

GRIN-Global Server Installation

Using the GG Updater Program



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October 2, 2024

Author

Marty Reisinger

Overview

When installing the GRIN-Global (GG) *server* components, other non-GG software is also involved. As of this writing, the following directions reflect:

- Windows operating system: Windows 11
- SQL Server 2022

In 2018, the GRIN-Global server components installation process was significantly changed:

- The GG server installer was improved to work on Windows operating systems greater than Windows 7 and SQL Server versions greater than SQL Server 2008
- It is now possible with the GG Updater to upgrade an existing GRIN-Global database server with a new GG software environment without overlaying the existing curatorial data in the database

This document contains instructions for both a *new* installation of GRIN-Global server software (see [Directions for a New GG Installation](#)) and for the *updating* of the GG database environment from an older to a newer GG software version (refer to [Updating the GG Database Environment](#)).



A separate guide explains the Curator Tool (CT) installation process. Genbank staff using GG must have the CT application installed on their respective PC. For complete directions, refer to the online page: http://grin-global.org/download_ct.html.

Appendix B contains the [release notes](#) for this document.

Contents

Using the <i>GG Updater</i> Program	1
Overview	1
Directions for a New GG Installation	3
Install SQL Server (and SSMS).....	3
Basic Install	3
Set the security to SQL Server and Windows authentication mode.....	4
Custom Install	6
Install .Net 4.8 (or higher).....	6
Install Internet Application Server (IIS)	7
GRIN-Global Updater Download and Install.....	9
Security Note Regarding <i>gg_search</i> and <i>gg_user</i>	10
Updating the GG Database Environment	11
Main Steps to Update the GG Environment	12
Step 1. Back up your database before attempting an upgrade	12
Step 2. Uninstall the previous GRIN-Global database software.....	12
Step 3. Update the GRIN-Global Updater to 1.10.2.0	13
Step 4. Update the GG Database Software	14
Appendix A	19
Adding Missing <i>gg_search</i> and <i>gg_user</i> Accounts	19
Changing <i>gg_search</i> and <i>gg_user</i> Passwords	19
Appendix B: Document Revision Notes	20
– October 2, 2024.....	20
– July 8, 2024.....	20
– March 2, 2020	20
– May 2, 2018.....	20
– April 11, 2018	20

Directions for a New GG Installation

In most organizations, you will need *elevated Windows privileges* on the PC on which you will be installing GRIN-Global (GG).



Most people using GG will never need these instructions, because the typical GG user accesses a GG database on a remote server and not on their personal computer. The typical user will need to install the Curator Tool; the installation directions for installing the Curator Tool are online at http://grin-global.org/download_ct.html

To install a new GRIN-Global database and web server application, follow the following steps. Install:

- [SQL Server \(and SQL Server Management Studio\)](#)
- [.Net 4.6.2](#) (or higher)
- [IIS](#) (Microsoft Internet Information Services Web Server)
- [GRIN-Global](#) Updater

Install SQL Server (and SSMS)

Install a version of Microsoft SQL Server and SQL Server Management Studio (SSMS). See the SQL Server home page for what version is applicable to your system:



GG requires any SQL Server version including 2008 R2 or higher. The free Enterprise version is adequate for most organizations. If your database is less than 10GB, use the free SQL Server version.

<https://www.microsoft.com/en-us/sql-server/sql-server-downloads>

Basic Install

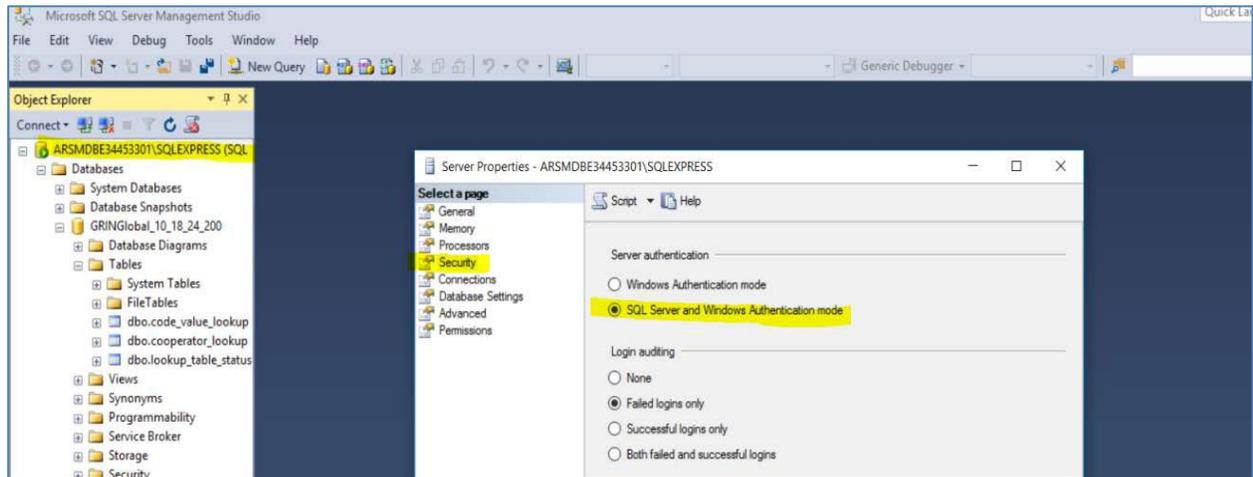


For ease of installation, use the **Basic** install.

