

GRIN-Global Workshop



Workshop Participant Guide

Revision Date

2018, May 16



This workbook was developed as a summary reference to be used in a workshop covering the GRIN-Global Curator Tool and Public Website, as used by genebank personnel. Discussions of the Admin Tool and other administrative topics will be raised at appropriate points. Review the [Table of Contents](#) which contains links to the document's sections.

Complete documentation on many aspects of GRIN-Global is available online at the GRIN-Global website: <https://www.grin-global.org/> We recommend specifically that you bookmark the User Documentation webpage: <https://www.grin-global.org/userdocs.htm> where many GG guides are stored here. Because these documents are under an ongoing revision process, consider using the online versions and avoid printing.

Comments/Suggestions

Please contact Marty Reisinger at either marty.reisinger@ars.usda.gov or mar@rrginc.com with any suggestions or questions related to this document.

Table of Contents

Workshop Objectives	4
GG Environment: Software, Schema, & Supporting Materials	4
Primary Dataview Relationships.....	5
Online Resources.....	5
Curator Tool (CT) & Dataview Introduction	6
Keyboard Shortcuts	7
Dragging Data.....	8
Curator Tool (Overview)	9
Dataview Introduction.....	10
Accessions – Creating / Editing Records	11
Edit a Record	11
Display Other Dataviews.....	11
Dictionary.....	11
Search Tool Basics	12
Creating Lists & Tabs.....	13
“Drag & Drop” Records to and from Excel	16
Static and Dynamic Folders	17
Accession & Related Tables / Accession Wizard	20
General Notes about the Accession Wizard.....	20
Drag & Drop: Bulk Updating Accession Records	21
Cooperators - Management of Cooperator Records	21
Background Information.....	21
Lookup Tables	22
Lookup Table Warnings	22
Indicators When a Lookup Table Isn’t Updated.....	23
More on Searches	24
Query-by-example (QBE) Searches.....	24
QBE Searches.....	25
Criteria Code Explained.....	27
Inventory	28
System Inventory Items	28
Prerequisite Data.....	29
Purpose of the Inventory Maintenance Policies	29
What Determines Accession Availability or Visibility?.....	29
Availability Status	30
Miscellaneous Inventory Topics	32
Viability Testing	32

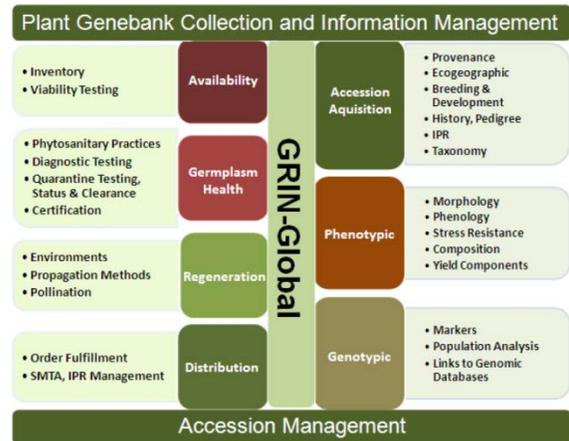
Public Website (PW)	33
Processing Germplasm Requests (Orders)	34
Overview	34
Order Wizard	34
Actions (Order Actions).....	36
PW Tools – SQL Queries	37
Recording Characterization Data: Observations & Descriptors (Crop Traits)	38
Attach Observations to the Accession or Inventory?	38
The Crop “Family” of Dataviews - Overview	38
Source Habitat Descriptors	39
Codes and Code Groups	41
Image and Document Handling	42
Reports	42
Curator Tool Reports	42
One More .txt File.....	43
SQL Reports.....	44
Public Website Reports.....	44
Security: Ownership and Permissions	44
Overview	44
Security Wizard.....	45
Security: Enabling	46
Taxonomy Overview	46
Taxonomy.....	46
“Other” Dataviews	47
Literature References Citations Methods.....	47
Brief Overview of GG Administration	47
Admin Tool.....	47
Preparing for an Organization’s GG Installation.....	49

Workshop Objectives

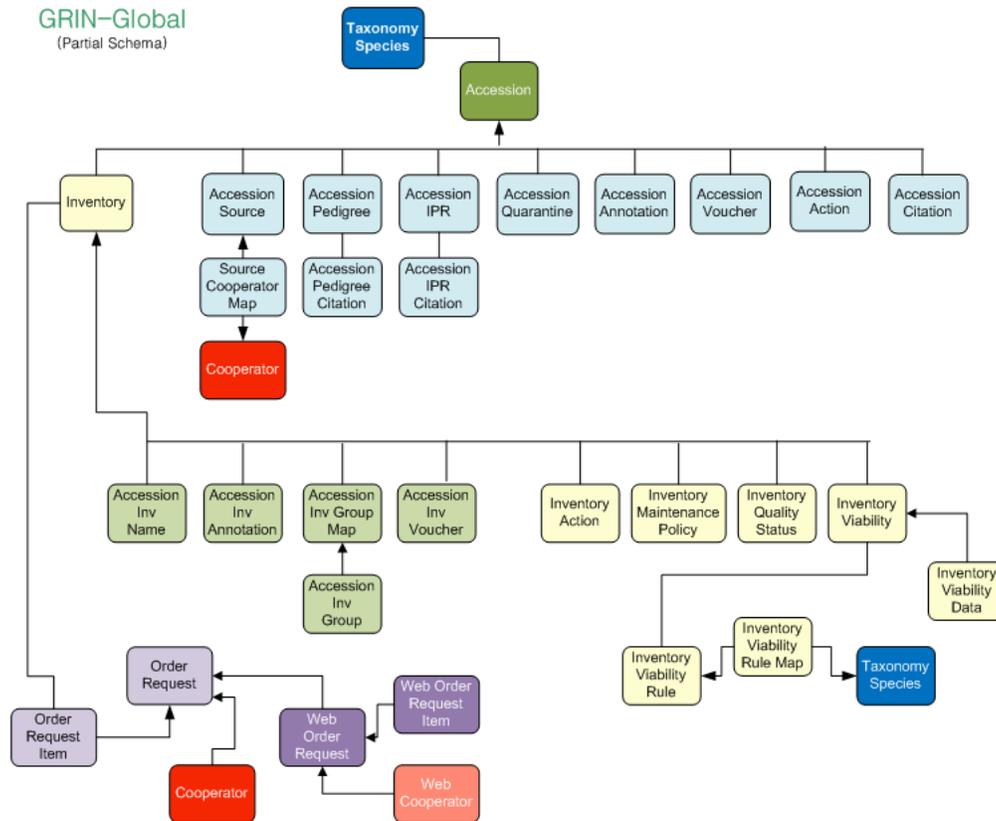
Participants will be able to...

- use the Curator Tool to manage accession, inventory, germplasm orders, and accession evaluation data
- add, update, and search for data
- fulfill germplasm orders
- get comfortable with the GRIN-Global(GG) jargon, terms, and the GG programs' interface
- manage security ownership and permission settings to facilitate a site's workflow and processing
- use the GG Public Website as a tool to also manage the organization's accession data
- explain to an institute's germplasm requestors how to use the Public Website

GG Environment: Software, Schema, & Supporting Materials



Primary Dataview Relationships



Online Resources

Resource	Link
GG Documentation Website	https://www.grin-global.org/
Tables spreadsheet (w/ fieldnames)	https://goo.gl/GJX35W
Online Dictionary of Dataviews	https://goo.gl/2PynPg

Abbreviations Used in this Document

Abbreviation	Meaning
CT	Curator Tool
DB	database
DBA	Database Administrator (usually the GG administrator)
GG	GRIN-Global
PW	Public Website
SQL	Structured Query Language

Curator Tool (CT) & Dataview Introduction

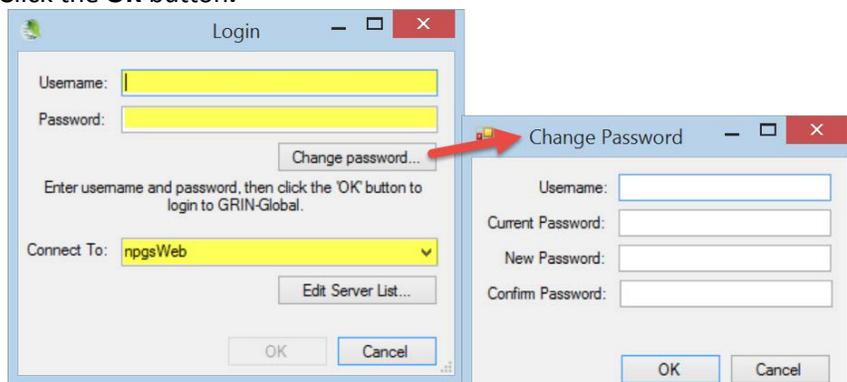
Starting Up the CT

To access the CT, you need a **Username** and **Password**. The username is generally your email address; the password is assigned by a GG Administrator.

1. Select **GRIN-Global Curator Tool** program icon



2. In the **Login** window, input **Username** and **Password**.
In the **Connect To:** box, select the database.
Click the **OK** button.

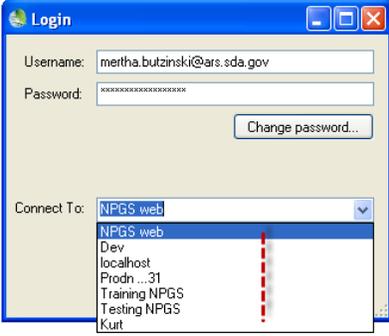


(To change the password, click the **Change Password** button.)

In a networked environment, the server name will be a DNS Server Name or an IP address of the GRIN-Global database. Directions are described below for selecting our workshop server.

Selecting a Server

In most organizations, a GRIN-Global administrator typically installs the GG database on a remote server. In small genebanks, the entire GG suite could be installed on a single PC. (On a single PC, the server name is always "localhost.")

	 <p>Login, using the server, username, and password that a</p> <p>Username: _____</p> <p>Password: _____</p> <p>Server (Connect To:) _____</p>
---	---

Keyboard Shortcuts

The GRIN-Global Curator Tool adheres to many of the standard Windows conventions. For instance, you can highlight data being copied and then use the keyboard shortcut **Ctrl-C**.

Keyboard Combinations	Effect*
CTRL + A	Select all (highlight everything in the current “group”)
CTRL + C	Copy
CTRL + D	The top cell in a selected group is duplicated <i>down</i> from the top cell to the bottom cell. (Edit mode)
CTRL + E	Displays text fields in an “expanded” window; in Edit mode you can change the text.
CTRL + N	Create a <i>new</i> record. (Edit mode) Select a record to be duplicated; press CTRL-N (the duplicate record is created below the selected record).
CTRL + V	Paste
CTRL + X	Cut
CTRL + ‘	Duplicates the cell contents from above into the cell you are editing
ALT	Puts the CT into “block select” mode. In this mode, you can select cells (one cell or a block) to copy and paste into another program, such as Excel. To exit “block select” mode, complete the copy /paste operation or press ESC. (Note: the CTRL or ALT keys will not exit the “block select” mode.)
F2	(Edit mode) You can double-click on a cell to edit it or press the F2 key. If the cell uses a Lookup Picker, F2 will open the Lookup Picker window.
Delete	When in Edit mode, press the Del key to clear the cell. Also use the Delete key to delete multiple rows in the datagrid

* On non-English keyboards the Windows keyboard shortcuts may be different.

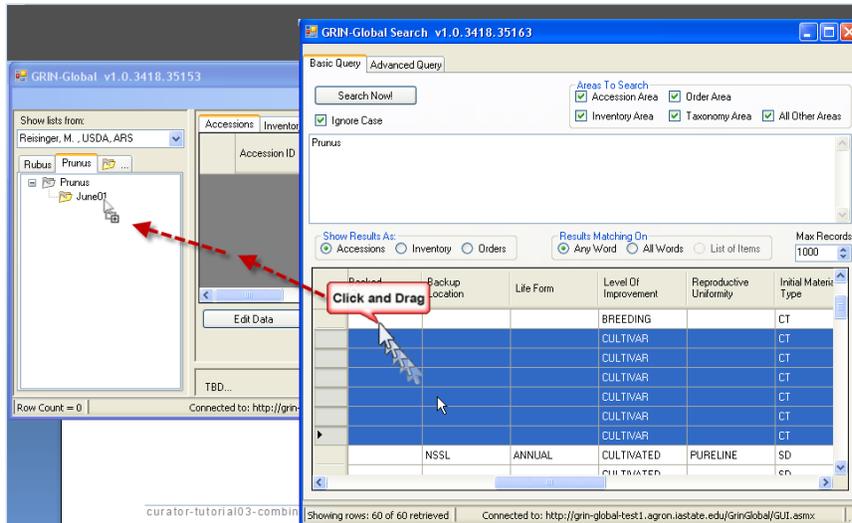
Dragging Data

[This is for reference here. During the workshop, you will have many opportunities to “drag and drop.”]

To “drag” the mouse involves clicking on some object on the screen, either text or a graphic, and then *while holding the mouse button*, you drag the mouse

Drag and Drop

In the following example, *existing* database records highlighted in the Search Tool window on the right, are being dragged to the List “June01” in the left Curator Tool window.



When using the drag & drop to create *new* records from a spreadsheet, the CT must be in edit mode (click the Edit button first before starting the drag & drop). In that case, the highlighted rows from the spreadsheet are dragged into the Curator Tool’s gray datagrid.

