GRIN-Global Installation Guide

Revision Date
Spetember 1, 2015

This guide contains an overview and step-by-step directions for installing the GRIN-Global server programs. For most organizations, this guide was intended for the technical person charged with installing the GG database on a server and administering GRIN-Global. However, in some organizations, it may be that the GG administrator and primary GG user are one and the same!

Note

This documentation details how to download and install the GG Updater and also covers the process for installing a new GG database. The GG Updater is the first GG program to be installed.

Currently the Updater only installs a new GG database – it does not update an existing GRIN-Global database. If you have data in a test GG database, you will need to save that data and run a series of SQL scripts to populate your new GG database.

Beginning with Curator Tool version 1.9.2, the CT is not installed by the GRIN-Global Updater program. Rather, the CT installation program is a *self-extracting .exe program*.

The installation instructions covered by this document include the installation of the GG Updater program. If you already have installed the Updater, you do not need to reinstall it; also it does not matter what version you have installed. (If prompted to update the Updater to a newer version, you can skip that step.)

Jump to the *Location of Server Components* Section in this document if you already have the GG Updater program installed and simply need to know the location of the server components.

Curator Tool Installation

For user PCs connecting to a remote network server, you do not need to install the server applications that are explained within these pages. Instead, refer to the online Curator Tool Installation Guide. *NPGS Users: You only need to install the Curator Tool on your PC and do not need to continue reading this document.*

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

Changes in this Document

– September 1, 2015

- included shortcut notes ("Jump...") on the cover page

– August 24, 2015

- extensive editing to differentiate the separate server and client installations

– April 30, 2015

- minor editing to highlight latest server location

– November 13, 2014

- added additional warnings about the Updater overlays any existing GG database

– August 28, 2014

- removed all references to using the Updater to update the Curator Tool

– August 12, 2014

- Added text to clarify the installation of the Curator Tool – it is no longer installed via the GG Updater program (beginning with CT 1.9.2)

– December 6, 2013

- Added new Updater screen images to reflect the current server address used by the Updater
- Updated wording pertaining to the Updater and Components Installation

– November 1, 2013

- Modified the directions to includes notes for the current server

– October 25, 2012

- Modified the directions for "Handling Users Who Do Not Have Windows Administrator Privileges"

– September 27, 2011

- Added directions on using Ctrl + Shift when downloading

– August 26, 2011

- Edited the text in the introduction to the Web Application
- Included section on installing the data tier on a remote server "*Installing GRIN-Global on a Non-Windows Server*"

– July 28, 2011

- Edited references to the Search Engine (beginning with v 0.9, the Search Engine is not a separate server component)

- Provided additional details to explain the differences between installations on a server and on a single user PC
- Section added pertaining to organizational firewalls and the GRIN-Global installation

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Components of GRIN-Global

Deciding When to Use GRIN-Global Updater and What Components to Install

Not all GRIN-Global users need to install all of GRIN-Global's components.

Germplasm Requestors

Users who are germplasm requestors (typically external to the organization) can access GG information from an organization's GRIN-Global (GG) Public Website. These users need a browser only–no GG software is installed on their PC. The users will access GG data, using their browser, and direct their browser to the organization's GG website URL.

Note

Currently there are multiple, independent GG databases run by various institutes such as the CIMMYT Maize and Wheat databases, the Czech Republic Crop Research Institute's database, and the USDA's test GG database. Also, the Genesys project makes it possible to reference germplasm from the various GG databases.

Genebank Personnel

Genebank personnel will most likely use the **Public Website** as a tool for reviewing germplasm in the same manner as germplasm requestors do , but they will also use the **Curator Tool** (CT) to edit and maintain the genebank germplasm data. In larger organizations, the genebank's personnel will be accessing GRIN-Global data stored on the organization's remote server. Only the client applications, the Curator Tool and the Search Tool, will be installed on the genebank user's PC. (In the process of installing the CT, the Search Tool is automatically installed.)

Organization Server

Generally, when an organization wants the data on its network and available to many PCs, it runs a server computer and all of the GG *server* components are installed on the server. The organization's internal users, typically the genebank staff, will have copies of the Curator Tool installed on their PCs.

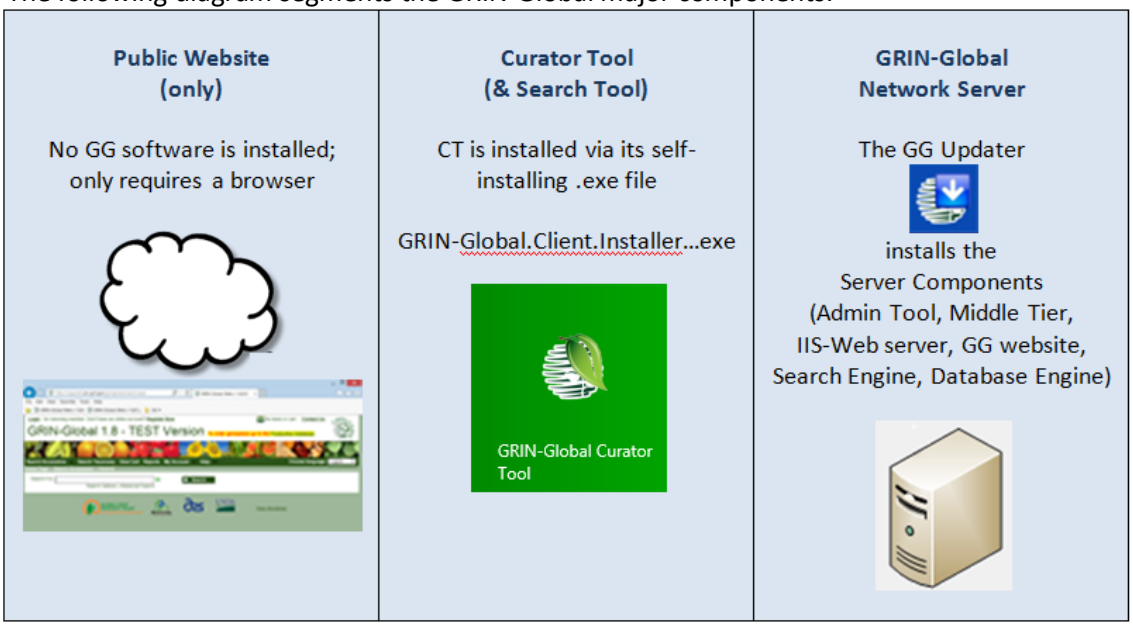
The server may not necessarily have the Curator Tool or the Search Tool installed on the server, but it could – this is handy if the GG administrator intends to test the database when logged onto the server.

Note

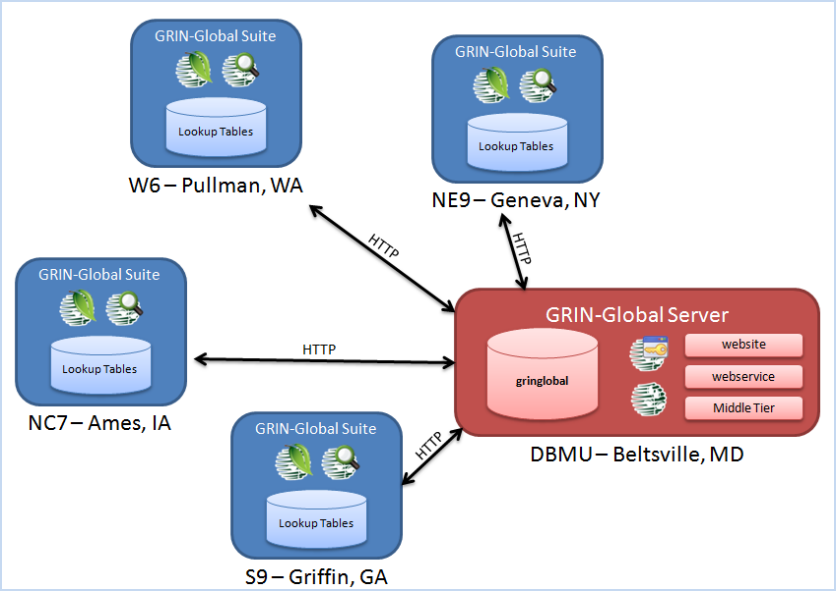
In smaller genebanks, a user's PC could do double-duty as a server – in this scenario the user's PC is the "localhost" – acting as a server. The PC could also run the client, the Curator Tool.

Components of GRIN-Global

The following diagram segments the GRIN-Global major components:



Example of Networked PCs Accessing the GG Database on a Server



Updater Program is Used for Installing the *Server* GRIN-Global Components

To install the GRIN-Global server components, use the GG **Updater** program.

Admin Tool

This tool handles many important administrative "behind the scenes" functions such as adding users, assigning security privileges, creating data views, and the bulk importing of data. The **GG Updater** is used to install this program on the server.

Database
When the **GRIN-Global Database** component is selected, a local copy of the GRIN-Global database is installed on the user's PC. This installs a new database, so if the PC has an existing GG database, it will be overlaid.

Web Application (Middle-Tier code, the Public Website, and Web Services)
The GRIN-Global **Web Application** is the heart of the GRIN-Global Application Suite and must be installed on the server. The **GG Updater** is used to install this program on the server.

The "Web Application" contains the actual business layer code ("middle-tier") and hosts the web services to access the business layer code. The programming code for the middle tier, the Public Website, and Web Services are all stored together. (For simplicity, this will be referred to as the "Web Application" rather than "middle tier / web site / web services.")

Middle-Tier
The "Middle Tier" provides end points to which clients can connect, regardless of which programming language or operating system that client requires. The Middle Tier retrieves and updates data; provides an infrastructure for reading, creating, or manipulating updatable views of data without code changes; works with several different back-end database engines transparently; and enforces business logic (e.g. an accession must belong to a specific taxonomy).

Public Website
The GRIN-Global **Public Website** is a browser-based application that provides "public" user access to the database. Users are able to search and view accession information and are able to order germplasm using a browser cart approach.

Web Services
Web Services provide a standard means for different software applications, running on a variety of platforms and/or frameworks, to communicate and exchange data with the GRIN-Global database.

Curator Tool
The **GRIN-Global Curator Tool** is used by curators and users who create and manage genebank data. (These users will typically use the organization's Public Website as well.)

Microsoft Tools / Prerequisites
In order to run the complete GRIN-Global suite of applications on a user's PC, there are additional (free) tools that must be installed.

General Requirements When Installing the Database on the User's PC "a localhost"

- The user installing GRIN-Global must have *administrator rights* to the PC
  Note: Complete directions for handling the situation when a user does not have admin rights are detailed on page 33.

- Requires an Internet browser: Windows Internet Explorer and Mozilla Firefox are supported; the PC's browser must be Active-X enabled

Hardware requirements:

- 20 GB free hard drive space

- the suggested memory for running the Operating System + 2 GB RAM for running GRIN-Global

Operating Systems

- Windows Vista (Ultimate; 32- or 64- bit)
- Windows 7 (Ultimate; 32- or 64- bit)
- Windows 8.1
- Windows 10 (Caveat: has not been rigorously tested)

Note

GG can be installed on Windows 8 and 10. When installing GG on Windows Server 2012 or SQL Server 2012, you will need to do some installation steps manually. Please refer to the details on this page: http://sun.ars-grin.gov/npgs/gg_2012_install.html

Prerequisites When the GRIN-Global Database and Admin Tool is Installed

Several Microsoft and Crystal Reports components are required when the GRIN-Global Database and Admin Tool is installed on a user's PC. At appropriate times, you will be guided by the installation wizard to download these programs, which will be downloaded if they are not already installed on the PC. They do not need to be reinstalled; however, when the PC has an older version than what is recommended, you should update to the recommended version. (Alternatively, at any time, you can manually download these.)

Prerequisites

Component	Purpose
Windows Installer 4.5	Installer is the software used for the installation, maintenance, and removal of the GRIN-Global software onto a Windows-based computer
Windows Powershell 1.0	PowerShell is Microsoft's task automation framework, consisting of a command-line shell and associated scripting language built on top of, and integrated with the .NET Framework
Visual Studio Tools for Applications 2.0	Provides items required by the software code running GRIN-Global
Crystal Reports for Visual Studio 2008	SAP's Crystal Reports viewer is a free, standalone Report file viewer that enables the user to open and view interactive reports designed for the Curator Tool
SQL Server 2008	Required on all computers where the Curator Tool is installed; the CT maintains a small SQL Server database of lookup tables on the user's PC
.NET Framework 4.5 (Service Pack 1)	The .NET Framework is a software framework that supports programming language interoperability where programs can use code written in other languages. .NET provides important services such as security, memory management, and exception handling.

Note

Sometimes when installing a Microsoft application, you may be required to reboot. After rebooting, the Microsoft application will finish installing, but the GRIN-Global **Updater** program will not automatically launch and continue. Therefore, when a reboot is involved, you will need to launch **Updater** manually again. (Click the Windows **Start button**; select **GRIN-Global Updater**.) Reselect from the Updater window (example on page **Error! Bookmark not defined.**), the respective GRIN-Global application(s) to install; click the **Download/Install** button.

Tip

When installing Microsoft's SQL Server Express on a Windows 7 64-bit operating system, if you do not have Windows Service Pack 1 installed, a message will warn you that the SQL Server Express software has a known problem with the operating system. Rather than abort the installation, proceed with the install, and then update to Windows 7 Service Pack 1.