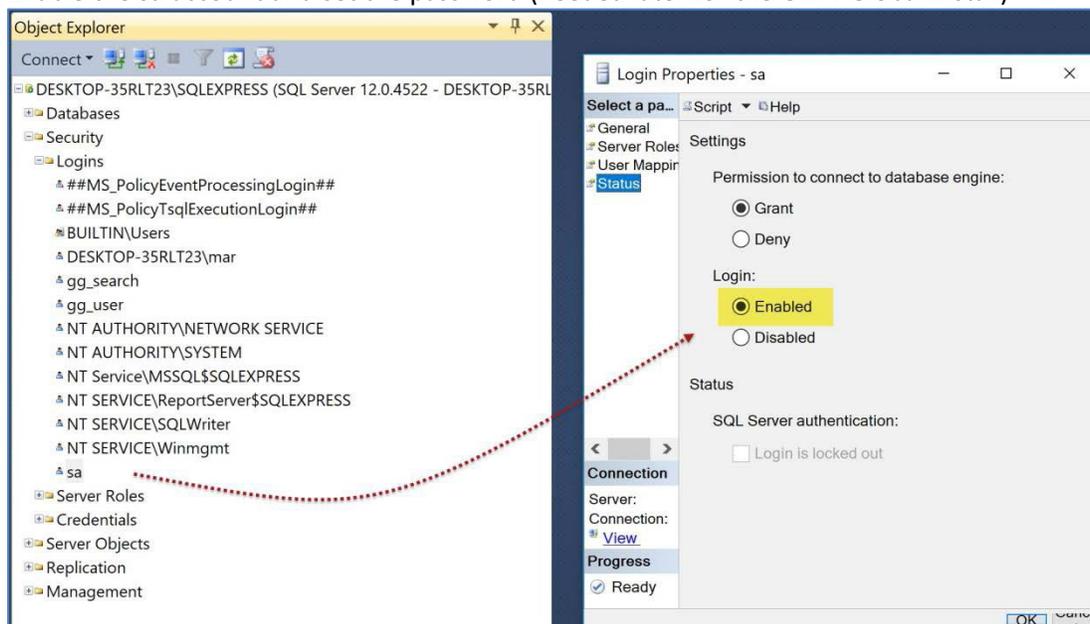
The installation of SSMS is not required for GG, but highly recommended for managing SQL Server. It is free from Microsoft. If you chose the Basic install, you must use SSMS to set the login authentication mode and enable the System Administrator (**sa**) account.

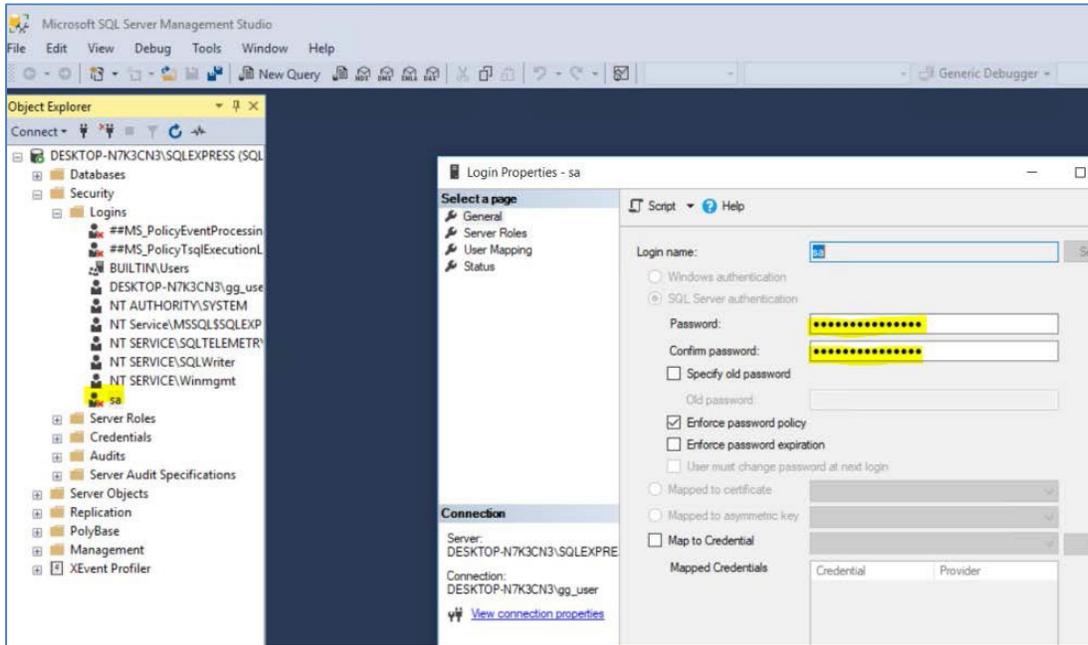
Set the security to SQL Server and Windows authentication mode

In SSMS, right click on the instance, select **Properties**. Under **Security**, select the option for **SQL Server and Windows authentication mode**.



Enable the **sa** account and set the password (needed later for the GRIN-Global install)

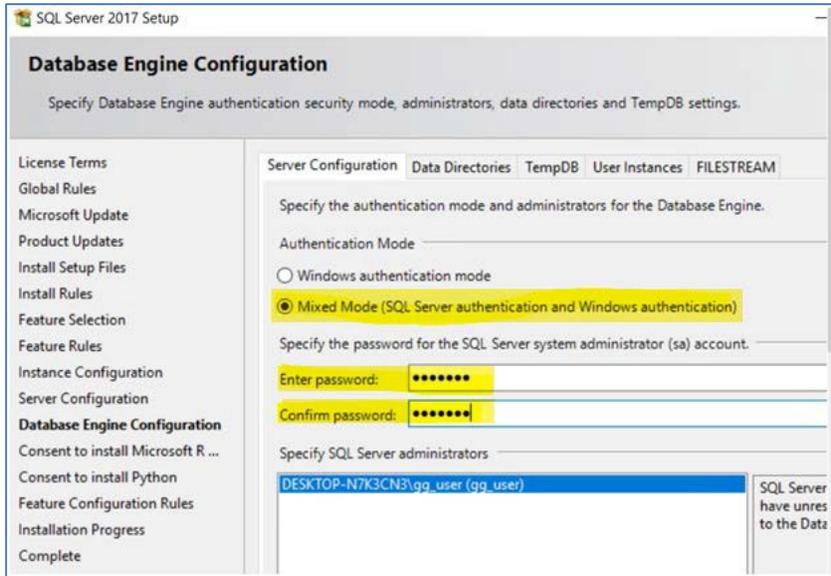




You must restart SQL Server for these changes to take place. This can be done by restarting the service or rebooting the computer.

Custom Install

If you selected the Custom install, you can set these features during the installation, but the overall installation is more complicated.