Selecting Cells

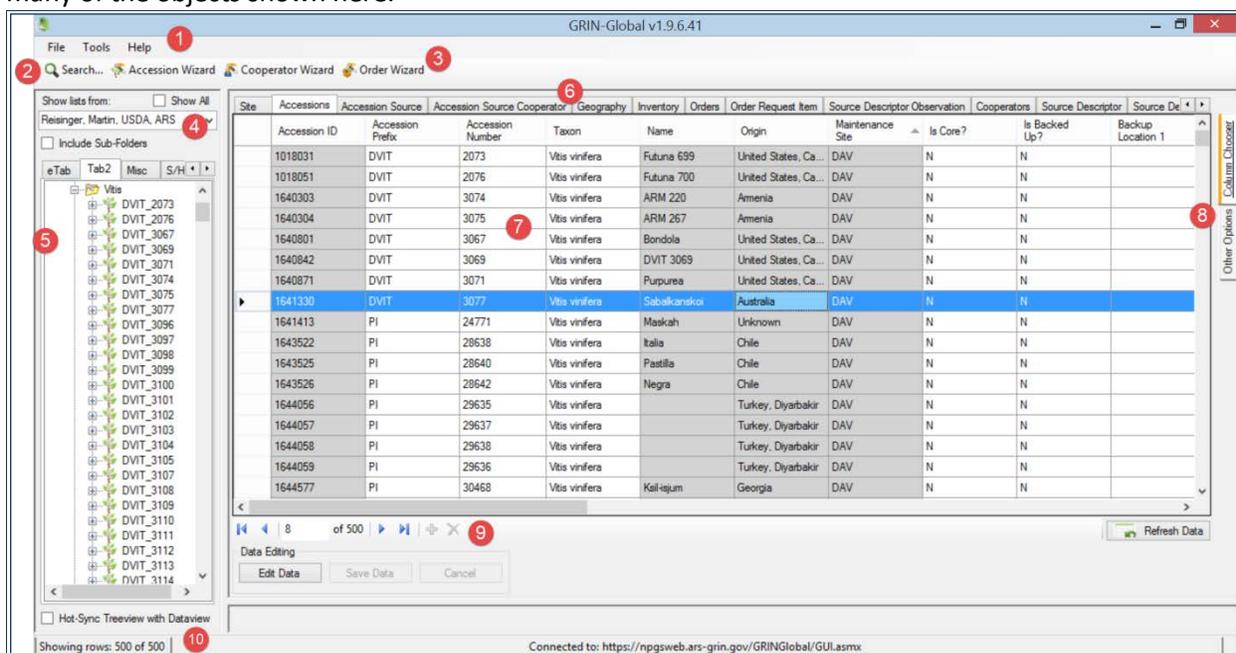
In the CT, in Display Mode, you can select a single cell or a block of cells and then copy and paste the cells’ contents into a spreadsheet. Click **ALT** *once*, then copy and paste.

Press ALT to select a single or group of cells; then copy

Type	FAO Institute Number	Note
Clonal maintenance site	USA108	
Seed and clonal maintenance site	USA047	
Seed and clonal maintenance site	USA129	
Seed maintenance site	USA129	

Curator Tool (Overview)

The following illustrates a Curator Tool which has been used for some time; a new user would not see many of the objects shown here.



(The table below relates to the preceding illustration.)

Num.	Screen Component	Feature
1	Menu	Includes features such as changing the interface language or password, resetting lists and the user defaults.
2	Search Button	Opens the Search Tool window
3	Wizard Buttons	Start wizards which assist you in specific tasks
4	Show lists...	Use the dropdown to view other users' lists.
5	List Panel	Use to organize data into lists – for reasons meaningful to you.
6	Dataviews	Initially four tabs display. A dataview is used to display the actual database records
7	Data Grid	Data is displayed in this area, similar to a spreadsheet.
8	Column Chooser...	Used for selecting which columns to display
9	Navigation Bar	Used for moving to different records. When in Edit mode, (after pressing the Edit Data button), the “+” key initiates the adding of a new blank record; the red “x” key deletes a record.
10	Status Bar	Displays information about the records in the data grid (such as count) as well as the name of the current server.

Dataview Introduction

Dataviews serve as “camera’s lens” to the GRIN-Global data. With different dataviews, you focus on different parts of the database. A dataview is a SQL query which displays data matching certain criteria.

To Display a Dataview Whose Tab is Visible

To use a dataview, click on the dataview’s tab.

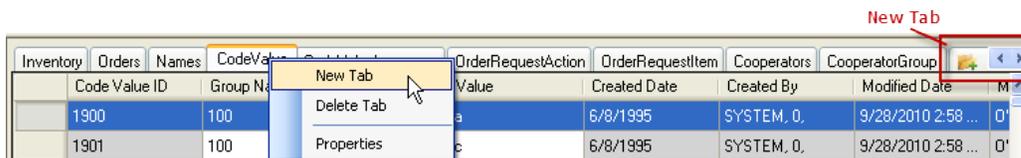


*You must be in **Read-Only** mode to switch dataviews.* When the **Edit Data** button is grayed out, you are in **Edit** mode. To switch dataviews, you will need to either click **Save Data** or **Cancel**).

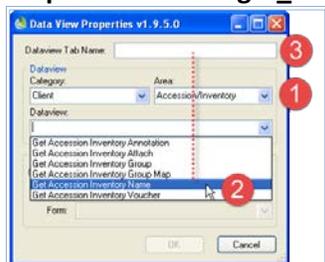


To Display a Dataview Whose Tab *isn't* Visible

1. Click the **New Tab** icon. (When many tabs are displayed, scroll to the right to display the **New Tab** icon). Alternatively, right-click on any visible tab; select **New Tab** from the menu.



2. To choose a dataview: Select (1) Area* (2) a dataview from the list. (3) Name the dataview, such as **Cooperator** for the `get_cooperator` dataview.



* the online dictionary has a worksheet with the tab “Dataview List” which can be referenced to find the area of any dataview

Dataviews are programmed to display data primarily from one table. However, data from other tables may also be included.

Cell Colors in Edit Mode

When changes are being made to database records, the Curator Tool must be in “Edit Mode.”

Cell Color	Meaning
gray	cell cannot be edited in the current dataview
violet	required field; a new record must have all required fields filled

Cell Color	Meaning
yellow	indicates that the data in the field has changed
blue	current cell

Accessions – Creating / Editing Records



Follow the instructor’s directions for creating a new accession record. For the taxon, select one that displays in the lookup. (When in Edit mode, click in the **Taxon** field to determine what valid taxonomy are in the database. At this point in the workshop we cannot add additional taxonomy.)

There are several main ways to add and edit accessions:

- “manually” – one at a time, in the Accession dataview
- one at a time, via the Accession Wizard (the subordinate child records can also be added)
- many at a time – by dragging data from a spreadsheet into the Curator Tool



Describe how to recognize a “system inventory record.”

References

In GG, an accession’s passport is not stored in just one table. GG uses multiple tables to store the passport data. [Read later: the reference document which explains passport data is stored in GRIN-Global: [Accessions and Passport Data](https://www.grin-global.org/docs/gg_accessions_and_passport_data.docx) https://www.grin-global.org/docs/gg_accessions_and_passport_data.docx]

Edit a Record



Follow the instructor’s directions: Edit one or more of your records. Make some changes to the data. Practice getting into Edit mode / saving changes. Change column order, width, and sort order. For an Accession record, switch to the Grid Form (Right-click; Properties).

Display Other Dataviews



Display several dataviews, such as:

- Accession Inventory Name
- Inventory Maintenance Policy
- Crop

Dictionary

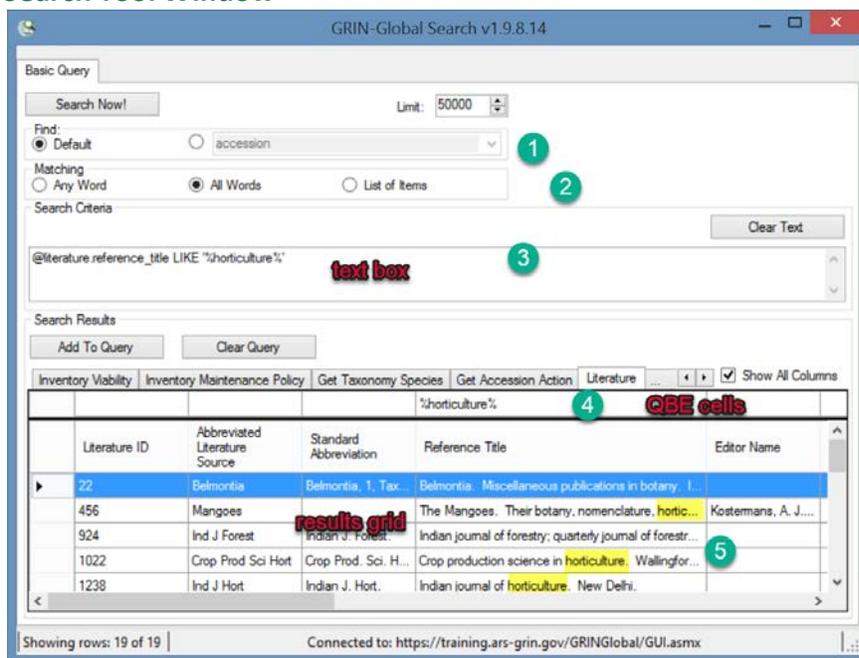


- Display the online dataview dictionary:
Documentation Website: <https://www.grin-global.org/>
Dictionary: <https://goo.gl/2PynPg> -- bookmark it

Search Tool Basics

Use the Search Tool to search for records from the main GRIN-Global database. Refer to the online Searching document at https://www.grin-global.org/docs/gg_searches.docx

Search Tool Window



Number	Note
1	Find Panel: for most searches, the default radio button will be selected. In some cases, you will need to select a dataview name from the dropdown button to resolve to the dataview QBE criterion.
2	Matching: Options for indicating the general type of search.
3	The text box: the criteria for the search are ultimately placed here for review before the search is invoked
4	QBE (“Query By Example”) Cells: Enter sample search criteria in these cells.
5	Results grid: After you click the Search Now! button, matching records are displayed here.

The Search Tool uses two distinct methods:

- Freeform text (not recommended) (Also, a freeform text search is not a true “Google” search; also only certain fields are searched)
- Query-by-Example (“QBE”) (preferred method)

Displaying Additional Query-By-Example (QBE) Tabs

To display additional dataview tabs from which to invoke QBE searches, click on the ellipsis tab and select the desired dataview.

Creating Lists & Tabs

Key Points - Lists:

- are used to display database records
- create them as needed -- assign names meaningful to you
- the words “lists” and “folders” are used interchangeably
- two kinds of lists: static & dynamic
 - static: display a consistent collection of records (Note: large static lists can impact performance)
 - dynamic: display more or fewer records at any point in time, depending on the criteria used for selecting the records

Overview of Lists

Using lists, the genebank staff can:

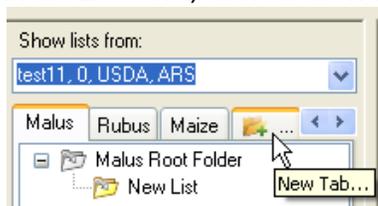
- manage their genebank’s accessions
- track inventory
- process germplasm orders
- record observations
- ...

Tabs & Lists

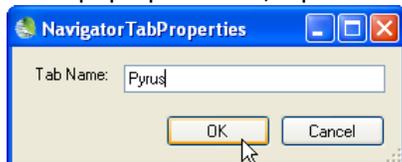
Tabs are created and used as needed to organize your lists.

To Create a New Tab

1. In the List Panel, click on the **New Tab** icon with the ellipsis (“...”).

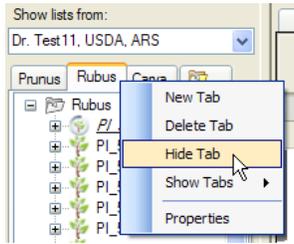


2. In the pop-up window, input a **Tab Name**; click **OK**.



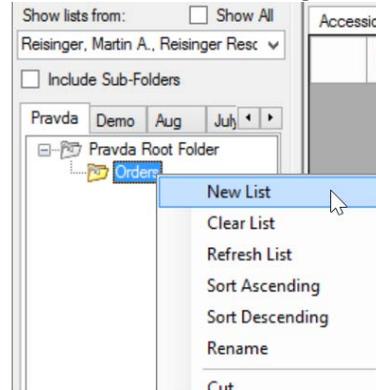
To Hide and Display Tabs

Tabs in the List Panel can be hidden or displayed as desired. This is particularly helpful when you have created many tabs. Right-click on a tab; select **Hide Tab /Show Tab** from the menu as desired:

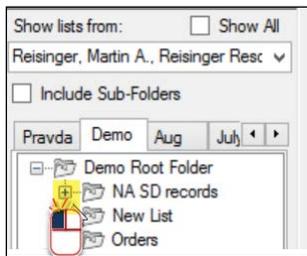


To Create a New List

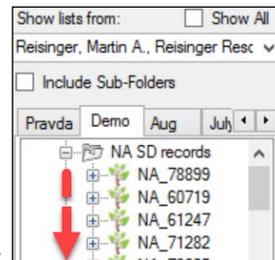
Right-click on a list and select **New List**. A new, empty list with the name “New List” will be created below the original list.



List Items



Click the + to expand the list:



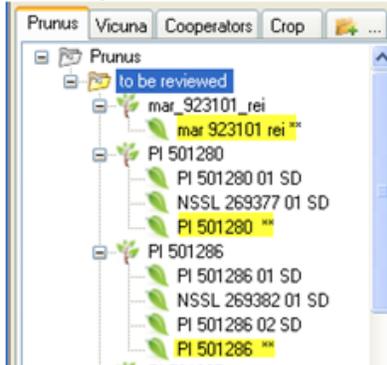
Accession Items

When accessions are displayed in the grid, they will have corresponding items in the list in the left panel, *unless the folder is a dynamic folder.*

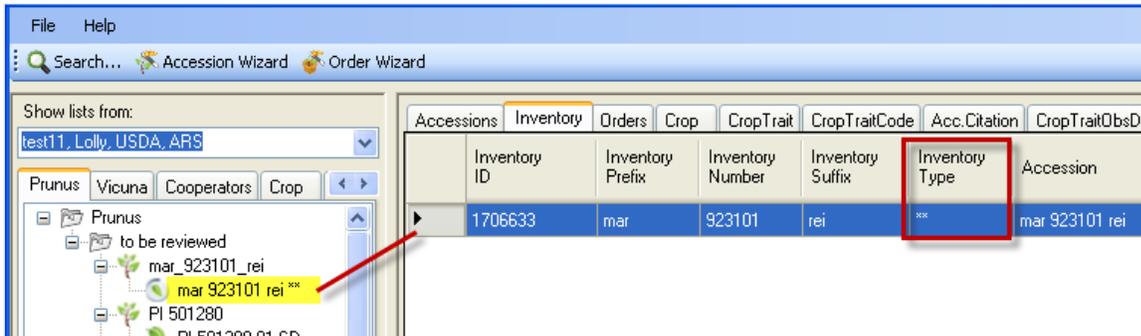
Accession ID	Accession Prefix	Accession Number	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Name
1502703	NA	49084		Cercis racemosa	NA 49084	China
1776562	NA	50703		Prunus x kanzak...	369ER	Japan
1776564	NA	50720		Prunus nipponica...	218ER	Japan
1024993	NA	53230		Catalpa ovata	Ames 3501	Japan
1108657	NA	53551		Acer cissifolium	70184	Germany
1109725	NA	55089		Carpinus betulus	KNW 286	Korea
1109759	NA	55117		Viburnum erosum	KNW 314	Korea

System-Generated Inventory Items

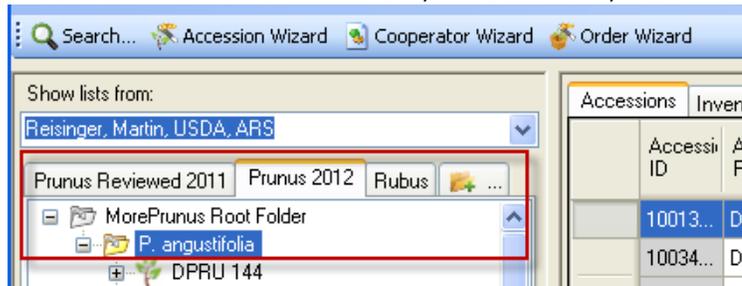
For every Accession record, GG automatically creates a “system” Inventory record. System inventory items are marked with a double asterisk (**) next to their name.



