physical database tables using the database management application such as SQL Server Management Studio. After doing so, the administrator should follow that activity by using the GRIN-Global Admin Tool to review and update the table mappings to ensure the integrity of the physical database.



Database Area: ACCESSION

☑ Enabled

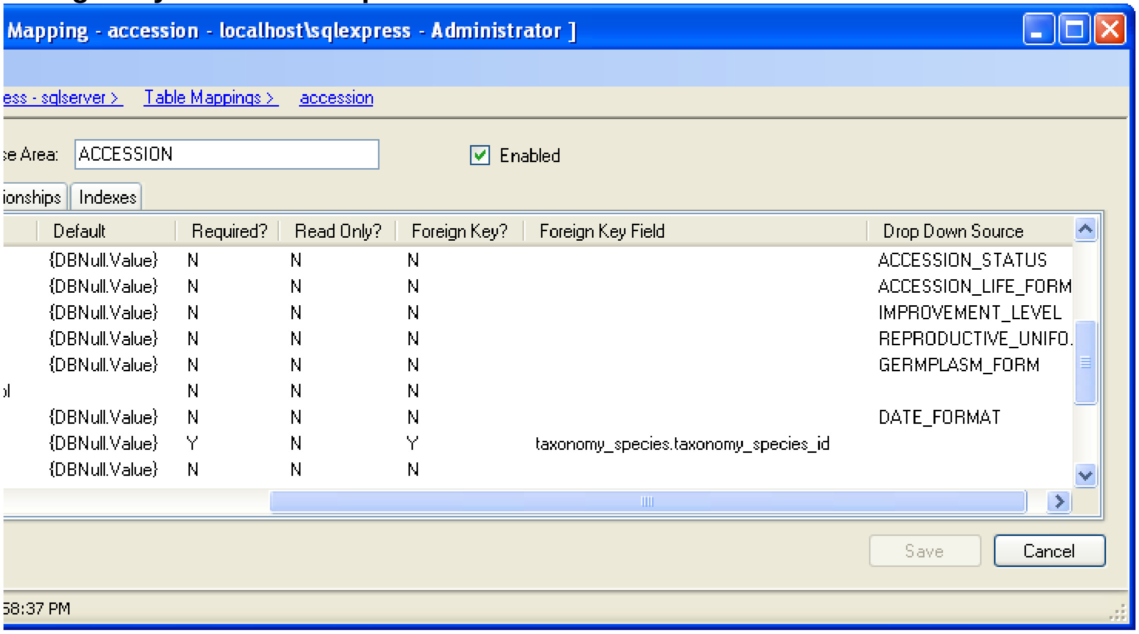
Name	Purpose	Type	User Interface	Def
status_code	Editable Data	Text	Drop Down	{DBI
life_form_code	Editable Data	Text	Drop Down	{DBI
improvement_status_code	Editable Data	Text	Drop Down	{DBI
reproductive_uniformity_code	Editable Data	Text	Drop Down	{DBI
initial_received_form_code	Editable Data	Text	Drop Down	{DBI
initial_received_date	Editable Data	Date / Time	Date / Time Control	
initial_received_date_code	Editable Data	Text	Drop Down	{DBI
taxonomy_species_id	Editable Data	Integer	Lookup Picker	{DBI
note	Editable Data	Text	Textbox (free-form)	{DBI

Refreshed Table Mappings at 9/14/2010 5:58:37 PM

(partial screen capture; the right part of this screen is shown on the next page)

Typically, this list will match exactly the fields defined in the actual database schema for the table. *Fields must be mapped if they are to be available* for updating in GRIN-Global using dataviews.

This window provides additional information not readily available from the database management tool such as SQL Server Management Studio. For instance, this window displays **Foreign Key Field** and **Drop Down Source**.



Mapping - accession - localhost\sqlexpress - Administrator]

ess - sqlserver > Table Mappings > accession

e Area: ACCESSION ☑ Enabled

ionships | Indexes

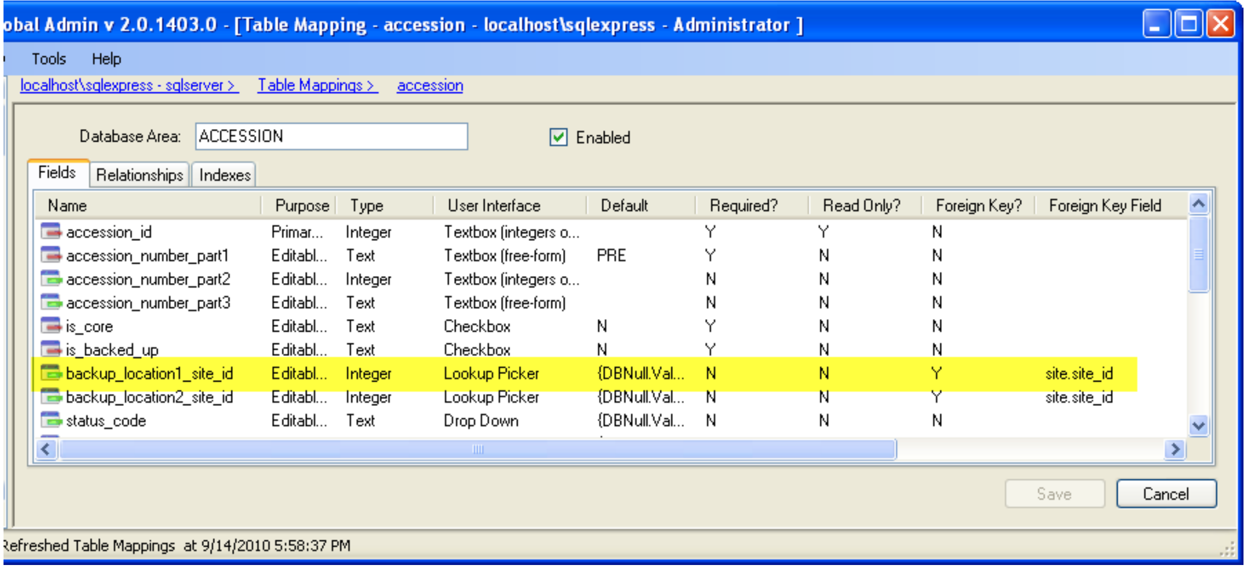
	Default	Required?	Read Only?	Foreign Key?	Foreign Key Field	Drop Down Source
	{DBNull.Value}	N	N	N		ACCESSION_STATUS
	{DBNull.Value}	N	N	N		ACCESSION_LIFE_FORM
	{DBNull.Value}	N	N	N		IMPROVEMENT_LEVEL
	{DBNull.Value}	N	N	N		REPRODUCTIVE_UNIFO.
	{DBNull.Value}	N	N	N		GERMPLASM_FORM
l		N	N	N		
	{DBNull.Value}	N	N	N		DATE_FORMAT
	{DBNull.Value}	Y	N	Y	taxonomy_species.taxonomy_species_id	
	{DBNull.Value}	N	N	N		

Save | Cancel

58:37 PM

(The Curator Tool uses this information to determine which dataview to run when displaying a dropdown, data for the LookupPicker, etc.)

For example, in the screen shown below, the Accession dataview was selected. When the Curator Tool user edits the **backup_location1_site_id** field, a lookup picker window will display the **site_id** field from the site table (**site.site_id**.)



obal Admin v 2.0.1403.0 - [Table Mapping - accession - localhost\sqlexpress - Administrator]

Tools Help

localhost\sqlexpress - sqlserver > Table Mappings > accession

Database Area: ACCESSION ☑ Enabled

Fields | Relationships | Indexes

Name	Purpose	Type	User Interface	Default	Required?	Read Only?	Foreign Key?	Foreign Key Field
accession_id	Primar...	Integer	Textbox (integers o...		Y	Y	N	
accession_number_part1	Editabl...	Text	Textbox (free-form)	PRE	Y	N	N	
accession_number_part2	Editabl...	Integer	Textbox (integers o...		N	N	N	
accession_number_part3	Editabl...	Text	Textbox (free-form)		N	N	N	
is_core	Editabl...	Text	Checkbox	N	Y	N	N	
is_backed_up	Editabl...	Text	Checkbox	N	Y	N	N	
backup_location1_site_id	Editabl...	Integer	Lookup Picker	{DBNull.Val...	N	N	Y	site.site_id
backup_location2_site_id	Editabl...	Integer	Lookup Picker	{DBNull.Val...	N	N	Y	site.site_id
status_code	Editabl...	Text	Drop Down	{DBNull.Val...	N	N	N	

Save | Cancel

Refreshed Table Mappings at 9/14/2010 5:58:37 PM

Table Mappings

In the Admin Tool, right-click on **Table Mappings** to display its context menu.

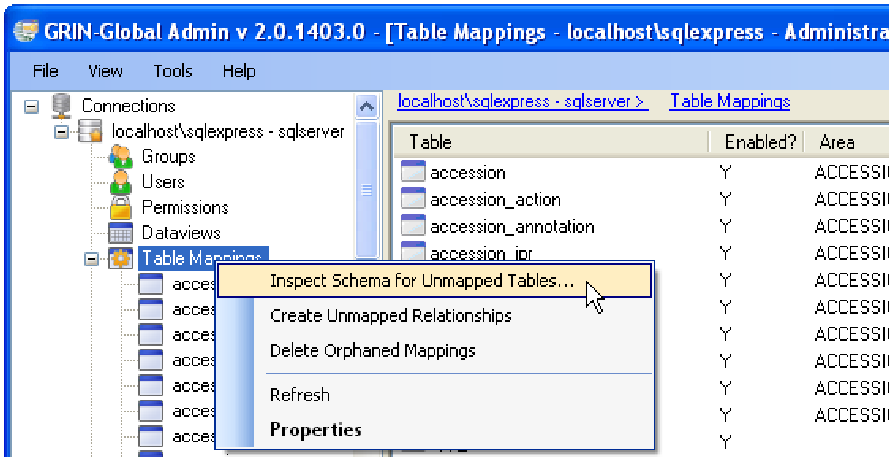

GRIN-Global Admin v 2.0.1403.0 - [Table Mappings - localhost\sqlexpress - Administra
File
View
Tools
Help
Connections
localhost\sqlexpress - sqlserver
Groups
Users
Permissions
Dataviews
Table Mappings
localhost\sqlexpress - sqlserver >
Table Mappings
Inspect Schema for Unmapped Tables...
Create Unmapped Relationships
Delete Orphaned Mappings
Refresh
Properties

Table	Enabled?	Area
accession	Y	ACCESSI
accession_action	Y	ACCESSI
accession_annotation	Y	ACCESSI
accession_ipr	Y	ACCESSI

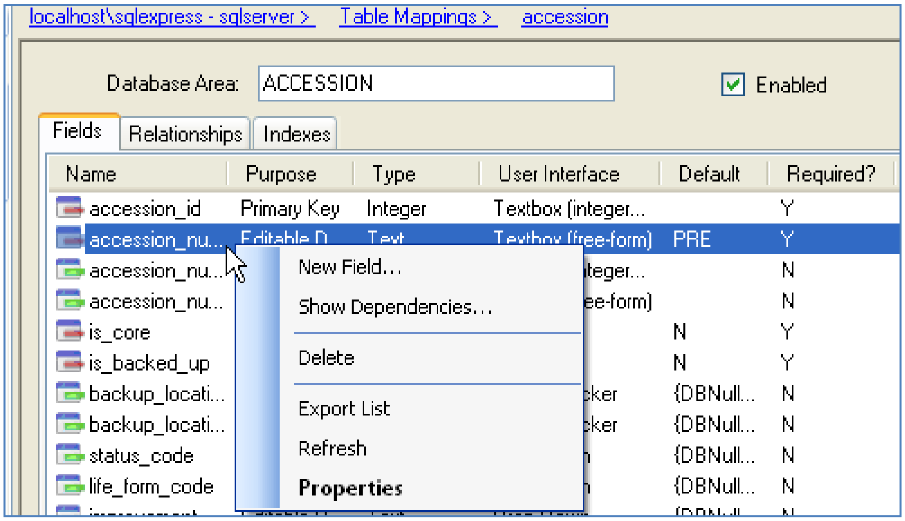
Table Mappings Node Context Menu Options

Menu Item	Description
Inspect Schema for Unmapped Tables	List all tables in the schema which are not currently mapped in Table Mappings
Create Unmapped Relationships	Use this option when a table has been modified in the database schema and has one or more relationships that have been modified, added, or removed, but which were not yet mapped in Table Mappings.
Delete Orphaned Mappings	Use this option to delete “Orphaned Mappings” – this happens when tables have been dropped from the schema, but are still mapped in Table Mappings. This will list all entries that are in Table Mappings, but which don't actually exist in the schema
Refresh	Refreshes the view in the Admin Tool with the latest data from the database.
Properties	See Refresh.

Field Context Menu Options (under Table Mapping)

Table Mappings Field Context Menu Options

Menu Item	Description
New Field…	Map a new field to GRIN-Global
Show Dependencies…	Displays a list of all instances where the field is referenced in dataviews
Delete	Deletes the field’s table mapping information
Export List	Generates a .csv file of the table mappings
Refresh	Ensures the display is current
Properties	See Table Mappings: Field Detail Window



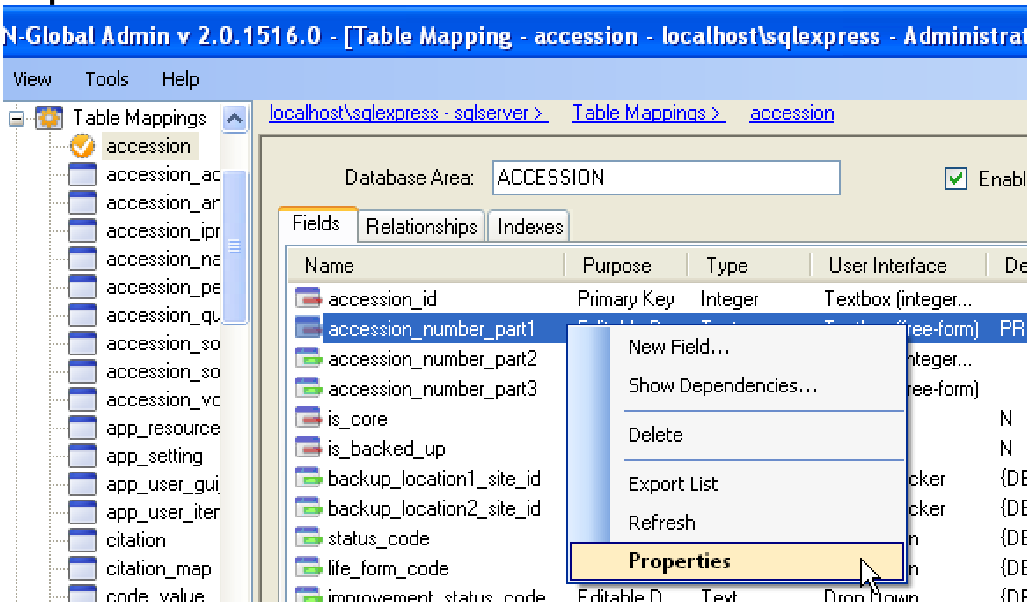
localhost\sqlexpress - sqlserver > Table Mappings > accession

Database Area: ACCESSION ☑ Enabled

Name	Purpose	Type	User Interface	Default	Required?
accession_id	Primary Key	Integer	Textbox (integer...		Y
accession_nu...	Editable D	Text	Textbox (free-form)	PRE	Y
accession_nu...			teger...		N
accession_nu...			ee-form)		N
is_core				N	Y
is_backed_up				N	Y
backup_locati...			cker	{DBNull...	N
backup_locati...			cker	{DBNull...	N
status_code			n	{DBNull...	N
life_form_code			n	{DBNull...	N

Table Mappings: Field Detail Window

In GRIN-Global, you can have language-specific names at the *table*/field level in addition to the capability of having language-specific names at the *dataview*/field level. These table/field level names can serve as the friendly names and be used as defaults when creating a new dataview. In the Admin Tool, select **Table Mappings** | name of the table | field name; right-click and select **Properties**:



N-Global Admin v 2.0.1516.0 - [Table Mapping - accession - localhost\sqlexpress - Administrat

localhost\sqlexpress - sqlserver > Table Mappings > accession

Database Area: ACCESSION ☑ Enabl

Name	Purpose	Type	User Interface	De
accession_id	Primary Key	Integer	Textbox (integer...	
accession_number_part1			ree-form)	PR
accession_number_part2			nteger...	
accession_number_part3			ree-form)	
is_core				N
is_backed_up				N
backup_location1_site_id			cker	{DE
backup_location2_site_id			cker	{DE
status_code			n	{DE
life_form_code			n	{DE
improvement_status_code	Editable D	Text	Drop Down	{DE

In the **Table Mapping Field Detail** window, complete the **Titles** and optionally input **Descriptions** in the desired languages:

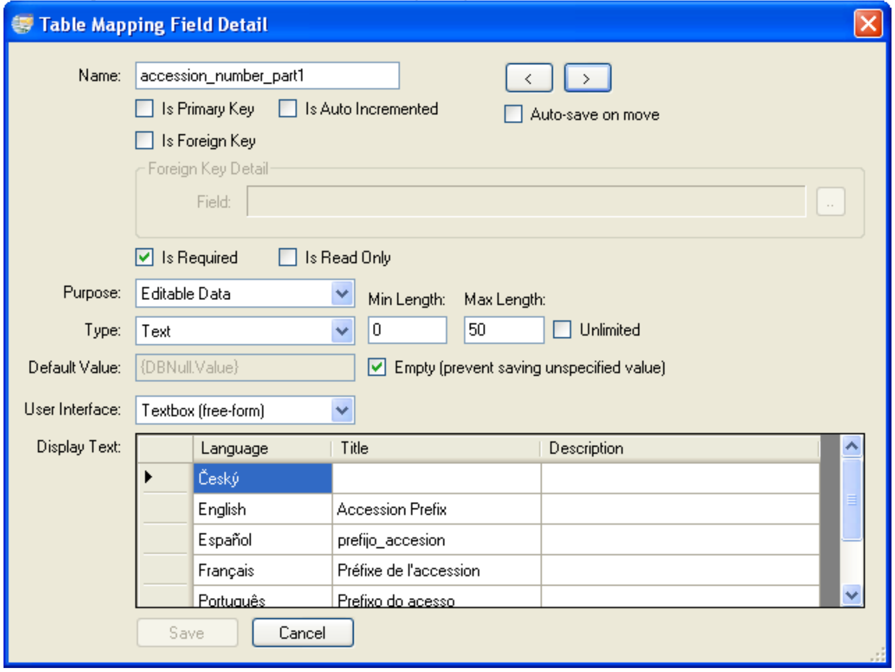


Table Mapping Field Detail

Name: accession_number_part1

□ Is Primary Key □ Is Auto Incremented

□ Is Foreign Key

□ Auto-save on move

Foreign Key Detail

Field:

☑ Is Required □ Is Read Only

Purpose: Editable Data

Type: Text

Min Length: 0

Max Length: 50

□ Unlimited

Default Value: (DBNull.Value)

☑ Empty (prevent saving unspecified value)

User Interface: Textbox (free-form)

Display Text:

Language	Title	Description
Český		
English	Accession Prefix	
Español	prefijo_accesion	
Français	Préfixe de l'accession	
Português	Prefixo do acesso	

An empty form similar to the above is displayed when **New Field…** is selected:

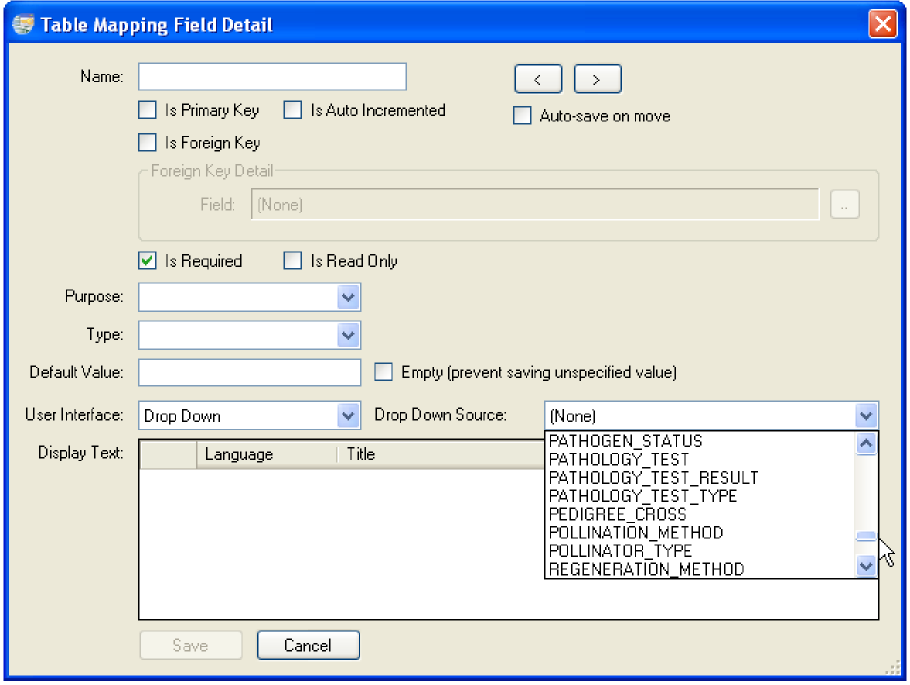


Table Mapping Field Detail

Name:

□ Is Primary Key □ Is Auto Incremented

□ Is Foreign Key

□ Auto-save on move

Foreign Key Detail

Field: (None)

☑ Is Required □ Is Read Only

Purpose:

Type:

Default Value:

□ Empty (prevent saving unspecified value)

User Interface: Drop Down

Drop Down Source: (None)

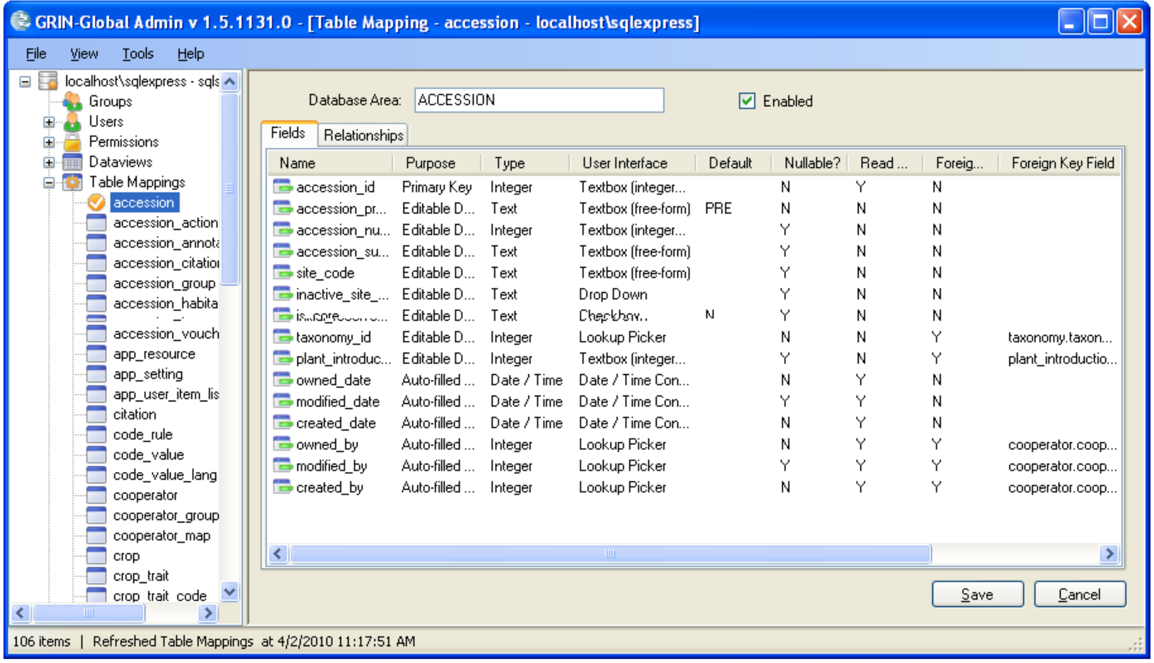
PATHOGEN_STATUS
PATHOLOGY_TEST
PATHOLOGY_TEST_RESULT
PATHOLOGY_TEST_TYPE
PEDIGREE_CROSS
POLLINATION_METHOD
POLLINATOR_TYPE
REGENERATION_METHOD

Display Text:

Language	Title

(When “Drop Down” is selected for **User Interface**, the window displays the **Drop Down Source**: option.)

The value in the “**Database Area**” textbox indicates what tables belong to each “area.”



Database Area: ACCESSION ☑ Enabled

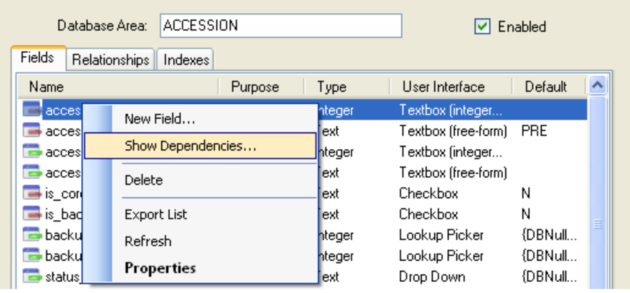
Name	Purpose	Type	User Interface	Default	Nullable?	Read ...	Foreig...	Foreign Key Field
accession_id	Primary Key	Integer	Textbox (integer...		N	Y	N	
accession_pr...	Editable D...	Text	Textbox (free-form)	PRE	N	N	N	
accession_nu...	Editable D...	Integer	Textbox (integer...		Y	N	N	
accession_su...	Editable D...	Text	Textbox (free-form)		Y	N	N	
site_code	Editable D...	Text	Textbox (free-form)		Y	N	N	
inactive_site_...	Editable D...	Text	Drop Down		Y	N	N	
is_core...	Editable D...	Text	Checkbox..	N	Y	N	N	
taxonomy_id	Editable D...	Integer	Lookup Picker		N	N	Y	taxonomy.taxon...
plant_introduc...	Editable D...	Integer	Textbox (integer...		Y	N	Y	plant_introductio...
owned_date	Auto-filled ...	Date / Time	Date / Time Con...		N	Y	N	
modified_date	Auto-filled ...	Date / Time	Date / Time Con...		Y	Y	N	
created_date	Auto-filled ...	Date / Time	Date / Time Con...		N	Y	N	
owned_by	Auto-filled ...	Integer	Lookup Picker		N	Y	Y	cooperator.coop...
modified_by	Auto-filled ...	Integer	Lookup Picker		Y	Y	Y	cooperator.coop...
created_by	Auto-filled ...	Integer	Lookup Picker		N	Y	Y	cooperator.coop...

106 items | Refreshed Table Mappings at 4/2/2010 11:17:51 AM

The “area” field in table mappings is related to the “Area” of the Search Tool. (the checkbox list on the right hand side of it). If a table is marked with an area of “INVENTORY,” selecting the “Inventory Area” checkbox in the Search Tool causes the search engine to add it to the list of areas to search in its indexes. Note that some tables do not have an “area” and therefore are never searched via the Search Tool.

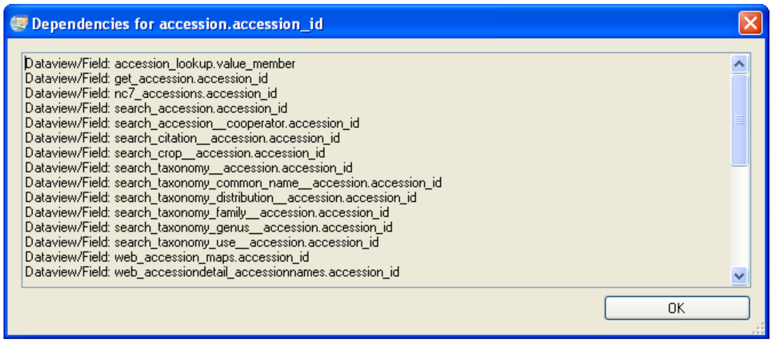
Show Dependencies

Indicates all of the field’s dependencies within the schema:



Database Area: ACCESSION ☑ Enabled

Name	Purpose	Type	User Interface	Default
acces		nteger	Textbox (integer...	
acces		ext	Textbox (free-form)	PRE
acces		nteger	Textbox (integer...	
acces		ext	Textbox (free-form)	
is_cor		ext	Checkbox	N
is_bac		ext	Checkbox	N
backu		nteger	Lookup Picker	{DBNull...
backu		nteger	Lookup Picker	{DBNull...
status		ext	Drop Down	{DBNull...



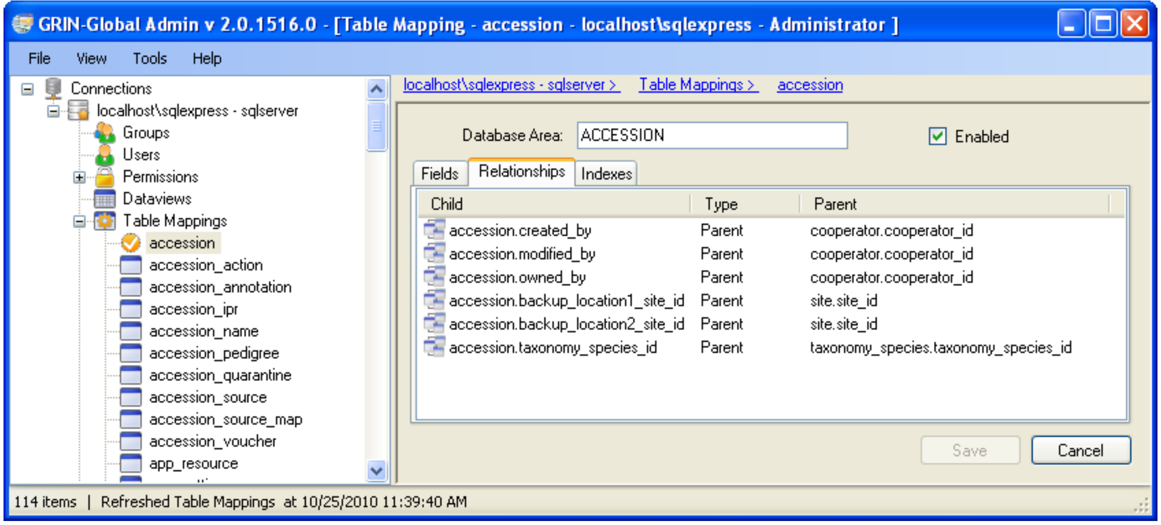
Dependencies for accession.accession_id

```
Dataview/Field: accession_lookup.value_member
Dataview/Field: get_accession.accession_id
Dataview/Field: nc7_accessions.accession_id
Dataview/Field: search_accession.accession_id
Dataview/Field: search_accession__cooperator.accession_id
Dataview/Field: search_citation__accession.accession_id
Dataview/Field: search_crop__accession.accession_id
Dataview/Field: search_taxonomy__accession.accession_id
Dataview/Field: search_taxonomy_common_name__accession.accession_id
Dataview/Field: search_taxonomy_distribution__accession.accession_id
Dataview/Field: search_taxonomy_family__accession.accession_id
Dataview/Field: search_taxonomy_genus__accession.accession_id
Dataview/Field: search_taxonomy_use__accession.accession_id
Dataview/Field: web_accession_maps.accession_id
Dataview/Field: web_accessiondetail_accessionnames.accession_id
```

Table Mappings | Relationships

Similar to the way in which GRIN-Global stores information about fields, GRIN-Global also stores information about the relationships for a table. This information is used by the dataview editor to determine how to automatically generate SQL when a table or field is dragged onto the SQL pane.

It is also used by the middle tier to determine ownership of a database record when a new record is created. When a relationship exists with a relationship type of “OWNER_PARENT,” the record in the child table is also owned by the owner of the parent record. In all other relationships, the middle tier uses the current user as the owner.



Database Area: ACCESSION

☑ Enabled

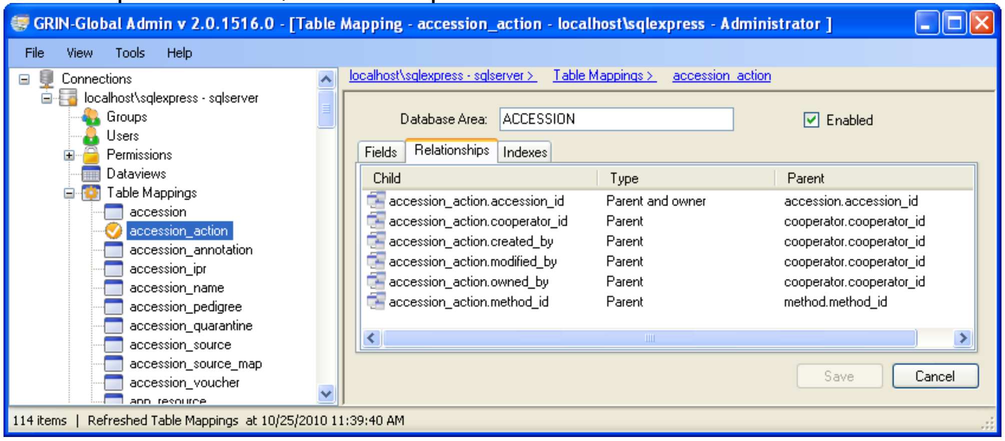
Child	Type	Parent
accession.created_by	Parent	cooperator.cooperator_id
accession.modified_by	Parent	cooperator.cooperator_id
accession.owned_by	Parent	cooperator.cooperator_id
accession.backup_location1_site_id	Parent	site.site_id
accession.backup_location2_site_id	Parent	site.site_id
accession.taxonomy_species_id	Parent	taxonomy_species.taxonomy_species_id

114 items | Refreshed Table Mappings at 10/25/2010 11:39:40 AM

Example

By default, whoever creates a record is the owner.

In the Admin Tool, relationships are mapped between dataviews. For instance, there is a relationship from accession_action to accession with the Relationship Type defined as "Parent and owner." This means if someone creates a record in accession_action, the owner will be marked the same as the owner of the parent record (the accession record's owner). If there are no relationships of "Parent and owner," then the record creator is the owner. So when doing ownership calculation, relationships *are* taken into consideration.



Database Area: ACCESSION

☑ Enabled

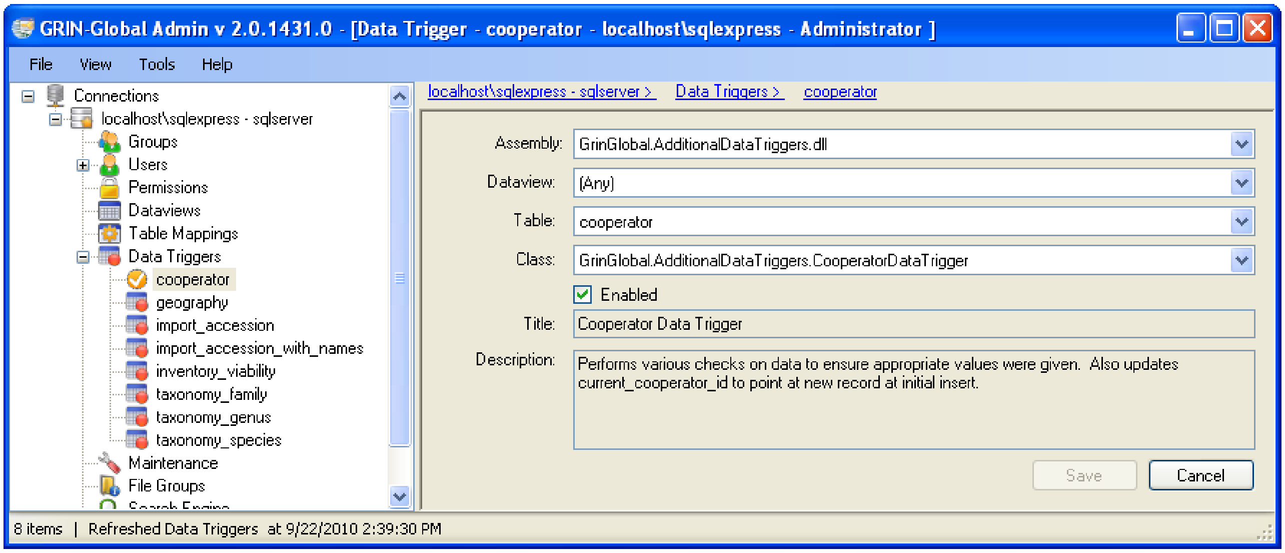
Child	Type	Parent
accession_action.accession_id	Parent and owner	accession.accession_id
accession_action.cooperator_id	Parent	cooperator.cooperator_id
accession_action.created_by	Parent	cooperator.cooperator_id
accession_action.modified_by	Parent	cooperator.cooperator_id
accession_action.owned_by	Parent	cooperator.cooperator_id
accession_action.method_id	Parent	method.method_id

114 items | Refreshed Table Mappings at 10/25/2010 11:39:40 AM

Data Triggers

A “data trigger” is a mechanism for developers to tap into the middle tier data pipeline (used for reading and writing data) and add custom business logic. Since each genebank may have different sets of rules, this was the most flexible and database engine-independent approach.

By implementing one of the specific interfaces (in GrinGlobal.Interface.DataTriggers namespace of the GrinGlobal.Interface.dll), and associating that “.dll” file with a specific dataview or table, custom business logic can be added without knowing any other GRIN-Global middle tier details. (A “.dll,” is also known as an executable file.)


GRIN-Global Admin v 2.0.1431.0 - [Data Trigger - cooperator - localhost\sqlexpress - Administrator]

localhost\sqlexpress - sqlserver > Data Triggers > cooperator

Assembly: GrinGlobal.AdditionalDataTriggers.dll

Dataview: (Any)

Table: cooperator

Class: GrinGlobal.AdditionalDataTriggers.CooperatorDataTrigger

☑ Enabled

Title: Cooperator Data Trigger

Description: Performs various checks on data to ensure appropriate values were given. Also updates current_cooperator_id to point at new record at initial insert.

8 items | Refreshed Data Triggers at 9/22/2010 2:39:30 PM

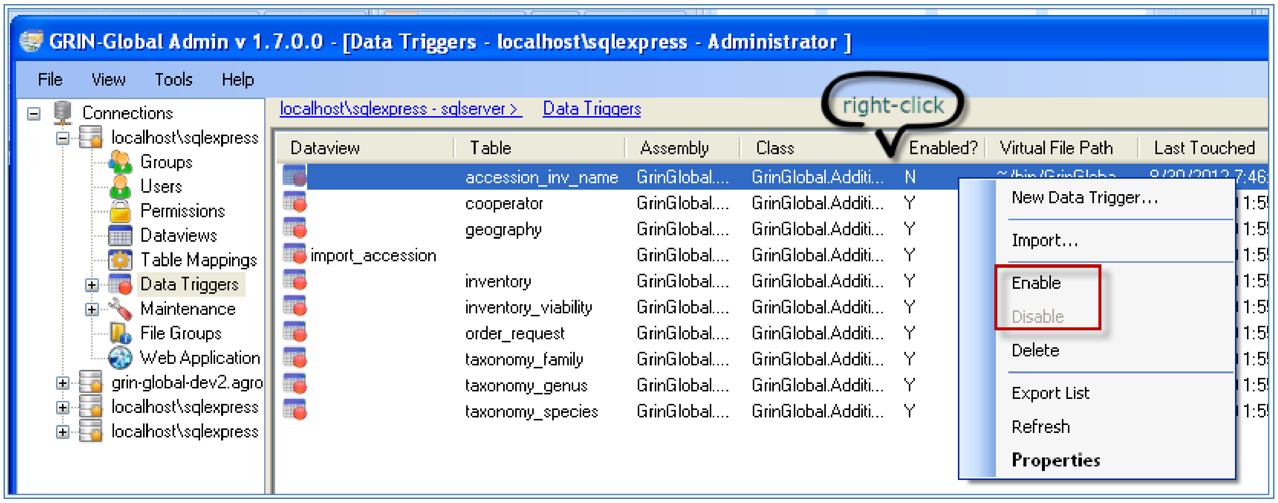
The following example illustrates how you can use this feature:

When saving cooperator information, there is business logic that states the first name and last name should be in “proper case.” “**Lutherville Maryland,”** as shown here, is in proper case**.** Using proper case is not necessarily universal. Some genebanks may prefer to use all capital letters. In order to implement special cases such as this, you can use a data trigger to run custom code. If a genebank wants their first name and last name to display in all caps, such as “**LUTHERVILLE MARYLAND**,” the genebank or the GRIN-Global support team could create a different assembly file. This custom logic would be easier to implement this way rather than changing the main body of code.

Note

A datatrigger can be made invisible to the Admin Tool. In the current version, one that comes to mind is the datatrigger established to populate inventory records from their corresponding Inventory Maintenance Policy record. The developers decided that this should be a datatrigger that would not need to be disabled since you can easily override its impact by establish Inventory Maintenance Policies that indicate how the inventory data is updated when a germplasm order is made against the inventory.