Install .Net 4.8 (or higher)

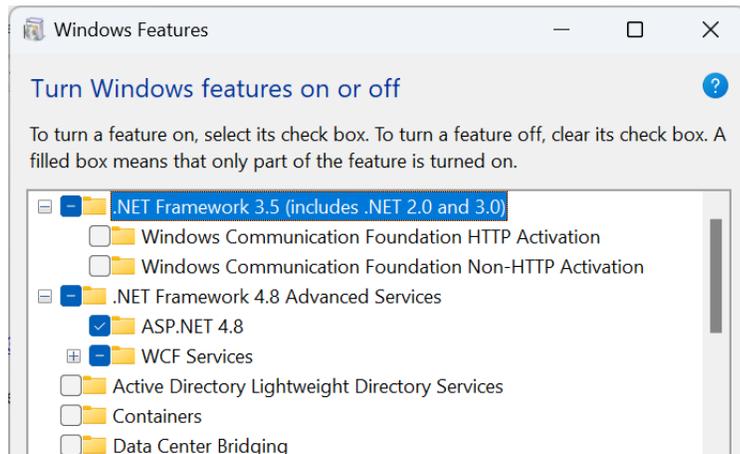
Manually install .Net 4.8 if it is not already installed:

<https://www.microsoft.com/en-us/download/details.aspx?id=53345>



Also turn on .NET Framework 3.5 as shown below

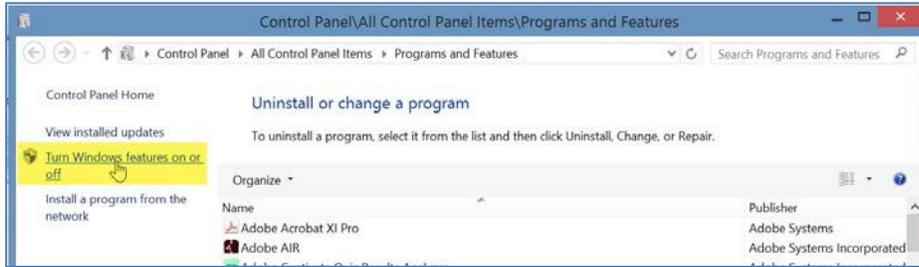
Use Turn Windows Features on or off screen:



If you are unsure if .Net 4.6 is installed or not, try installing it. It will either install itself or indicate that it has been previously installed.

Install Internet Application Server (IIS)

Install Internet Application Server (IIS) if not already installed. By default, it is not installed. Install IIS through the Windows' **Add Roles and Features** option. Select **Turn Windows features on or off**:

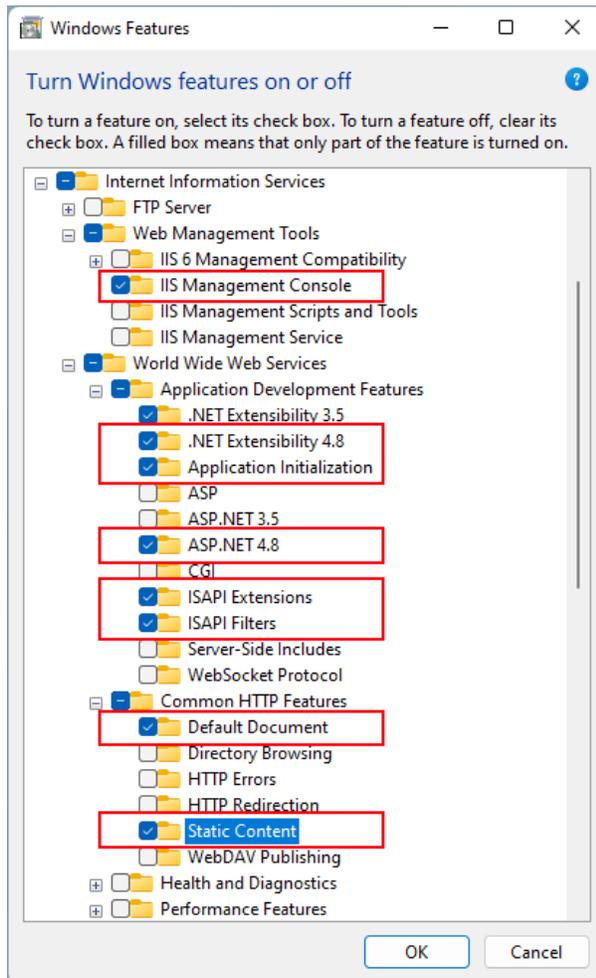


A good article on the settings for IIS and Windows 11 at:

https://docs.appeon.com/ps2022r2/Installing_IIS_in_Windows_11.html

(You can type **inetmgr** at the **Start-->Run** prompt to determine the version level.)

Several sub items under IIS (Internet Information Services) need to be installed with IIS. If the base IIS was previously installed, ensure the extra options as shown below are selected. Note that in SSMS, it seems the desired features are moved around under different headings in different versions.



Server2016:

Add Roles and Features Wizard

Select server roles

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select one or more roles to install on the selected server.

Roles	Description
<input type="checkbox"/> Remote Desktop Services	
<input type="checkbox"/> Volume Activation Services	
<input checked="" type="checkbox"/> Web Server (IIS) (13 of 43 installed)	
<input checked="" type="checkbox"/> Web Server (11 of 34 installed)	
<input checked="" type="checkbox"/> Common HTTP Features (4 of 6 installed)	
<input checked="" type="checkbox"/> Health and Diagnostics (1 of 6 installed)	
<input checked="" type="checkbox"/> Performance (1 of 2 installed)	
<input checked="" type="checkbox"/> Security (1 of 9 installed)	
<input checked="" type="checkbox"/> Application Development (4 of 11 installed)	
<input type="checkbox"/> .NET Extensibility 3.5	
<input checked="" type="checkbox"/> .NET Extensibility 4.6 (Installed)	
<input type="checkbox"/> Application Initialization	
<input type="checkbox"/> ASP	
<input type="checkbox"/> ASP.NET 3.5	
<input checked="" type="checkbox"/> ASP.NET 4.6 (Installed)	
<input type="checkbox"/> CGI	
<input checked="" type="checkbox"/> ISAPI Extensions (Installed)	
<input checked="" type="checkbox"/> ISAPI Filters (Installed)	
<input type="checkbox"/> Server Side Includes	
<input type="checkbox"/> WebSocket Protocol	
<input type="checkbox"/> FTP Server	
<input checked="" type="checkbox"/> Management Tools (2 of 7 installed)	
<input checked="" type="checkbox"/> IIS Management Console (Installed)	
<input checked="" type="checkbox"/> IIS 6 Management Compatibility (1 of 4 installed)	
<input type="checkbox"/> IIS Management Scripts and Tools	
<input type="checkbox"/> Management Service	
<input type="checkbox"/> Windows Deployment Services	
<input type="checkbox"/> Windows Server Essentials Experience	
<input type="checkbox"/> Windows Server Update Services	

Management Tools provide manage a Web server that can use the IIS user interface tools, and scripts to manage directly. You can also edit the configuration directly.