In the **Inventory** dataview, the **Inventory Type** for virtual inventory records is also indicated with a **. Since these ** inventory records do not represent physical inventory, the quantity fields should be empty.



Create at least one more tab. Create several lists on your tabs. The following example shows three tabs: “Prunus Reviewed 2011,” “Prunus 2012,” and “Rubus.”



“Drag & Drop” Records to and from Excel

Key Points:

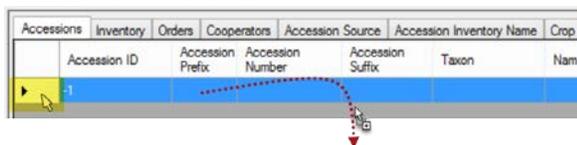
When copying data from a spreadsheet into the CT, remember:

- the *spelling of the column headings in the Excel sheet and in the CT dataview must match*
- the column order does not matter
- you do not need to include all columns, but always include the left `_ID` column

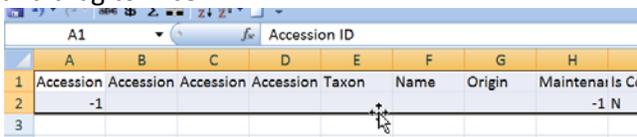
To ensure you have correctly spelled column headings in Excel, drag an empty record from the CT. To do so, with the Accession dataview active, click the **Edit Data** button; click the **Add New** button;



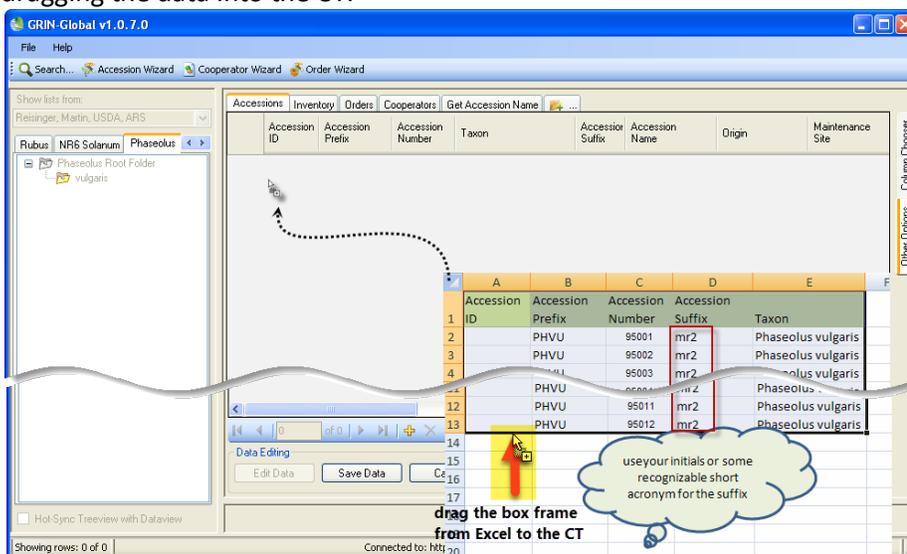
... then select the row



and drag to Excel:



Create five new accession records. Use *your initials for the prefix or suffix*, so that as the workshop evolves, the records will be unique and identifiable. The **Accession Number** field must be numeric – assign numbers sequentially. Save your spreadsheet workbook before dragging the data into the CT.



Copy the Data from a Spreadsheet to the Curator Tool

Open *both* the GRIN-Global Curator Tool and Excel.

1. In the Curator Tool, click on the folder that will be updated; click the **Edit Data** button (if you are not already in Edit mode).

- In the spreadsheet, highlight the data that will be copied; *include the column header row and the data*. Using the cursor, grab the selected cells outline box, drag the box, and drop it anywhere in the CT's datagrid (in the right panel).
- In the CT: If satisfied, click **Save Data**. (If not, edit the data, or Cancel)



Each table has a primary key field – in the Accession table, it is the **Accession ID** field. When dragging spreadsheet records, you *always include the ID column* --

- empty* _ID fields will *add new* records
- matching* _ID fields will *update existing* records

Copying, Block-Style

Blocks of data can be copied to and from a spreadsheet and the Curator Tool.

When copying *from* the CT, you do not need to be in Edit mode. Press the keyboard's **ALT** key (once!) Using the mouse, highlight a cell range; copy (Ctrl-C); and paste (Ctrl-V) in Excel, email, etc.

When copying *to* the CT, click the **Edit Data** button to ensure the CT is in Edit mode. In the spreadsheet, copy a cell range and paste into the CT. For example, if you were replacing data in the **Note** column of accessions, you would only drag note data into the appropriate accession **Note** cells.



When using this method, since you will not be including the column names, *so it is critical where you line up the cells* when you copy and paste.

Accession ID	Accession Prefix	Accession Number	Taxonomy	Accession Suffix
509134	new21	11	Phaseolus vulgaris	
509135	new22	12	Phaseolus vulgaris	
509136	new23	13	Phaseolus vulgaris	
*				



Practice using the **ALT** key technique.

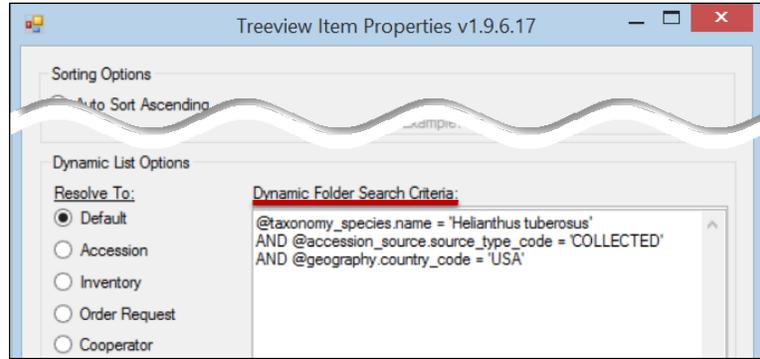
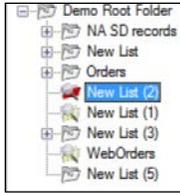
Static and Dynamic Folders

A static folder contains a list of items. A dynamic folder contains search criteria. Think of the dynamic folder as a stored query.

A dynamic folder is recognized by a magnifying glass superimposed on the folder icon. Here three are shown; the red one is currently being used.

To review the dynamic folder's criteria, right-click on a dynamic folder icon to display the **Properties** window.

Static and Dynamic Folders



Records Listed by Dynamic Folder

So why use a static folder? First, they are simpler in some respect. Secondly, many times you will want to review specific records, and *only those* records. Listed below are a few examples of when each folder type is preferable:

Situation	Folder Type
Keep track of what you are working on from one day to the next	Static
List of orders processed on a specific day	Static
Maintain a list of all accessions for a specific Taxon	Dynamic
Review a site's inventory	Dynamic

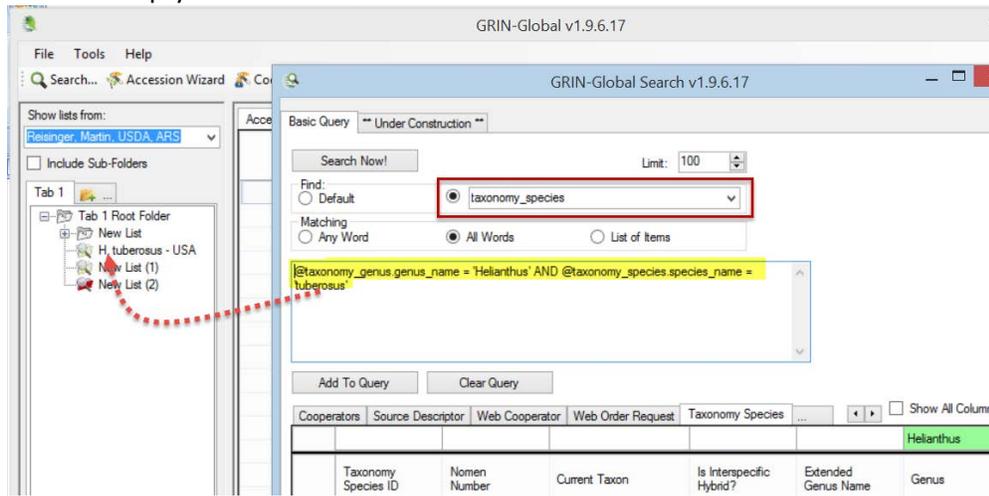
A detailed description of Dynamic Folders is online at https://www.grin-global.org/docs/gg_dynamic_folders.docx

Steps in Creating Dynamic Folders

Two methods for creating a dynamic folder are explained here. Each method starts the same way -- in the CT, first create an empty folder.

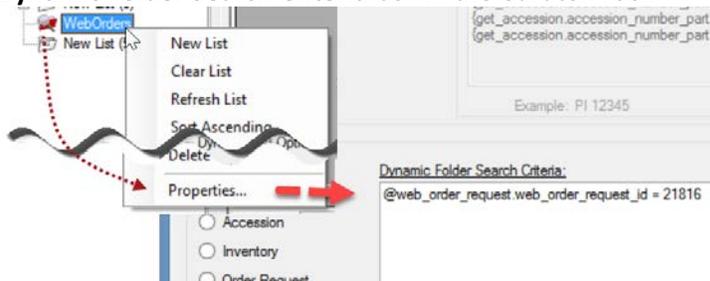
Method 1 (Recommended method)

Switch to the Search Tool; create a query. Drag the *code* in the large text box (generated by the QBE) onto the empty folder in the Curator Tool.



Method 2

While still in the Curator Tool, right-click on the empty folder. Select **Properties** from the menu. Switch to the Search Tool; create a query. *Copy the code* in the large text box (generated by the [QBE](#)) into the **Dynamic Folder Search Criteria** box in the Curator Tool.



Refreshing a Dynamic Folder

If any new records are added to the GRIN-Global database that meet the folder’s criteria, the records will be displayed when the dynamic folder is the active folder and has been refreshed. You can refresh a dynamic folder by invoking any of the following methods:

- right-click on the folder and select the **Refresh List** command
- switch to another tab and then back to the tab with the dynamic folder
- click the **Refresh Data** button in the right panel
- press F5
- start the CT



Practice by creating several dynamic folders. Example:
Find a range of accessions. (**@accession.accession_number_part2 > 500000 AND @accession.accession_number_part2 < 500100**)

Accession & Related Tables / Accession Wizard

General Notes about the Accession Wizard

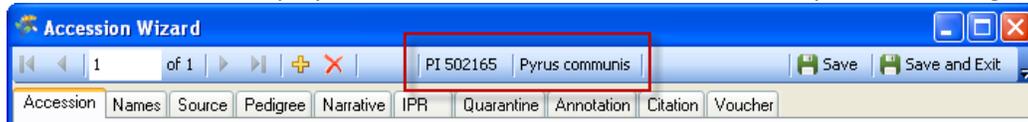
When working with one accession at a time, use the Accession wizard since it contains 9 accession-related dataview tabs. Move from tab to tab to review an accession's associated data.

Some guidelines:

- as you work in the wizard's forms, save your work often (click on the **Save** icon)
- use the window's close button to cancel when necessary. *However, any data not yet saved will be dropped, not just for the current tab screen, but for any of the tabs*



- the screen's header displays certain fields that indicate what record you are working with



Passport Data

GG is segmented into many tables. Also, the passport data is saved among different tables. There is an online [https://www.grin-global.org/docs/gg_multi_crop_passport_descriptors MCPD.docx](https://www.grin-global.org/docs/gg_multi_crop_passport_descriptors_MCPD.docx) Multi-Crop Passport Data document that provides details on each passport field. Many of these passport data fields can be seen in the various children records.

Example: *Names*

The **accession_inv_names** dataview makes it possible to have multiple names for an accession – they can be cultivar names, institute identifiers, collector numbers, breeder lines, etc.

When an accession has more than one Name record associated with it, the name whose **Name Rank** field has the lowest value will be displayed as the top name. As shown below, in the case of a tie, the name that is alphabetically first is displayed as the top name.

Accession Wizard v1.9.6.41				
1 of 1 MR 201501 REI Prunus americana Save				
Accession Names Source Pedigree IPR Quarantine Annotation Voucher Action				
New Name				
Name	Category	Name Rank	Name Group	
EGR 1	Cultivar name	1		
W5 46089	Site identifier	2		
Đầu tượng nếp địa phương	CGIAR International Center Identifier	1		

Site	Accessions	Inventory	Orders	Order Request Item	Accession Action	Accession Inventory Name	Accession Inventory Group	NE9 Site Inve
Accession ID	Accession Prefix	Accession Number	Accession Suffix	Taxon	Name	Origin		
1922543	MR	201501	REI	Prunus americana	Đầu tượng nếp địa phương	United Sta		

Drag & Drop: Bulk Updating Accession Records

You may need to change *many* database records at one time. Records can be edited directly in the CT or copied to a spreadsheet and then copied back again after being edited in the spreadsheet.

Remember:

- when *adding new* records, leave the ID field empty for the new records
- when *updating existing* records, include the ID field data when dragging & dropping from the spreadsheet



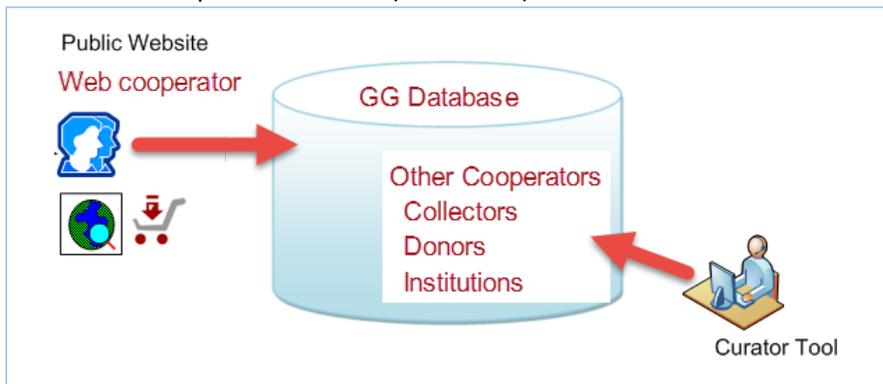
Practice this “dragging and dropping” several times throughout the workshop. The exercise here will involve bulk adding new accession records, and then bulk updating the records.