Updater Program

In order to install the GRIN-Global server components, you must first install the GRIN-Global **Updater** program. The following installation instructions provide step-by-step instructions; however, if your organization has a firewall, read the *Installing with Firewalls* section on page 36 before following these directions.

Step-by-Step Installation Directions

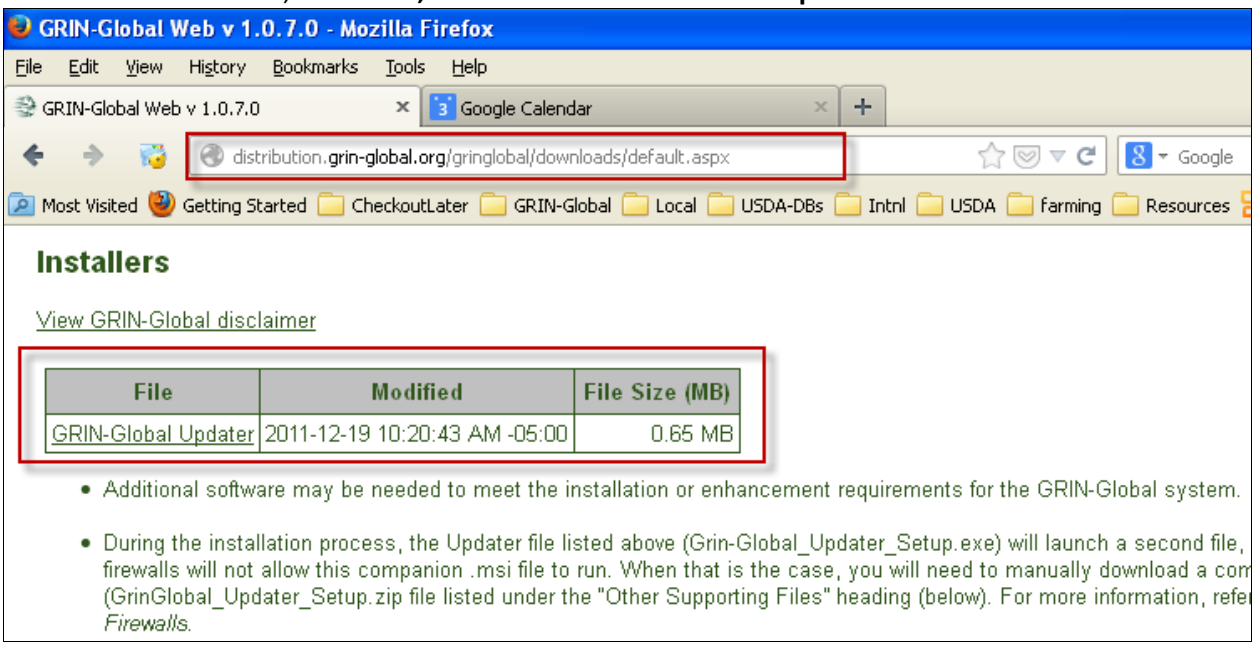
Step 1

Using your browser, such as Microsoft's Internet Explorer or Mozilla Firefox or Google Chrome, download and install the **Updater** program from: http://distribution.grin-global.org/gringlobal/downloads/default.aspx

Note

The Updater version number is not significant – an older Updater version can be used to install the latest GG components. Basically, the Updater will work with any version of GG. The address shown in the following illustration is just an example. Each organizational situation will differ.

In the **Installers** section, under **File,** click the link on **GRIN-Global Updater**:

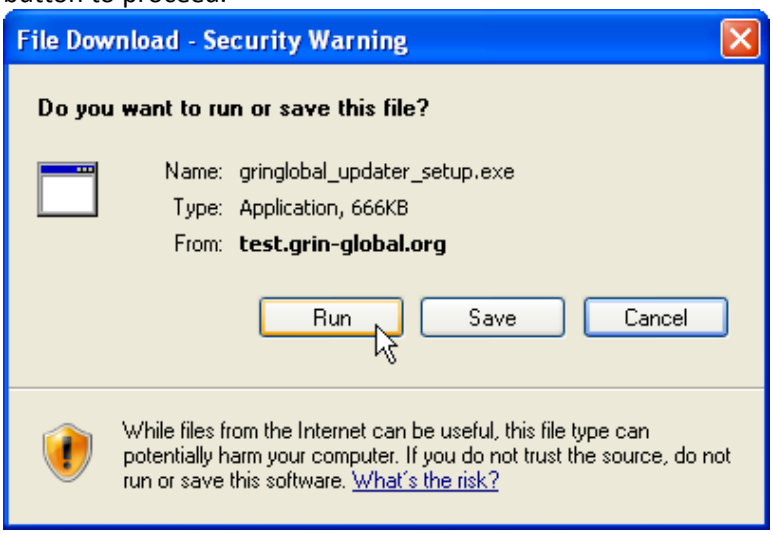


Depending on which browser you are using, your next step will vary slightly. Since most browsers emulate either Microsoft's Internet Explorer or the Mozilla Firefox browser, steps 2A and 2B were written to accommodate the differences.

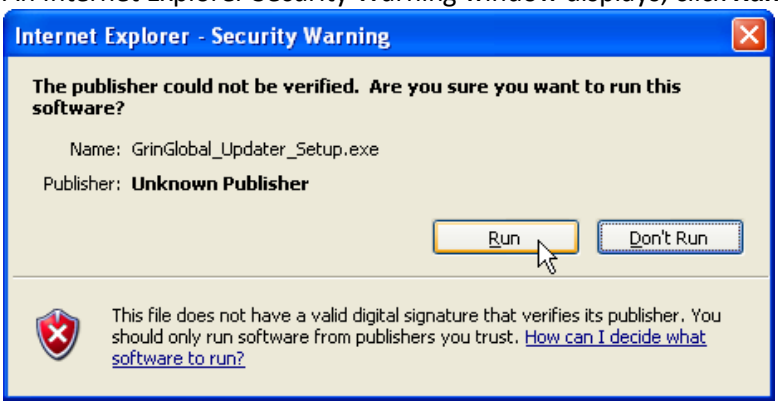
- Proceed with step 2A if you are using Internet Explorer
- Skip to step 2B if you are using Firefox or a similar browser

Step 2A: (Using Microsoft's Internet Explorer)

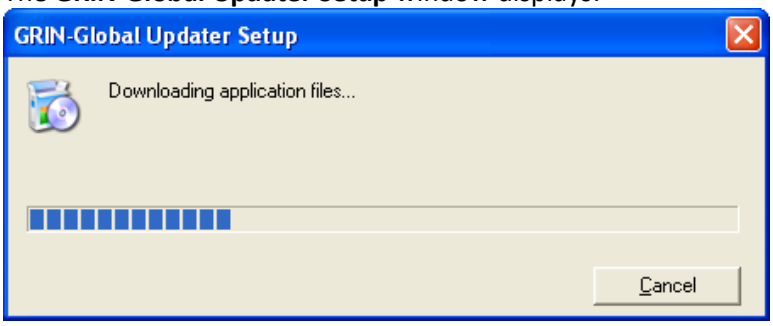
The **File Download** window displays. Unless you want to postpone initiating setup, click on the **Run** button to proceed.



An Internet Explorer Security Warning window displays; click **Run**.



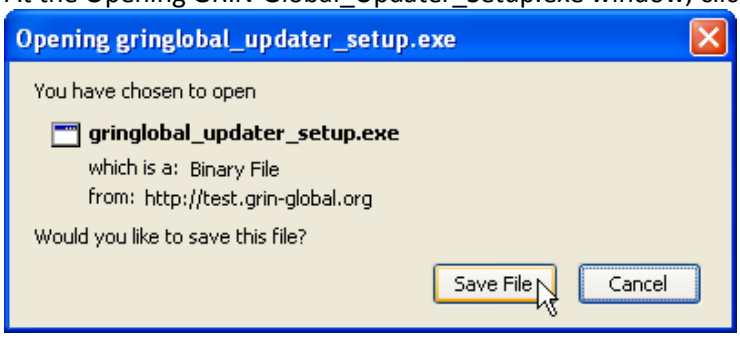
The **GRIN-Global Updater Setup** window displays:



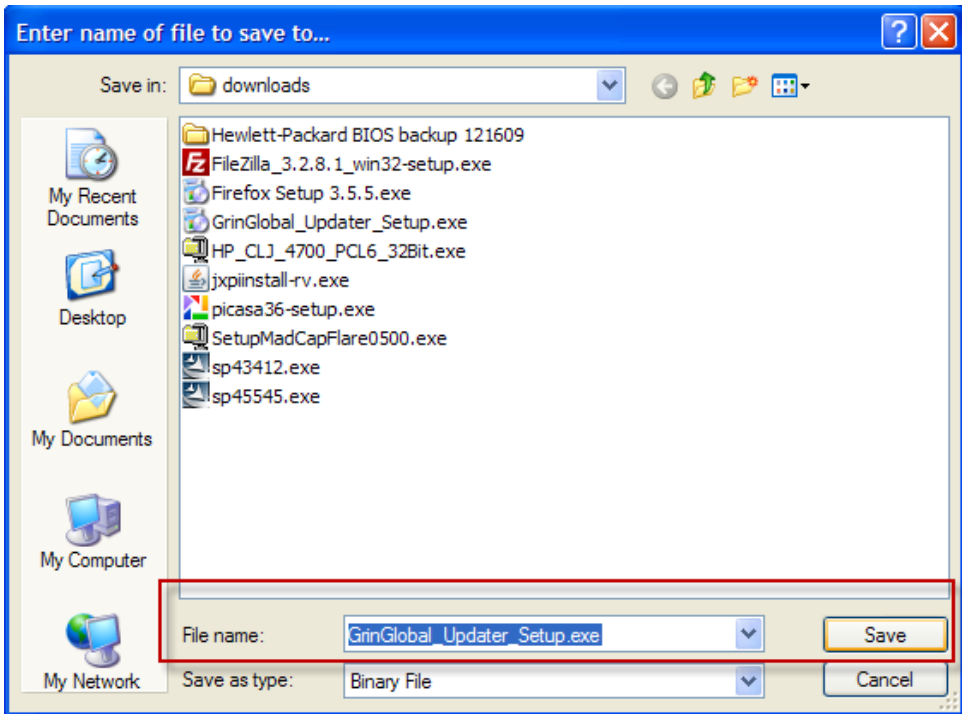
Proceed to Step 3 on page 12.

Step 2B: (Using Mozilla Firefox)

At the Opening GRIN-Global_Updater_Setup.exe window, click the Save File button.

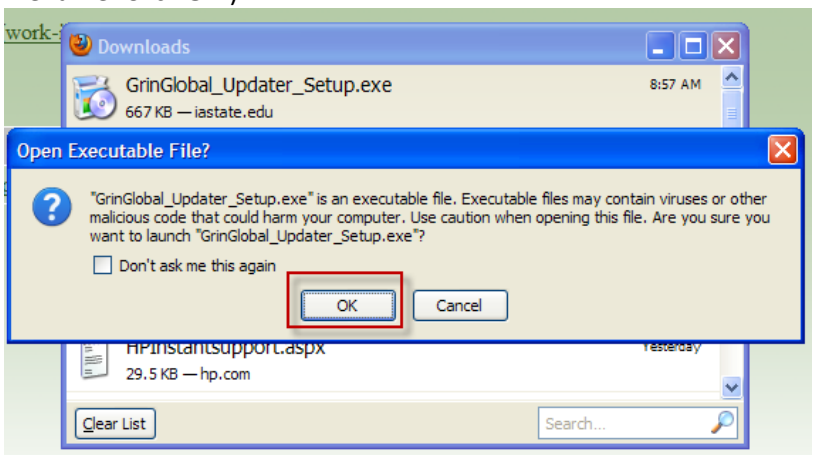


Save the file.

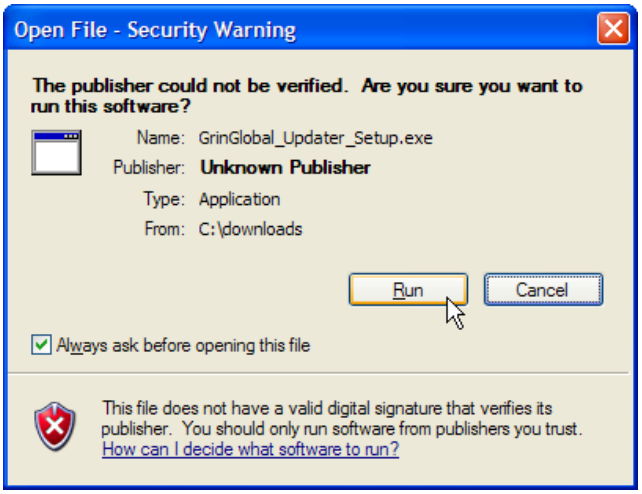


Updater Program

Launch the file. (Double-click its filename if in Windows Explorer, or if in your browser, click on the filename. Click **OK**.)