GRIN-Global Updater Download and Install

1. Download and save the two **Updater Tool** Setup files:

https://npgsweb.ars-grin.gov/gringlobal/uploads/installers/latest/GrinGlobal_Updater_Setup.msi

https://npgsweb.ars-grin.gov/gringlobal/uploads/installers/latest/GrinGlobal_Updater_Setup.exe

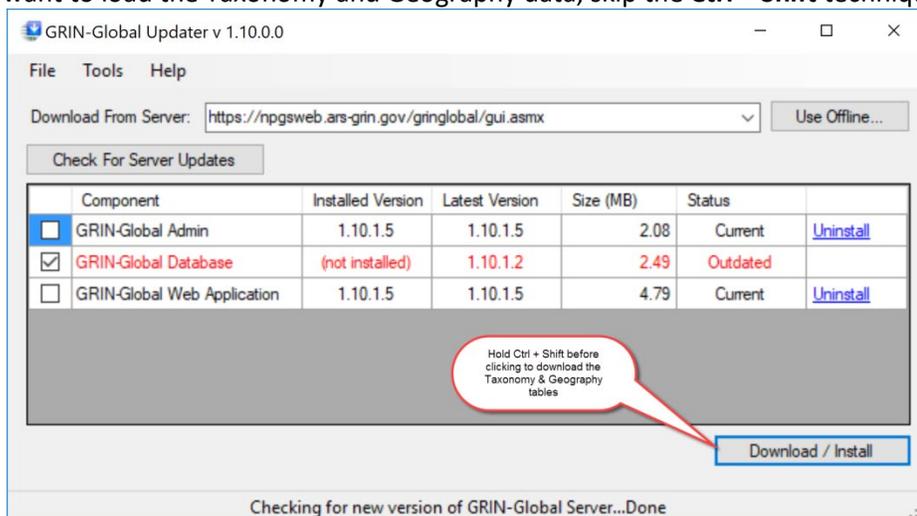
2. Run the .exe file [to install the **GG Updater Tool**]
3. Start the **GG Updater**. Point it at <https://npgsweb.ars-grin.gov>.

If this is a new GG install, all components should be selected for installation.

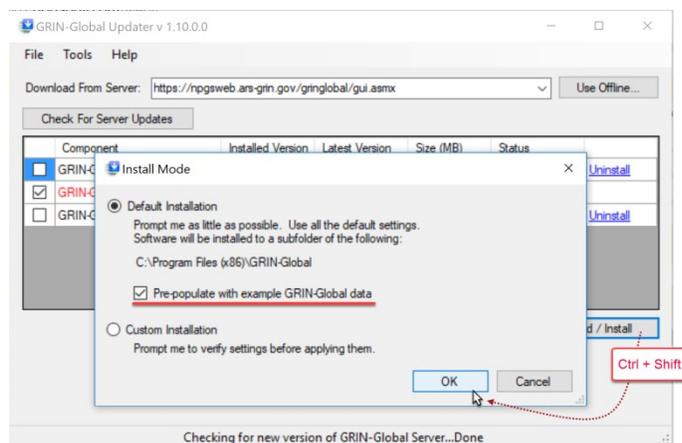


Download the Taxonomy and Geography data that was copied from the U.S. GRIN system. **This option is highly recommended.** Press and hold the **Ctrl + Shift** keys *before clicking* the **Download/Install** button. (If you do not want to load the Taxonomy and Geography data, skip the **Ctrl + Shift** technique.)

4. The following directions are optional, but recommended, for downloading the Taxonomy and Geography tables.
 - Select the **GRIN-Global Database** checkbox.
 - Press and hold the **Ctrl + Shift** keys *before clicking* the **Download/Install** button. (If you do not want to load the Taxonomy and Geography data, skip the **Ctrl + Shift** technique.)

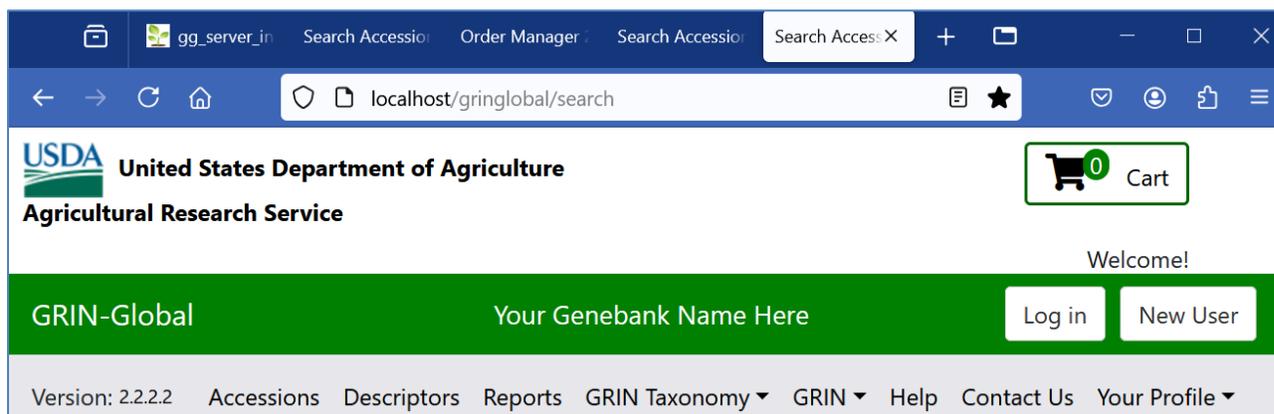


(In the image above, the **Admin** and **Web Application** components were previously selected. It is apparent because the rightmost cells provide the Uninstall option.)



At this point you should be able to test a connection to the database from the computer it was installed on via the Public Website at <http://localhost/gringlobal/search.aspx>.