Cooperators - Management of Cooperator Records

For complete details, review the Curator Tool User Guide’s *Cooperator Wizard* section.

Key Points:

Two distinct cooperator records (and tables) in GG:



Background Information

Two kinds of cooperator records:

- *web* cooperators – users who self-enroll on the Public Website
- GRIN-Global (GG) cooperators
A cooperator can be an *individual* or an *organization*. Typically, when creating an institutional cooperator record, the last name and first name fields are left empty. Internal genebank staff input and own these cooperator records.

Use the Curator Tool’s Cooperator Wizard whenever you wish to add a new cooperator to the GRIN-Global database or edit an existing cooperator record. One advantage of using the wizard, rather than using the cooperator dataview, is that you can search the database before inputting a new cooperator.

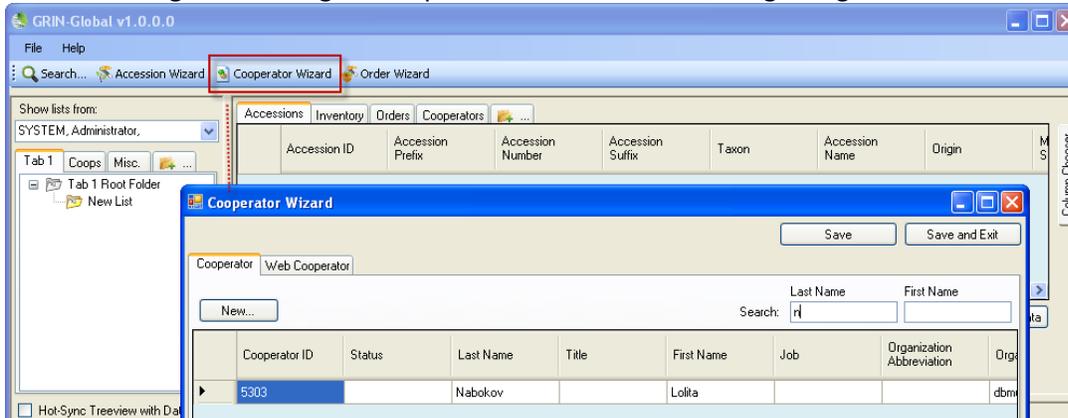
Lookup Tables

GRIN-Global Cooperator Records

In addition to web cooperator data, the GG database maintains records containing data on individuals and organizations involved with germplasm activities (donors, collectors, breeders, requestors, etc.) Besides active data, cooperator records can store historic data containing the person's or institution's previous addresses.

Cooperator Wizard

Use the Cooperator Wizard to add new cooperators or edit existing ones. In the following example, while the user had the **Accessions** dataview as the active dataview, he clicked on the **Cooperator Wizard** button and began searching for cooperators with a last name beginning with "n":



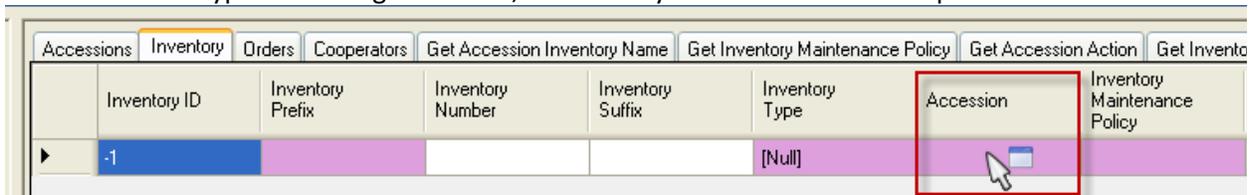
Use the “_” (single character) and the % (multiple characters) wildcards to broaden the search.



The current wizard only searches by last name and first name fields, so use the Search Tool when looking for institutes.

Lookup Tables

Any time you see a pointer similar to the one below, recognize this field as one that is using a lookup table. You never type something in this cell, but rather you must use the Lookup Table window



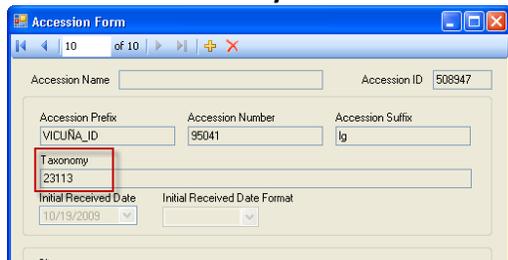
Lookup Table Warnings



The first time you open the Curator Tool you will be prompted to update your lookup tables. After all lookup tables are updated, the lookups will maintain themselves fairly automatically.

Indicators When a Lookup Table Isn't Updated

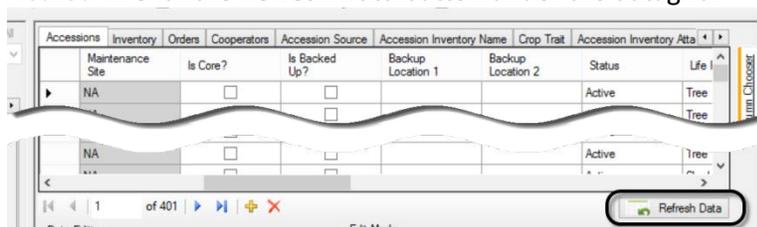
As an example, when the Taxonomy Lookup table needs updating, you may notice numbers displaying in a dataview's **Taxonomy** field or a search window's **Taxon** field instead of the actual taxonomic name.



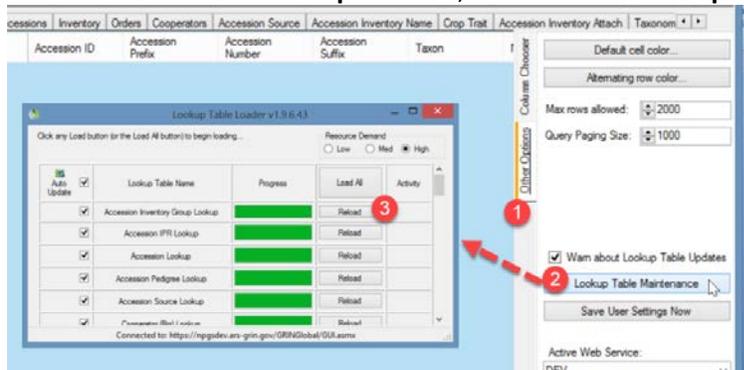
Updating the Lookup Tables

The Curator Tool automatically updates the lookup tables every time it is started. When the CT is running, you can manually update the lookups at any time.

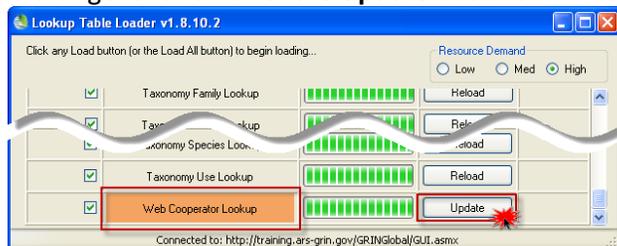
Method 1: Click the **Refresh Data** button under the datagrid.



Method 2: Click the **Other Options** tab; then click the **Lookup Table Maintenance** button:



Note In the **LookupTable Loader** window, any lookup tables needing to be updated are highlighted in orange. Click on all of the **Update** buttons:



Load All and Load Buttons



Only click the **Load All** button when you have a new copy of the Curator Tool or when the database has been replaced by the GG administrator with a new database. **Load All** causes all lookup tables to re-load – this may require one hour or so, depending on the size of your data.

To ensure that the Lookups are fully updated, use the **Load All** button *twice*. (Wait until the progress activity is visibly complete before clicking the second time.)

More on Searches

The complete GRIN-Global Search Guide is online at https://www.grin-global.org/docs/gg_searches.docx In some organizations, the GG administrator will set up specific fields using Microsoft's Full Text Indexing feature. Also, he or she can indicate specific fields in the GRIN-Global **autofields** table.

Query-by-example (QBE) Searches

Recommended over text box searches. QBE can search fields throughout the GG database.

The QBE cells accept wild card characters. (See [wildcard table](#).) For example, **Prunus*** is appropriate when searching by **Prunus** in the QBE Taxon cell since the Taxon includes more than genus.

Accession ID	Accession Prefix	Accession Number	Accession Suffix	Taxon	Accession Name
296	PI	502568		Prunus cerasifera var. dvar...	
297	PI	502569		Prunus cerasifera	
298	PI	502570		Prunus persica var. persica	
462	PI	506389		Prunus armeniaca	
463	PI	506390		Prunus armeniaca	

Every word matters

Case sensitivity of searches depend on how the GRIN-Global database is set up:

- If the database is installed as case-sensitive (this is the default for the Oracle and PostgreSQL database engines), the queries will be case-sensitive.
- If the database is installed with settings to make the database case-*ins*sensitive (this is the default for Microsoft SQL Server and MySQL database engines), then the queries will be case-insensitive too.

Case Sensitivity

Case sensitivity depends on how the GRIN-Global database is set up:

- If the database is installed as **case-sensitive** (this is the default for the Oracle and PostgreSQL database engines), the queries will be case-sensitive.
- If the database is installed with settings to make the database *case-insensitive* (this is the default for SQL Server and MySQL database engines), then the queries will be case-insensitive too.

Text Boxes and Special Characters

Special characters and letters with diacritical marks and accents (such as á) can be entered in the Search text box.



You can copy special characters from the Windows clipboard. Another method is to enter the character using the Windows “ALT key – numeric codes” method. Refer to websites which explain special characters.

QBE Searches

The following table is a subset of a table in the online guide, illustrating some types of QBE searches:

Wildcard / Operator	Examples / Notes
% (percent symbol)	Broaden searches, especially when the exact spelling is unknown. The field must be a text field. Both wildcards allow a match of any string of any length (including zero length)
* (asterisk)	Example: Prunus%var will locate any Prunus with “var” included; %var% will locate any accessions with the text “var” as part of its taxon
IS NULL / IS NOT NULL	NULL values represent missing unknown data. By default, a table column can hold NULL values. NULL and 0 are not equivalent.
LIKE	The LIKE operator is used to search for a specified pattern. Example: LIKE ‘CAPSICUM%’ In this case the QBE is saying find any text that begins with “Capsicum.”
“BETWEEN” (implemented server version 1.9.9.2)	BETWEEN is now a valid operator. When a range of values is needed, construct your criteria using a range. Example: @order_request.ordered_date BETWEEN '2015-01-31' AND '2015-03-01' (finds the orders for February, 2015)
Date Fields <i>Microsoft SQL Server</i> Internally a date is stored in the yyyy- mm-dd time... format	Searching for dates can be tricky because the date field includes the time of day as well.* The following are valid searches: @accession.created_date like '2015%' @accession.created_date like '2015-09-%' @accession.created_date like '2015-09-05%' @accession.created_date like '2015-%-05%'

*Date Fields

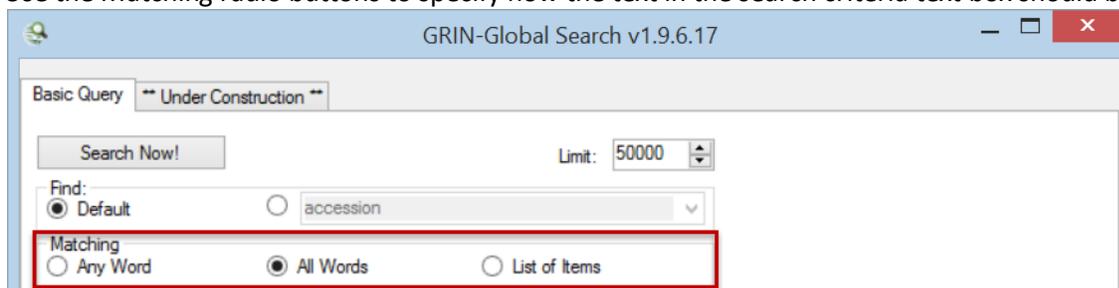
When searching, your search string in the QBE box needs to mimic the internally-stored version. For example, when searching for February records from 2014, enter the search string '**2010-02%**'

@accession.created_date LIKE '2014-02%'

End the search string with a wildcard (%), because the date fields also store time in the field. Most other useful formats: **MM/DD/YYYY** or **MM/DD/YY** or **DD-Mon-YYYY** or **DD-Mon-YY** are supported, but *do not accept* wildcards.

Any Word, All Word, and List of Items

Use the Matching radio buttons to specify how the text in the search criteria text box should be treated:



- **Any Word** – less restrictive, records are returned whenever any word in the search box is matched; the “OR” operator will be used
- **All Words** – more restrictive, *all* of the words used in the search text must match; this creates an “AND” condition

Example:

In a test database, the search string **Rubus glaucus***, with “All Words” finds four records, but with “Any Word,” selected, 48 records are found.

- **List of Items** – used when a list, such as a list of accessions, is copied into the search text box.

When using this “List of Items” search, the Search Engine is restricted to finding matches in these columns:

accession_number..._part1_part2_part3
inventory_number..._part1_part2_part3, and form_type_code
plant_name
order_request_id

List of Items Example:

PI 500501
PI 612346
PI 612347

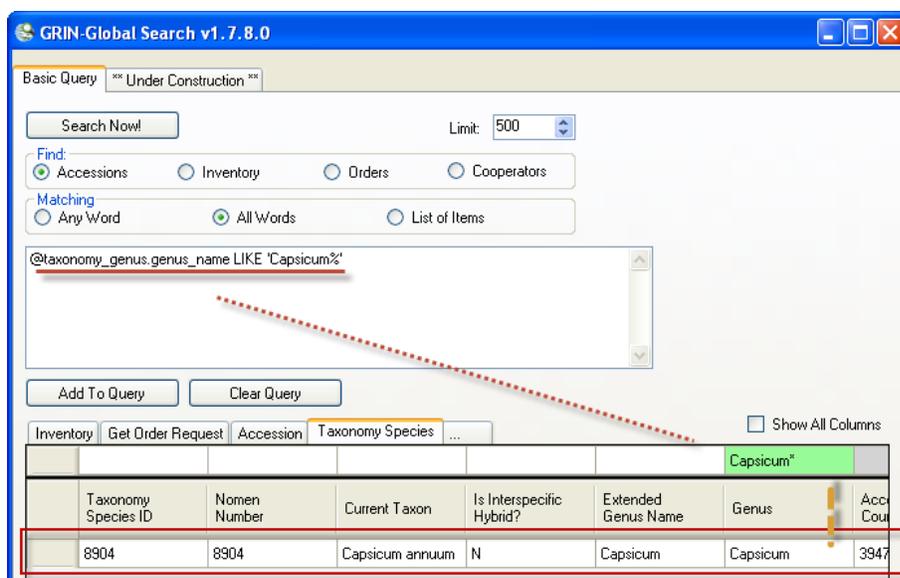
Criteria Code Explained

In creating QBE searches, you will notice code being generated in the text box. Let's look at two QBE examples that on the surface seem to be similar searches.