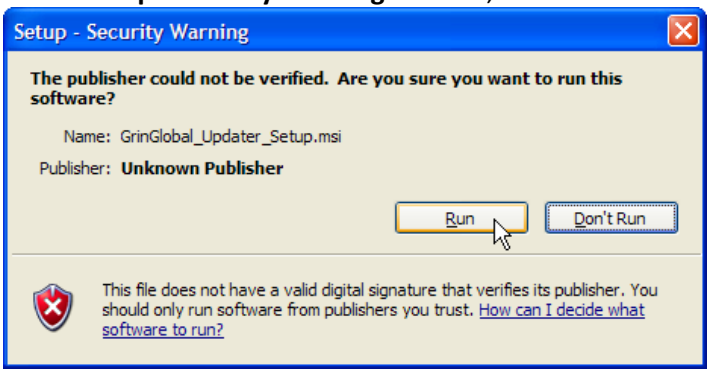


Click the **Run** button.



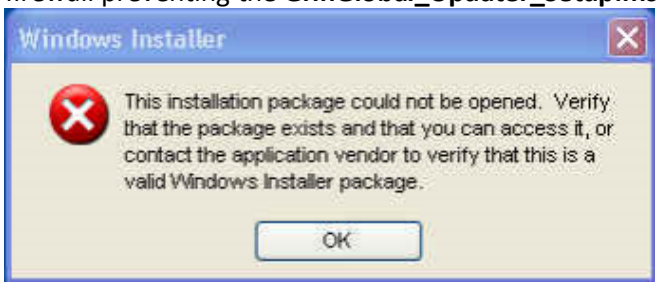
Step 3

At the **Setup - Security Warning** window, click the **Run** button.



Organizational Firewalls

If the following window displays instead of the window above, your organization most likely has a firewall preventing the **GrinGlobal_Updater_Setup.msi ("setup.msi")** file from executing properly:



When working with firewalls, follow the directions *Installing with Firewalls* section on page 36.

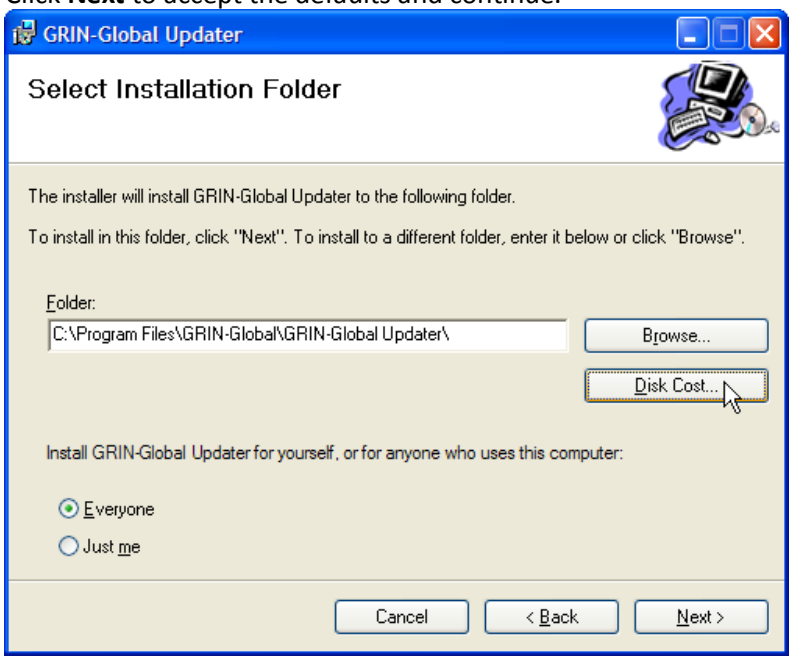
Step 4

For many of the **Setup Wizard** windows, click the **Next** button to continue.

Step 5

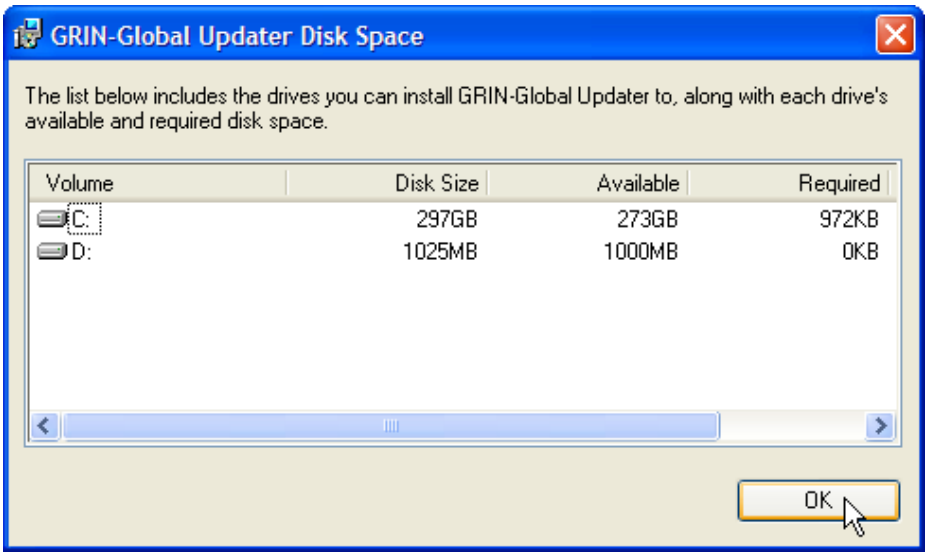
On the **Select Installation Folder** window you can change the default folder location and also indicate who will have access to the GRIN-Global programs (all users (**Everyone**) or the current user (**Just me**)). Generally, you can accept the defaults. If a different location is desired, click **Browse**. (Another option is the **Disk Cost** button which can be used to determine if you have enough space on your drive. The complete installation requires less than 1 GB.)

Click **Next** to accept the defaults and continue.



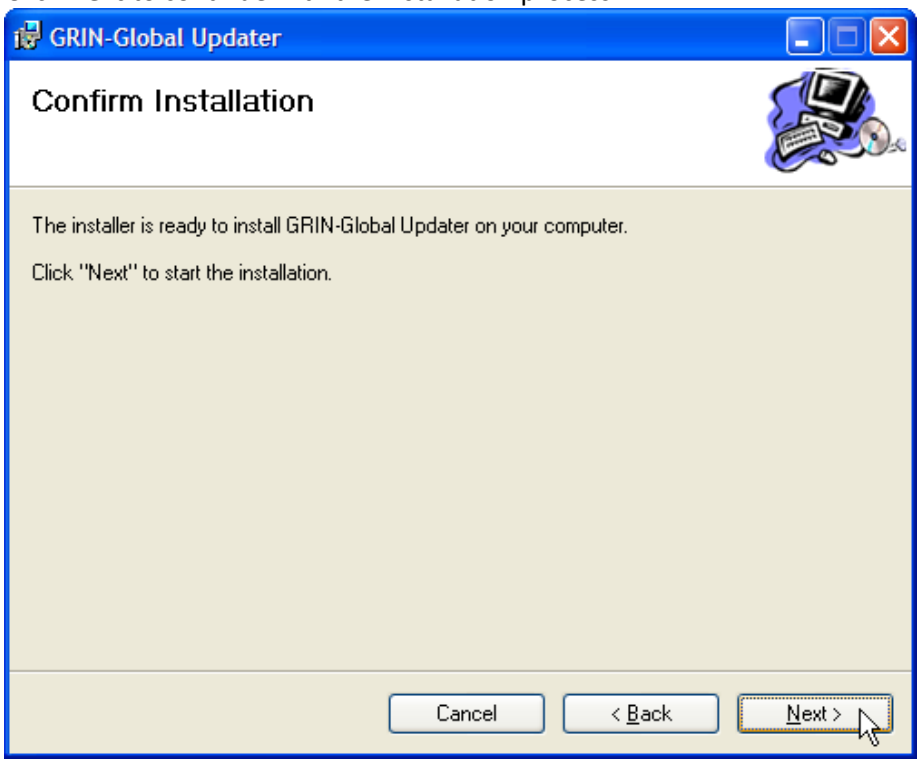
(Optional Step When the Disk Cost Button is Selected)

The **Updater Disk Space** window, indicating available and required space, is displayed when the **Disk Cost** button on the **Select Installation Folder** window is clicked. Click **OK** to continue.



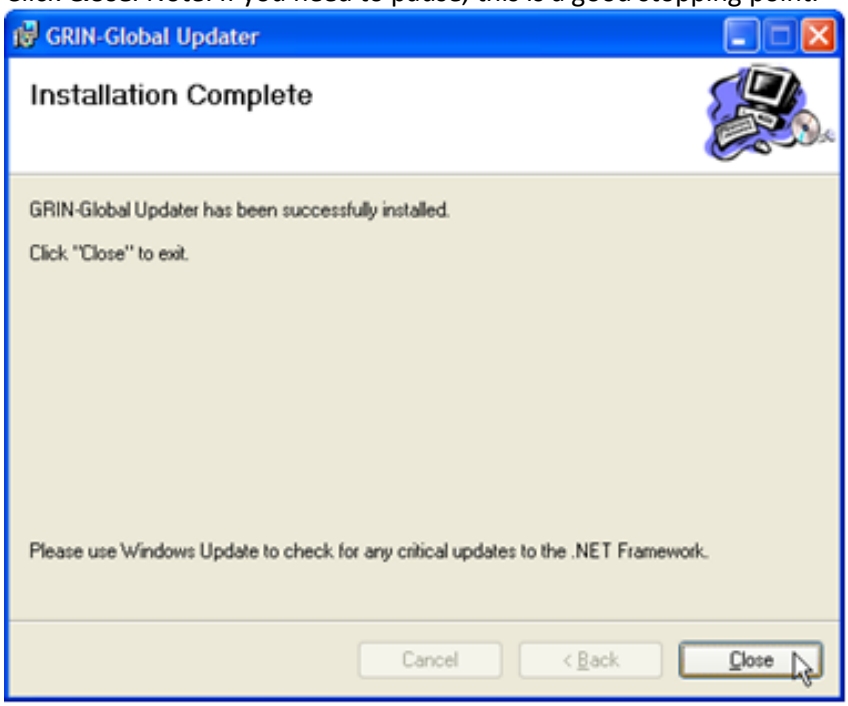
Step 6

Click **Next** to continue with the Installation process.



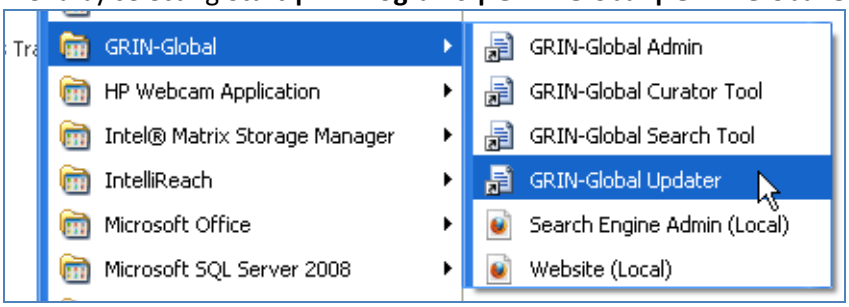
Step 7

Click **Close**. Note: If you need to pause, this is a good stopping point.



Step 8

[Note: if you interrupt the installation process, you can return to this point via the Windows **Programs** menu by selecting **Start | All Programs | GRIN-Global | GRIN-Global Updater**.]

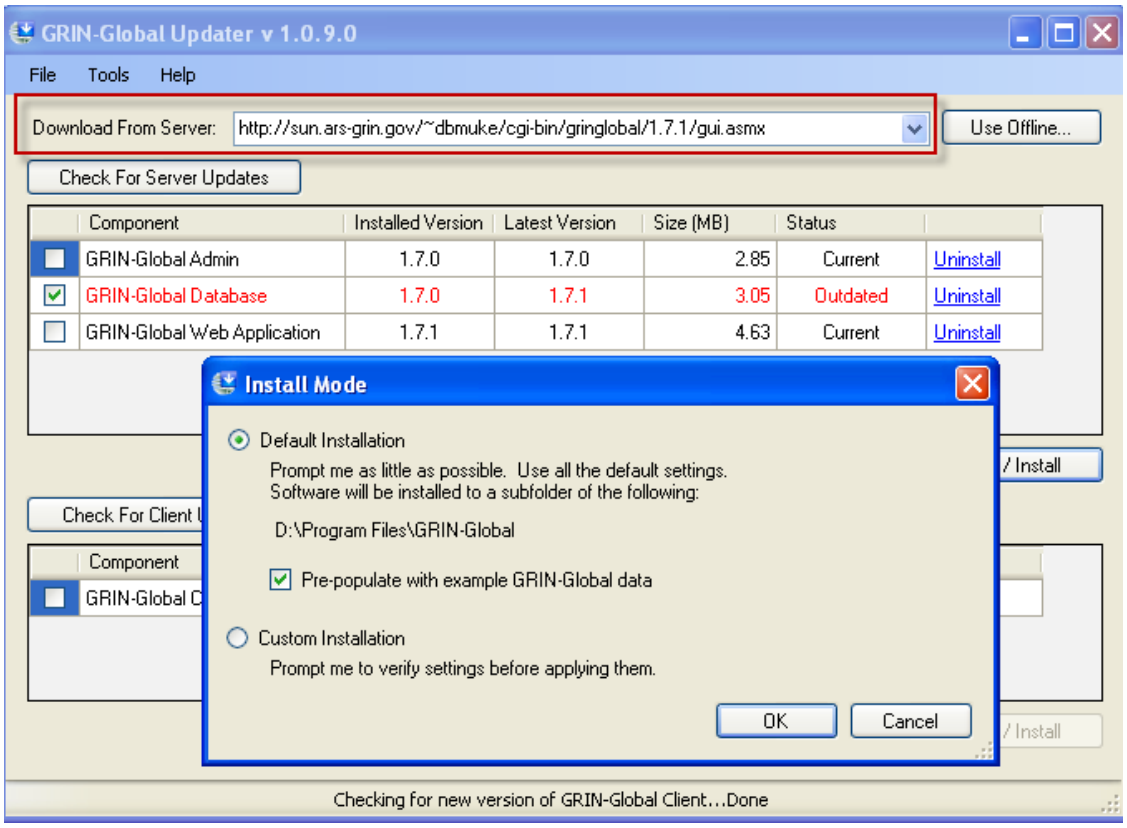


Determining if Your GRIN-Global Software Components are Current

The GRIN-Global **Updater** window is used to check for server updates. In the following window, one of the server components, the **Database** component, is displaying an "Outdated" Status and has not been updated, whereas the other server components, **Admin** and **Web Application**, are current.