Connections from other computers need to use either the server's IP address or host name.



Security Note Regarding gg_search and gg_user

The Public Web Site uses 2 SQL Server logins, **gg_search** and **gg_user**.



If these two accounts are not in the database, add them. See the section "[Adding Missing gg_search and gg_user Accounts](#)" in Appendix A.

1. Change the passwords for these two accounts in SSMS.
2. Edit **C:\inetpub\wwwroot\gringlobal\Web.config** to coordinate the new passwords you just changed:

```
<!--Also, if you are using the full version of SQLSERVER, remove \sqlexpress from the connection string-->
<add providerName="sqlserver" name="DataManager" connectionString="Data Source=localhost\sqlexpress;Database=gringlobal;User Id=gg_user;password=gguPA55word!111"/>
<add providerName="sqlserver" name="DataManagerWeb" connectionString="Data Source=localhost\sqlexpress;Database=gringlobal;User Id=gg_search;password=gg5PA55word!111"/>
```

To launch the Curator Tool or Admin Tool, refer to their respective documentation.

Updating the GG Database Environment (Leaving the Existing GRIN-Global Database Intact)

The GG database **Updater**, beginning with the 1.10.2 GRIN-Global server release, can upgrade any GG installation **from version 1.9.1 and later**. Using this tool, you can upgrade to a new version of GRIN-Global and keep the GRIN-Global database intact that had been running.

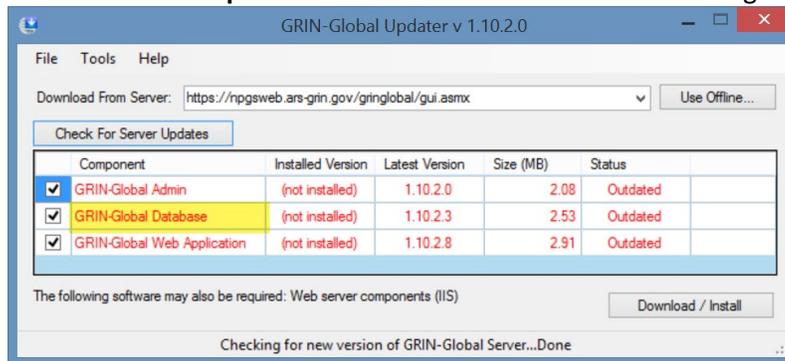
You can update the Taxonomy portion of the GG database to include any new entries supplied by the USDA while keeping your organization's taxonomy records if you have any in your current database. Geography can also be updated.

Note that none of these update processes delete any records (except maybe dataview fields). More importantly, local records are not deleted.

When the Updater detects an existing GG database, it will be able to update the GG *environment* (schema changes, dataviews, language tables, and triggers) *without deleting the existing data in the database*.



The GRIN-Global **Updater** window looks similar to the following:



The three server components can be installed separately.

- When **Admin** is selected, the GG Admin Tool is installed.
- **Web Application** is a bit of a misnomer, because besides the public website, the middle tier web services are also installed.
- The middle component, **Database** actually can mean different things, depending on the situation:
 - When installing GRIN-Global *initially*, the database component will include the database tables (most of which are empty) as well as the other database environment components such as dataviews, triggers, codes, and language data.
 - When an organization already has data in an *existing* GG database, selecting the GRIN-Global Database component will provide an option to update the peripheral GG “environment” components, but also keep the germplasm data unaffected.



Version 1.10.6 has two known issues. It doesn't:

1. create `gg_user` account if missing
2. handle custom `nchar` field schema additions in the existing database

Main Steps to Update the GG Environment

Four Main Steps

1. Back up your database before attempting an upgrade (for safety reasons – see below)
2. [Uninstall the previous database software](#)
3. [Update the GRIN-Global Updater to 1.10.2.0](#) (optional)
4. [Update the GG Database software](#)

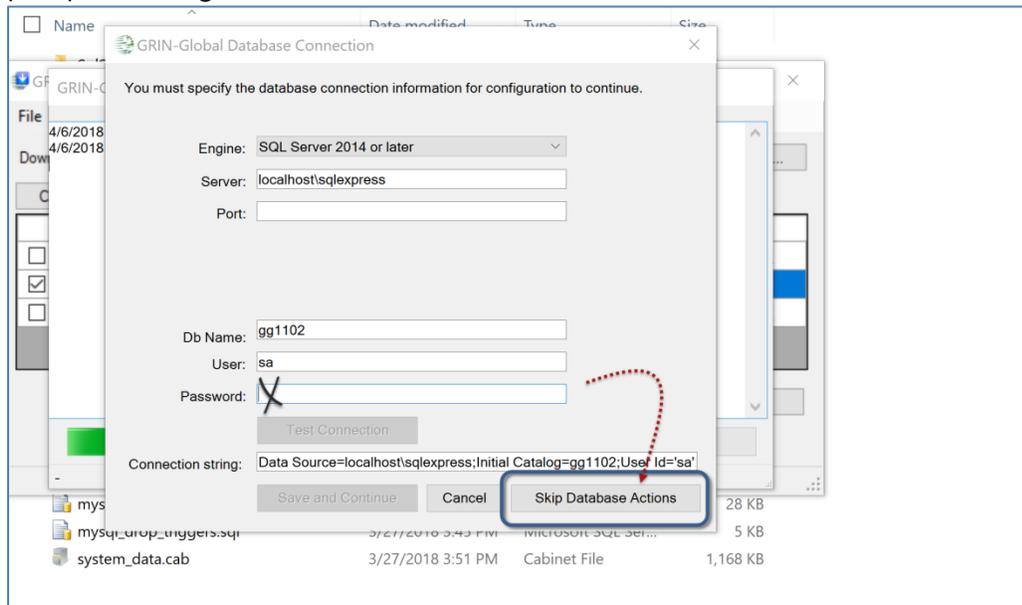
Step 1. Back up your database before attempting an upgrade

Use Microsoft SQL Server Management Studio to backup your database.