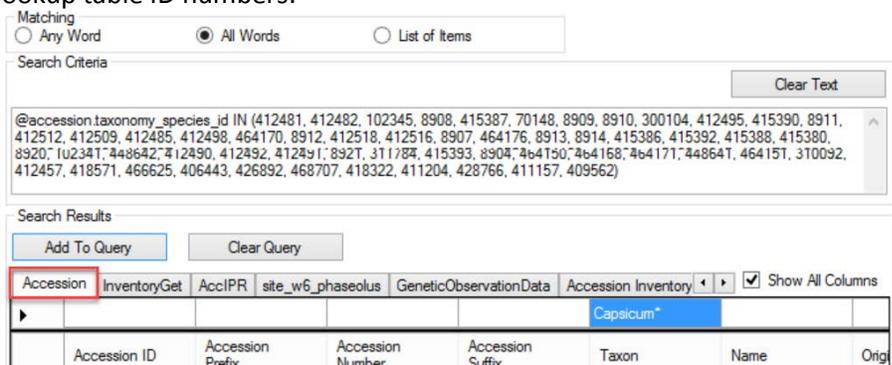
@ taxonomy_genus.genus_name LIKE 'CAPSICUM%'

Let's break out this code into three components:

Code	Indicates...
@taxonomy_genus	the table; the taxonomy_genus in the database will be searched
genus.name	the field name in the table
LIKE 'CAPSICUM%'	The LIKE operator is used to search for a specified pattern; in this case the QBE is finding any text beginning with "capsicum."



However, when in the Accession dataview, looking for Capsicum, the ST generates code that uses the lookup table ID numbers:



Inventory

A complete guide to GG Inventory is online. https://www.grin-global.org/docs/gg_inventory.docx

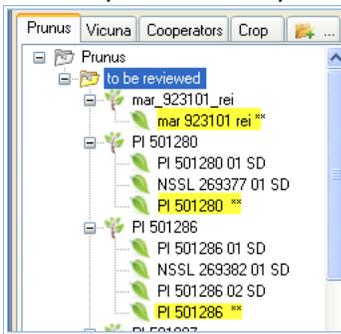
The Public Website lists accessions, but it also indicates inventory types recorded in the database:

Actions...						
Select: All, None, Inverse, Highlighted Options: Show 25 items << 1 - 25 of 313 >> Export...						
Group By:	Plant Name	Taxonomy	Origin	Material	Maintained By	Availability
Plant ID						
<input type="checkbox"/> PI 518760	USDA 19058Male	<u>Humulus lupulus var. lupulus</u>	United States, Oregon	In-vitro Meristem Plant Pollen	COR	Add to Cart

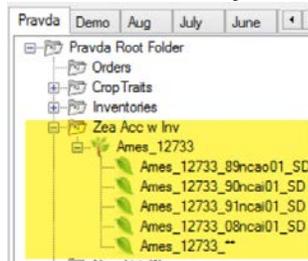
Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Common Name	Crop Trait Observation		
Inventory ID	Inventory Prefix	Inventory Number	Inventory Suffix	Inventory Type	Accession	Inventory Maintenance Policy	Inventory Maintenance Site	Is Default Inventory?	Is Auto Deducted?	Is Available?	Availability Status
1994973	CHUM	38	.001	PL	PI 518760	HUMULUS	COR	N	N	N	Duplicate code DUPL
2313546	CHUM	38	.002	PL	PI 518760	HUMULUS	COR	N	N	N	Duplicate code DUPL
2313547	CHUM	38	.003	PL	PI 518760	HUMULUS	COR	Y	N	Y	Available
2313548	CHUM	38	.004	PL	PI 518760	HUMULUS	COR	N	N	N	Duplicate code DUPL
2313549	CHUM	38	.005	PL	PI 518760	HUMULUS	COR	N	N	N	Duplicate code DUPL
2314341	CHUM	38	.005	IV	PI 518760	HUM-IN-VITRO	COR	N	N	N	Inventory does not exist
2314347	CHUM	38	.003	IV	PI 518760	HUM-IN-VITRO	COR	N	N	N	In-Vitro backup plant
2504014	CHUM	38	.003	MS	PI 518760	HUM-CRYO-MS	COR	N	N	N	Inventory does not exist
2622710	CHUM	38	.006	PO	PI 518760	HUM-CRYO-PO	COR	N	N	N	In-Vitro backup plant
4413696	PI	518760		**	PI 518760	SYSTEM	COR	N	N	N	No lot present

System Inventory Items

Every Accession record in the database automatically has an associated system inventory record; system inventory records always are indicated with ** for the type.



Zea Maize Inventory Example: Inventory records for one sample accession



Prerequisite Data

In order to input inventory, you must first have an accession to which the inventory relates. When inputting a new inventory record, there are five required fields:

- **accession**
- **inventory prefix** (in some organizations, because of organizational requirements, you typically are required to input a number and/or a suffix)
- **inventory type** – Example: BD (Budwood), CT (Cutting), and SD Seed. (Each organization's DBA can edit the GERMP_LASM_FORM code group to meet the organizational needs.)
- **inventory maintenance policy** (the policies indicate how many units (propagules) the genebank site will distribute for an order of a given taxon and germplasm form.)
- **availability status** – must be one of the codes in the INVENTORY_AVAILABILITY_STATUS Code Group.

Purpose of the Inventory Maintenance Policies

Basically, an inventory maintenance policy determines how inventory will be processed for incoming germplasm orders that will use that inventory. **Inventory Maintenance Policy** records are added in the Curator Tool via the **Inventory Maintenance Policy** dataview.

Inventory Maint	Maintenance Name	Form Type	Quantity On Hand Units	Web Availability Note	Is Auto Deducted?	Distribution Default Form	Standard Distribution Quantity	Unit of Distribution	Distribution Critical Amount	Replenishment Critical Amount	Regeneration Method	Curator	Note
121	WHEAT	SD	gram		Y	SD	5	gram	50	50		Bockel...	



The **Inventory Maintenance Policy** determines the owner of the Inventory record. (The cooperator in the **inventory_maint_policy_owned_by** field becomes the owner of any **Inventory** records that are created when using that policy.)



Use a consistent naming convention when naming policies. For example, begin with a prefix, such as your site's code (examples: NC7-daucus, NC7-portulaca, NC7-quinoa...) Consistent naming conventions are easier to search for, etc.

What Determines Accession Availability or Visibility?

Condition	Dataview / Field	Value	Result
Accession is displayed on the PW	Accession / Is Web Visible?	Y N	Accession will be displayed Accession will not be displayed
Historic accessions, never available	Accession / Status	INACTIVE	Accession listed as Not Available
Accession is an active accession in the genebank's collection	Accession / Status	ACTIVE	Can be listed as Available , or Not Available depending on other conditions (below)
Inventory is Available	Inventory / Is Available?	Y N	Listed as Available Listed as Not Available

Condition	Dataview / Field	Value	Result
Preferred inventory lot for distribution (since this is the "preferred lot," only one inventory lot should be marked with a "Y.")	Inventory / Is Default Inventory?	Y	preferred lot (automatically selected by the Order Wizard by default)
When the value in the Distribution Critical Amount field is less than the value in the Quantity On Hand field, a trigger will force the Is Available? field to "N." When the critical amount is greater than the quantity on hand, the trigger forces the Is Available? field to "Y." (This trigger may be enabled or disabled by the GG Admin for the organization.*	Accession / Quantity On Hand < Distribution Critical Amount		Not Available
The Taxonomic Species record for the Accession has one of the following values in the species' Restriction field:	Taxonomic Species / Restriction NOXIOUS RARE WEED		Contact Site

* The trigger also works with **Is Auto Deducted?** (When `is_autodeducted`) is set to "Y" the **Availability Status** (`availability_status_code`) value is set to **LOW** when the qty on hand goes below the critical distribution qty. (The trigger ignores any other status codes -- the assumption is you are handling the availability manually.)

Availability Status

The **Availability Status** field obtains its values from the **INVENTORY_AVAILABILITY_STATUS** Code Group. By searching this field, you can look for specific inventory situations, such as low inventory, young plants not available, etc.

Fields	Value Before	Action	Value After
		Order is Filled (standard quantity is shipped)	
Standard Distribution Quantity	10		10
Quantity on Hand	80		--> 70
Distribution Critical Quantity	75		75
Is Auto Deducted?	Y		Y
Availability Status	Available		--> Low
Is Available?	Y		--> N



Create an inventory maintenance policy. Create two inventory records, using that policy.

Sample Inventory Records (Images are showing all of the fields in an Inventory Dataview)

Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Commc.		
Inventory ID	Inventory Prefix	Inventory Number	Inventory Suffix	Inventory Type	Accession	Inventory Maintenance Policy	Inventory Maintenance Site	Is Default Inventory?	Is Auto Deducted?	Is Available?
1272158	Ames	12733	89ncao01	SD	Ames 12733	NC7-maize inb	NC7	N	Y	N
1272159	Ames	12733	90ncai01	SD	Ames 12733	NC7-maize inb	NC7	N	Y	N
1272160	Ames	12733	91ncai01	SD	Ames 12733	NC7-maize inb	NC7	N	Y	N
2816933	Ames	12733	08ncai01	SD	Ames 12733	NC7-maize inb	NC7	Y	Y	Y
4061323	Ames	12733		**	Ames 12733	SYSTEM	NC7	N	N	N

keep scrolling to the right, to see more fields!



Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Commc.
Is Available?	Availability Status	Status Note	Parent Inventory	Availability Start Date	Availability End Date	Web Availability Note	Quantity On Hand	
N	Original lot received						438.00000	
N	Reference lot	Parent of 08ai01.	Ames 12733 89ncao01 SD				399.00000	
N	Discarded		Ames 12733 89ncao01 SD					
Y	Available	LOWGERM 85% Packaged 2014	Ames 12733 90ncai01 SD				12843.00000	
N	No lot present							

Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Common Name	Crc
Quantity On Hand	Quantity On Hand Units	Standard Distribution Form	Standard Distribution Quantity	Unit of Distribution	Distribution Critical Amount	Replenishment Critical Amount	Pathogen Status		
438.00000	count	SD	0.00000	count	1000.00000	2500.00000			
399.00000	count	SD	0.00000	count	1000.00000	2500.00000			
	count	SD	0.00000	count	1000.00000	2500.00000			
12843.00000	count	SD	100.00000	count	1000.00000	2500.00000			

Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Common Name	Crc		
Pathogen Status	Location Section 1	Location Section 2	Location Section 3	Location Section 4	Latitude	Longitude	Rootstock	Backup Inventory	Hundred Seed Weight	Pollination Method	Pollination Vector
	JAR								24.0600000		
	REFERENCE								24.3100000		
	JAR	BAG1	BOX0921	PREPACKJ					34.8300000		

Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Common Name	Crc
Propagation Method	Regeneration Method	Plant Sex	Propagation Date Format	Propagation Date	Note	Name	Inventory Name	Taxon	Origin
					SUPPLIER: INFO: PLANTED: 2014	NC234	Goodman 41(83)	Zea mays subsp. ...	United State
					INCREASE: INFO: PLANTED: 2014	NC234		Zea mays subsp. ...	United State
					INCREASE: INFO: PLANTED: 2014	NC234		Zea mays subsp. ...	United State
						NC234		Zea mays subsp. ...	United State
						NC234	NC234	Zea mays subsp. ...	United State

Accessions	Inventory	Orders	Cooperators	Accession Source	Accession Inventory Name	Crop Trait	Accession Inventory Attach	Taxonomy Common Name	Crc
Origin	Percent Viable	Tested Date	Inventory	Created Date	Created By	Modified Date	Modified By		
United States, North Carolina			Ames 12733 89ncao01 SD	8/12/1994 10:15...	Millard, Mark J., ...	1/8/2009 7:00 PM	Millard, Mark...		
United States, North Carolina			Ames 12733 90ncai01 SD	8/12/1994 10:15...	Burke, Lisa, USD...	3/11/2009 8:00 ...	Burke, Lisa, U...		
United States, North Carolina			Ames 12733 91ncai01 SD	8/12/1994 10:15...	Millard, Mark J., ...	5/20/2016 3:27 ...	SYSTEM, Adr...		
United States, North Carolina	85	7/15/2014 2:13 ...	Ames 12733 08ncai01 SD	5/28/2008 8:00 ...	Burke, Lisa, USD...	4/14/2015 8:00 ...	Burke, Lisa, U...		
United States, North Carolina			Ames 12733 **	8/9/1994 3:03 AM	SYSTEM, (Defau...				

Miscellaneous Inventory Topics

(The online Inventory Guide (https://www.grin-global.org/docs/gg_inventory.docx) describes the inventory dataviews in detail.)

Parent Inventories

When regenerating, the new inventory lot has a parent. The parent inventory name is easily obtained from the **Inventory** field in the parent inventory record.

Naming Conventions

See the examples which some USDA sites use. They follow naming guidelines for the inventory suffixes in order to track the heritage of the Inventory. Refer to the online Inventory Guide **Appendix**.

Inventory Triggers

Inventory triggers help with data integrity. For example, one trigger checks inventory quantity fields to ensure none are negative.

Other Inventory dataviews

- **Inventory Actions**
- **Annotations | Attachments | Groups | Vouchers**
(Attachments – images – will be discussed after we cover Orders. Save any discussion for attachments until then.)
- **Viability dataviews (below)**
 - Creating lists of accessions for viability testing
 - Updating viability data
- **Quality Status**

Viability Testing

Viability testing is typically done when:

- a new seed sample arrives at a genebank (and the sample has enough seed to be germinated)
- newly regenerated seed samples are being prepared for storage
- periodically to assure viability of seed lots (“maintenance testing”)

The **Inventory Viability** dataview uses the table of seed germination results and other viability tests. Actual test procedures are contained in the **Method** table. There are three viability dataviews in the Curator Tool: **Inventory Viability**, **Viability Rule**, and **Viability Data**.