Note

The following screen is an example; the version numbers shown are not necessarily the current version numbers.

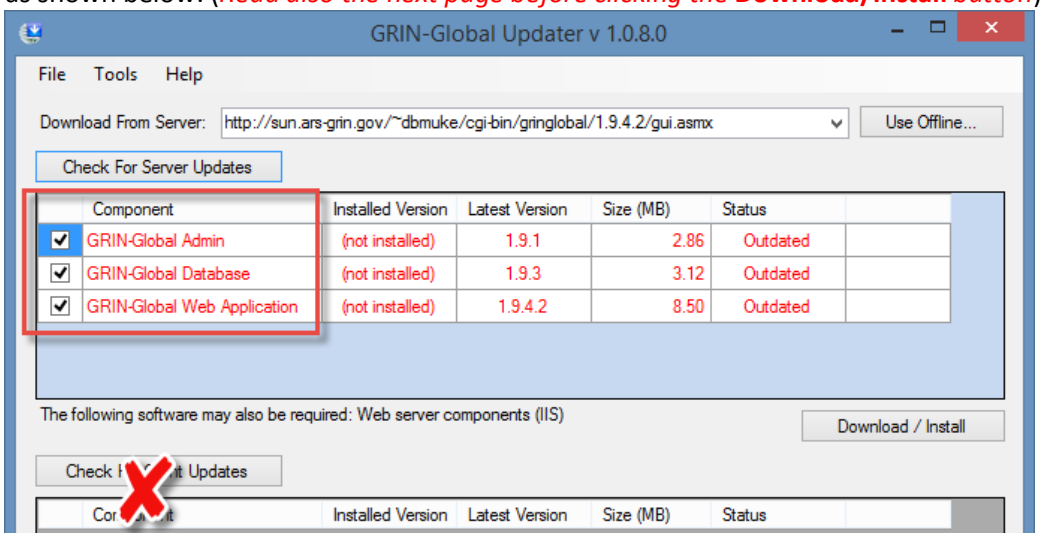


Location of Server Components

Point the GG Updater to the new server components at:

http://sun.ars-grin.gov/~dbmuke/cgi-bin/gringlobal/1.9.4.2/gui.asmx

as shown below: (*Read also the next page before clicking the* **Download/Install** *button*):



Update the three server components (listed in the top half of the **Updater** window) when you are updating a server in a networked environment. You will also download the server components when operating a stand-alone PC that will be serving as the localhost as well the client (alternative #1 in the figure on page 19.)

Currently the Updater only installs a new GG database – it does not update an existing GRIN-Global database. If you have data in a test GG database, you will need to save that data and run a series of SQL scripts to populate your new GG database.

If you are installing only the *Curator Tool client on your PC*, you do not need to download any of the *server* components.

To Download GRIN Taxonomy and Geography

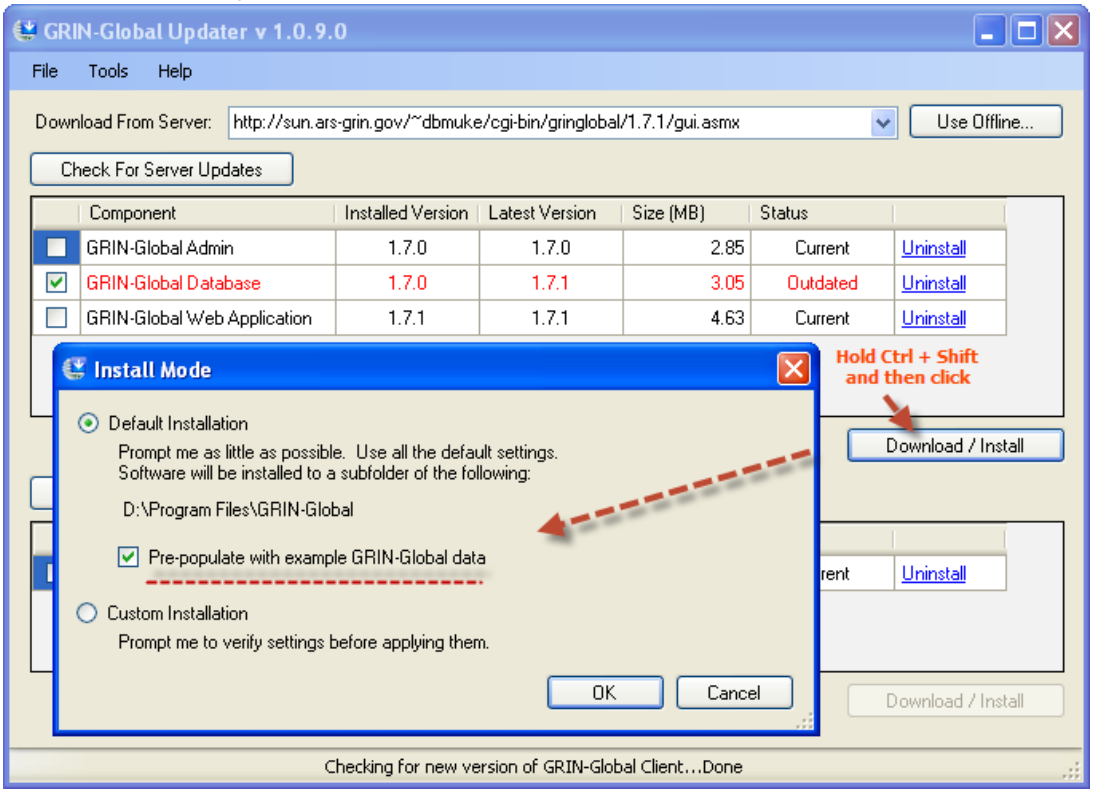
Tip

As an option, you can download the Taxonomy and Geography data that was copied from the U.S. GRIN system. **This option is highly recommended.**

First select the components' checkboxes (as shown in the screen below).

To download the **Taxonomy** and **Geography** data , 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.)

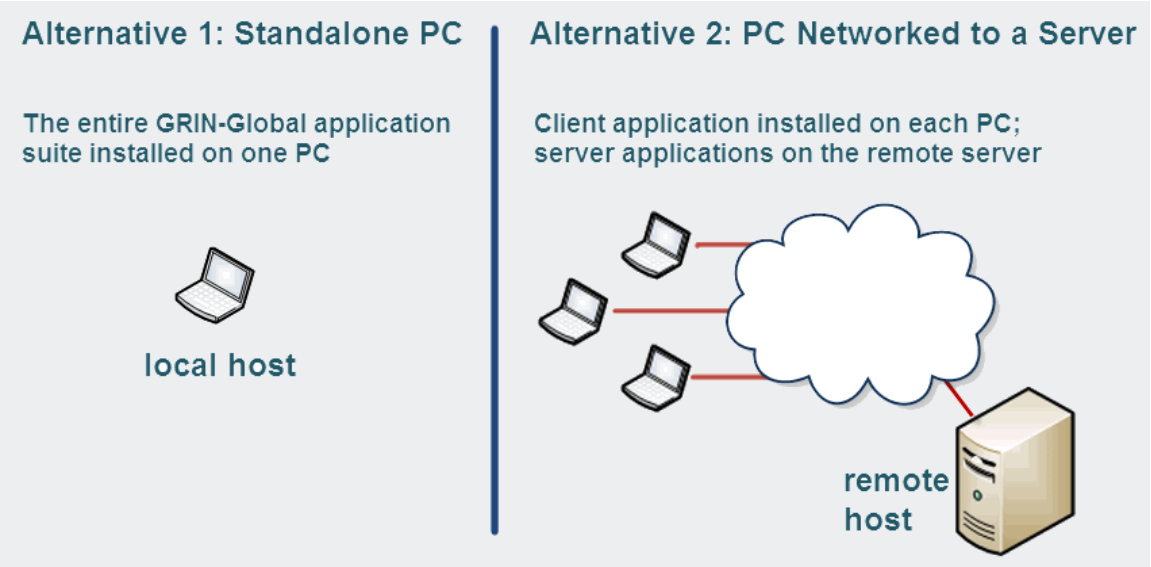
Click the **Download/Install** button:



Local vs. Remote

Note

You must have a network/Internet connection to connect to a remote server. However, most organizations will most likely install the server on a remote server PC and then install the Curator Tool on the various user PCs. The localhost option will be used by smaller genebanks which will not have the data sharing by multiple users.



For installation directions for just the Curator Tool, the client application, refer to its installation section.

Server Components: Installing (or Updating)

There are three main server components in the GRIN-Global suite:

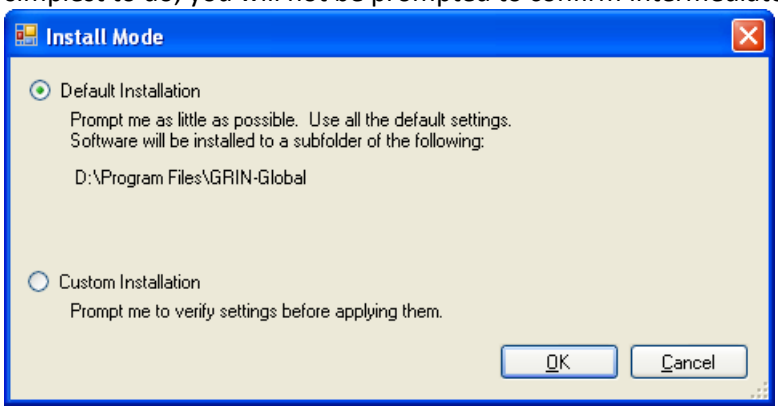
GRIN-Global Components Installed via the Updater

Component	Type	Purpose
Admin	Server	Tool for GRIN-Global administrators to create new logins (users), new cooperators, and data views, and assign security levels
Database	Server	A local copy of the database on the PC
Web Application	Server	The middle tier web services, shopping cart, etc.

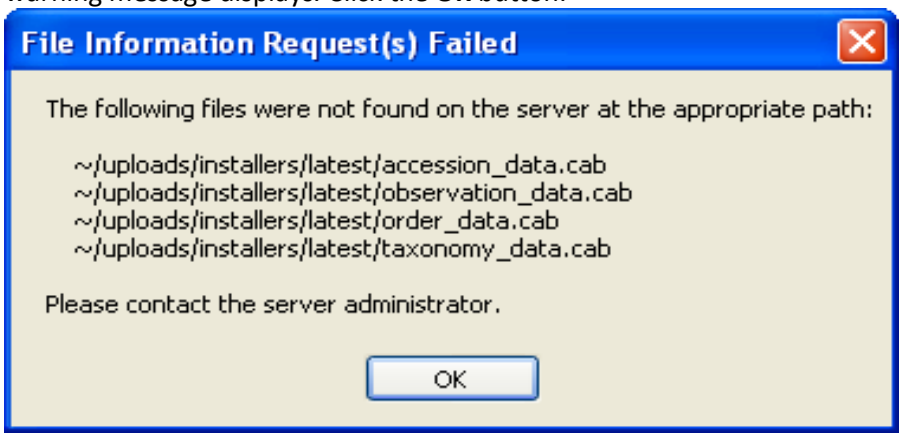
[Curator Tool]	Client	[Note: this is the client program and will eventually be removed from the Updater window, but for now, it is shown at the bottom half of the Updater window. ***Do not use the Updater to install the Curator Tool.***

Default and Custom Installation Options

When installing any of the GG components, you will be prompted with an **Install Mode** window in which you can select either **Default Installation** or **Custom Installation**. Default is recommended and is the simplest to do; you will not be prompted to confirm intermediate screens.