Step 2. Uninstall the previous GRIN-Global database software

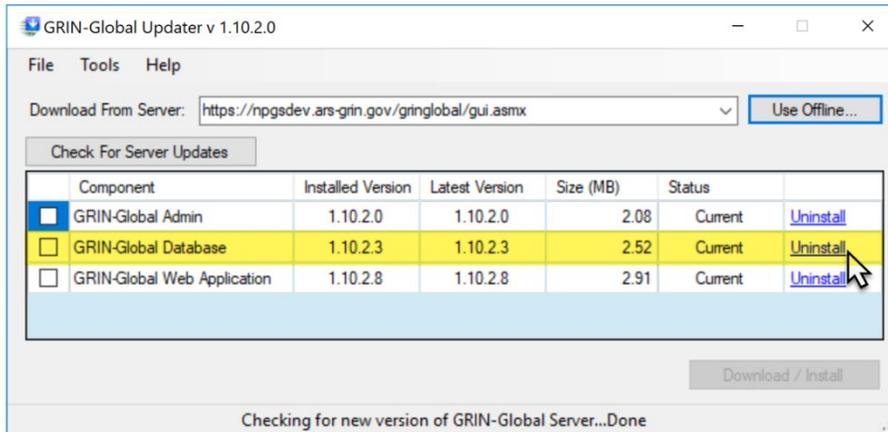
The previous database *software* needs to be removed before using the new version. You can delete the database software without deleting your existing *database* by using either Windows Control Panel or the GRIN-Global Updater.

In either case, when the connection information window prompts for the **sa** password, do not supply the password, but instead click the **“Skip Database Actions”** button. This prevents your existing database (data) from being removed when the GG database software is removed.



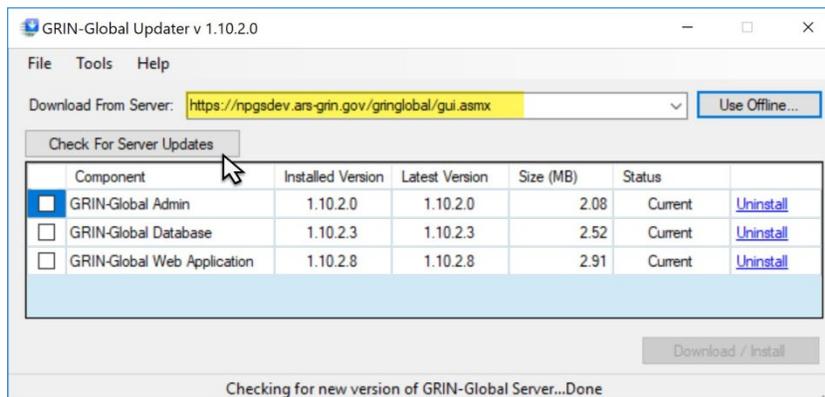
To remove the gg Database software, either use the:

- Windows Control Panel; uninstall “GRIN-Global Database”
- GRIN-Global Updater, click on the Database component’s **Uninstall** link:



Step 3. Update the GRIN-Global Updater to 1.10.2.0

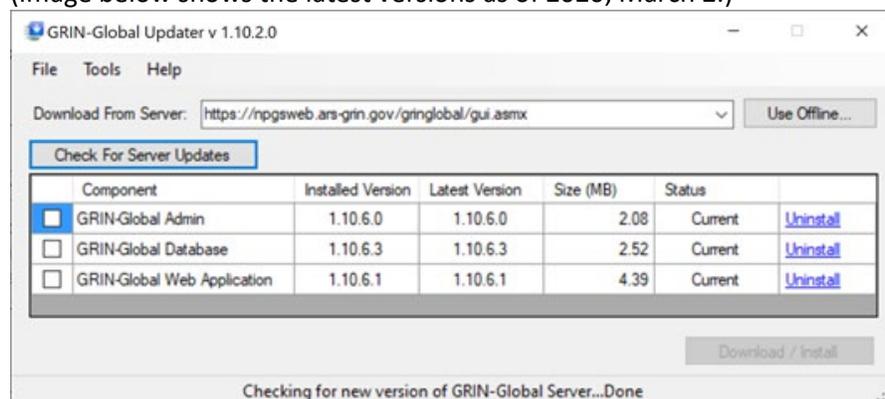
This is an optional step that allows you to specify a database name other than “gringlobal” during installation or upgrade. (This can be useful for test runs.) Direct the GRIN-Global Updater at <https://npgsweb.ars-grin.gov/gringlobal/gui.asmx>



Click the **Check for Server Updates** button; the three components should be listed.

At some point while using the Updater, you may be prompted about updating the **Updater**. If it doesn't prompt, try closing the Updater and then try connecting a second time. (Notice the Updater's version is displayed in its Title Bar.)

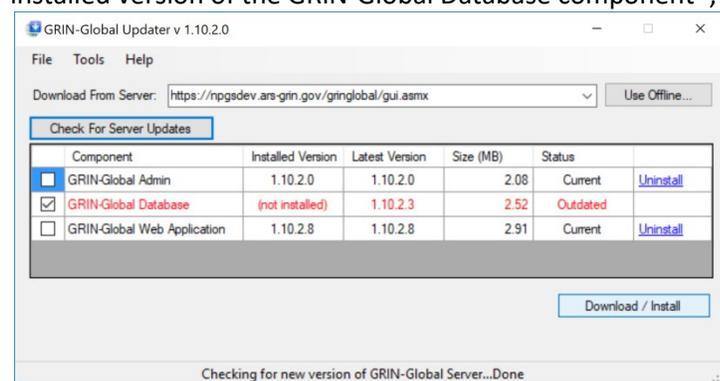
(Image below shows the latest versions as of 2020, March 2.)



Step 4. Update the GG Database Software

Use the GRIN-Global Updater 1.10.2 with **Download From Server** set to <https://npgsweb.ars-grin.gov/gringlobal/gui.asmx>

Ideally you have removed the database software as discussed previously in step 2. There should be no installed version of the GRIN-Global Database component*, if there is, perform step 2.