A Viability Wizard has been created at the USDA NPGS. Documentation is online at https://www.grin-global.org/docs/gg_viability_wizard.docx

For the storage germination test, a germination order is prepared when all the lots in a particular crop are ready for storage. This is usually done once a year after the material has been cleaned and is ready for storage (i.e. all the cucumber that were grown in 2014 will be germinated all at the same time – after which they are ready for storage).

For the maintenance germination tests, a germination order is usually prepared after reviewing a particular collection (such as maize) and checking which lots need testing (in the case of maize, it’s every ten years).

Inventory Viability Rule

The **Inventory Viability Rule** describes the germination test conditions including the temperature range, the moisture, lighting, etc. (Note to GRIN users – in GRIN, this was the **Environment** name.)

Inventory Viability Rule ID	Name	Requirements	Temperature Range	Substrat
492358	NC7.GERMS.MAIZE.STANDARD...	200 SEEDS, 4 REPS WITH 50 SEED/REP. PAPER TOWELS AND WATER IN TUBS WITH NO HOLES ON BOTTOM. 20/30C TEMP. 12/12h NIGHT/DAY. COUNTS ON DAYS 7,10 AND 14. THIS EVALUATION DOES NOT COUNT ABNORMALS UNTIL THE VERY LAST COUNT OF THE TEST. BECAUSE OF INBREEDING DEPRESSION MORE RELAXED PARAMATERS WILL BE USED TO CLASSIFY SEEDLINGS AS NORMAL.		
494065	NC7.GERMS.MAIZE.INBREDS	Seeds are placed in folded paper towels moistened with tap water - paper towels are 'squeegeed' to remove excess water prior to seed placement. The paper towel units are placed in plastic tubs covered with clear plastic wrap to help maintain moisture. These are kept overnight at room temperature and then put in germinators with the temperature set at a constant 25 C with light for 12 hours followed by darkness for 12 hours per 24 hour cycle. Replication and sample size: 4 reps of 50 seed each for a total of 200 seeds. Counts are done 7, 10, and 14 days after start of test. Abnormals are not scored until the last count of the test. Because of inbreeding depression in inbred lines, more relaxed parameters are used to classify seedlings as normal.		
495534				

Inventory Viability

Refer to the GG online [dictionary](#) for descriptions of each field (or when viewing the dataview, roll the mouse over the heading to display the column description).

Inventory Viability ID	Inventory Viability Rule	Inventory	Test Date Format	Tested Date	Percent Normal	Percent Abnormal	Percent Dormant	Percent Viable	Vigor Rating	Sample Count
1118258	NC7.GERMS.MAIZ...	Ames 15929 03n...	mm/dd/yyyy	03/03/2004	92	0	0	92		200
1766132	NC7.GERMS.MAIZ...	Ames 15929 03n...	mm/dd/yyyy	02/08/2012	94	1	0	94		200

Public Website (PW)

U.S. National Plant Germplasm System

Accessions > Descriptors > GRIN Taxonomy > View Cart > Reports > My Profile > About GRIN-Global > Help

Search For: Match All Terms Retrieve: Accessions

Accessions: Include unavailable Include historic With images With NCBI link With genomic data

Advanced Search Criteria Return up to 500 accessions

Allow Multiple Lines

The Public Website (PW) is used by germplasm requestors to review and order germplasm. However, genebank workers will use it to search for accessions, observations, taxonomy, etc. Additionally, internal genebank workers can select reports not available to the public and use a query tool in which you can submit SQL commands.

The **Tools** option is available only when you are logged in and the GG administrator has linked your Curator Tool account with your Public Website account.

U.S. National Plant Germplasm System

Accessions > Descriptors > GRIN Taxonomy > View Cart > Reports > My Profile > **Tools** > About GRIN-Global > Help

Home > Accessions > General

Search For: Match All Terms

Accessions: Include unavailable Include historic With images With NCBI link

Tools menu options:



Submit an order request for germplasm from the Public Website. You must be logged in.

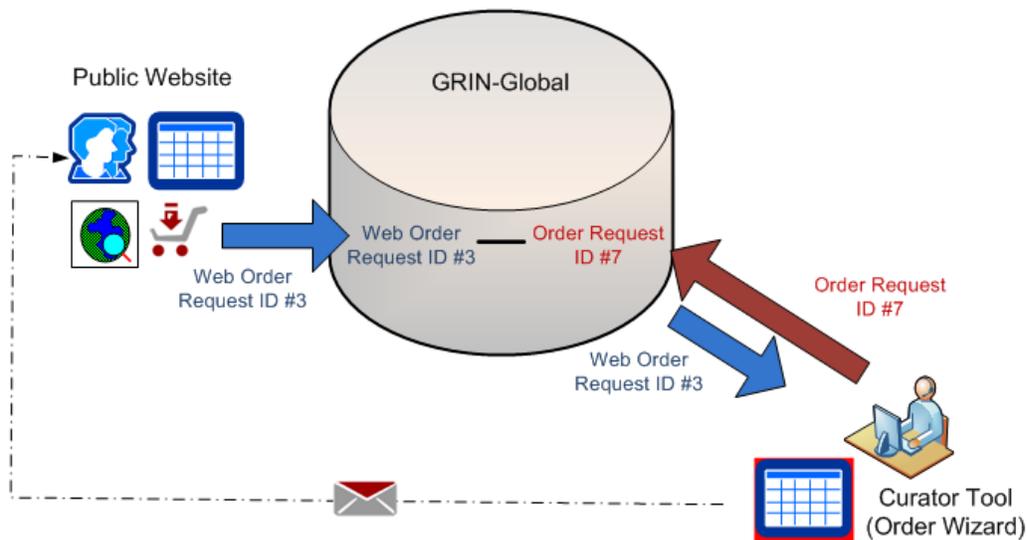
Processing Germplasm Requests (Orders)

A complete guide to GG Order Process is online:

https://www.grin-global.org/docs/gg_order_processing.docx

Overview

Germplasm requestors submit their *web* orders via the GG Public Website. Using the Curator Tool's Order Wizard, genebank personnel review the incoming *web* orders and convert the *web* orders into *standard* orders.



Although the records are inter-related, the two record IDs (and the records) are distinct.

Order Wizard

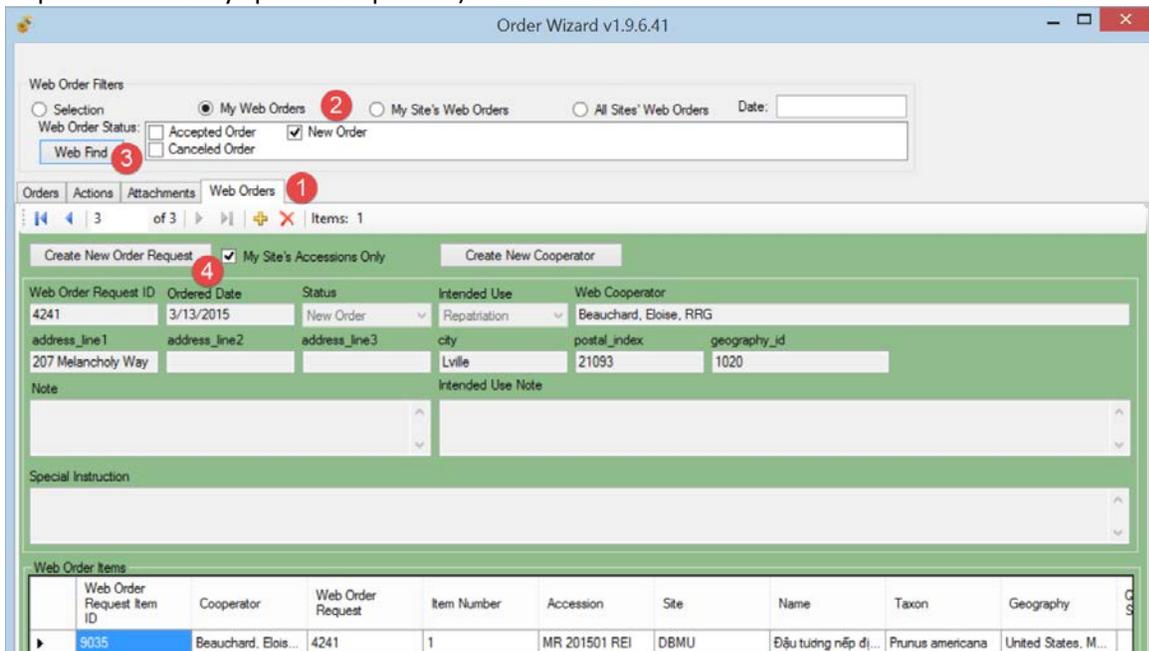
Recommended:

- decide on and select a list folder in the left panel to be your active list for orders
- before clicking the Order Wizard button, open the **Order Request** dataview as the active dataview.

In the following example, the user has a folder labeled “Friday’s Orders” ready:



Below, there are 3 new web orders. (The Navigation Bar indicates “3 of 3.”) (The orders do not need to be processed in any specific sequence.)



Save frequently, and save often! Also, use the **Save** button when initially creating the order; otherwise you will receive an error message.

The Order Wizard selects inventory to satisfy the request. The inventory must be available, sufficient quantity, etc. See the section “*What Determines Accession Availability or Visibility?*” on page 29. If you are not satisfied with the OW’s selection, you can override the default selection.



As of version 1.9.5, **Order Request Items** in the Order Wizard grid can be *copied (using Ctrl-C) into a spreadsheet*. At this time, you cannot paste **Order Request Items** into the OW grid.

Actions (Order Actions)

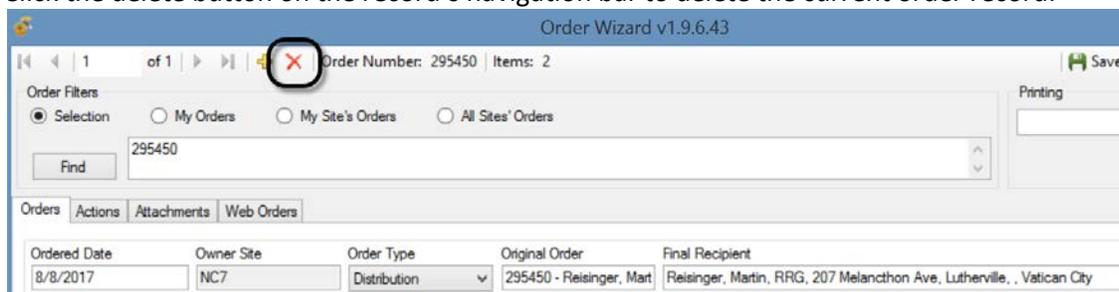
Various actions may be applied to an order request; an action indicates some event related to the order. Genebank personnel can keep track of where the order is in their procedures by recording appropriate actions. For example, when the order person contacts the curator before proceeding with the order – that can be considered an order action. The action codes are stored in the **ORDER_REQUEST_ACTION** code group which is maintained by the GG DBA.

Examples:

Action Code	Title
NEW	New Order
PENDING	Order pending
CURALERTED	Curator alerted about order
CURCLEARED	Curator cleared an order
PATHSEED	Pathology test needed and sent
PATHPASSED	Pathologist approved the order
ORDFILLED	Order filled ready to ship

Deleting an Order Record

Click the delete button on the record's navigation bar to delete the current order record:



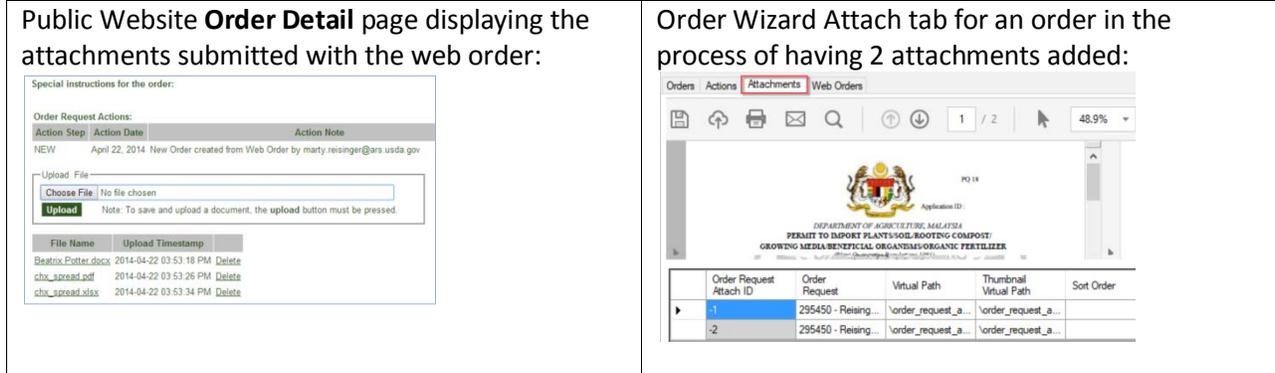
Deleting an Order Item

If you need to delete an order item, select the item's row (click on the left row header cell) in the order item grid at the bottom of the wizard window, and then press the keyboard's **Delete** key.



Attachments

A germplasm requestor can include attachments (files) when she submits the order or even later, as long as the order has not yet been shipped. In the Curator Tool, the genebank order processor can also add attachments to the order, using the attachment tab in the Order Wizard.



PW Tools – SQL Queries

Refer to the online page https://www.grin-global.org/sql_examples.htm for SQL resources including a brief tutorial, as well as relevant GRIN-Global examples.

Genebank staff who have had their Public Website account connected to their Curator Tool account, when logged into the Public Website, will have the **Tools** option visible on the menu. From there, select **Web Query** to display the box for inputting SQL:



Determining Table and Field Names

The **INFORMATION_SCHEMA.COLUMNS** view

```
SELECT table_name, column_name, ordinal_position, data_type, character_maximum_length
FROM information_schema.columns
```

```
SELECT table_name, column_name
FROM information_schema.columns
WHERE table_name LIKE 'accession%'
```

Queries Can Involve Multiple Tables

Queries can display data from multiple tables, via JOIN clauses and using aliases. In the following SELECT clause, **a** is the alias for **accession**, and **ts** is the alias for **taxonomy_species**. These aliases are actually defined in the FROM and JOIN clauses, which follow the SELECT clause. (Aliases typically use letters from the original table name, but they are not required to do so.)

```
SELECT
a.accession_number_part1, a.accession_number_part2, a.accession_number_part3,
ts.name
FROM taxonomy_species ts
```

```
JOIN accession a ON ts.taxonomy_species_id = a.taxonomy_species_id
WHERE ts.name LIKE 'Trit%'
AND a.status_code = 'ACTIVE'
```

Recording Characterization Data: Observations & Descriptors (Crop Traits)

A complete guide to GG Observations & Descriptors is online at:

https://www.ars-grin.gov/npgs/gringlobal/docs/gg_observations_and_descriptors.pdf

Examples of NPGS trait descriptors and codes: https://www.grin-global.org/docs/gg_coded_trait_examples.docx

Crop Trait Observations

When adapting GRIN-Global, the genebank needs to set up their crops, traits, and for coded traits, their respective codes, before a user can record evaluation results (“observations”). Assuming the descriptors (“crop traits”) have been added for the crops for which you are recording observations, as a Curator Tool user, you will use the **Observation** dataview to enter your evaluation results.