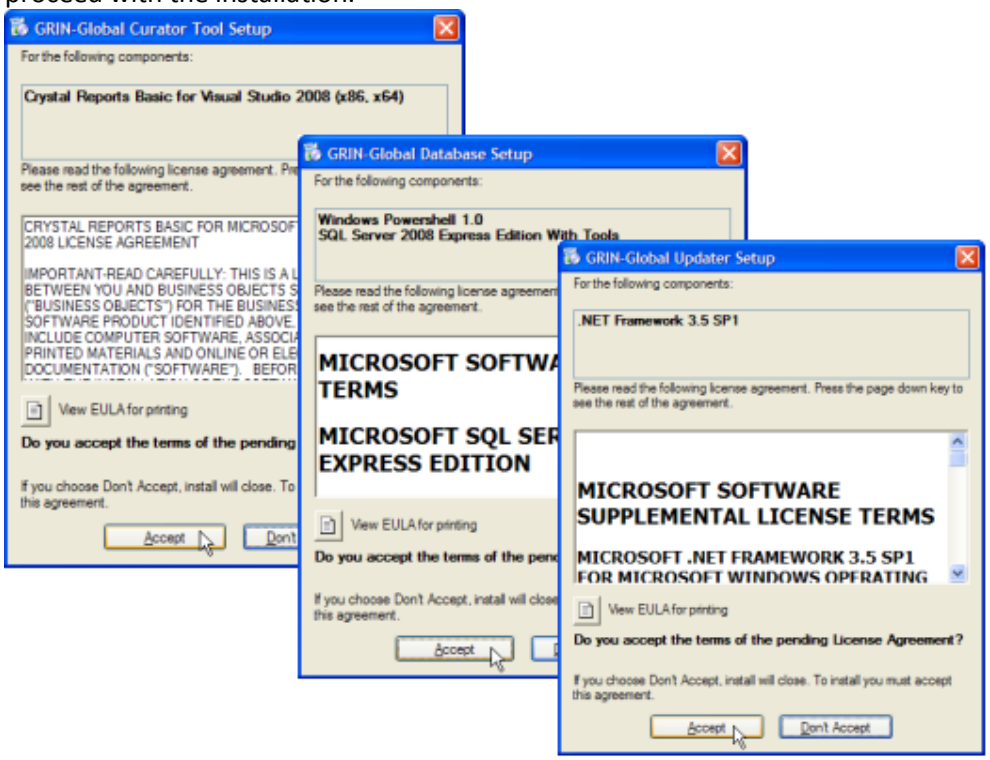


When you click the **Continue** button, the process will continue, but first the following window with a warning message displays. Click the **OK** button:



General Requirements – Installing Microsoft Applications

When the respective acceptance window displays for a Microsoft prerequisite program, click **Accept** to proceed with the installation.



Note

Sometimes when installing a Microsoft application, you may be required to reboot. (We use the word "may" here because throughout the development period, Microsoft has continued to change the installation procedures of these products.) After rebooting, the Microsoft application will finish installing, but the GRIN-Global **Updater** program will not automatically launch and continue. Therefore, when a reboot is involved, you will need to launch **Updater** manually again. (Click the Windows **Start button**; select **GRIN-Global Updater**.) Reselect the respective GRIN-Global application(s) to install; click **Download/Install**.

Server 2012

When installing GG on Windows Server 2012 or SQL Server 2012, you will need to do some installation steps manually. Please refer to the details on this web page: http://sun.ars-grin.gov/npgs/gg_2012_install.html

Database: Installing (or Updating)

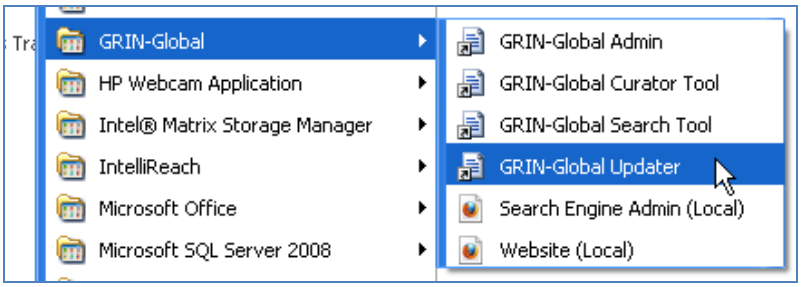
When the **GRIN-Global Database** component is selected, a copy of the GRIN-Global database is installed on the computer acting as the server.

Step-by-Step Directions

Requirement: The **GG Updater** must first be installed on the computer. (See the *Updater* section for directions is it has not yet been installed.)

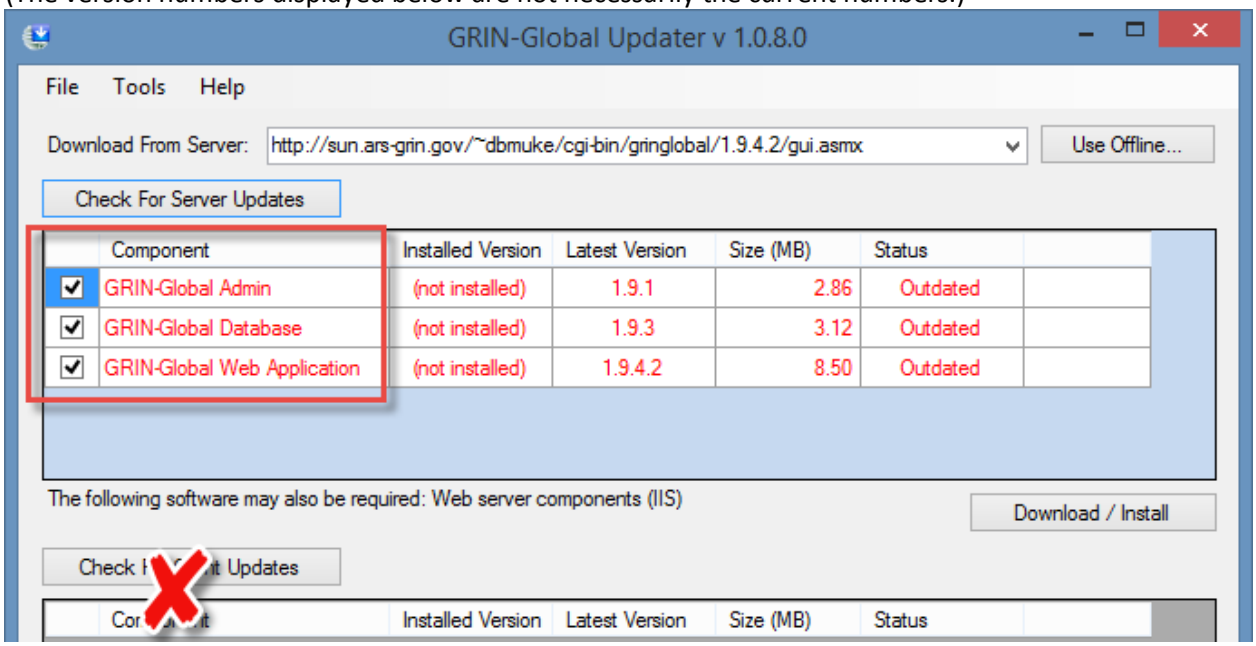
Step 1

Select **Start | All Programs | GRIN-Global | GRIN-Global Updater**



Step 2

First click the **Check for Server Updates** button. The **Updater** screen displays the versions and statuses for each of the server components.
(The version numbers displayed below are not necessarily the current numbers.)



Notes on Selecting a Database

When running the Curator Tool locally on your PC's hard drive, a database engine is required. The CT has been tested on the following four database products:

- Microsoft SQL Server
- MySQL
- PostgreSQL
- Oracle

(October 23, 2013: GG has been tested only for Microsoft SQL Server for versions post-1.07. Do not use with the other databases at this time.)

In addition to one of the four database engines, even if the database is installed on a remote server, when the CT is installed on the user's PC, a copy of MS SQL Server Express is copied onto the user's PC. The SQL Server database on the user's PC will manage the Curator Tool lookup tables.

If you are installing the Database, Search Engine, or Web App, and a local database engine is not found, a database engine dialog is shown which prompts you to choose which engine you intend to use.

The links to the four databases in the table below are the same links that are in the Updater application. The following directions are for installing on SQL Server; -- the other engines will follow a similar installation procedure.

Database	Source
MS SQL Server	http://www.microsoft.com/web/gallery/install.aspx?appsxml=&appid=SQLExpressTools;SQLExpressTools
MySQL	http://dev.mysql.com/downloads/mysql/5.1.html#win32
Oracle	http://www.oracle.com/technology/software/products/database/xe/htdocs/102xewinsoft.html
PostgreSQL	http://www.postgresql.org/download/windows

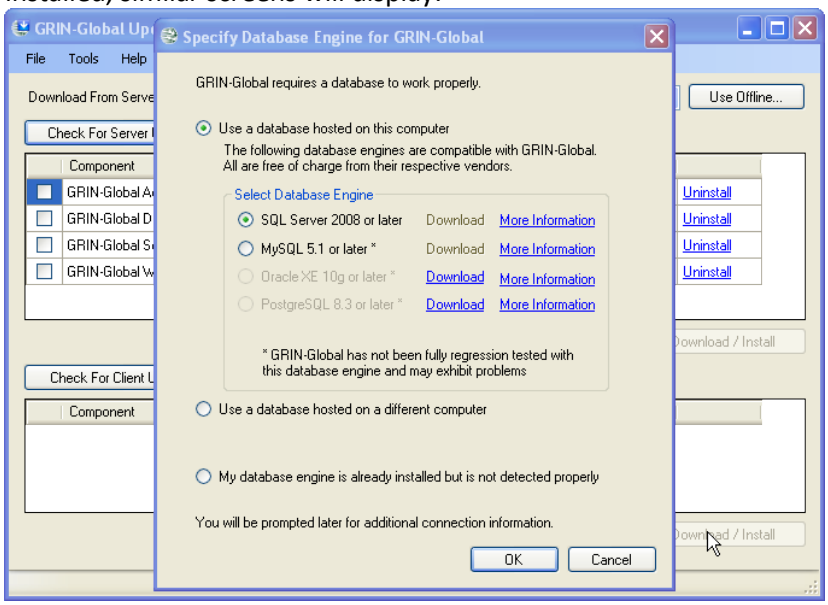
As of 11/1/2013, the latest release of GG is being distributed with the caveat that it has not been fully integrated and tested for the four database engines. Currently only MS SQL Server is supported. It is planned that the official 2.0 version will support the four database engines.

MS SQL Server (Installing)

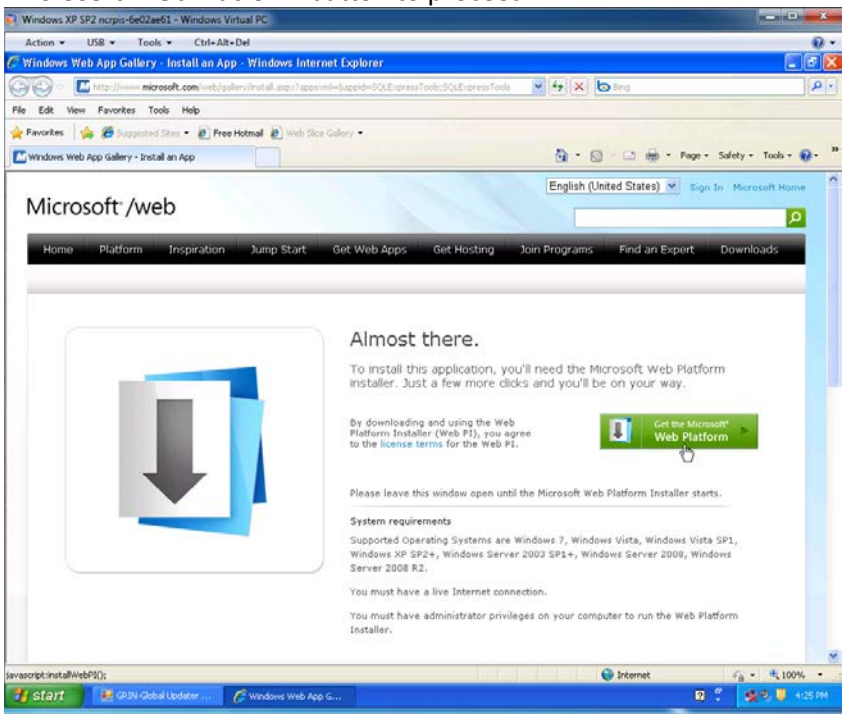
Note

Microsoft updates its screens so the actual screens may vary from the following screen examples.