* Although the component is labeled “GRIN-Global Database,” remember that it is the database *environment* (including schema changes, dataviews, language tables, and triggers)

1. Category “table and field information (st, stf, stfl)” covers tables: "sys_table", "sys_table_field", "sys_lang", "sys_table_field_lang"
2. Category "dataviews" covers tables: "sys_dataview", "sys_dataview_lang", "sys_dataview_field", "sys_dataview_field_lang", "sys_dataview_param", "sys_dataview_sql"
3. Category "datatriggers" covers tables: "sys_datatrigger", "sys_datatrigger_lang"
4. Category "trigger" covers tables: "code_value", "code_value_lang"
5. Category "geography" covers tables: "geography", "region", "geography_region_map", "site"
6. Category "taxonomy" covers tables: "taxonomy_family", "taxonomy_genus", "taxonomy_species"
7. Category "taxonomy detail" covers tables: "taxonomy_alt_family_map", "taxonomy_author", "taxonomy_noxious", "literature", "citation", "taxonomy_common_name", "taxonomy_geography_map", "taxonomy_use"

Check only the GRIN-Global Database component and click the **Download / Install** button.



Use the desired database name (Db name). (Formerly **gringlobal** was the required name, but that is no longer the case.)

GRIN-Global Database Connection

You must specify the database connection information for configuration to continue.

Engine: SQL Server 2014 or later

Server: localhost\sqlexpress

Port:

Db Name: gringlobal

User: sa

Password: **

Test Connection

Connection string: Data Source=localhost\sqlexpress;Initial Catalog=gringlobal;User Id

Save and Continue Cancel

After supplying the database **sa** password on the connection page, click **Test Connection** and then **Save and Continue**.

Select Custom Installation

GRIN-Global Updater v 1.10.2.0

File Tools Help

Download From

Check For

Component

GRIN-Global Server

GRIN-Global Database

GRIN-Global Tools

Uninstall

Uninstall

Install

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

Install Mode

Default Installation

Prompt me as little as possible. Use all the default settings. Software will be installed to a subfolder of the following:

C:\Program Files (x86)\GRIN-Global

Custom Installation

Prompt me to verify settings before applying them.

OK Cancel

Select **Next** several times:

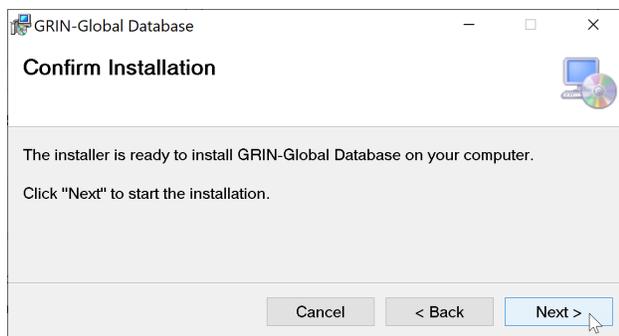
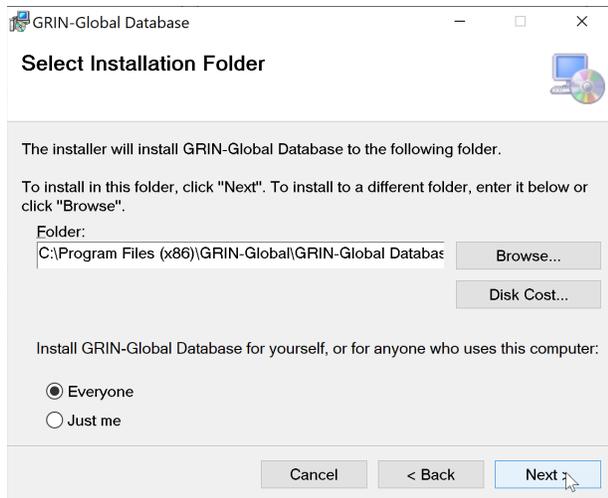
GRIN-Global Database

Welcome to the GRIN-Global Database Setup Wizard

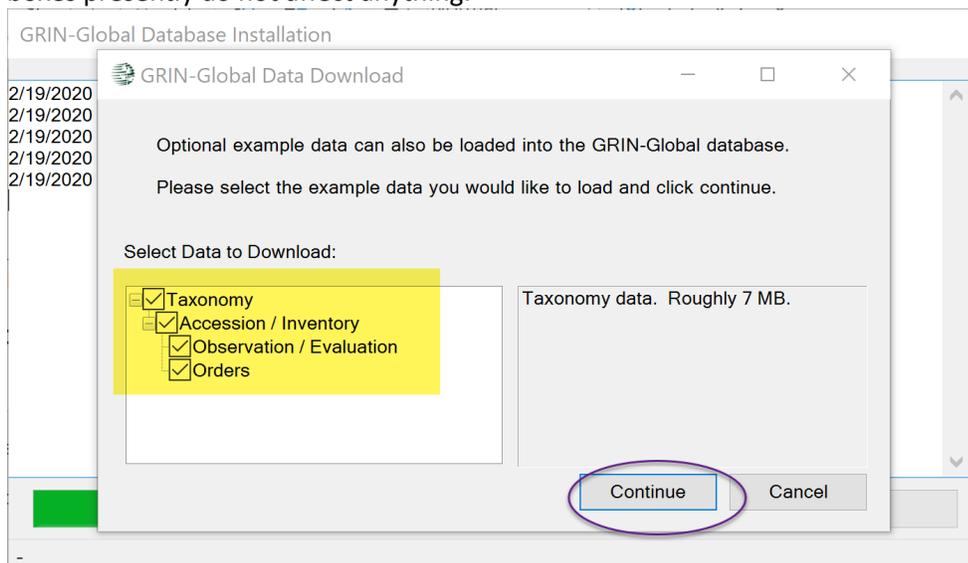
The installer will guide you through the steps required to install GRIN-Global Database on your computer.

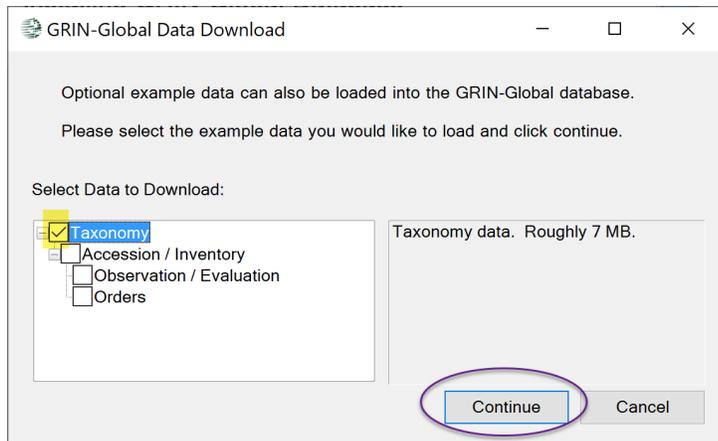
Click "Next" to continue.