The observation requires a Method to be indicated, so ensure that the relevant methods have been defined first before attempting to add observations. (Use the **Get Method** dataview.)

Attach Observations to the Accession or Inventory?

Observations are typically associated with a specific inventory record; however, it is possible to associate an observation with *either* a physical inventory record (a specific “lot”) *or* with the accession (using the accession’s system inventory record (type = “**”))

The Crop “Family” of Dataviews - Overview

There are five crop-related dataviews that need to be considered when setting up the crops and crop traits for your organization *before Observations can be recorded*. The DBA generally sets these up.

The following illustrates the general flow in inputting the data in the crop-related dataviews – this flow should be followed in establishing any new crop trait:

Step	Input Data for the...	Dataview to use
1	Crop	Crop
2	Trait	Crop Trait Crop Trait Lang
3	Code	Crop Trait Code Crop Trait Code Lang

Example of Meaningful Codes for a Descriptor (USDA Crop: Peanuts; Trait: Plant Size)

Public Website display:

PLANT SIZE (6025)

(Any) ▾

- 1=Dwarf (PI 362129) ▲
- 2=Small (PI 565455)
- 3=Medium (PI 565443, PI 565458)
- 4=Large (PI 565445) ▾

Database:

Crop Trait

Crop Trait ID	Crop	Trait Name	Trait Title	Trait Description	Is Peer Reviewed?	Category	Data Type	Is Coded?	Maximum Length
86042	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	Y	Growth descriptors	Alpha/numeric descriptor	Y	1

Crop Trait Code / Language

Crop Trait Code ID	Crop	Trait Name	Crop Trait	Trait Description	Trait Code	Code Title	Code Description
11716	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	1	Dwarf (PI 362129)	Dwarf (PI 362129)
11717	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	2	Small (PI 565455)	Small (PI 565455)
11718	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	3	Medium (PI 565443, PI 565458)	Medium (PI 565443, PI 565458)
11699	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	4	Large (PI 565445)	Large (PI 565445)
11700	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	5	Extra Large (PI 196695, PI 468248)	Extra Large (PI 196695, PI 468248)
11701	PEANUTS	PLANTSIZE	PLANT SIZE	Plant size at harvest	6	Mixed	Mixed



The instructor will indicate what Crop and Crop traits to use. You will record some observations.

Source Habitat Descriptors

A complete guide to GG Source Habitat Descriptors is online:

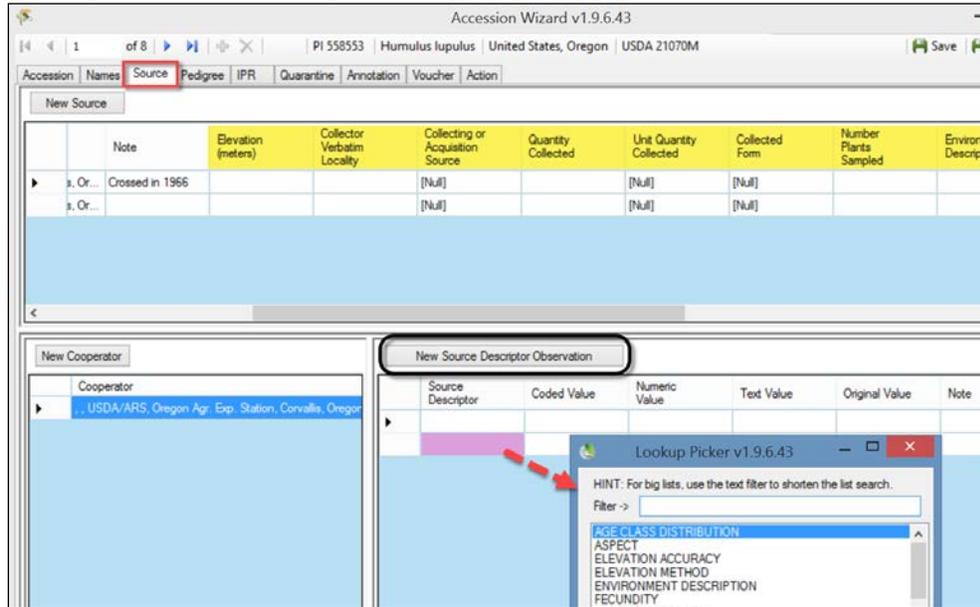
https://www.ars-grin.gov/npgs/gringlobal/docs/gg_source_habitat_descriptors.pdf

In the GG schema, a core set of collection site/habitat data is recorded in the accession_source table such as elevation, latitude, and longitude. When recording source events, you can also record supplementary observation data pertinent to the collection.

Source Habitat Descriptors

In setting up GG, the organization should agree on a table of common source descriptors that can be used; this list can be expanded as needed when the collection source data is being recorded. For example, descriptors such as Moisture, Soil pH and Soil Texture, Magnesium Content, etc. can be recorded. (Only the GG Administrator should create the Descriptors.)

Shown here is a source record being recorded within the Accession Wizard; the user is also recording some specific source descriptors:



The following example illustrates the table for SOILTEXTURE as described in the Bioversity's [Developing Crop Descriptor Lists](#) (Technical Bulletin #13, 2007):

Numeric code	Descriptor state	Numeric code	Descriptor state
1	Clay	12	Coarse sandy loam
2	Loam	13	Loamy sand
3	Clay loam	14	Loamy very fine sand
4	Silt	15	Loamy fine sand
5	Silty clay	16	Loamy coarse sand
6	Silty clay loam	17	Very fine sand
7	Silt loam	18	Fine sand
8	Sandy clay	19	Medium sand
9	Sandy clay loam	20	Coarse sand
10	Sandy loam	21	Sand, unsorted
11	Fine sandy loam	22	Sand, unspecified

Codes and Code Groups

Background Information

Many of the CT dataviews use dropdowns to assist in selecting valid data – the fields 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** field 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		

A second example: Five fields in the **Accession** dataview that use codes are shown below. In the example, the user clicked on the **Level Of Improvement** to display and then select a code:

Accessions	Inventory	Orders	Cooperators	Get Accession Inventory Name	Crop Attach	Accession Inventory Attach	...
	Backup Location 2	Status	Life Form	Level Of Improvement	Reproductive Uniformity	Initial Material Type	
		[Null]	[Null]	[Null]	[Null]	[Null]	
				<ul style="list-style-type: none"> [Null] Breeding material Clone Cultivar Cultivated material Genetic material Landrace Rootstock Uncertain improvement status Wild material 			



Only the GG administrator can add or edit the codes, ensuring consistency and integrity. As a CT user, if you need a code to adequately describe a record, contact your GG administrator or follow your organization's procedure for establishing codes.

SQL to Display Codes and Code Groups

```
SELECT
  cv.code_value_id, cv.group_name as group_name, cv.value, cvl.title
FROM
  code_value cv
LEFT JOIN code_value_lang cvl ON cv.code_value_id = cvl.code_value_id
  AND cvl.sys_lang_id = 1
/* use the WHERE clause to search for a specific code – examples: */
/* WHERE cv.group_name LIKE 'inventory%' */
ORDER BY
  group_name, cv.value
```

Image and Document Handling

A new Inventory Attachment Wizard was included with the CT, beginning with release 1.9.8.14.

GRIN-Global can store and display images and other file types. The **Inventory Attachment Wizard** has been designed specifically to load files and associate them with inventory records. The files may be attached either to a physical inventory record or to an accession's system inventory record. When attached to a system inventory record, the file is associated with the accession and not with a specific inventory lot.



There are several dataviews with “_attach” as their suffix, implying that they can accept attachments similar to accession_inventory_attach. At the present time they cannot. Some additional code is planned for the Curator Tool to enable this capability. Also, other file types will be handled, including PDFs.

Attachment Documentation

See: https://www.grin-global.org/docs/gg_inventory_attachment_wizard.docx

Reports

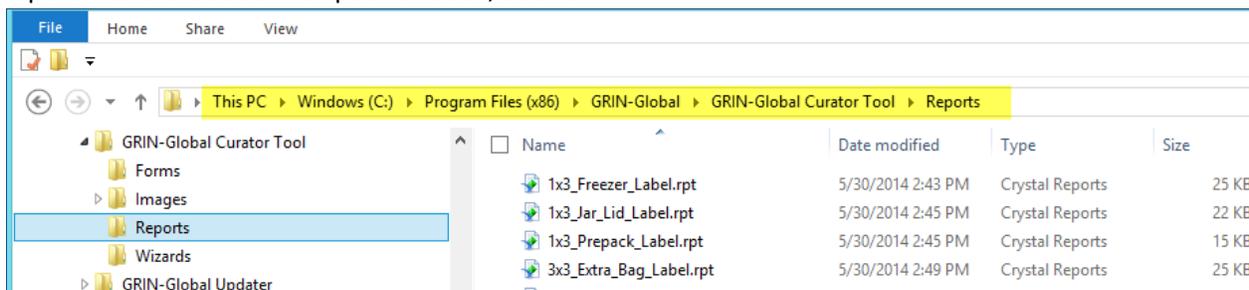
Curator Tool Reports



When an organization installs GRIN-Global, some basic CT report files are also installed. These reports were created using **Crystal Reports** (from [SAP](#)). When the CT is installed, the Crystal Reports Viewer program is also installed. The Viewer makes it possible to display and use these reports, but not create new reports.

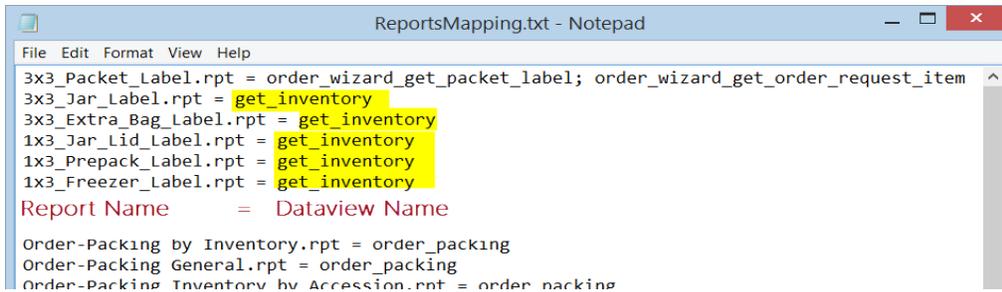
Report File Folder Location

In the CT, reports have been designed to work with specific dataviews to display specific data. The report files are loaded in a specific folder, as shown:



ReportsMapping.txt File (Example)

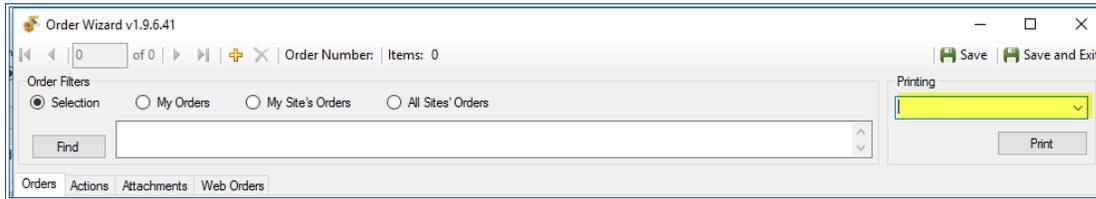
A text file, **ReportsMapping.txt**, gets installed on the CT user's PC when the CT is installed. The file is needed to indicate the relationship of each.rpt file to the dataviews. For example, as shown below, the **1x3_Freezer_Label.rpt** file works with the **get_inventory** dataview.



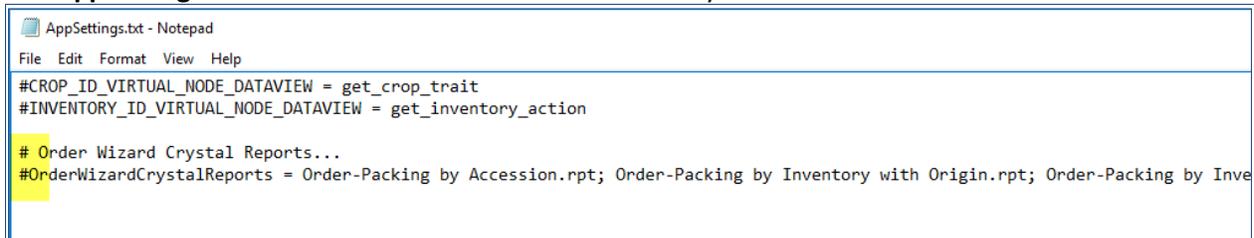
The five inventory reports are displayed under the Reports option when the Inventory dataview is the active dataview (the menu is invoked with a right-click action by the user). Detailed information about editing this **ReportsMapping.txt** file is in the CT User Guide.

Resolving Issues When the Reports Do Not Display (AppSettings.txt)

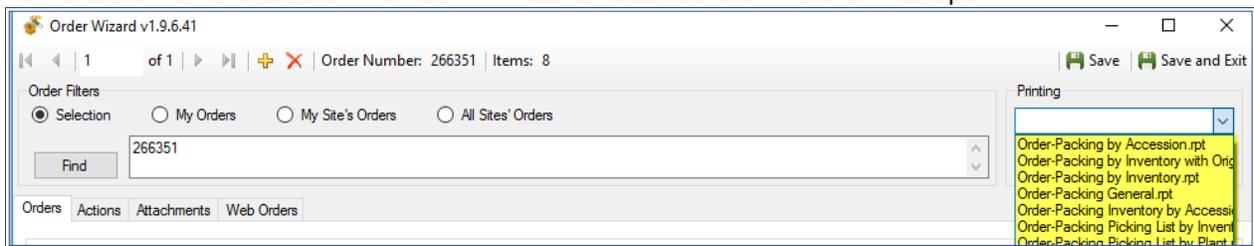
Another .txt file is installed on the CT user’s PC. You may need to edit the AppSettings.txt file when reports are not displaying. Shown below is a Printing dropdown in the Order Wizard; no reports are visible.



The **AppSettings.txt** file had the line commented with a # symbol:



Remove the # on the second line. You will need to restart the CT if the CT was open.