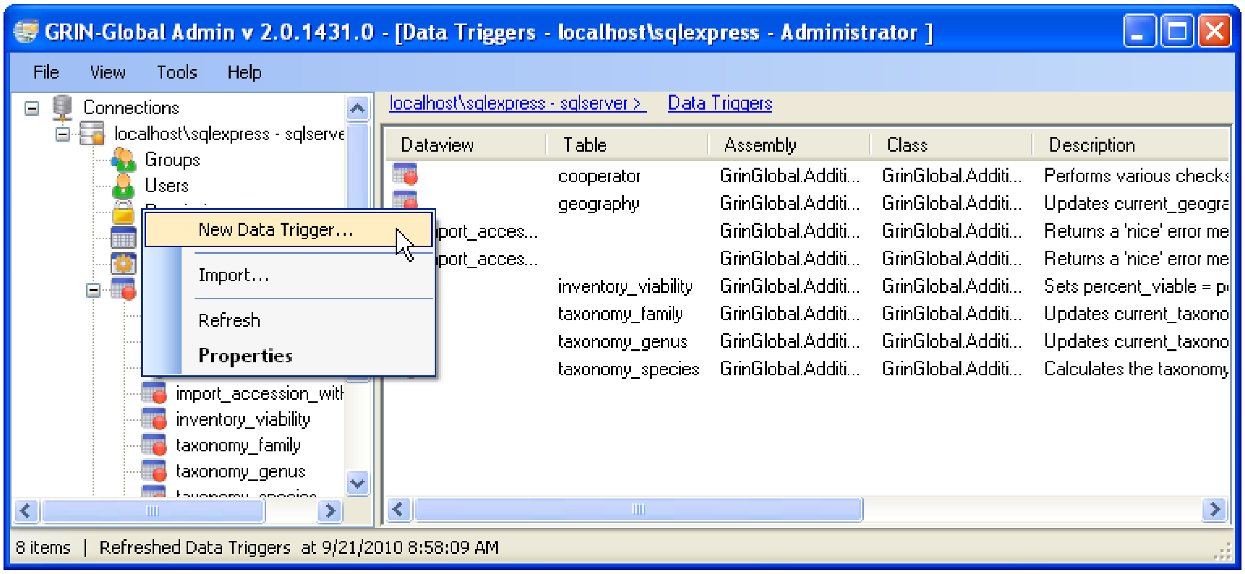
GRIN-Global is bundled with some datatriggers. In the Admin Tool, the administrator can enable or disable them.



Dataview	Table	Assembly	Class	Enabled?	Virtual File Path	Last Touched
	accession_inv_name	GrinGlobal....	GrinGlobal.Additi...	N	~/bin/GrinGloba...	8/20/2012 7:46
	cooperator	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	geography	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
import_accession		GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	inventory	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	inventory_viability	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	order_request	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	taxonomy_family	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	taxonomy_genus	GrinGlobal....	GrinGlobal.Additi...	Y		1:5
	taxonomy_species	GrinGlobal....	GrinGlobal.Additi...	Y		1:5

Import Option

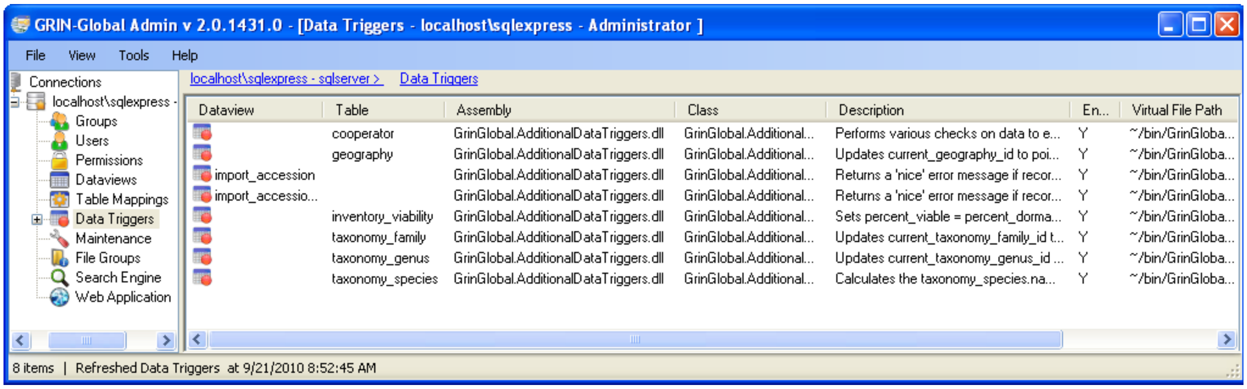
When you right-click the Data Triggers treeview node, there is an **Import** option. (There is also a similar option when you right-click the listview on the right when Data Triggers node is selected.



Dataview	Table	Assembly	Class	Description
	cooperator	GrinGlobal.Additi...	GrinGlobal.Additi...	Performs various checks
	geography	GrinGlobal.Additi...	GrinGlobal.Additi...	Updates current_geogra
port_acces...		GrinGlobal.Additi...	GrinGlobal.Additi...	Returns a 'nice' error me
port_acces...		GrinGlobal.Additi...	GrinGlobal.Additi...	Returns a 'nice' error me
	inventory_viability	GrinGlobal.Additi...	GrinGlobal.Additi...	Sets percent_viable = p
	taxonomy_family	GrinGlobal.Additi...	GrinGlobal.Additi...	Updates current_taxono
	taxonomy_genus	GrinGlobal.Additi...	GrinGlobal.Additi...	Updates current_taxono
	taxonomy_species	GrinGlobal.Additi...	GrinGlobal.Additi...	Calculates the taxonomy

8 items | Refreshed Data Triggers at 9/21/2010 8:58:09 AM

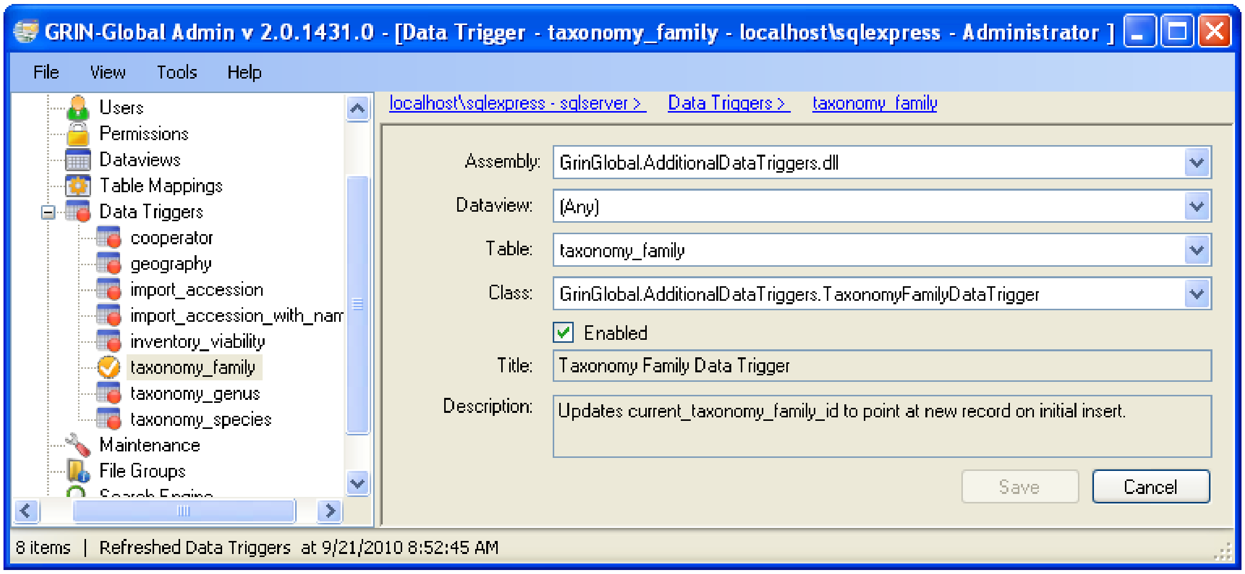
When you select the .dll from the file system a listview pops up showing what is in it. Click **Import** and all of the mappings are created.



Dataview	Table	Assembly	Class	Description	En...	Virtual File Path
	cooperator	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Performs various checks on data to e...	Y	~/bin/GrinGloba...
	geography	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Updates current_geography_id to poi...	Y	~/bin/GrinGloba...
import_accession		GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Returns a 'nice' error message if recor...	Y	~/bin/GrinGloba...
import_accessio...		GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Returns a 'nice' error message if recor...	Y	~/bin/GrinGloba...
	inventory_viability	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Sets percent_viable = percent_dorma...	Y	~/bin/GrinGloba...
	taxonomy_family	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Updates current_taxonomy_family_id t...	Y	~/bin/GrinGloba...
	taxonomy_genus	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Updates current_taxonomy_genus_id ...	Y	~/bin/GrinGloba...
	taxonomy_species	GrinGlobal.AdditionalDataTriggers.dll	GrinGlobal.Additional...	Calculates the taxonomy_species.na...	Y	~/bin/GrinGloba...

8 items | Refreshed Data Triggers at 9/21/2010 8:52:45 AM

The **Data Trigger** form supports **Title** and **Description**. The **Description** is the long verbiage that is displayed in the **Import** form, telling the Admin Tool user what that particular trigger does.



Assembly: GrinGlobal.AdditionalDataTriggers.dll

Dataview: (Any)

Table: taxonomy_family

Class: GrinGlobal.AdditionalDataTriggers.TaxonomyFamilyDataTrigger

☑ Enabled

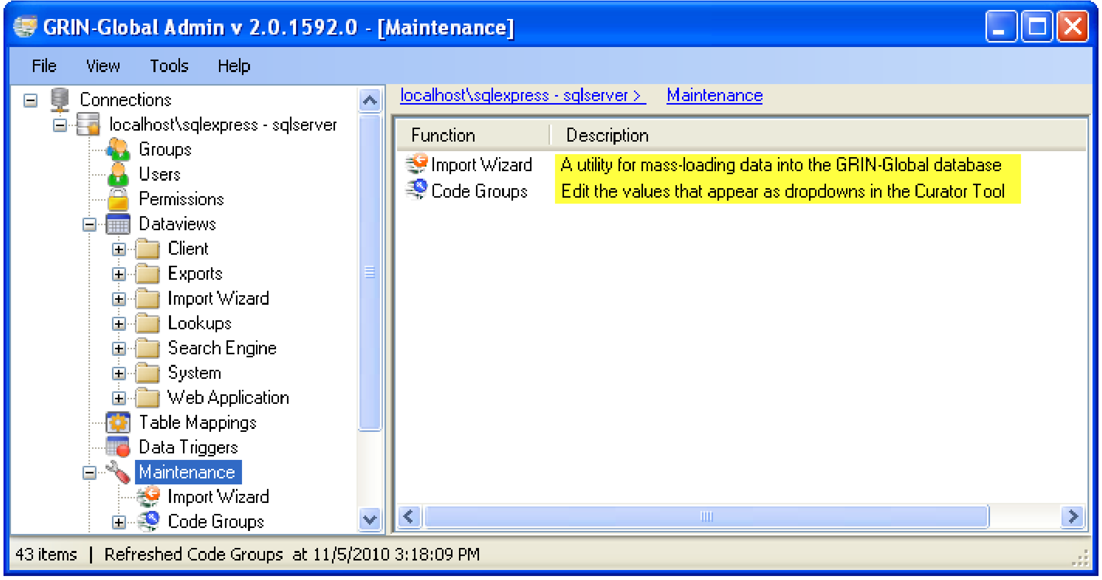
Title: Taxonomy Family Data Trigger

Description: Updates current_taxonomy_family_id to point at new record on initial insert.

8 items | Refreshed Data Triggers at 9/21/2010 8:52:45 AM

Maintenance

On the Maintenance node, there are two features: **Import Wizard** and **Code Groups**:



Function	Description
Import Wizard	A utility for mass-loading data into the GRIN-Global database
Code Groups	Edit the values that appear as dropdowns in the Curator Tool

43 items | Refreshed Code Groups at 11/5/2010 3:18:09 PM

Import Wizard

The **Import Wizard** is a utility for mass-loading data into GRIN-Global; it is explained in detail in the GRIN-Global Guide “Data Preparation Cookbook.”

Note **The IW can be helpful creating records in a test system, but at this time, it is not really suited for production work.**

Why not (for production)? Primarily for the following reasons:

- Since the Import Wizard (IW) is accessed within the Admin Tool (AT), ***it is only available to the administrator*** - while the data being uploaded is generally controlled by the Curator.

- Another disadvantage with the IW is that if you specify incorrect parent information, it will create that parent record for you. Furthermore, even when parent identifier is spelled correctly, it modifies the parent row and puts a new modified date on the row even if nothing was changed on the parent record.

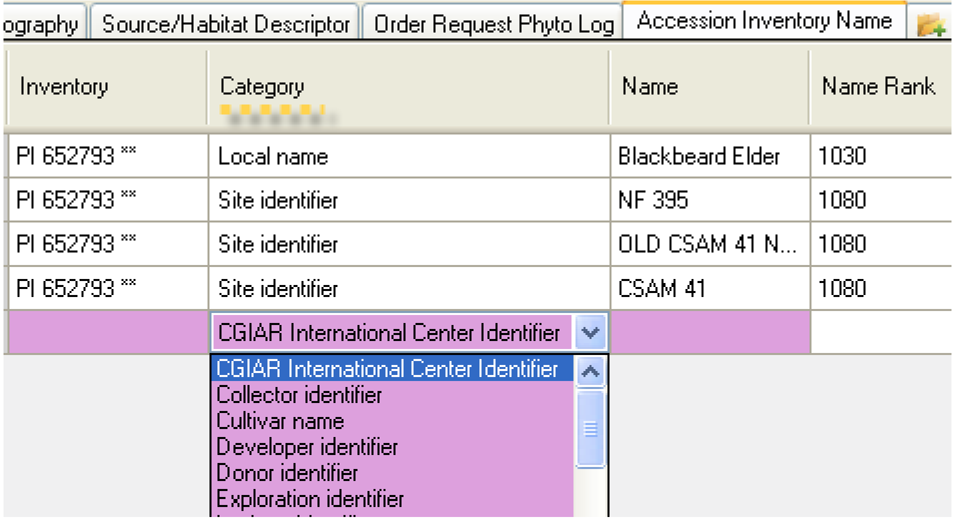
- Also, the Import Wizard code has not been updated – basically, since 2010. Most of its dataviews are old. This means that it matches the 1.0 schema, whereas most organizations will want to test newer versions.

Code Groups

Background Information

Many of the dataviews in the Curator Tool use dropdowns to assist the user in selecting a valid entry – the fields do not allow any random text data to be entered, but instead require a value from a pre-populated set of values. Various codes and data values are stored in the **Code Group** tables.

For example, the **Category** in the **Accession Inventory Name** dataview uses codes:



Inventory	Category	Name	Name Rank
PI 652793 **	Local name	Blackbeard Elder	1030
PI 652793 **	Site identifier	NF 395	1080
PI 652793 **	Site identifier	OLD CSAM 41 N...	1080
PI 652793 **	Site identifier	CSAM 41	1080
	CGIAR International Center Identifier		

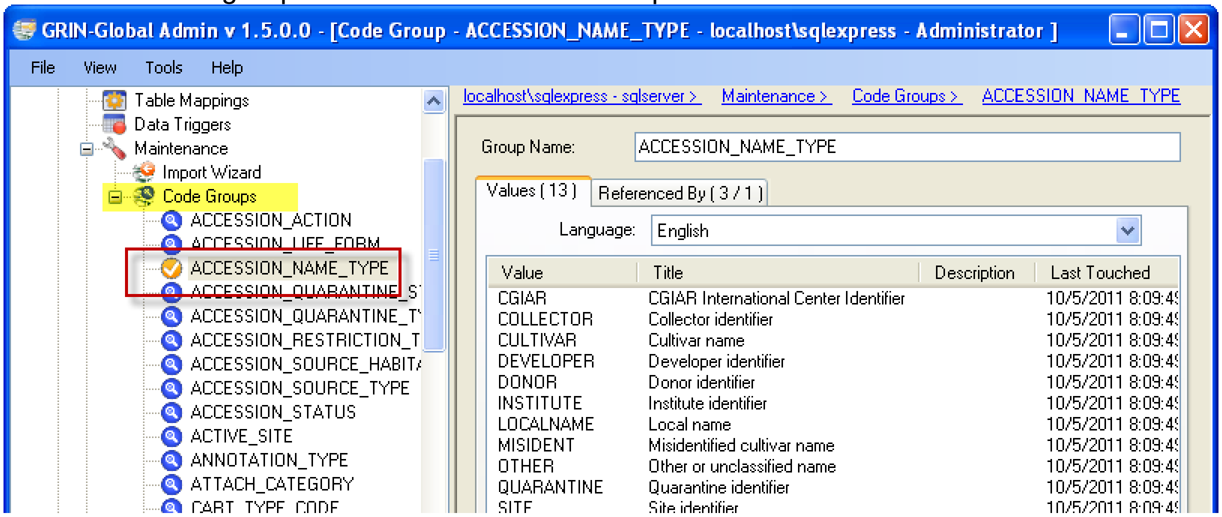
CGIAR International Center Identifier
Collector identifier
Cultivar name
Developer identifier
Donor identifier
Exploration identifier

(In the "Database Code Groups & Values GRIN-Global" section of the **Setup Guide Cookbook**, there is a detailed example illustrating how one Code Group, "IMPROVEMENT_LEVEL," is set up in the Admin Tool and then used in the Curator Tool. Directions are also included there for initially bulk-loading **Code Groups** and their **Values**, using the Import Wizard.

Code Groups Editor

After an organization has initially bulk loaded its Code Groups, it most likely will need to edit, add, or delete certain Code Groups or their Values; the Code Groups editor is the utility for doing this and performing ongoing updates of the Code Groups.

Here is the code group in the AT related to the dropdown shown in the above illustration:



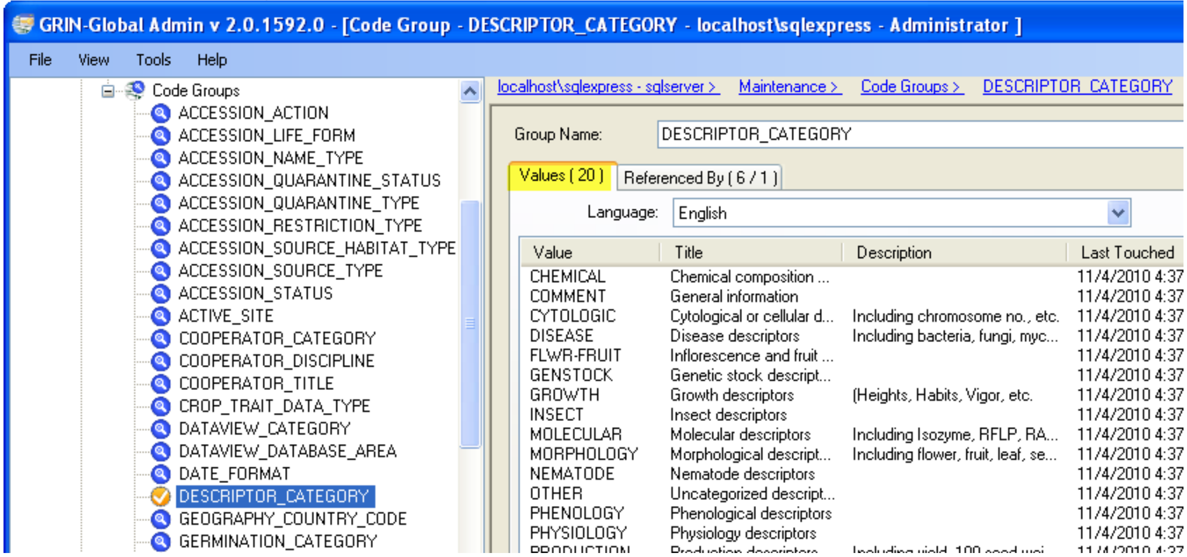
Group Name: ACCESSION_NAME_TYPE

Language: English

Value	Title	Description	Last Touched
CGIAR	CGIAR International Center Identifier		10/5/2011 8:09:4
COLLECTOR	Collector identifier		10/5/2011 8:09:4
CULTIVAR	Cultivar name		10/5/2011 8:09:4
DEVELOPER	Developer identifier		10/5/2011 8:09:4
DONOR	Donor identifier		10/5/2011 8:09:4
INSTITUTE	Institute identifier		10/5/2011 8:09:4
LOCALNAME	Local name		10/5/2011 8:09:4
MISIDENT	Misidentified cultivar name		10/5/2011 8:09:4
OTHER	Other or unclassified name		10/5/2011 8:09:4
QUARANTINE	Quarantine identifier		10/5/2011 8:09:4
SITE	Site identifier		10/5/2011 8:09:4

Note: The AT Code Groups Editor does not allow deletion of a code if it is used anywhere in the database. Another advantage to using the Editor pertains to the editing of codes; when modifying codes, all GG database records are also adjusted to correspond with the newly-edited code values. Therefore, only use the AT Code Editor to delete or edit codes.