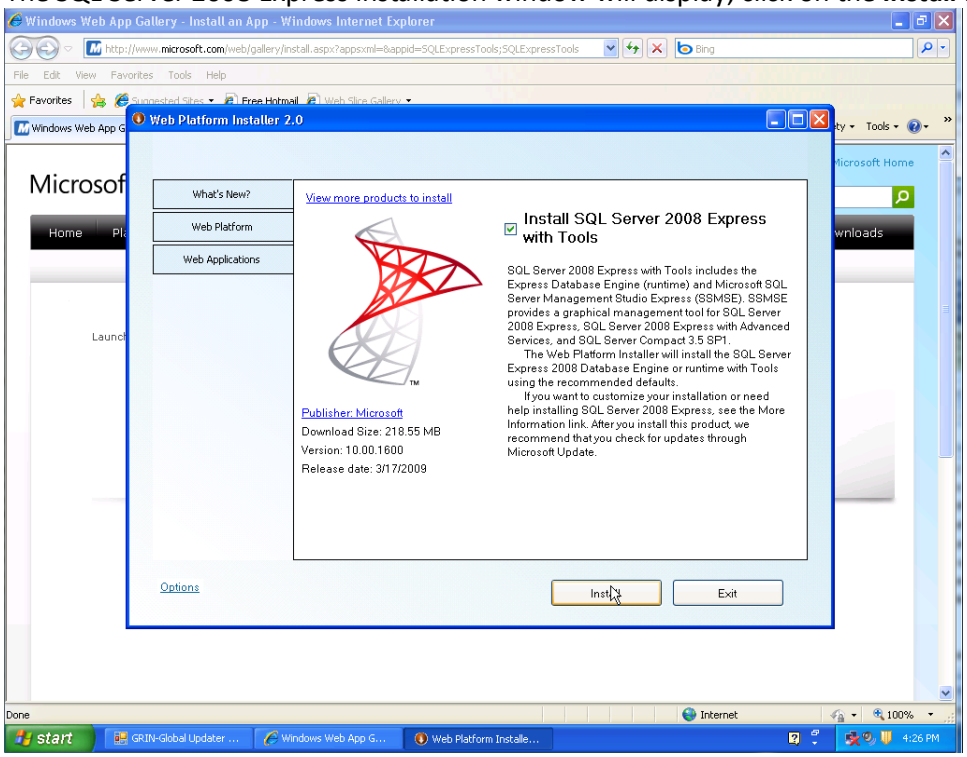
The screens that follow reflect the installation of Microsoft SQL Server. When the other engines are installed, similar screens will display:



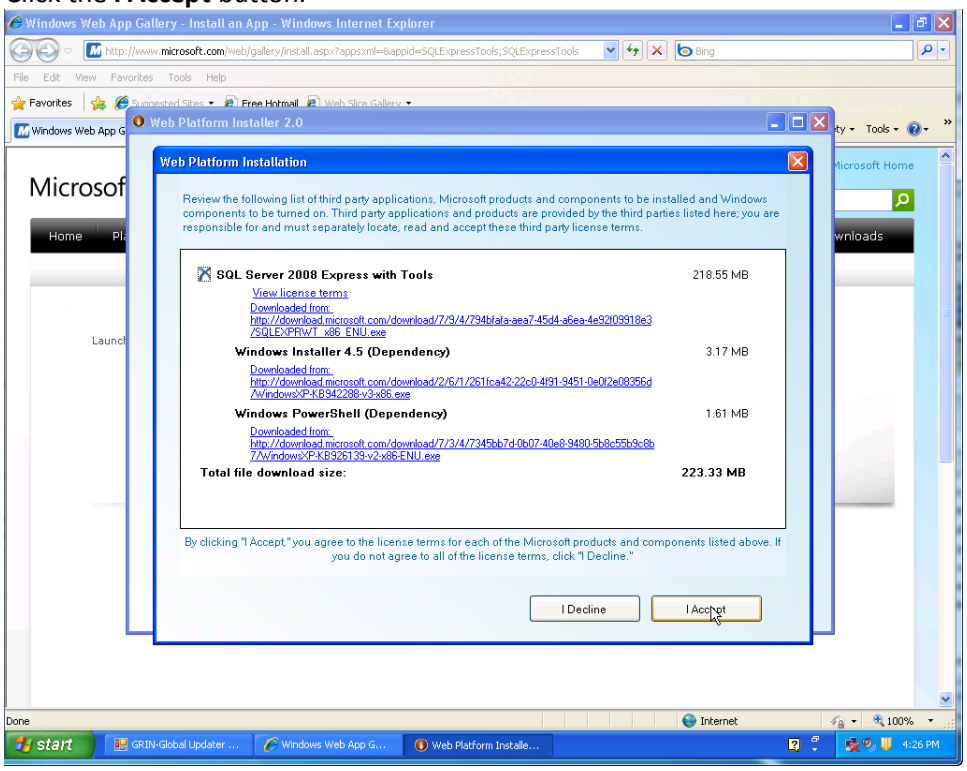
As part of the installation, Microsoft will install its "Web Platform" installer. Click on the **Get the Microsoft Web Platform** button to proceed.



The SQL Server 2008 Express installation window will display; click on the **Install** button.

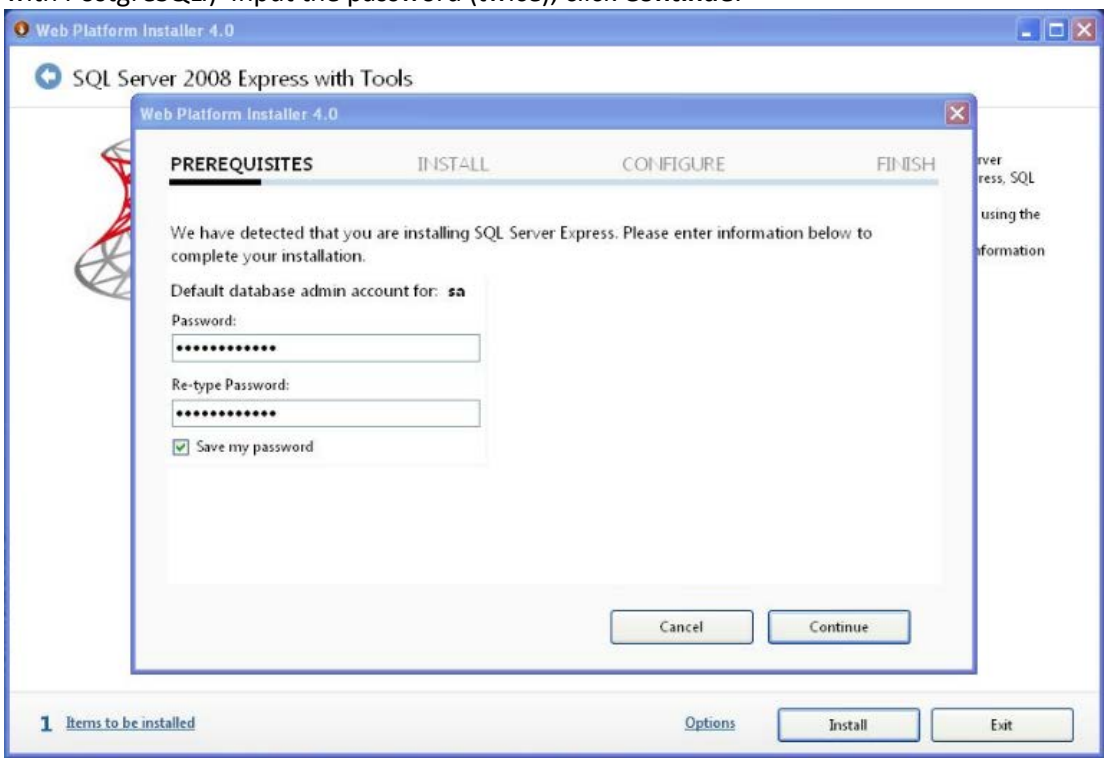


Click the **I Accept** button.



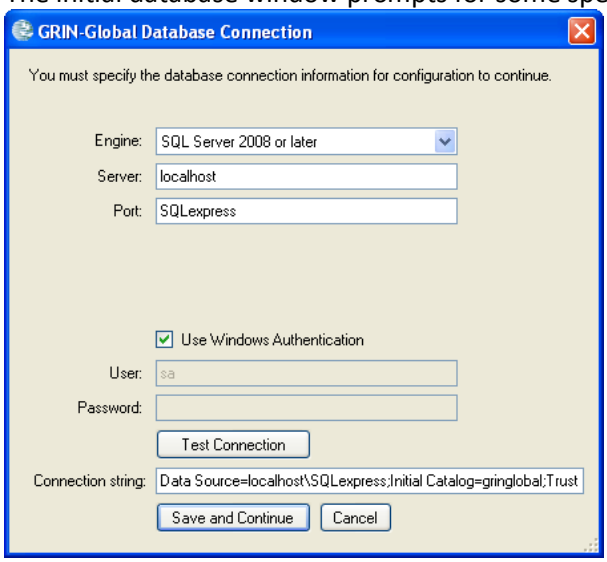
When prompted for authentication mode, select **Windows Integrated Authentication**.

However, in the screen shown below, the server administrator option is being selected. This generally is the recommended option for the other three database engines. (The requested password is the password associated with the database engine administration program such as pgAdmin when working with PostgreSQL.) Input the password (twice); click **Continue**.



Database Setup Wizard

The initial database window prompts for some specific connection information:



Background

All database engines require some kind of authentication to determine what rights you have to various operations. Some allow you to use the credentials with which you login to Windows -- this is known as "Windows Authentication." For this to work properly, your Windows login must be configured in the database engine as a valid user. Other database engines require you to enter a username and password that is specific to the database -- similar to logging in to a website.

To visit a website, all you need is the web address, such as http://www.grin-global.org/. In this example, the server name is grin-global.org. Also, there is an implicit port number of 80. Written explicitly, the address would be: http://www.grin-global.org:80/. This will work for any of your favorite web sites, go ahead and try it! At a bare minimum, a web address consists of a server and a port.

This connection method is exactly the same regardless of what kind of software the web server is running. To connect to a database a similar approach is used -- you must tell it some details about the server to which you are trying to connect.

However, unlike a web server, different database engines require different information when connecting. All require a server name, but some may require a specific "port" as well. Think of this as somewhat similar to the "80" portion of the web address example from above.

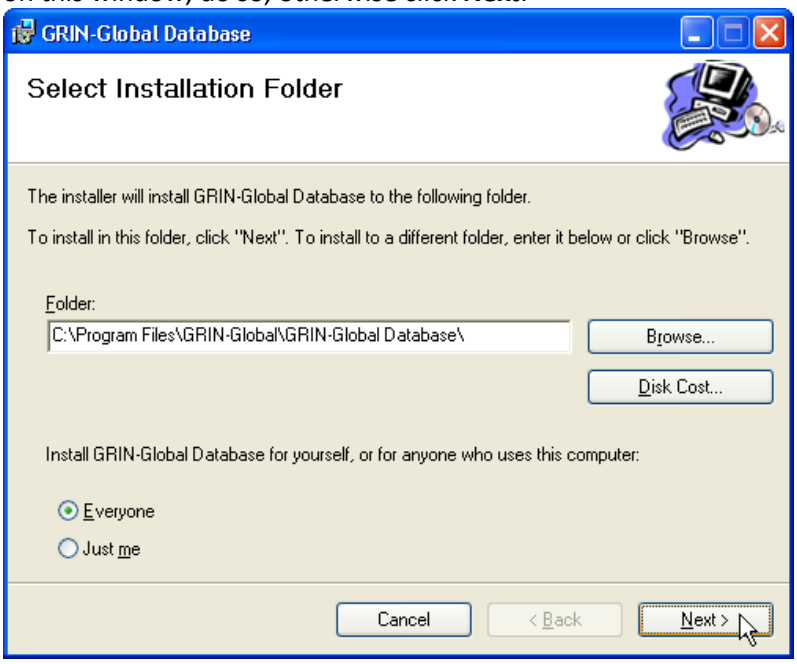
Examples of connecting to the various database engines supported by GRIN-Global (assuming the server name is "localhost"):

Database Engine	Server name	Port
MS SQL Server	localhost	SQLExpress
Oracle	localhost	1521
PostgreSQL	localhost	5432
MySQL	localhost	3306

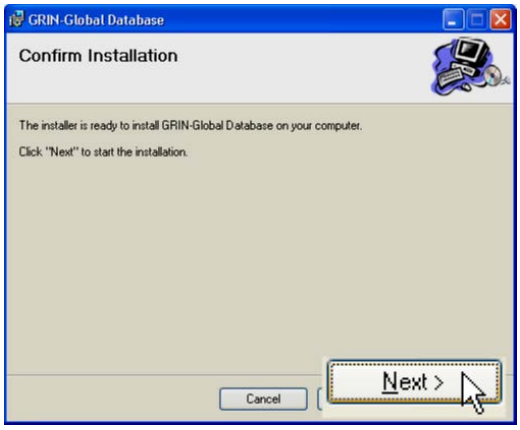
Database: Installing (or Updating)

The wizard takes you through the installation steps. To proceed, click **Next**.

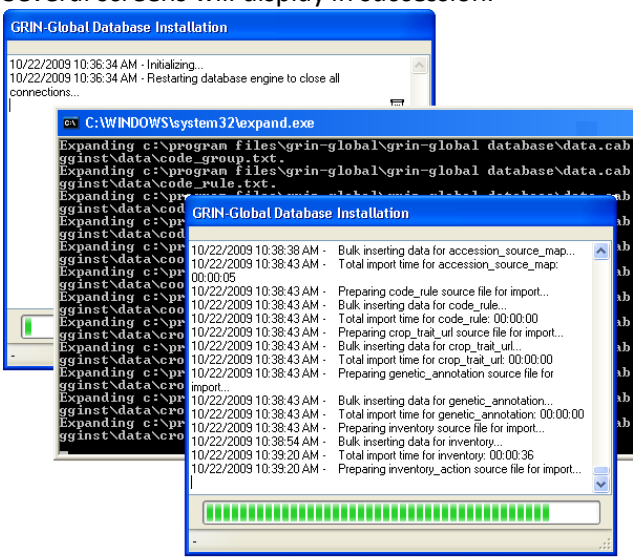
Generally the defaults on this window will be adequate for most users. If you need to change something on this window, do so, otherwise click **Next**.