Cancel < Back Next >

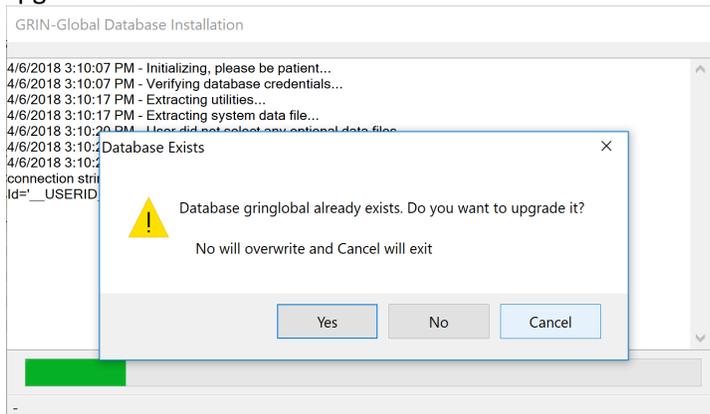


The following screen is a little misleading. The only optional data currently is **Taxonomy**. The other check boxes presently do not affect anything:

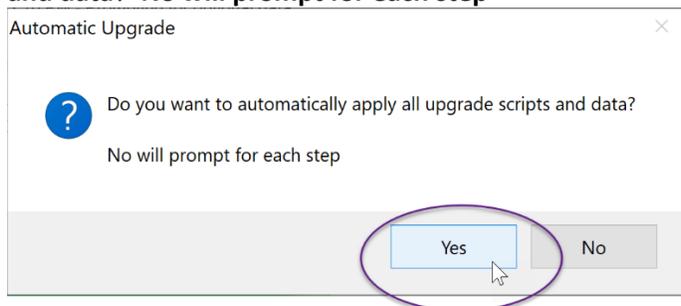




During this process, your existing database (environment) should be detected. You will be prompted to upgrade it:



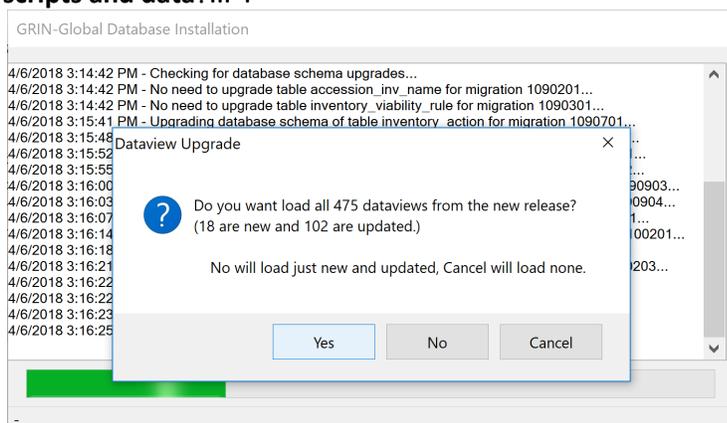
If you select Yes, it will then display the prompt **“Do you want to automatically apply all upgrade scripts and data? No will prompt for each step”**



Answering...

- **Yes** - allows the process to automatically apply any relevant upgrades.
- **No** - means you will then be prompted about each step it will take. This may be as many as a dozen steps or more in some cases, but for a recent version database there may be half as many. (This allows you to decide whether to apply scripts and upgrade data, in case there is a reason you want to avoid one or the other, in whole, or in part.)

An example of a prompt when you answer **No** to the ““Do you want to automatically apply all upgrade scripts and data?...”:



The SQL upgrade scripts are found in the **C:\Program Files (x86)\GRIN-Global\GRIN-Global Database\SqlServer** directory if you want to examine them. It also adds rows to the `sys_database_migration` table recording the filenames of the scripts it runs on a database.

Appendix A

Adding Missing `gg_search` and `gg_user` Accounts

Use the following SQL to create any missing accounts needed by the current version:

```
USE gringlobal -- change database name if desired

GO

-- If LOGIN accounts don't exist create new ones...

IF NOT EXISTS (SELECT loginname FROM master.dbo.syslogins WHERE name = 'gg_search') CREATE LOGIN
gg_search WITH PASSWORD='ggsPA55w0rd!!11'

IF NOT EXISTS (SELECT loginname FROM master.dbo.syslogins WHERE name = 'gg_user') CREATE LOGIN
gg_user WITH PASSWORD='gguPA55w0rd!!11'

-- If database USER account don't exist create new ones with correct privileges to the database

IF NOT EXISTS (SELECT * FROM sys.database_principals WHERE name = 'gg_search') CREATE USER gg_search
FOR LOGIN gg_search

EXEC sp_addrolemember 'db_datareader', 'gg_search'

IF NOT EXISTS (SELECT * FROM sys.database_principals WHERE name = 'gg_user') CREATE USER gg_user FOR
LOGIN gg_user

EXEC sp_addrolemember 'db_datareader', 'gg_user'

EXEC sp_addrolemember 'db_datawriter', 'gg_user'
```

Changing `gg_search` and `gg_user` Passwords

The Public Web Site uses 2 SQL Server logins, `gg_search` and `gg_user`.

3. Change the passwords for these two accounts in SSMS.
4. Edit `C:\inetpub\wwwroot\gringlobal\Web.config` to coordinate the new passwords you just changed:

```
<!--Also, if you are using the full version of SQLSERVER, remove \sqlexpress from the connection string-->
<add providerName="sqlserver" name="DataManager" connectionString="Data Source=localhost\sqlexpress;Database=gringlobal;User Id=gg_user;password=gguPA55w0rd!!11"/>
<add providerName="sqlserver" name="DataManagerWeb" connectionString="Data Source=localhost\sqlexpress;Database=gringlobal;User Id=gg_search;password=ggsPA55w0rd!!11"/>
```

Appendix B: Document Revision Notes

– October 2, 2024

- minor wording edits

– July 8, 2024

- updated to reflect Windows 11 requirements and issues

– March 2, 2020

- added more installation screens and supplementary text

– May 2, 2018

- added reference and link to Appendix A re the two gg_ accounts

– April 11, 2018

- combined two documents