In this example, you can see that the Code Group **DESCRIPTOR_CATEGORY** has had 20 different values assigned to it:



GRIN-Global Admin v 2.0.1592.0 - [Code Group - DESCRIPTOR_CATEGORY - localhost\sqlexpress - Administrator]

Code Groups
ACCESSION_ACTION
ACCESSION_LIFE_FORM
ACCESSION_NAME_TYPE
ACCESSION_QUARANTINE_STATUS
ACCESSION_QUARANTINE_TYPE
ACCESSION_RESTRICTION_TYPE
ACCESSION_SOURCE_HABITAT_TYPE
ACCESSION_SOURCE_TYPE
ACCESSION_STATUS
ACTIVE_SITE
COOPERATOR_CATEGORY
COOPERATOR_DISCIPLINE
COOPERATOR_TITLE
CROP_TRAIT_DATA_TYPE
DATAVIEW_CATEGORY
DATAVIEW_DATABASE_AREA
DATE_FORMAT
DESCRIPTOR_CATEGORY
GEOGRAPHY_COUNTRY_CODE
GERMINATION_CATEGORY

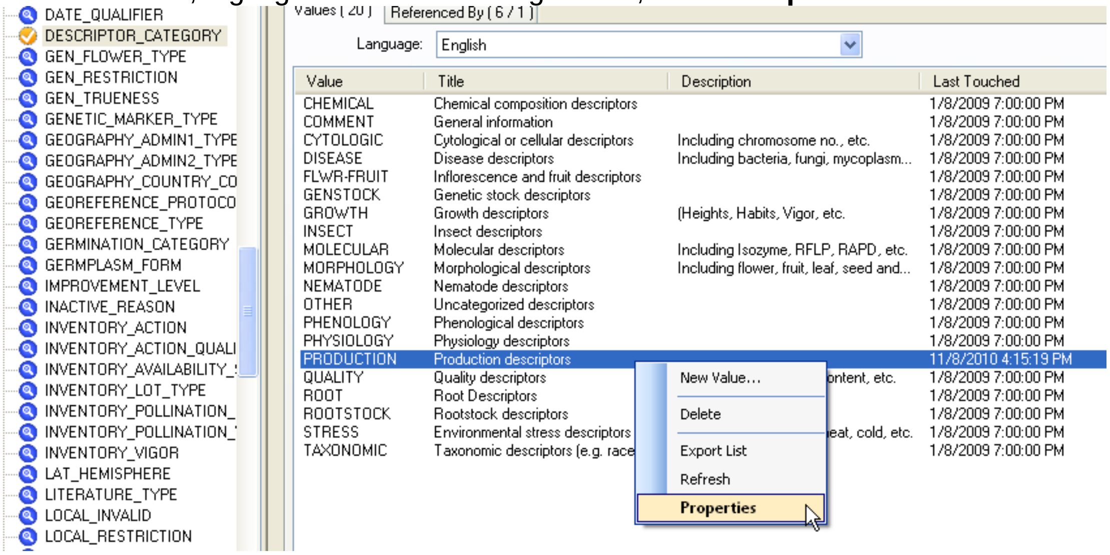
localhost\sqlexpress - sqlserver > Maintenance > Code Groups > DESCRIPTOR_CATEGORY

Group Name: DESCRIPTOR_CATEGORY

Language: English

Value	Title	Description	Last Touched
CHEMICAL	Chemical composition ...		11/4/2010 4:37
COMMENT	General information		11/4/2010 4:37
CYTOLOGIC	Cytological or cellular d...	Including chromosome no., etc.	11/4/2010 4:37
DISEASE	Disease descriptors	Including bacteria, fungi, myc...	11/4/2010 4:37
FLWR-FRUIT	Inflorescence and fruit ...		11/4/2010 4:37
GENSTOCK	Genetic stock descript...		11/4/2010 4:37
GROWTH	Growth descriptors	(Heights, Habits, Vigor, etc.	11/4/2010 4:37
INSECT	Insect descriptors		11/4/2010 4:37
MOLECULAR	Molecular descriptors	Including Isozyme, RFLP, RA...	11/4/2010 4:37
MORPHOLOGY	Morphological descript...	Including flower, fruit, leaf, se...	11/4/2010 4:37
NEMATODE	Nematode descriptors		11/4/2010 4:37
OTHER	Uncategorized descript...		11/4/2010 4:37
PHENOLOGY	Phenological descriptors		11/4/2010 4:37
PHYSIOLOGY	Physiology descriptors		11/4/2010 4:37
PRODUCTION	Production descriptors	Including yield, 100 seed wei...	11/4/2010 4:37

To edit a value, highlight the Value and right-click; select **Properties** from the menu.



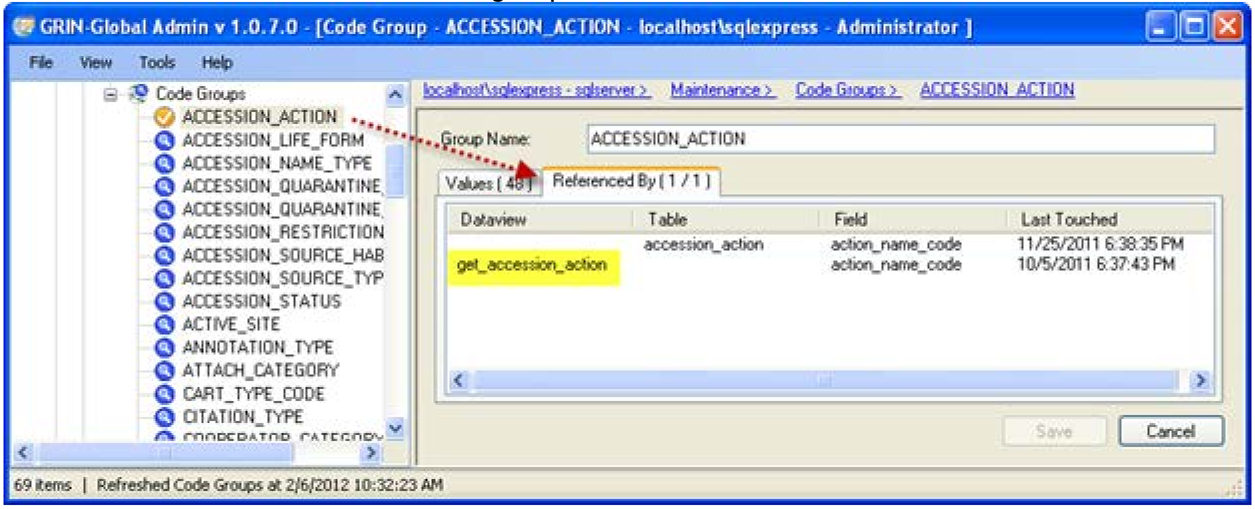
DATE_QUALIFIER
DESCRIPTOR_CATEGORY
GEN_FLOWER_TYPE
GEN_RESTRICTION
GEN_TRUENESS
GENETIC_MARKER_TYPE
GEOGRAPHY_ADMIN1_TYPE
GEOGRAPHY_ADMIN2_TYPE
GEOGRAPHY_COUNTRY_CO
GEOREFERENCE_PROTOCO
GEOREFERENCE_TYPE
GERMINATION_CATEGORY
GERMPLASM_FORM
IMPROVEMENT_LEVEL
INACTIVE_REASON
INVENTORY_ACTION
INVENTORY_ACTION_QUALI
INVENTORY_AVAILABILITY_
INVENTORY_LOT_TYPE
INVENTORY_POLLINATION_
INVENTORY_POLLINATION_
INVENTORY_VIGOR
LAT_HEMISPHERE
LITERATURE_TYPE
LOCAL_INVALID
LOCAL_RESTRICTION

Language: English

Value	Title	Description	Last Touched
CHEMICAL	Chemical composition descriptors		1/8/2009 7:00:00 PM
COMMENT	General information		1/8/2009 7:00:00 PM
CYTOLOGIC	Cytological or cellular descriptors	Including chromosome no., etc.	1/8/2009 7:00:00 PM
DISEASE	Disease descriptors	Including bacteria, fungi, mycoplasm...	1/8/2009 7:00:00 PM
FLWR-FRUIT	Inflorescence and fruit descriptors		1/8/2009 7:00:00 PM
GENSTOCK	Genetic stock descriptors		1/8/2009 7:00:00 PM
GROWTH	Growth descriptors	(Heights, Habits, Vigor, etc.	1/8/2009 7:00:00 PM
INSECT	Insect descriptors		1/8/2009 7:00:00 PM
MOLECULAR	Molecular descriptors	Including Isozyme, RFLP, RAPD, etc.	1/8/2009 7:00:00 PM
MORPHOLOGY	Morphological descriptors	Including flower, fruit, leaf, seed and...	1/8/2009 7:00:00 PM
NEMATODE	Nematode descriptors		1/8/2009 7:00:00 PM
OTHER	Uncategorized descriptors		1/8/2009 7:00:00 PM
PHENOLOGY	Phenological descriptors		1/8/2009 7:00:00 PM
PHYSIOLOGY	Physiology descriptors		1/8/2009 7:00:00 PM
PRODUCTION	Production descriptors		11/8/2010 4:15:19 PM
QUALITY	Quality descriptors	ontent, etc.	1/8/2009 7:00:00 PM
ROOT	Root Descriptors		1/8/2009 7:00:00 PM
ROOTSTOCK	Rootstock descriptors		1/8/2009 7:00:00 PM
STRESS	Environmental stress descriptors	eat, cold, etc.	1/8/2009 7:00:00 PM
TAXONOMIC	Taxonomic descriptors (e.g. race		1/8/2009 7:00:00 PM

Determining Where the Code Groups are Used

Use the Code Groups tool in the Admin Tool to review the values for each group and also to review which dataviews use the code groups:



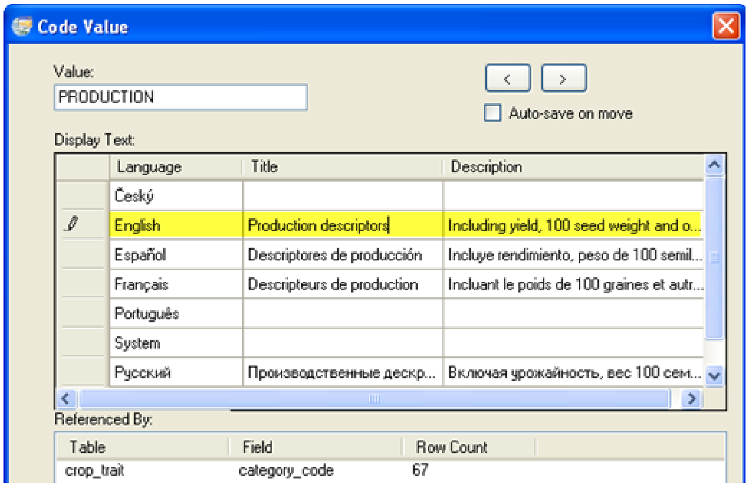
GRIN-Global Admin v 1.0.7.0 - [Code Group - ACCESSION_ACTION - localhost\sqlexpress - Administrator]

Group Name: ACCESSION_ACTION

Dataview	Table	Field	Last Touched
get_accession_action	accession_action	action_name_code	11/25/2011 6:38:35 PM
		action_name_code	10/5/2011 6:37:43 PM

69 items | Refreshed Code Groups at 2/6/2012 10:32:23 AM

In the AT, right-click on a **Code Group** name to edit the code's **Value**, **Title**, and **Description** cells. Use the right and left arrow icons on the Code Value wndow to move through the list of values; click **Save**:



Code Value

Value: PRODUCTION

☐ Auto-save on move

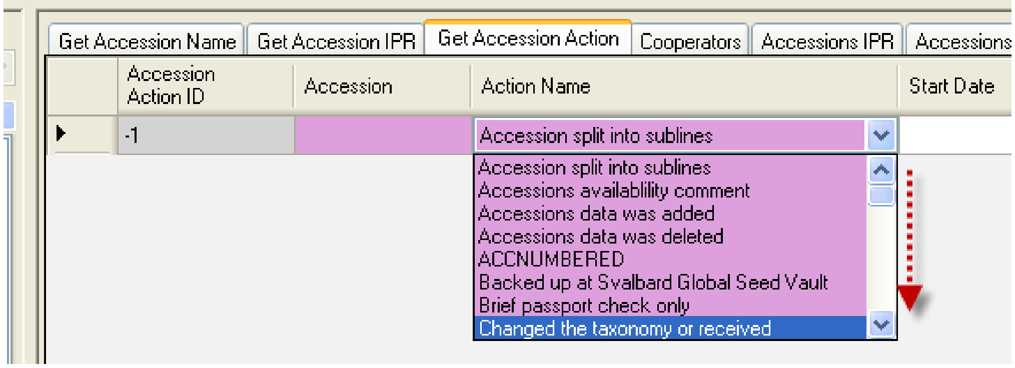
Display Text:

	Language	Title	Description
	Český		
✎	English	Production descriptors	Including yield, 100 seed weight and o...
	Español	Descriptores de producción	Incluye rendimiento, peso de 100 semil...
	Français	Descripteurs de production	Incluant le poids de 100 graines et autr...
	Português		
	System		
	Русский	Производственные дескр...	Включая урожайность, вес 100 сем...

Referenced By:

Table	Field	Row Count
crop_trait	category_code	67

In the CT, you can review how the codes are being used:



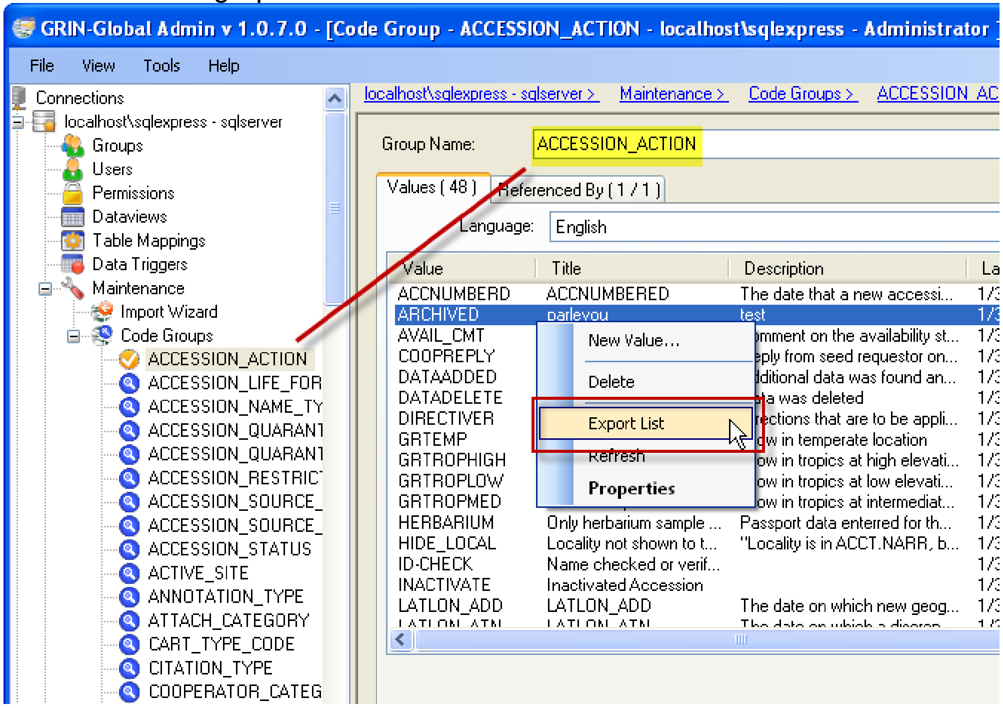
	Accession Action ID	Accession	Action Name	Start Date
▶	-1		Accession split into sublines	

Accession split into sublines
Accessions availability comment
Accessions data was added
Accessions data was deleted
ACCNUMBERED
Backed up at Svalbard Global Seed Vault
Brief passport check only
Changed the taxonomy or received

Extracting All Codes for a Specific Group Name

Use the Admin Tool Code Group Editor whenever you want to copy a complete list of code values to a spreadsheet. You can also use this technique to modify many code values at one time and then import them back into GG via the Import Wizard.

For example, **ACCESSION _ACTION**, one of the code groups, has been highlighted. The menu displayed when the user positioned the mouse in the right grid and right-clicked. Selecting the menu option **Export List** produces a comma-delimited spreadsheet (a CSV file). Refer to the next two screen graphics:

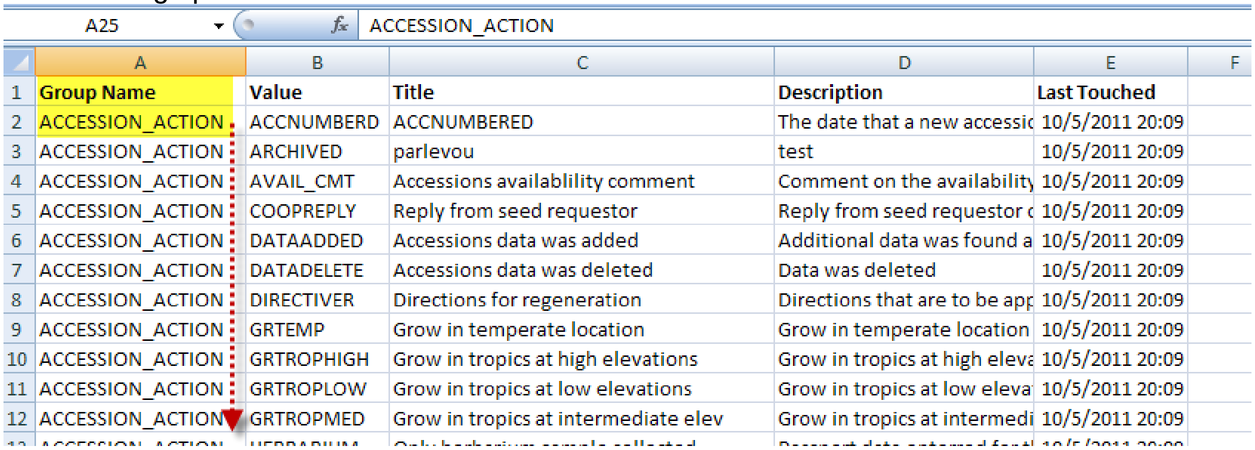


Group Name: ACCESSION_ACTION

Language: English

Value	Title	Description	La
ACCNUMBERD	ACCNUMBERED	The date that a new accessi...	1/3
ARCHIVED	parlevou	test	1/3
AVAIL_CMT		omment on the availability st...	1/3
COOPREPLY		eply from seed requestor on...	1/3
DATAADDED		dditional data was found an...	1/3
DATADELETE		a was deleted	1/3
DIRECTIVER		rections that are to be appli...	1/3
GRTEMP		ow in temperate location	1/3
GRTROPHIGH		ow in tropics at high elevati...	1/3
GRTROPLOW		ow in tropics at low elevati...	1/3
GRTROPMED		ow in tropics at intermediat...	1/3
HERBARIUM	Only herbarium sample ...	Passport data entered for th...	1/3
HIDE_LOCAL	Locality not shown to t...	"Locality is in ACCT.NARR, b...	1/3
ID-CHECK	Name checked or verif...		1/3
INACTIVATE	Inactivated Accession		1/3
LATLON_ADD	LATLON_ADD	The date on which new geog...	1/3
LATLON_ATN	LATLON_ATN	The date on which a discrep...	1/3

The resulting spreadsheet:



A25 ACCESSION_ACTION

	A	B	C	D	E	F
1	Group Name	Value	Title	Description	Last Touched	
2	ACCESSION_ACTION	ACCNUMBERD	ACCNUMBERED	The date that a new accessic	10/5/2011 20:09	
3	ACCESSION_ACTION	ARCHIVED	parlevou	test	10/5/2011 20:09	
4	ACCESSION_ACTION	AVAIL_CMT	Accessions availablility comment	Comment on the availability	10/5/2011 20:09	
5	ACCESSION_ACTION	COOPREPLY	Reply from seed requestor	Reply from seed requestor c	10/5/2011 20:09	
6	ACCESSION_ACTION	DATAADDED	Accessions data was added	Additional data was found a	10/5/2011 20:09	
7	ACCESSION_ACTION	DATADELETE	Accessions data was deleted	Data was deleted	10/5/2011 20:09	
8	ACCESSION_ACTION	DIRECTIVER	Directions for regeneration	Directions that are to be app	10/5/2011 20:09	
9	ACCESSION_ACTION	GRTEMP	Grow in temperate location	Grow in temperate location	10/5/2011 20:09	
10	ACCESSION_ACTION	GRTROPHIGH	Grow in tropics at high elevations	Grow in tropics at high eleva	10/5/2011 20:09	
11	ACCESSION_ACTION	GRTROPLOW	Grow in tropics at low elevations	Grow in tropics at low eleva	10/5/2011 20:09	
12	ACCESSION_ACTION	GRTROPMED	Grow in tropics at intermediate elev	Grow in tropics at intermedi	10/5/2011 20:09	
13	ACCESSION_ACTION	HERBARIUM	Only herbarium sample collected	Passport data entered for t	10/5/2011 20:09	

Note

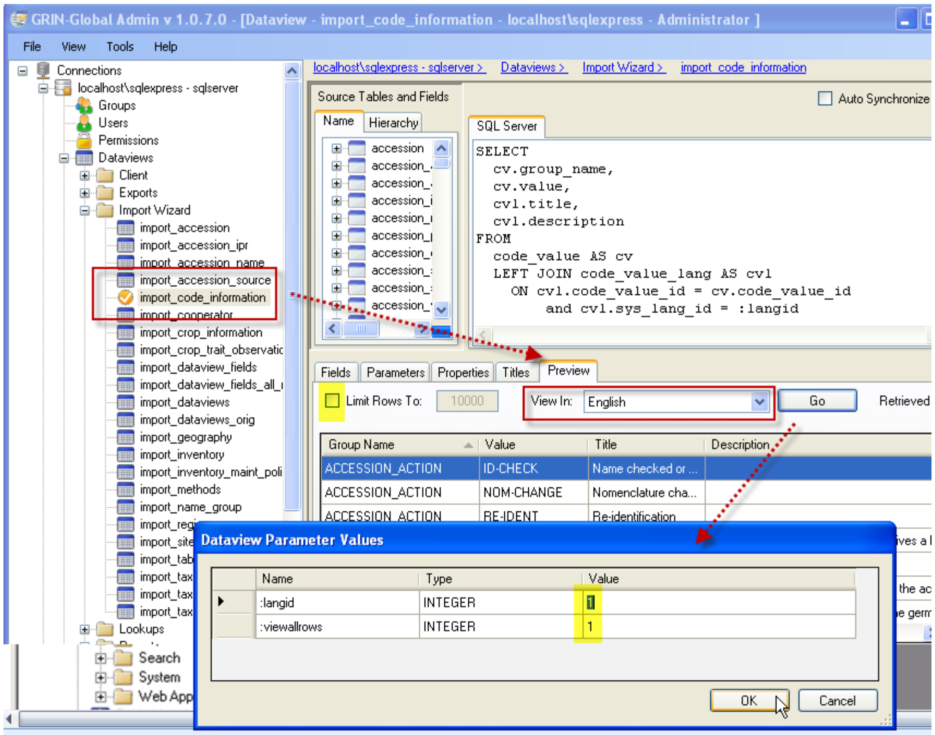
In GRIN-Global 1.0, column A with the **Group Name** is not included when the list is initially created. Insert a column before the **Value** column, type the heading **Group Name**, and then enter and duplicate the actual Group Name values. In this example the group name was **ACCESSION_ ACTION**. (The Group Name does is not required to be in uppercase, but that is the convention used in GG 1.0.)

If this file is saved as a Unicode text file, it can then be imported into GG via the Import Wizard. (Refer to the **Setup Guide Cookbook** for detailed directions.)

Extracting All of the Code Values

There are two quick ways to produce a spreadsheet that will contain all of the code values for a given language.

In the AT, you can preview the Import Wizard import_code-information dataview in the dataview editor.



GRIN-Global Admin v 1.0.7.0 - [Dataview - import_code_information - localhost\sqlexpress - Administrator]

localhost\sqlexpress - sqlserver > Dataviews > Import Wizard > import_code_information

```
SELECT
  cv.group_name,
  cv.value,
  cvl.title,
  cvl.description
FROM
  code_value AS cv
  LEFT JOIN code_value_lang AS cvl
    ON cvl.code_value_id = cv.code_value_id
       and cvl.sys_lang_id = :langid
```

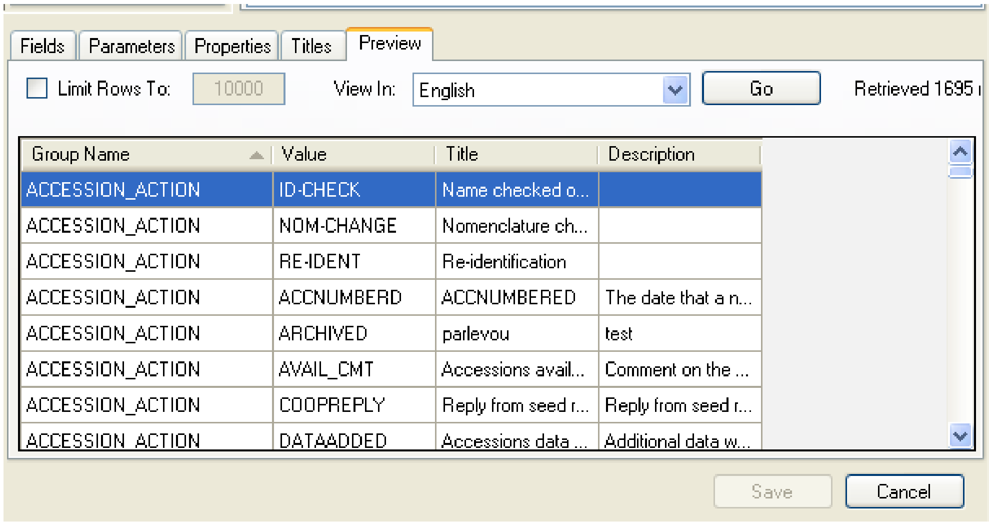
□ Limit Rows To: 10000 View In: English

Group Name	Value	Title	Description
ACCESSION_ACTION	ID-CHECK	Name checked or ...	
ACCESSION_ACTION	NOM-CHANGE	Nomenclature cha...	
ACCESSION_ACTION	RE-IDENT	Re-identification	

Dataview Parameter Values

Name	Type	Value
:langid	INTEGER	1
:viewallrows	INTEGER	1

Results:

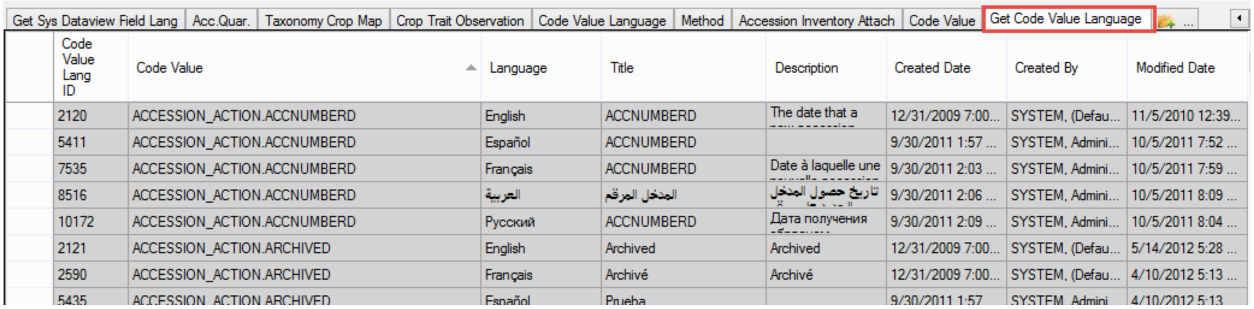


□ Limit Rows To: 10000 View In: English Retrieved 1695

Group Name	Value	Title	Description
ACCESSION_ACTION	ID-CHECK	Name checked o...	
ACCESSION_ACTION	NOM-CHANGE	Nomenclature ch...	
ACCESSION_ACTION	RE-IDENT	Re-identification	
ACCESSION_ACTION	ACCNUMBERD	ACCNUMBERED	The date that a n...
ACCESSION_ACTION	ARCHIVED	parlevou	test
ACCESSION_ACTION	AVAIL_CMT	Accessions avail...	Comment on the ...
ACCESSION_ACTION	COOPREPLY	Reply from seed r...	Reply from seed r...
ACCESSION_ACTION	DATAADDED	Accessions data ...	Additional data w...

This data can be copied into a spreadsheet. The alternative method for extracting the data is to use the Import Wizard to view the existing data for the language. (This method is fully described in detail the Import Wizard Cookbook.)

The read-only **Code Value** dataview in the Curator Tool can also be used to view the Code Groups and Values – the format for the Code Value field as shown below is **CodeGroup.CodeValue**



Code Value Lang ID	Code Value	Language	Title	Description	Created Date	Created By	Modified Date
2120	ACCESSION_ACTION.ACCNUMBERD	English	ACCNUMBERD	The date that a	12/31/2009 7:00...	SYSTEM, (Defau...	11/5/2010 12:39...
5411	ACCESSION_ACTION.ACCNUMBERD	Español	ACCNUMBERD		9/30/2011 1:57 ...	SYSTEM, Admini...	10/5/2011 7:52 ...
7535	ACCESSION_ACTION.ACCNUMBERD	Français	ACCNUMBERD	Date à laquelle une	9/30/2011 2:03 ...	SYSTEM, Admini...	10/5/2011 7:59 ...
8516	ACCESSION_ACTION.ACCNUMBERD	العربية	المدخل المرقم	تاريخ حصول المدخل	9/30/2011 2:06 ...	SYSTEM, Admini...	10/5/2011 8:09 ...
10172	ACCESSION_ACTION.ACCNUMBERD	Русский	ACCNUMBERD	Дата получения	9/30/2011 2:09 ...	SYSTEM, Admini...	10/5/2011 8:04 ...
2121	ACCESSION_ACTION.ARCHIVED	English	Archived	Archived	12/31/2009 7:00...	SYSTEM, (Defau...	5/14/2012 5:28 ...
2590	ACCESSION_ACTION.ARCHIVED	Français	Archivé	Archivé	12/31/2009 7:00...	SYSTEM, (Defau...	4/10/2012 5:13 ...
5435	ACCESSION_ACTION.ARCHIVED	Español	Prueba		9/30/2011 1:57	SYSTEM, Admini	4/10/2012 5:13

Also, the following SQL may be used in the Public Website Web Query tool to display the codes:

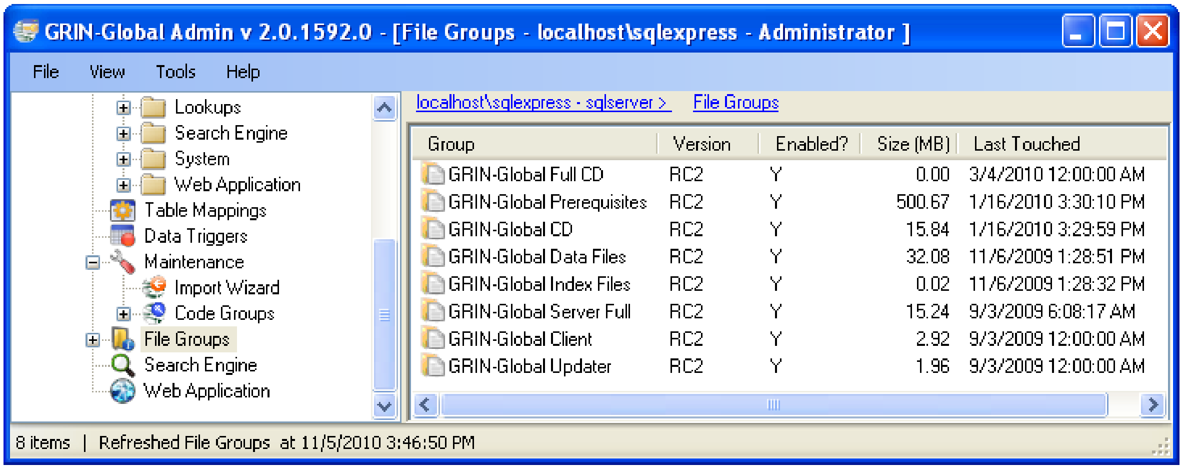
```
USE
  gringlobal;

SELECT
  cv.code_value_id as value_id,

  cv.group_name as group_name,
  cv.value as gg_value,
  cvl.title as cvl_title,
  cvl.description as cvl_description

FROM
  code_value cv

  inner join code_value_lang cvl
               on cv.code_value_id = cvl.code_value_id
   left join sys_lang sl2
                              on cvl.sys_lang_id = sl2.sys_lang_id
WHERE
  sl2.sys_lang_id = 1
/* and   group_name = 'inventory_action'  */
/* use and clause to search for a specific code */

ORDER BY
  group_name,
  gg_value
```

(in this example, sys.lang_id = 1 is for English)

File Groups

Overview

The **File Groups** are pointing to the files that the **Updater** sees. A file group corresponds to exactly one row in either of the Updater's gridviews. The file group can be comprised of one or several files. When a user clicks the "Download/Install" button, Updater will download all file(s) that belong to each group with a checkmark by it. Depending on the kind of file(s) it downloads, it will take the appropriate action (i.e., it will run an .exe, install an .msi, expand a .cab, and display all other files in explorer).



Group	Version	Enabled?	Size (MB)	Last Touched
GRIN-Global Full CD	RC2	Y	0.00	3/4/2010 12:00:00 AM
GRIN-Global Prerequisites	RC2	Y	500.67	1/16/2010 3:30:10 PM
GRIN-Global CD	RC2	Y	15.84	1/16/2010 3:29:59 PM
GRIN-Global Data Files	RC2	Y	32.08	11/6/2009 1:28:51 PM
GRIN-Global Index Files	RC2	Y	0.02	11/6/2009 1:28:32 PM
GRIN-Global Server Full	RC2	Y	15.24	9/3/2009 6:08:17 AM
GRIN-Global Client	RC2	Y	2.92	9/3/2009 12:00:00 AM
GRIN-Global Updater	RC2	Y	1.96	9/3/2009 12:00:00 AM

8 items | Refreshed File Groups at 11/5/2010 3:46:50 PM

Using the Admin Tool, you can add a new file group, put those files on the server, associate them to that group, and someone pointing to Updater will see it as a new file group.

Note

Currently, the Mirroring functionality will NOT propagate new groups. It will download the files, but not insert the proper records into the database for them to show up as a new file group when others connect to that server. It is intended to do so, but has not been completely developed yet.

Web Application Settings

Note

While most of the **Web Application** settings relate specifically to the Public Website, not all do. For instance, the **DisableSecurity** parameter is a setting that affects the Curator Tool. These parameters are assembled together under **Web Application** because the code for the middle tier and web services are interrelated and stored together.

Public Website

The GRIN-Global Public Website is a web-based application. Using the website features, users can search for accessions by descriptors or by taxonomy and ultimately use the shopping cart function to order accessions. The user documentation for the PW, in a Help file format, can be viewed online.

The basic search feature is the same search as the text box search used by the Curator Tool. Organizations can make their public website visible to the public or only have it available to their internal genebank workers who will use it for searching accessions or taxonomy.

The website uses the familiar shopping cart model for handling orders. Users can easily add items to their cart directly from the search results or from the **Accession Detail** page. Users will be able to jump back and forth between the **Accession Detail** or **Taxonomy Overview** pages for any item in the cart.

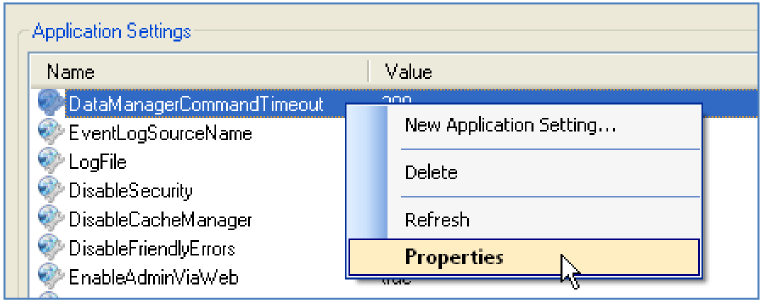
Preventative measures will keep "unavailable" items from being added to the cart.

Parameters and Properties

The web application uses certain global settings that are described in detail, beginning on the next page. Note that the administrator may only access these settings from a local machine.

When the web application is installed, most of the web application settings and connection strings are set as needed. Most of these settings will never need to be modified; however they can easily be changed if necessary. There are some settings that do require editing; these are listed in bold in a table on the following page.

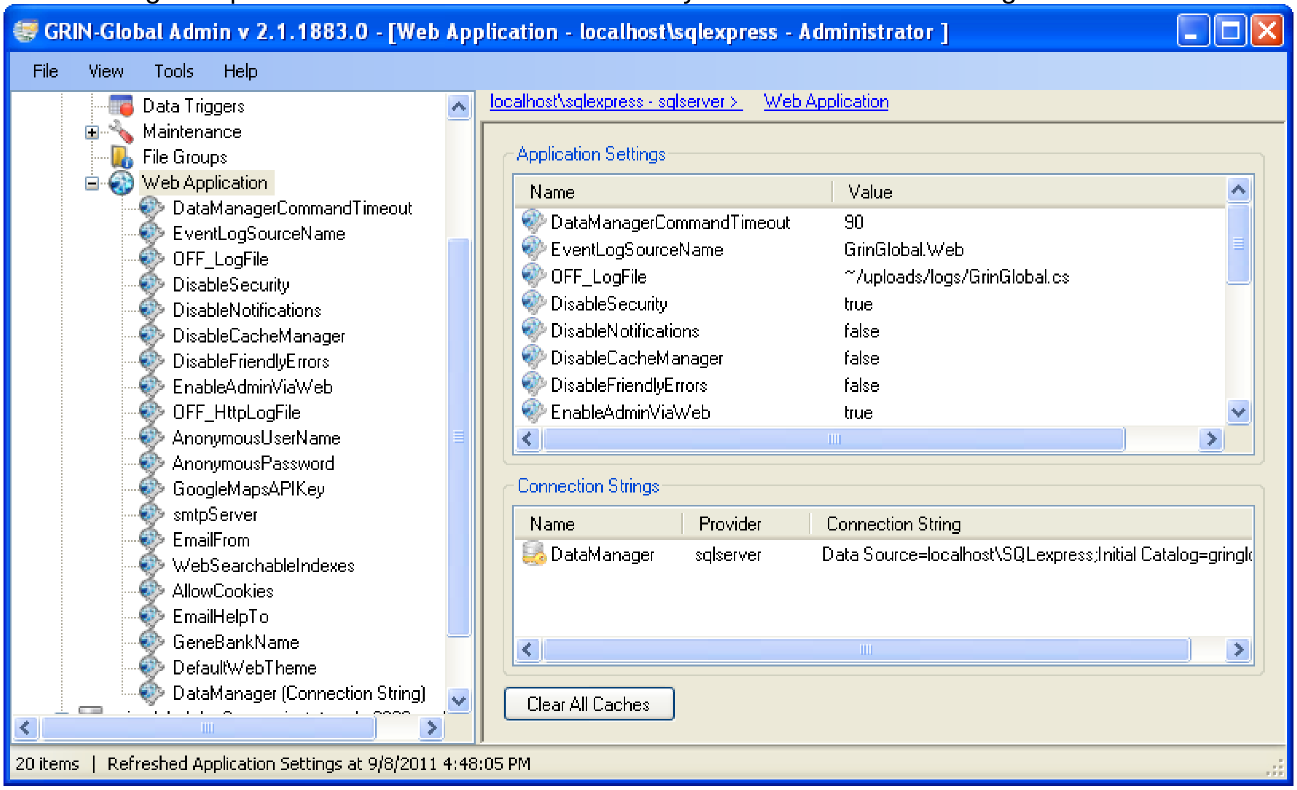
Each application setting can be reviewed or edited by right-clicking on the parameter name; then select **Properties**.



Application Settings

Name	Value
DataManagerCommandTimeout	
EventLogSourceName	
LogFile	
DisableSecurity	
DisableCacheManager	
DisableFriendlyErrors	
EnableAdminViaWeb	

Each setting is explained in the table that immediately follows this screen image.