One More .txt File

There are three .txt files installed in **C:\Users\username\AppData\Roaming\GRIN-Global\Curator Tool**. Nothing to do with the reports, but worth mentioning here: the **WebServiceURL.txt** file identifies the

connections used in the CT login.

```

WebServiceURL.txt - Notepad
File Edit Format View Help
trainingGG      https://training.ars-grin.gov/GRINGlobal/GUI.aspx
NPGS web (Production) https://npgsweb.ars-grin.gov/GRINGlobal/GUI.aspx
Mexico          http://192.100.189.10/GRINGlobal/GUI.aspx
dev             https://npgsdev.ars-grin.gov/GRINGlobal/GUI.aspx
    
```

SQL Reports

Mentioned previously, a second group of “reports” are the read-only SQL queries. Users added by the GG DBA to the Web Query Users Group will be able to run SQL queries to review data. The online document **GG Library**, has a section containing SQL examples. (see https://www.ars-grin.gov/npgs/gringlobal/docs/gg_library.pdf)

Public Website Reports

Finally, report dataviews have been designed for the Public Website **Reports** feature. All PW users can see reports that are publicly available. (Only one is currently available to public users.) However, additional PW reports are also available for internal genebank staff. Two conditions must be met: the genebank user must be logged in and the user account must be related to his CT account.

Reports Available to all PW Users	Reports Available to a Logged-in User
<p>Choose Report:</p> <p>List available accessions from a site ▾ -- Select One -- List available accessions from a site</p> <p>Report Description:</p>	<p>Choose Report:</p> <p>-- 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 List available accessions from a site Cooperator - Collector/Donor/Developer Report Order - Packet Label Order - Label Generation for Site S9 Order - Accessions flagged with SMTA</p>

Security: Ownership and Permissions

Overview

An owner typically can update or delete records which she has created. There is only one owner per record. However, the owner can provide permissions (Read, Update, Delete) to multiple users. An owner can also transfer ownership to another user.

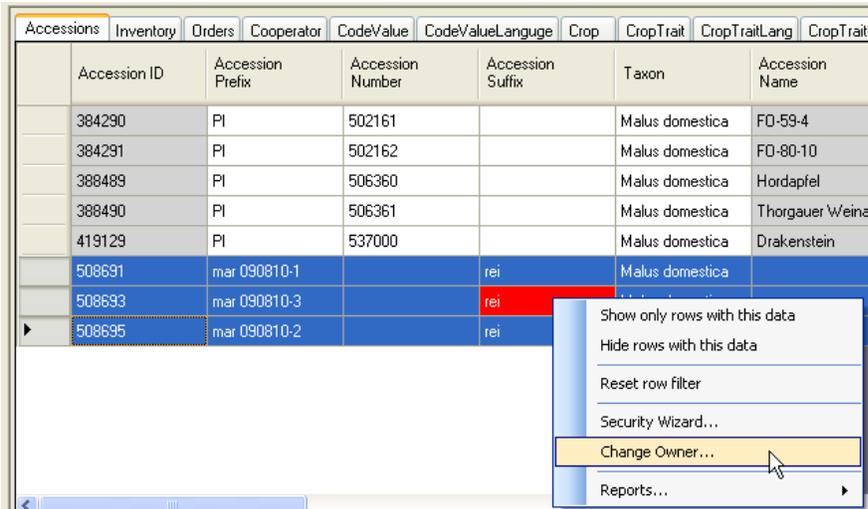
Accessions Inventory Orders Cooperator ...							
	Initial Material Type	Initial Received Date	Initial Received Date Format	Created Date	Created By	Owned Date	Owned By
▶	RT	4/1/2010	Complete date	4/2/2010 6:05 PM	Dr. Test11, USD...	4/2/2010 6:05 PM	Dr. Test11, USD...



In some cases, the person creating the record is not necessarily the owner of the record. For example, the Inventory record, by default, is assigned the same owner as the owner of the Inventory Maintenance Policy that was used to create the Inventory record. Similarly, Trait Observations inherit the ownership from the Inventory (and hence the Inventory Maintenance Policy records). Someone who creates an observation may need to change the record, and will need the owner to either transfer ownership or give permission to update the record.

In a Curator Tool dataview, select rows (records) that you intend to transfer ownership; right-click and select **Change Owner...**

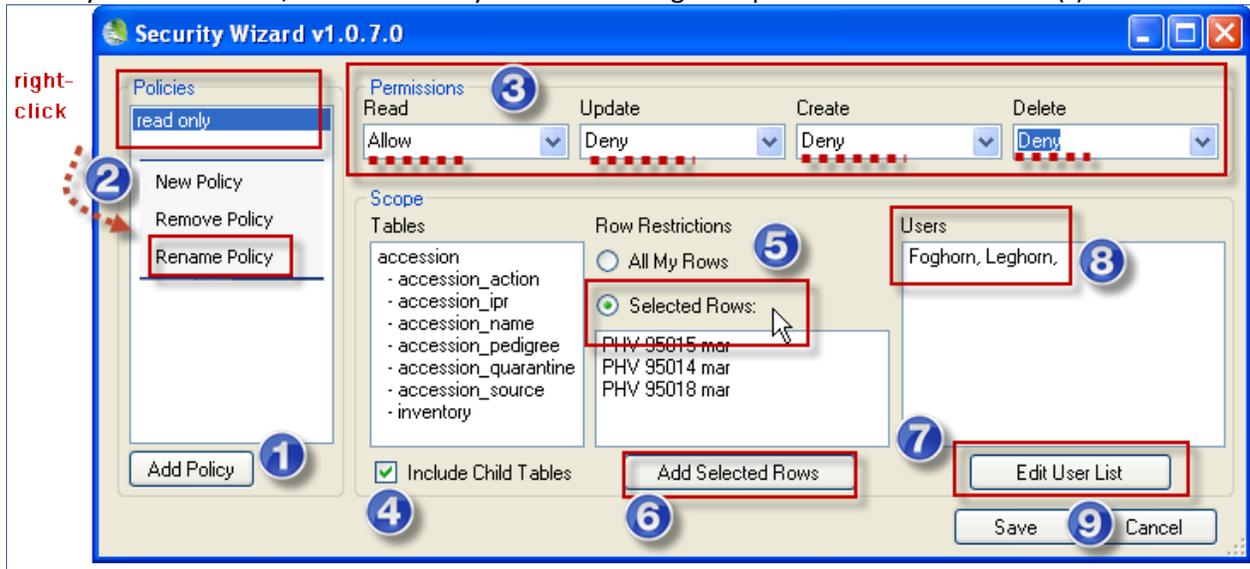
Change Owner



Review and then change the ownership information for one or two accessions which you own. Assign ownership to another workshop participant.

Security Wizard

When you own records, use the Security Wizard to change the permissions of the record(s).



You generally complete the wizard, starting from left to right. “Rows” is used in the wizard as a synonym for records.

Each permission (Read, Update, Create*, Delete) 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 (typically the permission value of the parent table)

* **Create** is also a choice in the wizard, but logically doesn't make sense (ignore!) – the records have already been created.



Inventory Maintenance Policies can be shared across the organization, but remember that when a new inventory record is created, and the **Inventory Maintenance Policy** is applied to the new record, the **Curator** field in the **Inventory Maintenance Policy** record determines the owner of the inventory record.



Work with a partner. Each of you will use the Security Wizard to apply the “Deny” updating or Deleting ability to a couple of records. After you have changed the permission, tell your partner the Accession IDs of the records the permission. The partner will attempt to Update or Delete the record(s).

Security: Enabling

Security is enabled by default. With one simple switch in the Admin Tool, the GG DBA can disable security.



When setting up a new installation, it is easier to keep security disabled until the users are ready to use the system. (The DBA in the Admin Tool sets the value to “true.”)

Taxonomy Overview

Taxonomy

When an organization installs GRIN-Global, the administrator has the option to also download the Taxonomy and Geography data copied from the U.S. GRIN system. This is recommended since then the taxonomy and geography information is readily available. An organization can also add its own data as it desires.

A CT user can add taxonomy records, but ideally there is organizational oversight and only the GG DBA adds taxonomy records. When adding taxonomy, at a minimum every Species record must have a parent Genus which in turn must have a parent Family record.

Key Points

- an organization can load the GRIN Taxonomy when it installs the GG database

- this GRIN taxonomy can be complemented with additional taxonomy records supplied by the organization
- someone in the organization should have the responsibility for the taxonomy data
- to load Taxonomy, you need to have the Family, the Genus, and the Species at a minimum
- the AT's Import Wizard can be used by the GG Admin to load Taxonomy data
- you must have the taxonomy in the DB before you can add an accession
- Lookup tables - need to be current

“Other” Dataviews

Literature References | Citations | Methods

Literature

This dataview accesses the table of valid books and journals used in literature citations for genera, taxa, accessions, methods, etc. in the database. Abbreviations used should follow recognized standards either from the library field or from taxonomy.

Citations

Table of valid books and journals used in literature citations for genera, taxa, accessions, evaluations, etc. in the database. The abbreviations used should follow recognized standards either from the library field or from taxonomy. Documentation is online at https://www.grin-global.org/docs/gg_citations.docx.

Methods

This dataview accesses the table of methods and procedures. One example of methods are those used in determining the crop specific attributes of the germplasm. Each environment used in an evaluation should have its own record.

Method ID	Name	Geography	Material or Method Used	Elevation (meters)	Latitude	Longitude
119	SUNFLOWER.SUN.OIL.WLD.91	United States, N...	Oil concentration of accessions from 1991 exploration. Analyses were performed in 1991 on seeds from the original population. Nuclear Magnetic Resonance (NMR) using 2 ml of dried seeds from wild Helianthus species (cultivated H. annuus uses 40 ml). This methodology is an acceptable			
-2						

Brief Overview of GG Administration

A GRIN-Global administrator needs to use the Admin Tool, but understand other tools as well. For example, if in the MS SQL Server environment, the administrator should know how to use SQL Server Management Studio (which is beyond this workshop’s scope).

A full set of documentation is online at <https://www.grin-global.org/admindocs.htm>

Admin Tool

The Admin Tool handles 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.

Brief Overview of GG Administration

- review, import, edit, and create dataviews
- use Table Mappings to associate a dataview field with a table field
- add / edit / delete GRIN-Global Code Groups
- configure the GRIN-Global Public Website settings

The screenshot shows the GRIN-Global Admin interface for Code Groups. The left sidebar contains a tree view with categories like Connections, Groups, Users, Permissions, Dataviews, Table Mappings, Data Triggers, Maintenance, Import Wizard, Code Groups, File Groups, and Web Application. The main pane displays a table of code groups.

Name	Referenced By Tables/Dataviews	Values	Last Touched
GENUS_HYBRID	1	3	6/25/2016 8:58:18 A
GEOGRAPHY_ADMIN1_TYPE	4	23	7/8/2016 11:44:23 A
GEOGRAPHY_ADMIN2_TYPE	4	15	10/5/2011 8:09:55 P
GEOGRAPHY_COUNTRY_CODE	32	406	4/8/2016 11:02:44 A
GEOREFERENCE_PROTOCOL	8	15	10/5/2011 8:10:05 P
GERMINATION_CATEGORY	3	4	10/5/2011 8:10:05 P
GERMPLASM_FORM	62	41	12/7/2016 10:05:03 .
IMPROVEMENT_LEVEL	13	12	5/22/2015 10:23:47 .
INTERVAL_LENGTH	5	4	10/5/2011 8:10:07 P
INTERVAL_TYPE	5	4	10/5/2011 8:10:07 P
INVENTORY_ACTION	3	179	7/20/2017 9:33:36 A
INVENTORY_AVAILABILITY_STA...	17	144	5/20/2016 3:34:51 P
INVENTORY_PLANT_SEX	4	2	1/15/2013 12:34:27 .
INVENTORY_POLLINATION_ME...	6	51	7/20/2017 10:38:12 .
INVENTORY_POLLINATION_VEC...	6	19	7/20/2017 9:47:21 A
INVENTORY_VIGOR	3	11	3/20/2013 2:16:43 P
LITERATURE_TYPE	3	5	10/5/2011 8:10:16 P
MARKER_POLY_TYPE	1	7	7/16/2014 5:56:42 P
METHOD_STUDY_TYPE	1	9	10/5/2011 8:10:16 P
NC7_INVENTORY_COORAPPL	3	4	2/2/2016 8:16:15 PM

112 items | Refreshed Code Groups at 5/16/2018 4:23:50 PM

The screenshot shows the GRIN-Global Admin interface for editing the GERMPLASM_FORM code group. The left sidebar shows a list of code groups, with GERMPLASM_FORM selected. The main pane displays the details for this code group.

Group Name: GERMPLASM_FORM

Values (41) Referenced By (51 / 11)

Language: English

Value	Title	Description	Last Touched
**	**	System inventory type	10/5/2011 8:10:05 PM
BA	Bacteria	Bacteria	12/7/2016 10:04:34 AM
BD	BD	Budwood	10/5/2011 8:10:05 PM
BL	BL	Bulb	10/5/2011 8:10:05 PM
CA	CA	Cane	10/5/2011 8:10:05 PM
CL	CL	Clump	10/5/2011 8:10:05 PM
CM	CM	Com	10/5/2011 8:10:05 PM
CT	CT	Cutting	10/5/2011 8:10:05 PM
DN	DN	DNA sample	10/5/2011 8:10:05 PM
EA	EA	Embryonic axes	7/26/2016 3:26:00 PM

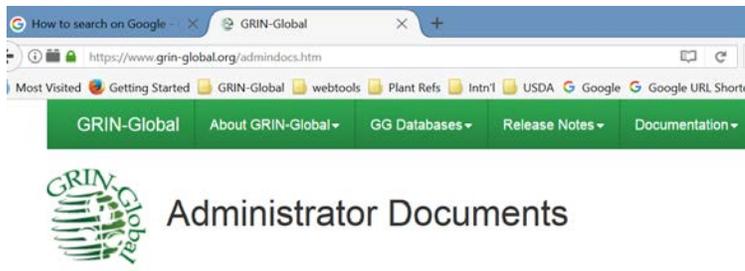
Save Cancel

112 items | Refreshed Code Groups at 5/16/2018 4:23:50 PM

Preparing for an Organization's GG Installation

Tools to Use

- Admin Tool (Refer to https://www.grin-global.org/docs/gg_admin_guide.docx)
- SQL Server Management Studio (Refer to the website page: https://www.grin-global.org/sql_examples.htm)
- Online GG website – see Administrator documents page: <https://www.grin-global.org/admindocs.htm>



- Online Document: Recommended GG Procedures – Startup & Ongoing: https://www.grin-global.org/docs/gg_recommended_procedures.docx
- Online data dictionary: [Data dictionary](#)