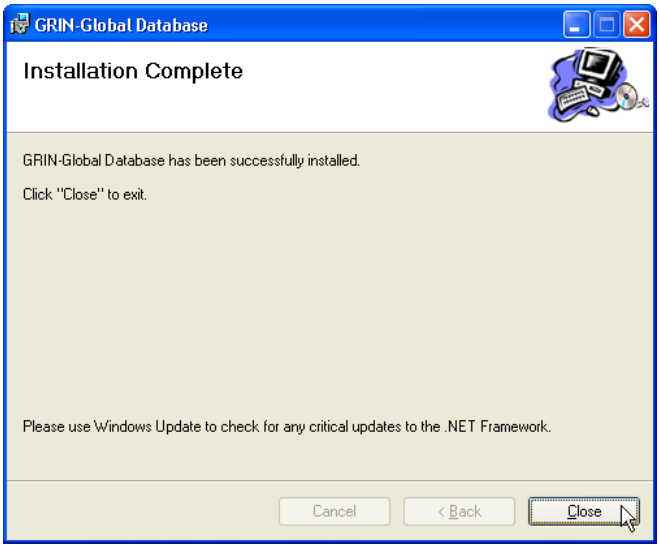
Click **Next**.



Several screens will display in succession.



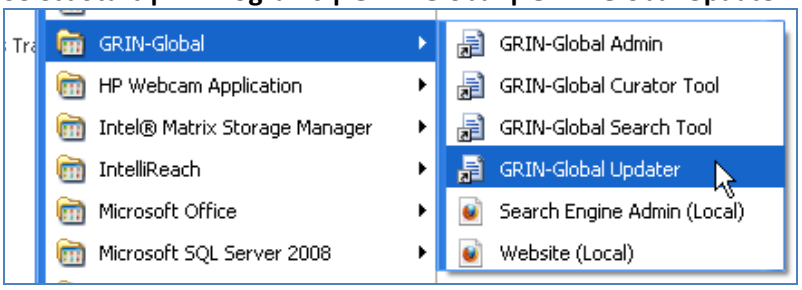
The final window will indicate that the database "has been successfully installed;" click **Close**.



Admin & the Web Application: Installing (or Updating)

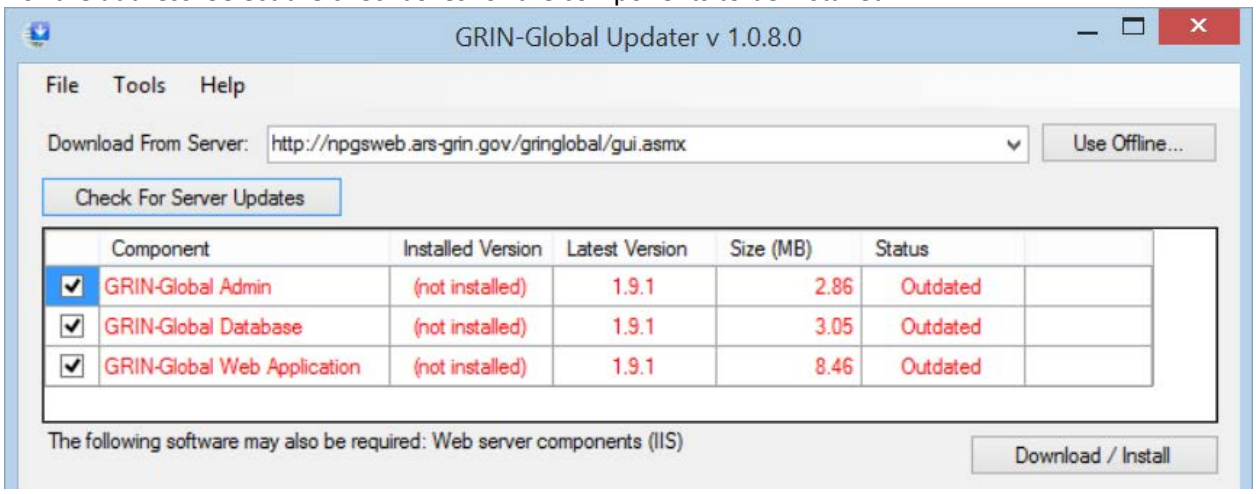
Installing either the Admin or the Web Application server components is very straightforward. Generally, all three server components will be selected at the same time, but each can be selected individually as shown below for the **Admin** component.

Select **Start | All Programs | GRIN-Global | GRIN-Global Updater**

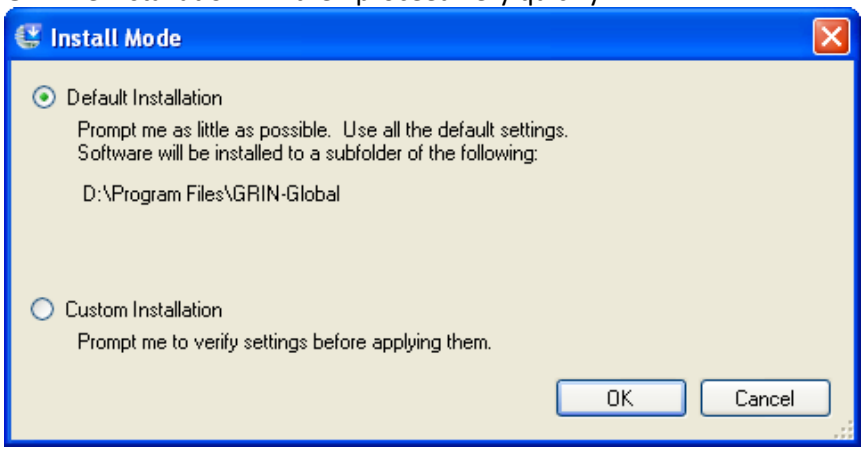


First click the **Check for Server Updates** button. Use
http://npgsweb.ars-grin.gov/gringlobal/gui.asmx

for the address. Select the checkboxes for the components to be installed:



You will be prompted to select a **Default** or **Custom** installation; select the desired option and then click **OK**. The installation will then proceed very quickly.



Curator Tool: Installing (or Updating)

PCs for all genebank staff accessing the GG database will need to have a copy of the Curator Tool installed.

The following link is to the latest Curator Tool version (v 1.9.6.41) is:

https://npgsweb.ars-grin.gov/gringlobal/downloads/GrinGlobal_Client_Installer.exe

This zip file is contains a self-extracting .exe file. (Formerly the Curator Tool (CT) installation was done via the GG Updater program.)

For CT installation instructions, refer to the Curator Tool Installation Guide.

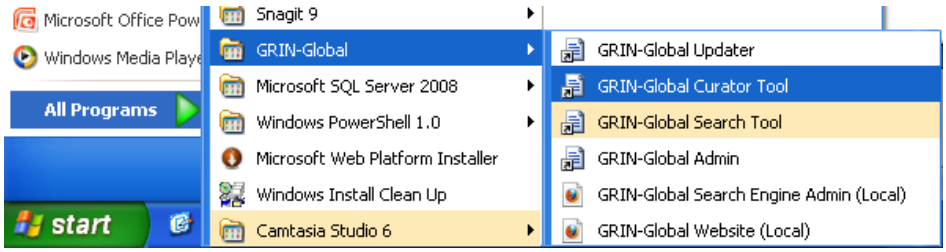
Starting the Curator Tool

When the Curator Tool is initially invoked, it needs to be supplied with server information, indicating the database it will use. If the entire GRIN-Global application has been installed locally, then the database will be "**localhost**." In an organizational setup where the server is remote, you will point to the server's address. Directions for connecting the GRIN-Global servers to the Curator Tool are explained below.

Start the Curator Tool

After installing, select the **GRIN-Global Curator Tool** from the Windows program menu.

or…



Tip

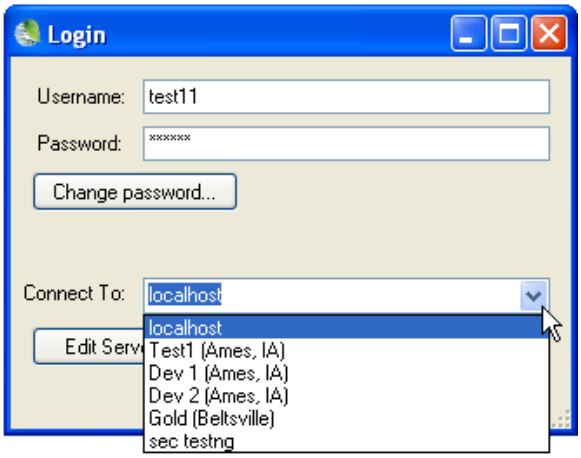
You can also add the shortcut to the Start menu or the desktop. Select **Start | All Programs | GRIN-Global;** highlight the GRIN-Global Curator Tool program, then right-click. Select either **Pin to Start menu**, or **Create Shortcut** (desktop shortcut), or both.

Connecting the Curator Tool to GRIN-Global Servers

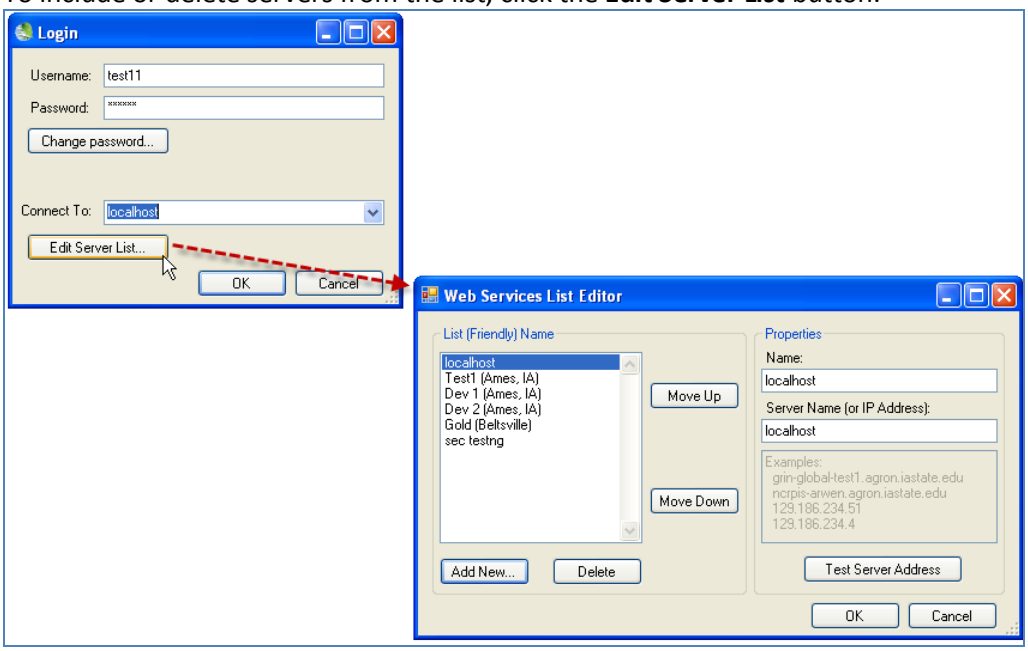
Changing Servers

In most organizations the GRIN-Global database will reside on a remote server. In others, especially very small genebanks, the entire GRIN-Global suite of applications may be installed on a single user's PC. In either case, when you login you must indicate the GRIN-Global database location.

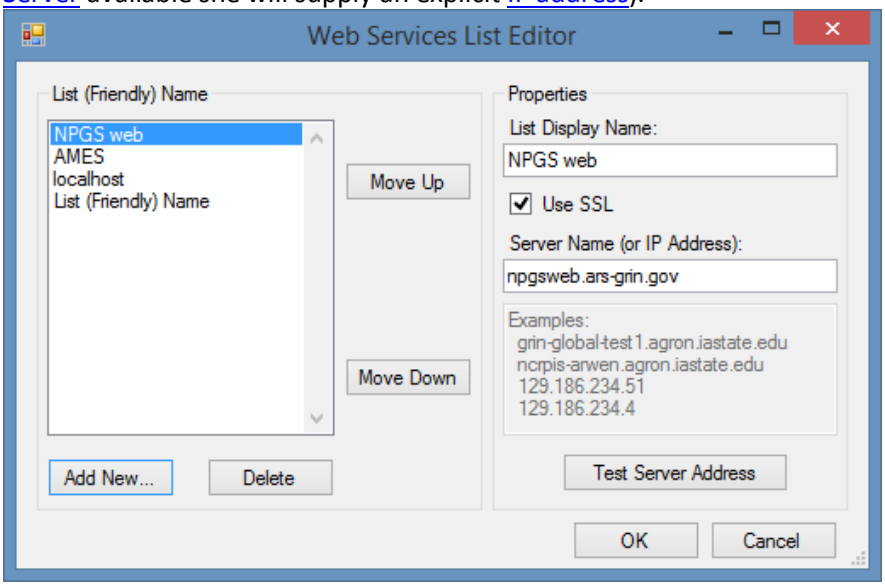
By default, a server will be listed in the **Connect To:** dropdown box. In the following example, the default server is localhost, which means that the user will be working on the database stored on his own PC. However, when the user clicks the dropdown, he sees several other possible servers which he can connect to. (Since this is a screen taken by a tester, there are many servers listed here whereas generally in most organizations only one or two will be listed.)



To include or delete servers from the list, click the **Edit Server List** button:



On the **Web Services List Editor** window, click the **Add New** button to add a new server. A new generic entry will be added at the bottom of the list in the left box, **List (Friendly) Name**. On the right side of the window, you can edit the name and the true server name or IP address. Typically the GRIN-Global administrator will provide the computer name of the server (or if she does not have a Domain Name Server available she will supply an explicit IP address).