Name	Value
DataManagerCommandTimeout	90
EventLogSourceName	GrinGlobal.Web
OFF_LogFile	~/uploads/logs/GrinGlobal.cs
DisableSecurity	true
DisableNotifications	false
DisableCacheManager	false
DisableFriendlyErrors	false
EnableAdminViaWeb	true

Name	Provider	Connection String
DataManager	sqlserver	Data Source=localhost\SQLexpress;Initial Catalog=gringl

20 items | Refreshed Application Settings at 9/8/2011 4:48:05 PM

Note **Bolded** parameters should be reviewed and modified to meet the organization's needs; it is recommended that those parameters not bolded should retain their default values.

Parameter	Description
DataManagerCommandTimeout	Maximum time (in seconds) to wait for a SQL command to execute before throwing an exception error Example: **90**
EventLogSourceName	Category name of all entries written to the Windows Application event log from the web application Example: **GrinGlobal Web**
Off_LogFile	Name of the file in which additional error information is logged. Should point to a file under ~/uploads/ path so that the web app has security rights to write to the file. Example: **~/uploads/logs/GrinGlobal.cs**
DisableSecurity	Either "true" or "false." With this setting, the administrator can globally enable or disable security in the *Curator Tool*. To disable global security, set to "True." When this parameter is "true," permissions are completely ignored. **False** is the default.
DisableNotifications	Inactive -- was planned to be used to disable sending queued notification email for the feedback program, but it is not implemented. **False** is the default.

DisableCacheManager	For troubleshooting purposes, all caching mechanisms can be shut off here. Valid values are "true" or "false." **False** is the default.
DisableFriendlyErrors	For troubleshooting purposes, the “nice” error page can be disabled so the raw error information is displayed. Valid values are "true" or "false." **False** is the default.
EnableAdminViaWeb	If "false," Admin pages on website will not function properly. Valid values are either "true" or "false." **True** is the default.
Off_HttpLogFile	Inactive - not used.
AnonymousUserName	This is the GG UserID that the web application uses as a login when the visitor has not yet logged in under his own credentials. Example: **guest**
AnonymousPassword	Password for the above Example: ???
GoogleMapsAPIKey	The Google Maps API lets you embed Google Maps in your own web pages. A passphrase is required by Google Maps for the mapping portion of the GRIN-Global web application to work properly. For localhost, this is already provided; for your GG server, you will need to access Google for the key. (See the **GoogleMapsAPIKey** section immediately following this table for detail.)
smtp Server	Address of the mail server sending messages. Default: **your-email-server-name**
EmailFrom	The “from” email address produced when the Public Website sends email messages. Default: **your-email-from-address**
WebSearchableIndexes	[not functional – needs to be removed from the AT] The search engine uses the records in the system sys_search_autofield table to find the results when doing a search on the public web site’s plain accession search and the in the Search Tool’s text box search. (Use the get_search_autofield dataview to display the records; records can be added to the sys_search_autofield table using SSMS to broaden the searches.)
AllowCookies	Valid values are either "**true**" or "**false**." If true, the application will use a computer cookie on the PC to store small data such as the language preference, etc. Deafault: **true**
EmailHelpTo	The email address that will receive the message when the user completes the Public Website’s “Contact Us” form. Example: **grin-global.feedback@ars-grin.gov**
GeneBankName	Indicates what text will be displayed in the Public Website’s header area Example: **GRIN-Global Release 1.7**
DefaultWebTheme	Designates which stylesheet to be used for the Public Website. The style sheets are stored in **C:\Inetpub\wwwroot\gringlobal\styles**

	Example: **theme1**
SafeImagePath	Example: <add key="SafeImagePath" value="http://www.ars-grin.gov;http://www.grin.gov"/>, If image has http path, only these are accepted for display ("approved image servers" – in addition to the GG server. (If a curator entered a URL such as http://bad-place.com/evil-file, the PW pages wouldn't display the link because it wasn't to a server on the SafeImagePath. Example: http://www.ars-grin.gov/;http:www.grin.gov
UnSafeFileExtension	Example: <add key="UnSafeFileExtension" value="exe;zip;asp;aspx;js;htm;html;shtml"/> Any file with these extensions will not be allowed to be uploaded by users to the server. Example: exe.zip;asp;aspx;js;htm;html;shtml
DefaultDownloadURL	Example: <add key="DefaultDownloadURL" value="http://distribution.grin-global.org/gringlobal/gui.asmx"/>: For a new machine, the first time the GG Updater is run, this will be the location where the Updater will look for the server elements. Example: http://distribution.grin-lobal.org/gringlobal/gui.asmx
WebHelpURL	Example: http://www.ars-grin.gov/npgs/gringlobal/HTML5/
WikiURL	Example: http:// www.ars-grin.gov/ index.php/Main_Page
EmailOrderTo	Example: <add key="EmailOrderTo" value="laura.gu@ars.usda.gov;admin@something.com"/> If genebank has one specific email to address, here is where to enter, so all on-line GG order emails are sent to this address, rather than any other curator email address.
HomePage	Example: http://www.ars-grin.gov/npgs/index.html
MakeReportsExternal	Default: false "False" requires users to login in order to see the Reports menu option. When set to "True," all users see reports even without logging in.

Parameter	Description	Example
SysChangePasswordRequiresSSL	Is an SSL connection required for the ChangePassword method. Recommended to set to "true" since the password is sent as plain text only during the password change.	FALSE
SysUserPasswordMinLength	The minimum length accepted for a new password.	12

Web Application Settings

Parameter	Description	Example
SysUserPasswordMaxLength	The maximum length accepted for a new password. (Note: ridiculously long passwords could take excessive server time to process.)	255
SysUserPasswordMaximumAge	The number of days a password is good for before a change is required. A setting of 0 means the passwords never expire.	60
SysUserPasswordMinimumAge	The minimum number of days before a password can be changed again.	1
SysUserPasswordWarning	The number of days before password expiration that the user gets a waning on login that the password will expire soon.	14
SysUserPasswordExpireLock	The grace period after password expiration that the user can still change the password themselves. After this an administrator is required to change the password. A setting of 0 means no grace period, a setting of -1 means infinite grace period to change the password.	30
SysUserPasswordMinDiffs	The minimum number of characters it is necessary to change for a new password.	3
SysUserPasswordHistory	The number of old passwords kept that can't be duplicated when making a new password.	24
SysUserPasswordReqDigit	The regex pattern for determining a digit character	\p{Nd}
SysUserPasswordReqPatt1Ccnt	The minimum number of digit characters that must be included in a new password.	1
SysUserPasswordReqLower	The regex pattern for determining a lower case character	\p{Ll}
SysUserPasswordReqPatt2Ccnt	The minimum number of lower case characters that must be included in a new password.	1
SysUserPasswordReqUpper	The regex pattern for determining an upper case character	\p{Lu}
SysUserPasswordReqPatt3Ccnt	The minimum number of upper case characters that must be included in a new password.	1
SysUserPasswordReqSpecial	The regex pattern for determining a special character	[\p{S}\p{P}\p{Z}\p{C}]
SysUserPasswordReqPatt4Ccnt	The minimum number of special characters that must be included in a new password.	1
SysUserPasswordSaltBytes	The number of random bytes added as a salt to the hash of the stored password.	6
SysUserMaxLoginFailures	The number of bad login attempts allowed for an account.	5
SysUserLoginFailPeriod	The number of seconds bad passwords attempts for an account are remembered.	900
SysUserLoginLockPeriod	The number of seconds an account is temporarily locked after exceeding the allowed login failures.	900

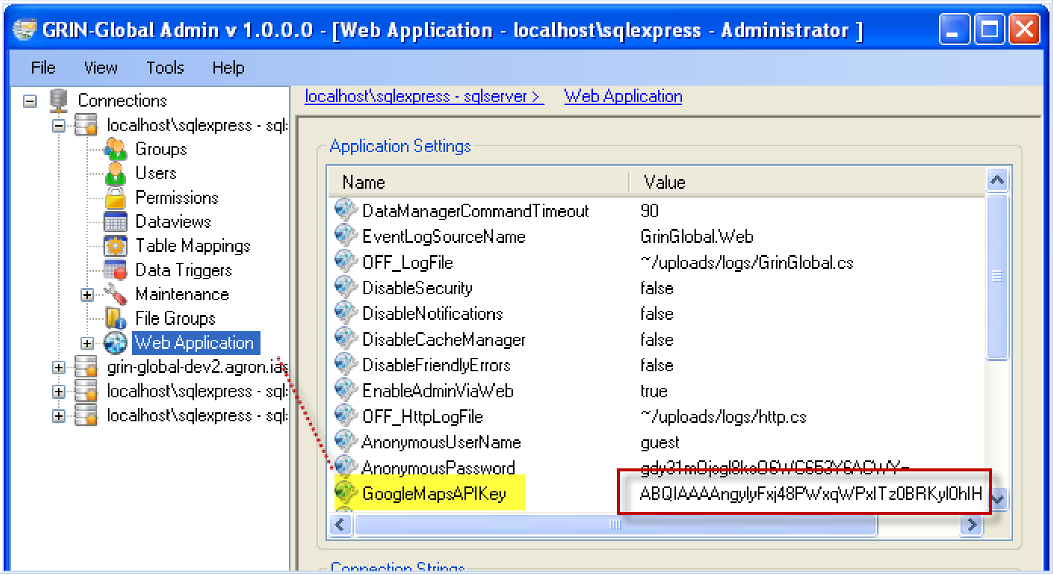
<table>
<tr><th>Parameter</th><th>Description</th><th>Example</th></tr>
<tr><td><b>SearchEngineFormattedTextPattern</b></td><td colspan="2">A regular expression controlling the search engine’s detection of formatted QBE queries like @crop.name = ‘WHEAT’. Do not alter unless absolutely necessary. Currently customized to allow floating point numbers overlooked by the current SE internal pattern.
^\s*@\w+\.\w+\s*(?:<>|<=|>=|!=|=|<|>)\s*(?:[-+]?[0-9]*\.?[0-9]+|'([^\f\n\r\v']|'')+')\s*|^\s*@\w+\.\w+\s+(?:not\s+|NOT\s+)*(?:in|IN)\s*\((?:\s*(?:\d+|'([^\f\n\r\v']|'')+')\s*[,|\)])*|^\s*@\w+\.\w+\s+(?:not\s+|NOT\s+)*(?:like|LIKE)\s+'([^\f\n\r\v']|'')+'\s*|^\s*@\w+\.\w+\s+(?:is|IS)\s+(?:not\s+|NOT\s+)*(?:null|NULL)\s*</td></tr>
</table>

GoogleMapsAPIKey

To obtain the Google Maps passphrase, in your browser, go to this site: http://code.google.com/apis/maps/signup.html. (Login to your google account. If you do not have a Google account, you must create one.)

Input your GG server site’s address – a passphrase key will be generated. (For example, for the DBMU test site, we used http://test.grin-global.org as the site for generating the key.)

In the AT, under the **Web Application** node, select the **GoogleMapsAPIKey** sub node. Copy the Google-generated key value into the **Value**: box:

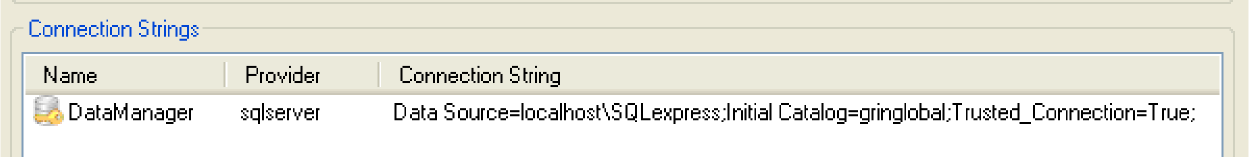

GRIN-Global Admin v 1.0.0.0 - [Web Application - localhost\sqlexpress - Administrator]
File
View
Tools
Help
Connections
localhost\sqlexpress - sql
Groups
Users
Permissions
Dataviews
Table Mappings
Data Triggers
Maintenance
File Groups
Web Application
grin-global-dev2.agron.ia
localhost\sqlexpress - sql
localhost\sqlexpress - sql
localhost\sqlexpress - sqlserver >
Web Application
Application Settings
Connection Strings

Name	Value
DataManagerCommandTimeout	90
EventLogSourceName	GrinGlobal.Web
OFF_LogFile	~/uploads/logs/GrinGlobal.cs
DisableSecurity	false
DisableNotifications	false
DisableCacheManager	false
DisableFriendlyErrors	false
EnableAdminViaWeb	true
OFF_HttpLogFile	~/uploads/logs/http.cs
AnonymousUserName	guest
AnonymousPassword	gdy31mOjsgl8keO6W/C6S3Y6ACWY=
GoogleMapsAPIKey	ABQIAAAAngylyFxj48PWxqWPxITz0BRKyI0hIH

Connection Strings

This specifies how the web application is to connect to the database engine.

Parameter	Description
DataManager	The name required by the GRIN-Global web application so it can connect to the GG database. Can have a Provider value of "sqlserver," "mysql," "postgresql," or "oracle." Connection String value varies from one provider to the next.



Connection Strings

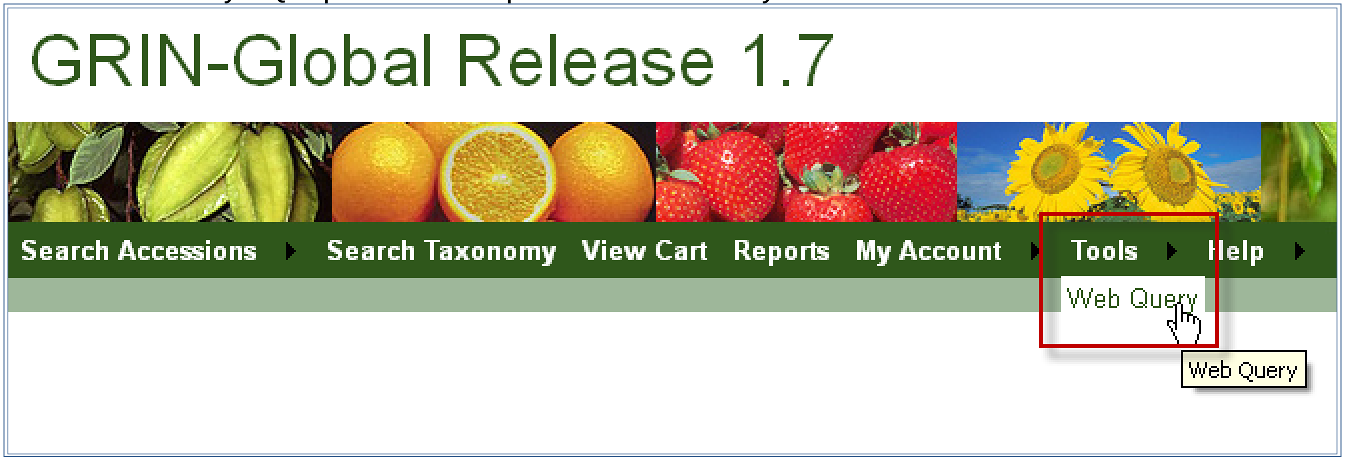
Name	Provider	Connection String
DataManager	sqlserver	Data Source=localhost\SQLexpress;Initial Catalog=gringlobal;Trusted_Connection=True;

Other Website Configuration Settings

Besides the parameters listed under the **Web Application** node in the Admin Tool, there are additional items that can be modified to affect a customized version of the Public Website. Each organization may wish to include its own banner and graphical appearance to the site; there may be some additional titles or admin values for state or country that they may want to include.

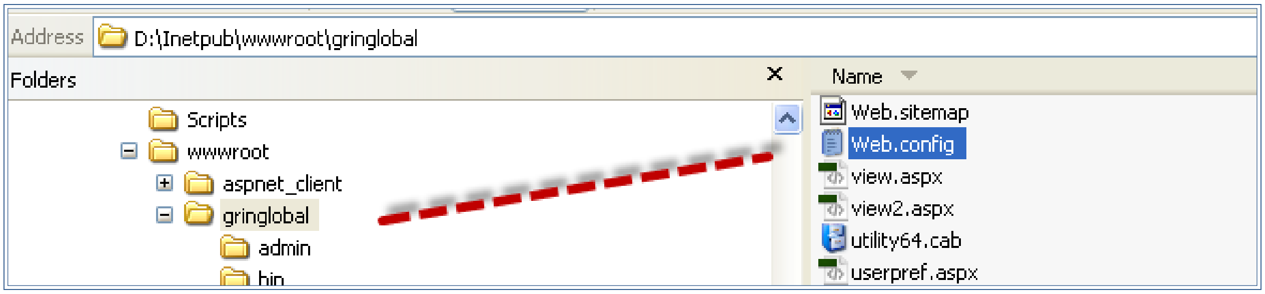
Tools Menu Option on the Public Website

The **Tools** option on the Main Menu on the Public Website makes it possible for a user to submit Read-Only SQL queries. This option is not visible by default.



There are two approaches an Admin can take to make this visible. In both alternatives the user must be logged in and that the Admin has linked the PW account with the user's Curator Tool account. (See **Users | General | Web Login**.)

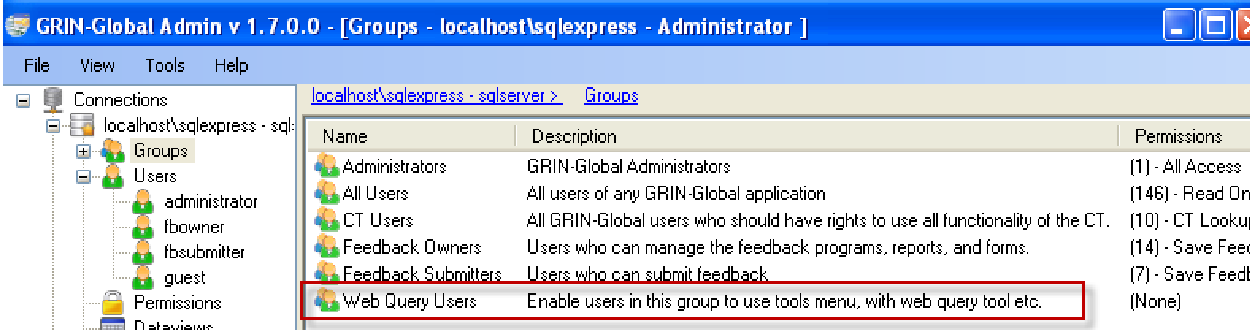
In the first approach, the key is to edit the web.config file which comes on a new install. This file is located on the server.



There is a section in the web.config pertinent to this discussion. The default is:

```
<location path="Admin">
  <system.web>
    <authorization>
      <allow roles="webtools" />
      <deny users="*" />
    </authorization>
  </system.web>
</location>
```

When the default is left this way, the GG Admin must add the user to the Web Query Users Group.


GRIN-Global Admin v 1.7.0.0 - [Groups - localhost\sqlexpress - Administrator]
File
View
Tools
Help
Connections
localhost\sqlexpress - sql:
Groups
Users
administrator
fbowner
fbsubmitter
guest
Permissions
Dataviews
localhost\sqlexpress - sqlserver >
Groups

Name	Description	Permissions
Administrators	GRIN-Global Administrators	(1) - All Access
All Users	All users of any GRIN-Global application	(146) - Read On
CT Users	All GRIN-Global users who should have rights to use all functionality of the CT.	(10) - CT Lookuj
Feedback Owners	Users who can manage the feedback programs, reports, and forms.	(14) - Save Feec
Feedback Submitters	Users who can submit feedback	(7) - Save Feedt
Web Query Users	Enable users in this group to use tools menu, with web query tool etc.	(None)

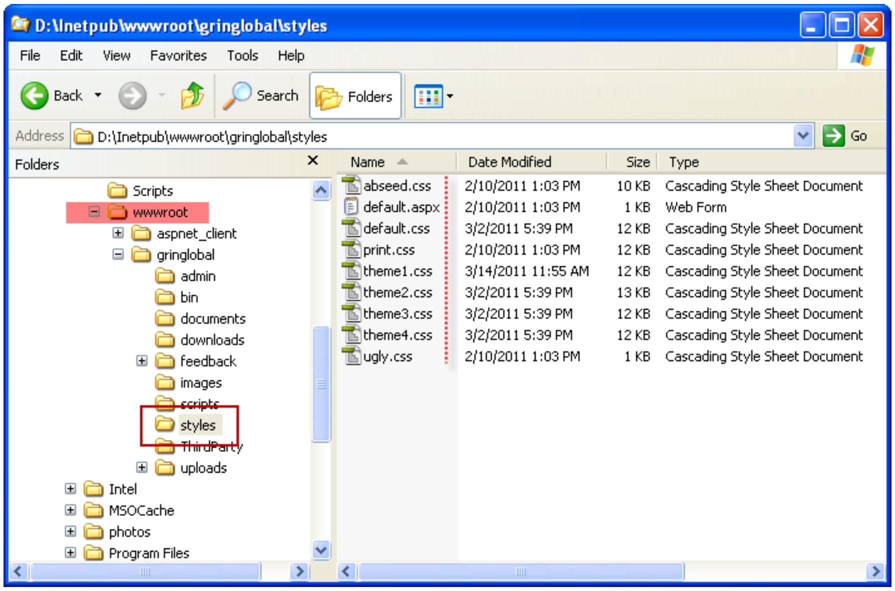
The second alternative is to edit the **web.config** file, and change one line so that the allusers group gets authorization to access **Tools**. (Every Curator Tool user is automatically in the allusers group when the user’s ID is created in the Admin Tool.)

This avoids the extra step for the administrator of adding each user to the Web Query Users Group – all users will have access to Tools when the web.config file is edited as shown below in the red line:

```
<location path="Admin">
  <system.web>
    <authorization>
      <allow roles="allusers" />
      <deny users="*" />
    </authorization>
  </system.web>
</location>
```

Graphical Appearance

The Public Website uses CSS style sheets to control its appearance; the CSS files are stored in the **styles** folder under the **wwwroot** folder.

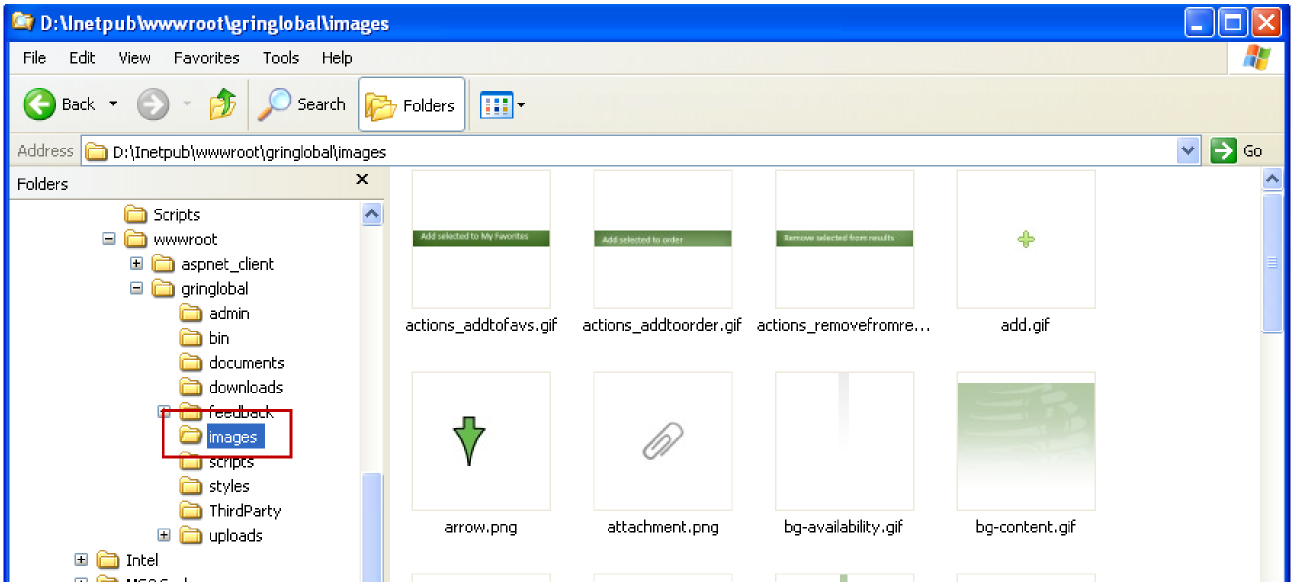


Name	Date Modified	Size	Type
abseed.css	2/10/2011 1:03 PM	10 KB	Cascading Style Sheet Document
default.aspx	2/10/2011 1:03 PM	1 KB	Web Form
default.css	3/2/2011 5:39 PM	12 KB	Cascading Style Sheet Document
print.css	2/10/2011 1:03 PM	12 KB	Cascading Style Sheet Document
theme1.css	3/14/2011 11:55 AM	12 KB	Cascading Style Sheet Document
theme2.css	3/2/2011 5:39 PM	13 KB	Cascading Style Sheet Document
theme3.css	3/2/2011 5:39 PM	12 KB	Cascading Style Sheet Document
theme4.css	3/2/2011 5:39 PM	12 KB	Cascading Style Sheet Document
ugly.css	2/10/2011 1:03 PM	1 KB	Cascading Style Sheet Document

Shown above are several style sheets that were used in testing; by default **theme1** will be selected in the AT's Web Application Settings (discussed earlier). As with any CSS stylesheet, if desired, the individual styles can be modified.

Images

The style sheets use the graphic files stored in the **images** folder. If you substitute your own images, be sure that the image's dimensions and their filenames match the originals; otherwise your website may be distorted.



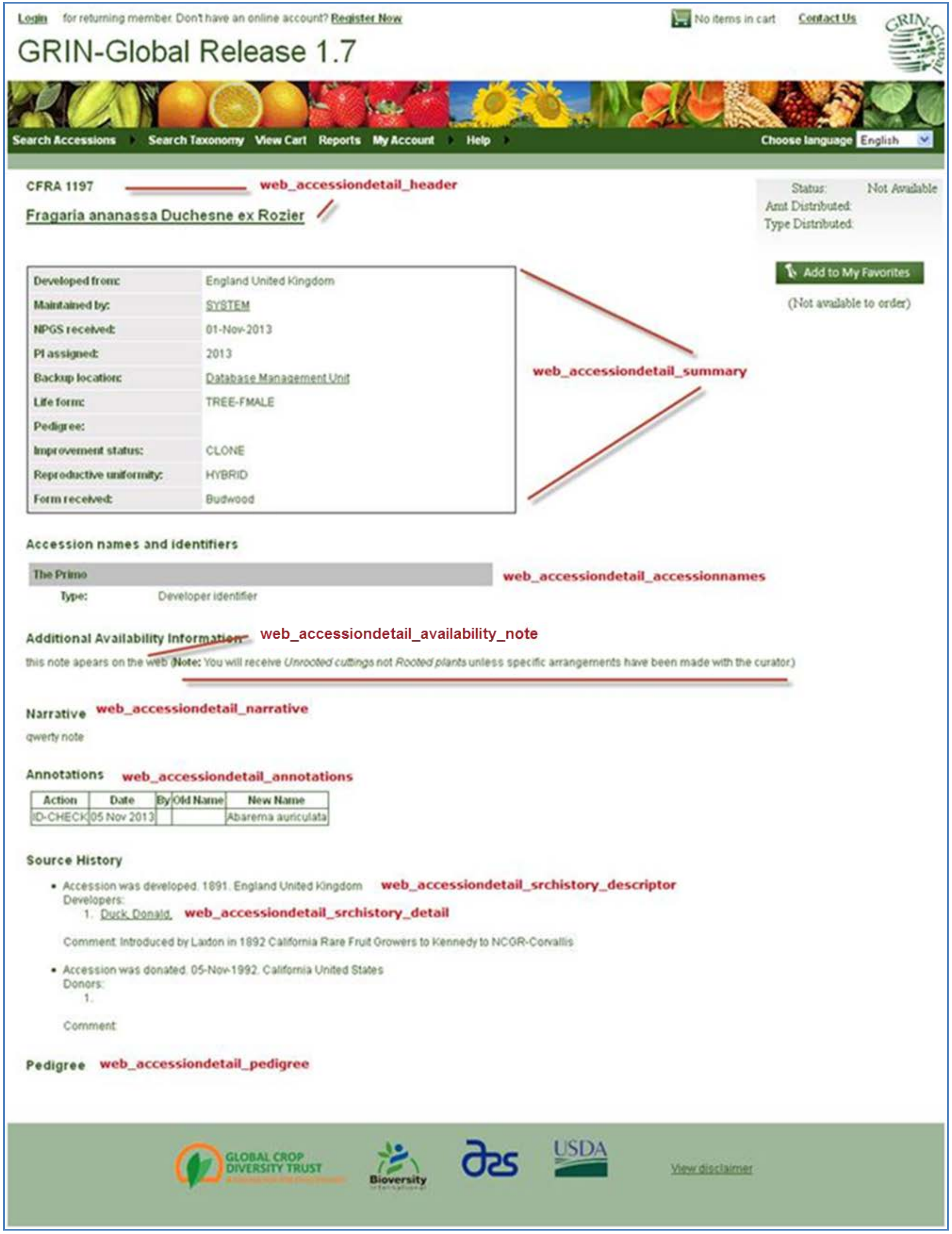
Titles, States, and Country Settings

On the **Registration** page, there are dropdowns that rely on data stored in GG tables. To review or edit, use the corresponding dataview::

- titles – **COOPERATOR_TITLE** values in the **get_code_values** dataview
- states and countries – **get_geography** dataview

Accession Details Page

The Accession Details page displays various accession-related fields. The following image illustrates the basic mapping of the page. Use the AT Dataview Editor to review the specific dataviews.):



CFRA 1197 web_accessiondetail_header

Fragaria ananassa Duchesne ex Rozier

Status: Not Available
Amt Distributed:
Type Distributed:

(Not available to order)

Developed from:	England United Kingdom
Maintained by:	SYSTEM
NPGS received:	01-Nov-2013
PI assigned:	2013
Backup location:	Database Management Unit
Life form:	TREE-FMALE
Pedigree:	
Improvement status:	CLONE
Reproductive uniformity:	HYBRID
Form received:	Budwood

web_accessiondetail_summary

Accession names and identifiers

The Primo web_accessiondetail_accessionnames

Type: Developer identifier

Additional Availability Information web_accessiondetail_availability_note

this note apears on the web (**Note:** You will receive *Unrooted cuttings* not *Rooted plants* unless specific arrangements have been made with the curator)

Narrative web_accessiondetail_narrative

qwerty note

Annotations web_accessiondetail_annotations

Action	Date	By	Old Name	New Name
ID-CHECK	05 Nov 2013			Abarema auriculata

Source History

- Accession was developed. 1891. England United Kingdom web_accessiondetail_srchistory_descriptor
  Developers:
  1. Duck, Donald. web_accessiondetail_srchistory_detail

  Comment: Introduced by Laxton in 1892 California Rare Fruit Growers to Kennedy to NCGR-Corvallis
- Accession was donated. 05-Nov-1992. California United States
  Donors:
  1.

  Comment:

Pedigree web_accessiondetail_pedigree

Field / Text	Source / Note
Annotations	**accession_inventory_annotation** dataview. Fields:
Citations	From the related **Citation** for the accession. Fields: **Author(s) name**; **Citation Year**; **Citation Title**; **Literature Source**; **Reference**
Intellectual Property Rights	**accession_ipr** and **accession_ipr_citation** dataviews. Fields: **IPR Type**, **IPR Number**, **IPR Crop Name**, **Issued Date** and related **accession_ipr_citation** data
Narrative	a**ccession** dataview. **Note** field.
Other Information about accession	**accession_inventory_attach** dataview. Fields: **Title, Cooperator, and Created Date** field when the attachment record has a category "URL Link"
Pedigree	**accession_pedigree** dataview. Field: **Pedigree Description**
Source History	**accession_source** and the **accession_source_cooperator, and the source_descriptor_observation** dataviews
Vouchers for accession	**accession_voucher** dataview. Fields: **Collector Voucher Number**, **Voucher Cooperator**
Web Availability Note	Can come from the **Inventory Maintenance Policy** (Web Availability Note) or directly from the Inventory

Database Naming Conventions

The database names, which can be viewed in SQL Server Management Studio, follow some general guidelines. Table names and field names may be visible to the end user, but since foreign keys, constraints, index names, etc are not displayed in GRIN-Global, there may at times be some divergence in the naming conventions.

- Lowercase was used for all object names
- Split words use underscores where appropriate
- Fields with a data type of date typically end with "**_date**."
- Key fields (primary and foreign) – always end with
  - **_id** if they are an integer type
  - **_code** if they are a string type
- Primary key fields always start with tablename, such as inventory_id, code_group_code, accession_id, etc.
- Comment / notation fields are typically named "note" (not narrative or comment or something else)
- "System" tables begin with "**sec_**." These contain data not related to actual GRIN-Global data, but are needed for the system to function properly.
- Maximum length for any database object name is 30 characters (for compatibility with Oracle)
- Language-specific tables end with "**_lang**."
- All permission-related tables have "_perm" in their names. Similar pattern for dataviews (**_dataview**), tables (**_table**), users (**_user**), fields (**_field**), taxonomies (**taxonomy_**), etc.

Typically, the developers used the first letter of each word in the table name. For example:

- cooperator -> c
- accession -> a
- sec_lang -> sl
- inventory_action -> ia
- order_request_item -> ori
- app_user_item_list -> auil

Oracle and PostgreSQL have additional objects they use:

- Triggers start with "tg_"
- Sequences start with "sq_"

Also, there are some exceptions because there are sometime several tables beginning with the same letter, so sometimes a second letter was used. For example, since cooperator was already using "'c," "cg" was used for cooperator_group, "ci" for citation, and "cr" for crop.

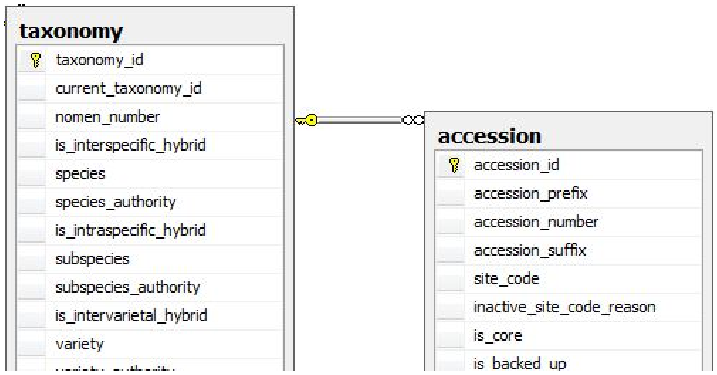
The name "fk_c_cur_c" means "foreign key from cooperator table to cooperator table via the current_cooperator_id field". "fk_c_modified" is the foreign key from cooperator to cooperator on the created_by field" The 2nd "c" was omitted because it was so common.

Some of database names do not follow that convention because they were created using a tool, such as SQL Server Management Studio. It is much better to use the Diagrams functionality in SQL Server than to look at the table tree when trying to view the schema.

In SQL Server Management Studio, click on **Database Diagrams.**

First time clicked it will prompt with “This database does not have one or more of the support objects required to use database diagramming. Do you wish to create them?” Answer “yes.” Then, right-click “Database Diagrams” again and choose “New Database Diagram.” A form displays that lets you select one or more tables to add to the diagram. Those tables are added and relationships are automatically displayed for related tables.

The Diagrams functionality auto-draws relationships for you in an intuitive manner. In the figure below, you can see there is a relationship from the accession table to the taxonomy table without knowing the name of the relationship:



Foreign Keys

Whenever possible, foreign key fields always start with the parent table name. Examples:

- inventory.accession_id
- accession.taxonomy_id

Exceptions are order_request.source_cooperator_id, order_request.requestor_cooperator_id, etc.

Audit fields must always be named exactly what they are named for default table mapping settings to work properly: created_by, created_date, modified_by, modified_date, owned_by, owned_date

If a ”normal” field name would have been a reserved SQL keyword, the tablename was prepended. For example, “number”' is a reserved keyword in Oracle, so it was instead named “accession_number.” Other fields in the same table may have their names prepended for consistency within that table. For example, “suffix” is not a reserved word, but since “prefix” and “number” fields are (in MySQL and Oracle, respectively) the developers prepended suffix with “accession_,” resulting with “accession_suffix” as the field name.

The developers avoided the use of abbreviations whenever possible. (it is easier to google a word than an industry-specific abbreviation.) One exception was “accession_ipr “ ("intellectual property rights"). Exceptions typically occur only when a good alternative short name could not be found.

Other Administrator Tasks

Besides understanding how to use the Admin Tool, which this document primarily covers, a GRIN-Global administrator needs to know other miscellaneous items. For example, the Curator Tool interface can be customized for certain features by adjusting the .txt files that are installed during the CT installation. Refer to the *User Files* section for details.

Background Information on Components, Design, and Code Samples

Source Code

Not that everyone needs to do this, but if you were to look at the source code, you would also find other code. The following components support, in one way or another, the installation or execution of the above applications:

- **GrinGlobal.Business**
  "Real" middle tier code. Web service is just a pass-through to this assembly.

- **GrinGlobal.Core**
  Common code used by basically every project.

- **GrinGlobal.DatabaseCopier**
  GUI for creating and loading database that supports all four database engines (SQL Server, MySQL, Oracle, PostgreSQL).

- **GrinGlobal.DatabaseInspector**
  Code used by DatabaseCopier project. This is where "real" code is for creating databases.

- **GrinGlobal.Interface**
  Declarative interface code for supporting third-party development of extensible portions of Grin-Global apps, such as Data Triggers for the middle tier.

- **GrinGlobal.UAC**
  Command line tool that causes a UAC prompt to appear in Vista and later for executing code in elevated context. Used by installers in Vista and later.

- **GrinGlobal.Web.Installer**
  Assembly for running install-time code for web site, as a web project does not allow calling into an Installer class.

- **GrinGlobal.*.Setup**
  Setup projects for packaging apps for installation on client servers and machines.

- **GrinGlobal.*.Prerequisites**
  Setup projects for packaging prerequisites of GRIN-Global apps (SQL Server, Powershell, .NET 3.5 SP1, Crystal Reports, etc.).

GRIN-Global Design Overview

The design of the GRIN-Global Application Suite software has the following primary goals:

- Reliability
- Flexibility
- Extensibility
- Granularity
- Customizability

To that end, the following approaches have been used:

- No assumptions of the client are made
  - Client controls how errors are reported from the middle tier -- an exception can be thrown or a return value can be checked
  - All communication is xml over http, meaning any client that can talk http can talk to GRIN-Global
  - Data scrubbing, auditing, and security checks are performed server-side to help prevent malicious tampering of data
- Custom business logic can be created without touching main code base
  - GrinGlobal.Interface.dll contains interfaces and classes that can be implemented or extended to tap into the GRIN-Global infrastructure
  - Custom filters can be added to perform additional tasks when data is read, updated, inserted, or deleted
- Dataviews can be changed or created with no code changes
  - Dataviews that ship with GRIN-Global can be tweaked.
  - Custom dataviews can be created via the DataView admin page. Basic SQL knowledge is required, but no coding is involved.
  - New tables can be added to the database schema itself, the tables mapped using the Admin Tool, then dataviews created to pull from the new tables -- all with no code changes.
- Security is highly granular and configurable
  - Security can be applied to a specific dataview, table, or globally
  - Security can be restricted to specific rows within a table (e.g. “updatable if the record is owned by John Q. Public”)
  - Security can be completely turned off to make administration easier
  - Administrative functions can be restricted to be accessed only from the local machine, or opened up to be accessible via a web service

- A database is a reliable data store -- nothing more, nothing less.
    - The database schema for GRIN-Global contains tables, indexes, and constraints -- no triggers, no views, no stored procedures, no user defined functions, etc
    - Foreign key constraints are required and enforced -- data reliability is more important than performance
    - Alternate key constraints are defined where appropriate
    - Transactions are used when appropriate

Tiers

The GRIN-Global Application Suite consists of three major tiers:

- Client Tier – Curator tool, Search tool, Admin tool, Updater, Web site
- Middle Tier – Web service
- Data Tier – SQL Server, MySQL, Oracle, PostgreSQL

Client Tier

All user interaction takes place in this tier. No code in the Client Tier ever talks directly to the Data Tier. It talks exclusively to Client Tier and Middle Tier code. This distinct separation of duties allows the overall design to be extremely flexible and change over time to fit each genebank's needs without affecting other genebanks.

Middle Tier

The “glue” for GRIN-Global. All business logic and data scrubbing occurs in this tier. It has a coarse API, allowing it to grow gracefully as new features are added over time.

Data Tier

This tier is essentially the database itself. There should be no reliance upon triggers or stored procedures to perform data validation or scrubbing. However, it should perform data integrity checks (foreign key constraints, unique constraints, etc.)

Reports

There are two kinds of reports that GRIN-Global handles:

- reports embedded in the Curator Tool that have been designed in Crystal Reports
- reports that run on the Public Website

Reports in the Curator Tool: General Steps in Producing Reports

The reports bundled with the Curator Tool were designed in Crystal Reports. The basic steps require that a Curator Tool dataview be designed first that obtains the data that will ultimately be reported in the report. Then a Crystal Reports report is designed. However, since the Crystal Reports tool doesn’t work directly from the GRIN-Global table and fields, the data must be dragged from the GG dataview into a spreadsheet from which the Crystal Reports report is designed.

For example, the **Order Packing** dataview was created and then the **Order Packing by Accession** report was designed using the fields displayed by the dataview.

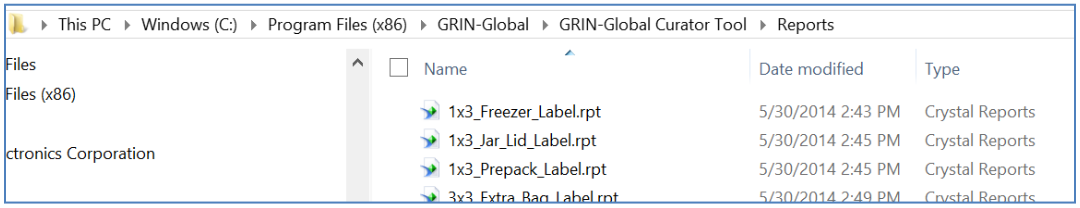
The main steps are:

- Open the Curator Tool; bring up sample data in the dataview on which the report is to be based
- Select all data by double clicking upper left corner
- CTRL drag data from CT dataview to an Excel spreadsheet (use CTRL to get schema field names instead of friendly names)
- In the spreadsheet, delete sheet2 and sheet3
- Save spreadsheet as type **Excel 97-2003 Workbook (*.xls)**
- Open Crystal Reports
- Select **Report Wizard**
- Click **Create New Connection**
- Click **Access/Excel (DAO)**
- Choose **Database Type: Excel 8.0**
- For Database Name: use ... to browse to saved xls file
- Finish
- Proceed with creating the report by selecting fields from sheet1 and designing the report (the Crystal Reports details of report design are omitted here)
- Save the report file and place in the Curator Tool **Reports** directory

Location of the Crystal Report (.rpt) Files

The .rpt files must be stored in a specific folder in order for the CT to use them. Typically the Curator Tool user will have these files loaded in this folder:

Operating System	Folder Containing the ReportsMapping.txt File
Windows 7.1; 8; 8.1	C:\Program Files (x86)\GRIN-Global\GRIN-Global Curator Tool\Reports

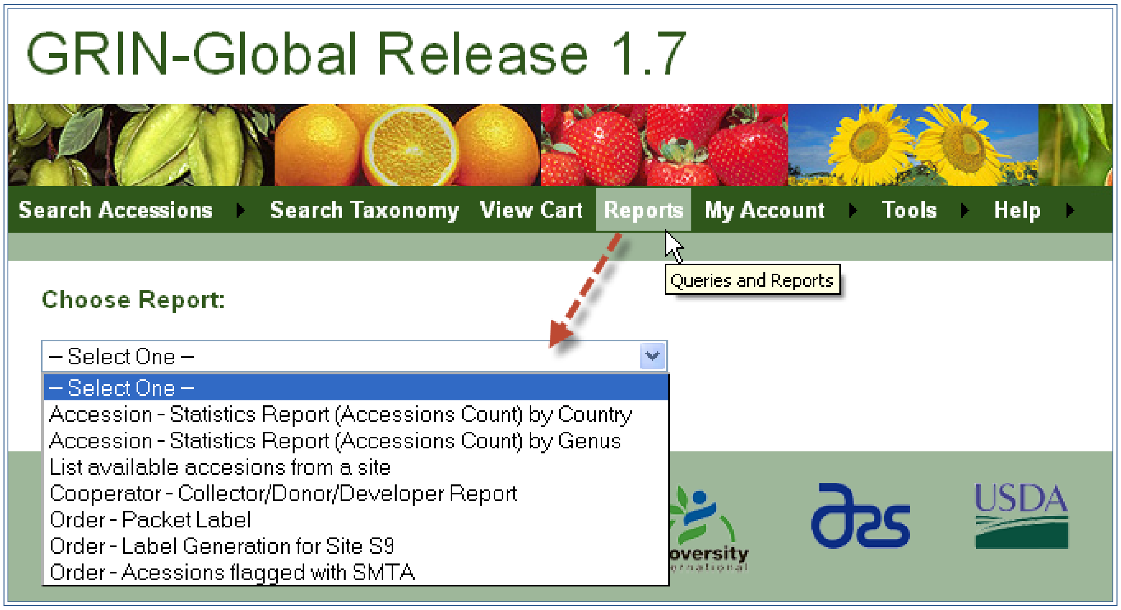


This PC ▸ Windows (C:) ▸ Program Files (x86) ▸ GRIN-Global ▸ GRIN-Global Curator Tool ▸ Reports

Files
Files (x86)
ctronics Corporation

□ Name	Date modified	Type
1x3_Freezer_Label.rpt	5/30/2014 2:43 PM	Crystal Reports
1x3_Jar_Lid_Label.rpt	5/30/2014 2:45 PM	Crystal Reports
1x3_Prepack_Label.rpt	5/30/2014 2:45 PM	Crystal Reports
3x3_Extra_Bag_Label.rpt	5/30/2014 2:49 PM	Crystal Reports

Public Website Reports
The Public Website has a menu option for Reports. Reports can be added as they are developed to meet an organization's needs.



– Select One –
Accession - Statistics Report (Accessions Count) by Country
Accession - Statistics Report (Accessions Count) by Genus
List available accesions from a site
Cooperator - Collector/Donor/Developer Report
Order - Packet Label
Order - Label Generation for Site S9
Order - Acessions flagged with SMTA

GRIN-Global Technical Overview

GRIN-Global is a powerful, but easy-to-use, and very flexible, plant genetic resource (PGR) information management system. It is designed to meet the needs of organizations of various sizes. The system uses a.NET ("dot net") framework and Visual Studio development environment. This technology allows data to be stored locally, or on networks. Centralized data can be distributed to other off-site systems.

In the simplest scenario, a genebank may use GRIN-Global on one computer for a single curator. The entire system will run on that one computer; a network is not required in this scenario. The PC will house the database, a middle management layer, and the client interface. This configuration allows a small genebank to manage their genetic resources. Optionally, if networked later, the data can be exported to others for inclusion in their data systems.

In another scenario, the database and the middle management layer reside on a separate computer (server). Clients from multiple curators can access this centralized database from multiple locations, using the GRIN-Global Curator Tool. This installation could export data to other data gatherers such as the Global Biodiversity Information Facility (GBIF).

The connections between the database, the middle layer, and the client are through web services. (A web service is defined as "a software system designed to support interoperable machine-to-machine interaction over a network.")

GRIN-Global can also be used to access one database on the user's local PC, and at other times data stored on another networked computer. The remote, networked computer may be an organization’s database server or a colleague’s computer to which the user has been granted security privileges for sharing data.

Design of the GRIN-Global System

GRIN-Global is built using a three-tier (Presentation, Business, and Data) architecture design.

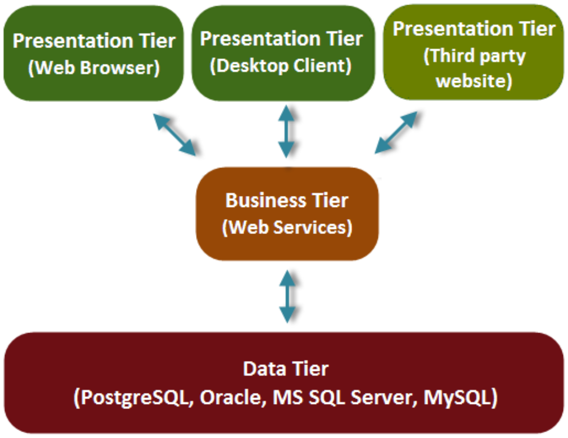
Presentation The first tier is the one with which users interact. This tier can assume different forms. For example, the GRIN-Global Curator Tool, is a .net (“dot net”) application, designed to run on a PC. The Curator Tool connects to the web services applications, the middle tier, and provides the interface in which the user ultimately searches, reads, and updates the data in the database, in the third tier.

Instead of using the Curator Tool on your computer, as an alternative you can review the plant genetic resource data via the GRIN-Global Public Website. The web pages there read/retrieve PGR data from the GRIN-Global database using the middle layer business tier’s web services.

Another alternative for accessing GRIN-Global data is to use a third-party application, such as MaizeGDB or SoyBase.

Business The business tier is the middle tier comprised of business logic applications (programs). In some GRIN-Global installations this tier, as well as the data and presentation tiers, reside on the user's stand-alone PC. However, in larger installations, the business and data tiers will most likely be installed on a local area network or an intranet server. The business tier:

- contains a full complement of applications (software modules)
- is accessible to *any* computer connected to the internet via standard protocols
- provides data in XML format, using the SOAP protocol


Presentation Tier (Web Browser)
Presentation Tier (Desktop Client)
Presentation Tier (Third party website)
Business Tier (Web Services)
Data Tier (PostgreSQL, Oracle, MS SQL Server, MySQL)

Data This third tier is the database and transaction server where the PGR data is permanently stored. The illustration here shows four different database "products." Typically, an organization will use only one of the four database products, depending on their preferences.

Miscellaneous Facts

Text Box Search Fields

In text box searches, the Search Engine only searches certain database fields. (This is one of the reasons why searching via the QBE method is preferred for GRIN-Global searches.) However, the Public Website shares this capability; the Public Website Accessions search uses these fields.

To add additional fields to the text search capabilities, add the fieldname into the **sys_search_autofields** table. The Middle Tier search will automatically handle the additional field(s). You can add additional fields for the search, but adding additional fields will require more time to complete a search. Also, you need to consider if the field should be searchable on the Public Website, since

This following SQL can be used in the Management Studio (or in the PW Tools) to review which fields are being searched:

```
SELECT sys_search_autofield_id,
table_name,
field_name

FROM sys_search_autofield s,
sys_table_field f, sys_table t

WHERE s.sys_table_field_id = f.sys_table_field_id AND f.sys_table_id = t.sys_table_id
ORDER BY 1,2
```

Text Box Searches

The initial design included the following fields in the text box search:

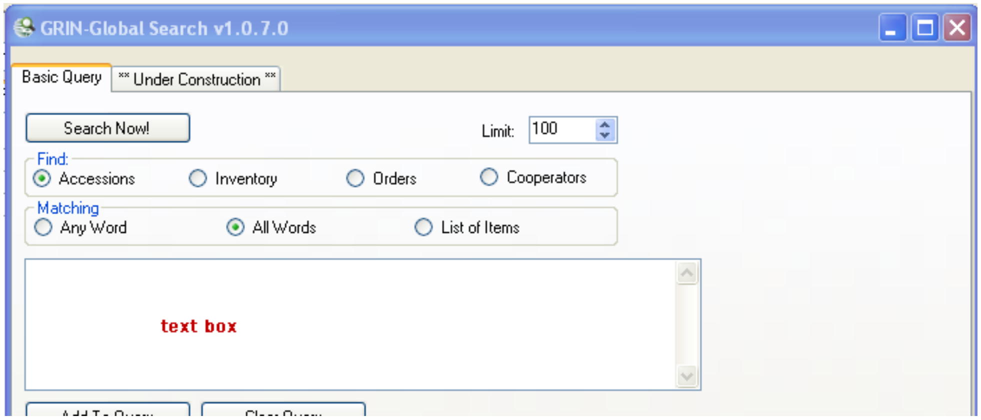
Table Name	Field Name
accession	accession_number_part1, accession_number_part2, accession_number_part3, note
accession_ipr	ipr_number, ipr_crop_name, ipr_full_name, note
accession_inv_name	plant_name
accession_pedigree	description
cooperator	last_name, first_name
crop	name
geography	adm1, adm 2, adm3, adm4, country_code
inventory*	inventory_number_part1, inventory_number_part2, inventory_number_part3,
taxonomy_common_name	name, simplified_name
taxonomy_family	family_name, alternate_name
taxonomy_genus	genus_name

Miscellaneous Facts

Table Name	Field Name
taxonomy_species	nomen_number, species_name, name, alternate_name
code_value_lang	title

*In the USDA NPGS, these three inventory fields are no longer searched via the text box searches.

Curator Tool:

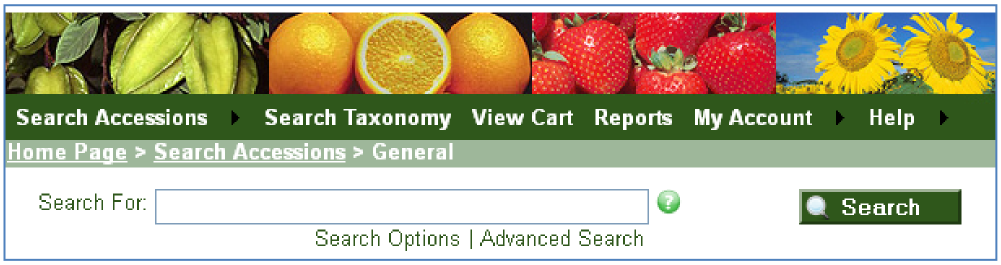


Limit: 100

Find: ● Accessions ○ Inventory ○ Orders ○ Cooperators

Matching: ○ Any Word ● All Words ○ List of Items

Public Website:



Appendix: SQL for Displaying Dataview Field Names

Note Any sample SQL included in this document has been tested under Microsoft SQL Server.

SQL Query for Displaying Tables and Table Fields

```
/* tables and table fields */

use gringlobal;
select
        st.table_name,
        stf.field_name,
        sl2.title as language_title,
        stl.title as table_title,
        stl.description as table_description,
        stfl.title as field_title,
        stfl.description as field_description
from
        sys_table st
        inner join sys_table_field stf
                on st.sys_table_id = stf.sys_table_id
        left join sys_table_field_lang stfl
                on stf.sys_table_field_id = stfl.sys_table_field_id
        left join sys_lang sl2
                on stfl.sys_lang_id = sl2.sys_lang_id
        left join sys_table_lang stl
                on st.sys_table_id = stl.sys_table_id
        left join sys_lang sl1
                on stl.sys_lang_id = sl1.sys_lang_id
order by
        st.table_name, stf.field_ordinal
```

SQL Query for Displaying Dataviews and Dataview Fields

```
/* dataviews and dataview fields */

use gringlobal;

select
	sd.dataview_name,
	sdf.field_name,
	sl2.title as language_title,
	sdl.title as dataview_title,
	sdl.description as dataview_description,
	sdfl.title as field_title,
	sdfl.description as field_description
from
	sys_dataview sd
	inner join sys_dataview_field sdf
		on sd.sys_dataview_id = sdf.sys_dataview_id
	left join sys_dataview_field_lang sdfl
		on sdf.sys_dataview_field_id = sdfl.sys_dataview_field_id
	left join sys_lang sl2
		on sdfl.sys_lang_id = sl2.sys_lang_id
	left join sys_dataview_lang sdl
		on sd.sys_dataview_id = sdl.sys_dataview_id
	left join sys_lang sl1
		on sdl.sys_lang_id = sl1.sys_lang_id
order by
	sd.dataview_name, sdf.sort_order
```

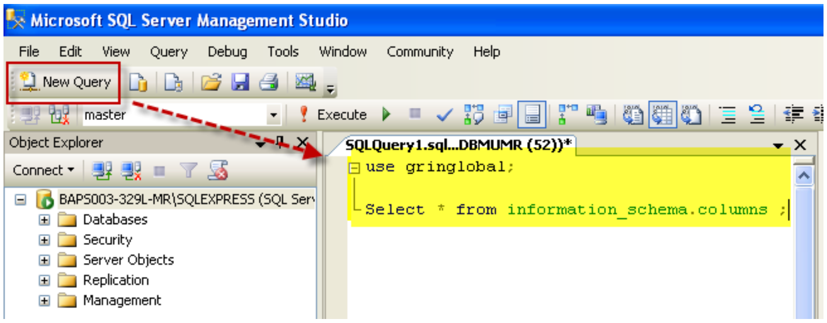
SQL Query for Downloading the Schema

For those administrators who would prefer to download the GRIN-Global schema into a spreadsheet, the following directions explain how to do so using Microsoft's SQL Server Management Studio.

1. Start SQL Server Management Studio: **Start | All Programs | Microsoft SQL Server 2008 (2010) | SQL Server Management Studio**

2. Click **New Query**; input the following commands:

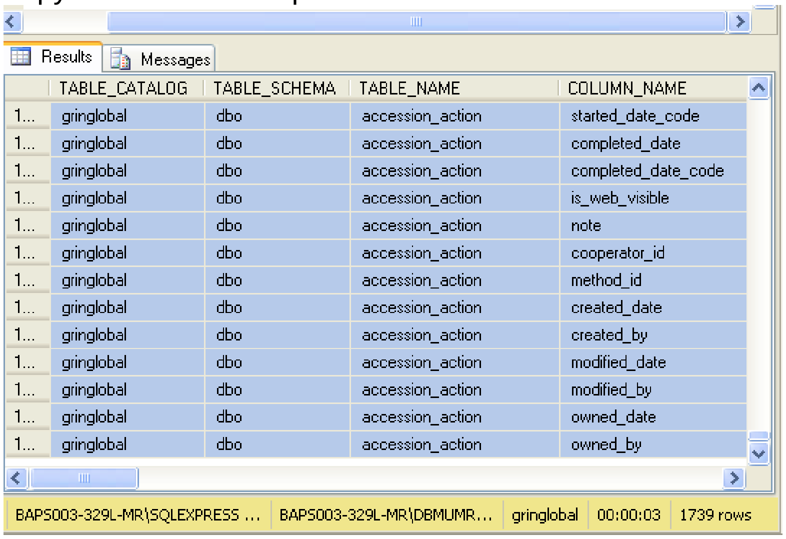
   ```
   use gringlobal;
   Select * from information_schema.columns ;
   ```



```
use gringlobal;

Select * from information_schema.columns ;
```

3. Click the **Execute** button.

4. Copy the results to a spreadsheet:



	TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	COLUMN_NAME
1...	gringlobal	dbo	accession_action	started_date_code
1...	gringlobal	dbo	accession_action	completed_date
1...	gringlobal	dbo	accession_action	completed_date_code
1...	gringlobal	dbo	accession_action	is_web_visible
1...	gringlobal	dbo	accession_action	note
1...	gringlobal	dbo	accession_action	cooperator_id
1...	gringlobal	dbo	accession_action	method_id
1...	gringlobal	dbo	accession_action	created_date
1...	gringlobal	dbo	accession_action	created_by
1...	gringlobal	dbo	accession_action	modified_date
1...	gringlobal	dbo	accession_action	modified_by
1...	gringlobal	dbo	accession_action	owned_date
1...	gringlobal	dbo	accession_action	owned_by

BAPS003-329L-MR\SQLEXPRESS ... | BAPS003-329L-MR\DBMUMR... | gringlobal | 00:00:03 | 1739 rows

Appendix: Changes in this Document

– *April 17, 2017*

- added the SQL code which can be used to display the fields which are involved with the database text search feature

– *October 17, 2016*

- edited the reports section slightly; verified the .txt file locations

– *August 19, 2016*

- included new information on the Web Login regarding CT users having special PW privileges

– *June 2 & March 1, 2016*

- edited information on the .txt files

– *October 22, 2015*

- edited the Code Groups section – added SQL code details for displaying the Code Groups and Codes; also edited the text

– *May 4, 2015*

- edited Web Application parameters; including the adding of the added the SysUserPassword parameters

– April 9*, 2015*

- review and edit of the majority of the document
- replaced outdated screens

– *February 13, 2015*

- expanded background information on the folders installed by the CT (see GG User Files)

– *November 14, 2014*

- corrected minor typo on cover page

– *October 6, 2014*

- edited WebApplication WebSearchableIndexes parameter

– *July 10, 2014*

- explained the three text files: AppSettings.txt, ReportsMapping.txt, and WebServiceURL.txt
- described how to add icons and ”friendly names” for the CT List items

– *December 16, 2013*

- added information about including reports in both the Curator Tool and the Public Website

– *November 12, 2013*

- added more information about datatriggers

– *November 5, 2013*

- minor edits added
- added some [tbd] note – “to be developed” – due to time constraints, some items have been noted as needing some correction or new screen captures
- added a section about the dataview “Shoe Dependencies” feature

– *April 16, 2013*

- included information on AppSettings.txt

– *September 10, 2012*

- included a note and a link to the separate guide that explains modifying and editing the interface for languages other than English

– *January 31, 2012*

- included additional sections about extracting code values: *Extracting All Codes for a Specific Group Name* and *Extracting All of the Code Values*
- removed an outdated section on searches

– *October 26, 2011*

- included detailed instructions on obtaining a Google **GoogleMapsAPIKey**