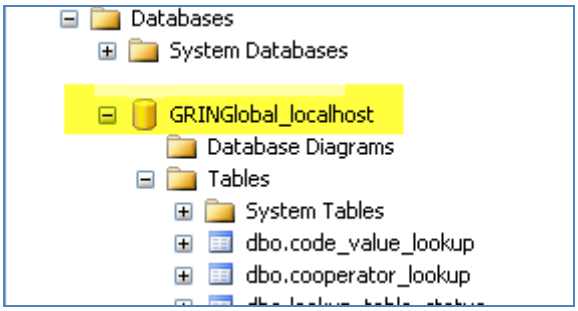


Note that the order of the list can be adjusted by selecting a server and then clicking on the **Move Up** and **Move Down** buttons. When you work from multiple servers, move the server which you will use most of the time to the top at the list. The one listed at the top will be listed as the default server when the user logs in.

Note also that there is an optional SSL checkbox. An organization needs to determine if they require SSL or not. The server administrator will indicate how to manage the checkbox.

Handling Users Who Do Not Have Windows Administrator Privileges

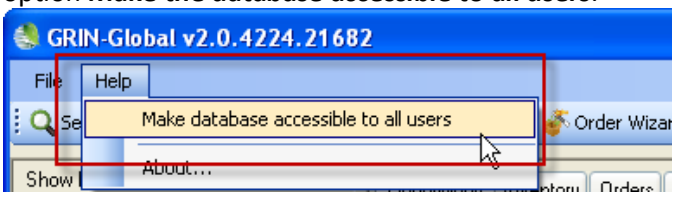
When the Curator Tool is installed, a copy of SQL Server Express is also installed on the user's PC. (A database of lookup tables is installed, hence the requirement for SQL Server.)



Step for Adding the PC User(s) to the Local SQL Server Database Administrator's Group

In some organizations, the usual user ("owner") of the PC is not granted Windows administrator privileges. When that is the situation, a person with administrator rights on the PC needs to grant the primary user (and other users of the PC) the right to modify the local (LookUp table) SQL Server

database when they are using the Curator Tool. This one-time step is done within the Curator Tool. The person with Windows Administrator rights needs to start up the CT and select from the **Help** menu the option **Make the database accessible to all users**:



Organizational Setup

There are three major steps to be completed when setting up GRIN-Global for an organization:

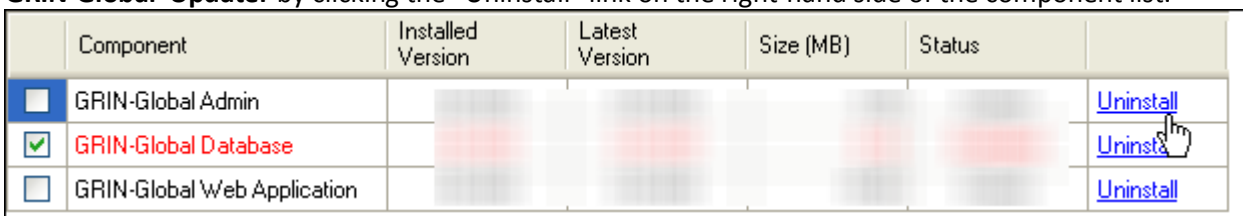
1. Install the software (explained in this **GRIN-Global Installation Guide**)

2. There is an overview document online which GRIN-Global administrators should read: **http://www.ars-grin.gov/npgs/gringlobal/docs/gg_recommended_procedures.pdf** This document provides tips and suggestions for implementing GG in an organization.

3. Prepare and import any existing data (refer to the **GRIN-Global Cookbook** for an overview and step-by-step details**)**
4. Add users and grant them security privileges. (Described below are some general suggestions about adding users; for detailed steps, refer to the **GRIN-Global Administrator Guide** and the **Curator Tool User Guide** – each of these manuals addresses specific security settings, permission, and ownership.)

Uninstalling and Re-installing GRIN-Global

If you have a version of GRIN-Global server software installed that is older than 1.5.1167, we recommend that you manually un-install the server components running the newest version of the **GRIN-Global Updater** by clicking the "Uninstall" link on the right-hand side of the component list.



(The Updater program is available on http://distribution.grin-global.org/gringlobal/downloads/default.aspx).

After you have manually un-installed the legacy server components, you are ready to install the latest version of GRIN-Global.

There should be no reason why you should uninstall SQL Server Management Studio (SSMS) (if you had previously installed it when installing an earlier version of GRIN-Global). Never manually use Windows Explorer to find and delete SSMS files or programs.

Adding Users

During the initial GRIN-Global installation, two user accounts are automatically generated: **administrator** and **guest**. The initial password for **administrator** is **administrator**.

Because **administrator** is the only default Admin Tool administrator, immediately after installing GRIN-Global, you should (a) change the administrator password, and (b) create at least one more administrator user account.

You should also add new user accounts before, or as soon as they are needed.

Security Issues

When security is enabled, permissions which have been established at the table or dataview level or even across the database will be in effect. Unless given specific permissions, new users will be very limited to what they are allowed to do.

If you prefer to globally disable all security restrictions, in the Admin Tool, select **Web Application**; double-click on **DisableSecurity**; select **True**. (See the **Security** section in the Admin Tool Guide for details.)

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

Use the Admin Tool to grant other users WRITE privileges to tables (please see the Administrator Guide for instructions on how to grant users security privileges).

Windows Administrator Rights

For security reasons in some organizations, a user's PC may be setup so that the user does not have full Windows Administrator rights to his / her PC even though that user may be the primary (or only) user of the PC. When that is the case, the organization's PC Administrator, usually someone from the organization's Information Technology or Security group, will need to install GRIN-Global. The administrator will also need to perform an additional step if the GRIN-Global user will be accessing data on her local PC. For complete directions on adding the user to the local SQL Server database administrator's group, see "Handling Users Who Do Not Have Windows Administrator Privileges" on page 33.

Installing with Firewalls

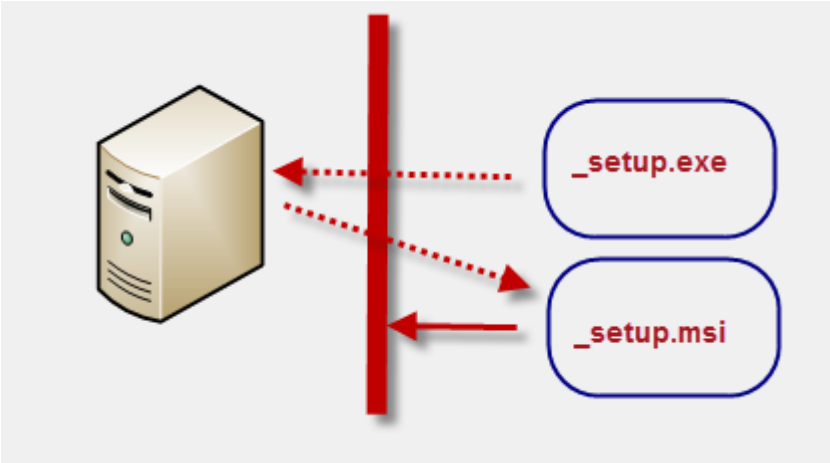
Two Setup Files are Involved in Setting Up the GRIN-Global *Updater* Application

"…setup.exe"
This is the file that is accessed from the link under the *Installers* section of the GRIN-Global downloads page:
http://distribution.grin-global.org/gringlobal/downloads/default.aspx

This **setup** program will automatically check your system to ensure all system components and applications required by the GRIN-Global **Updater** program are properly installed on your computer. If any prerequisite is not detected by this **setup** program, it assists with the downloading and installing of the missing component before allowing the **Updater** program to be installed.

"…setup.msi"
After **setup** is satisfied that all **Updater** prerequisites have been successfully installed on your computer, it downloads and runs a second file (the **GrinGlobal_Updater_Setup.*msi***) to complete the Updater installation process. You will know the **GrinGlobal_Updater_Setup.msi** file has successfully downloaded and started properly when you see the "Updater Setup Wizard" steps on your screen.

Unfortunately, some organizations have a firewall that prevents the second of the two GRIN-Global installation files from properly downloading:



(The actual file names are **GrinGlobal_Updater_Setup.exe** and **GrinGlobal_Updater_Setup.msi**.)

How can you know if the .msi is not able to get through the firewall? During the installation process, after you have started the **Grin-Global_Updater_Setup.exe** file, you should be prompted to run the .msi file – if you receive an error message similar to the following, then the firewall is preventing the .msi file from running:

When this situation exists, and if you have previously installed GRIN-Global, you may run into the situation where *it appears that everything is okay, when in fact an old version of the msi file will run on your PC, and will not run the correct version* of the GRIN-Global **Updater** program.

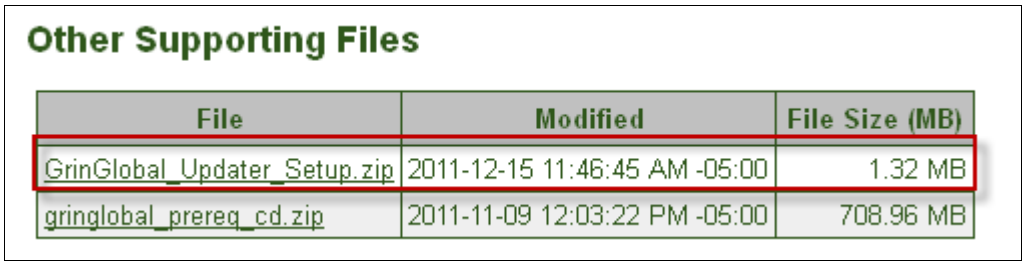
If your organization has a firewall that prevents you from downloading the msi file, an alternative is to download the compressed file **GrinGlobal_Updater_Setup.zip** that contains both the **.exe** and the **.msi** files.

Directions for installing GRIN-Global Updater when your organization has a firewall are detailed, starting on the next page.

When a Firewall is Active

If your organization has a firewall:

1. Download the "zip" file **GrinGlobal_Updater_Setup.zip** from the GRIN-Global downloads page: (http://distribution.grin-global.org/gringlobal/downloads/default.aspx)



Other Supporting Files

File	Modified	File Size (MB)
GrinGlobal_Updater_Setup.zip	2011-12-15 11:46:45 AM -05:00	1.32 MB
gringlobal_prereq_cd.zip	2011-11-09 12:03:22 PM -05:00	708.96 MB

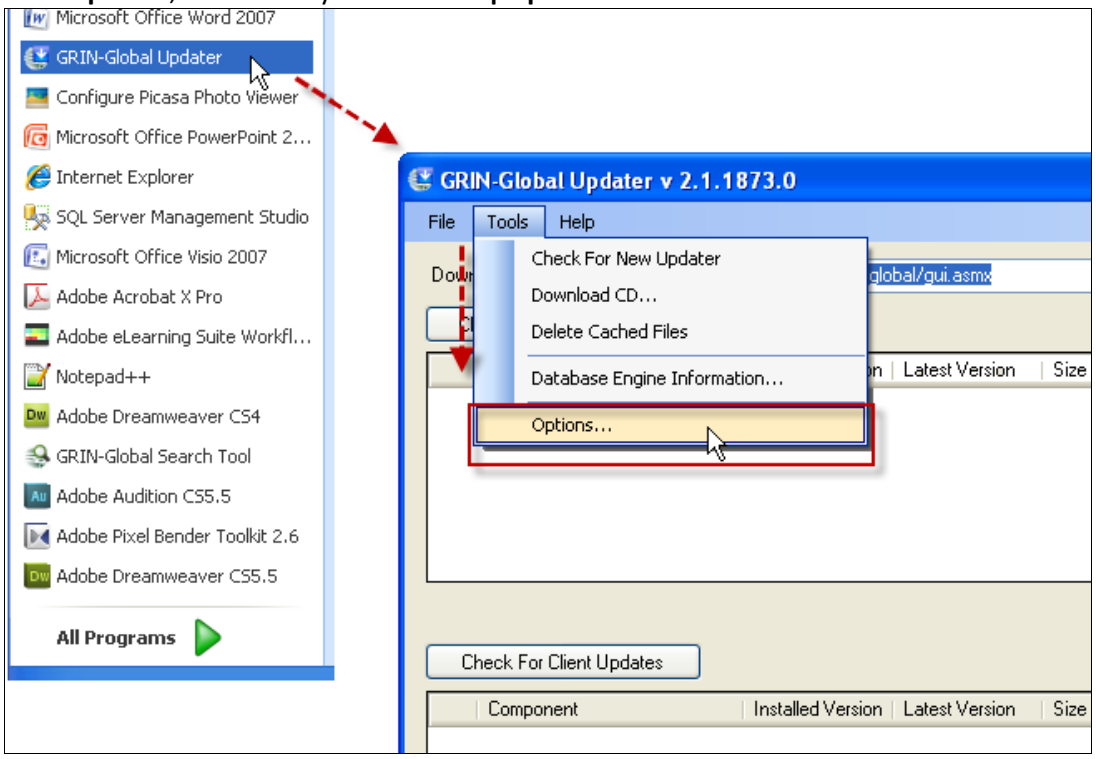
2. The two setup files, the .exe and the .msi files are contained in the zip file. (**GrinGlobal_Updater_Setup.exe** and **GrinGlobal_Updater_Setup.msi**)

   Unzip (extract) the two files into one folder on your computer's hard drive.

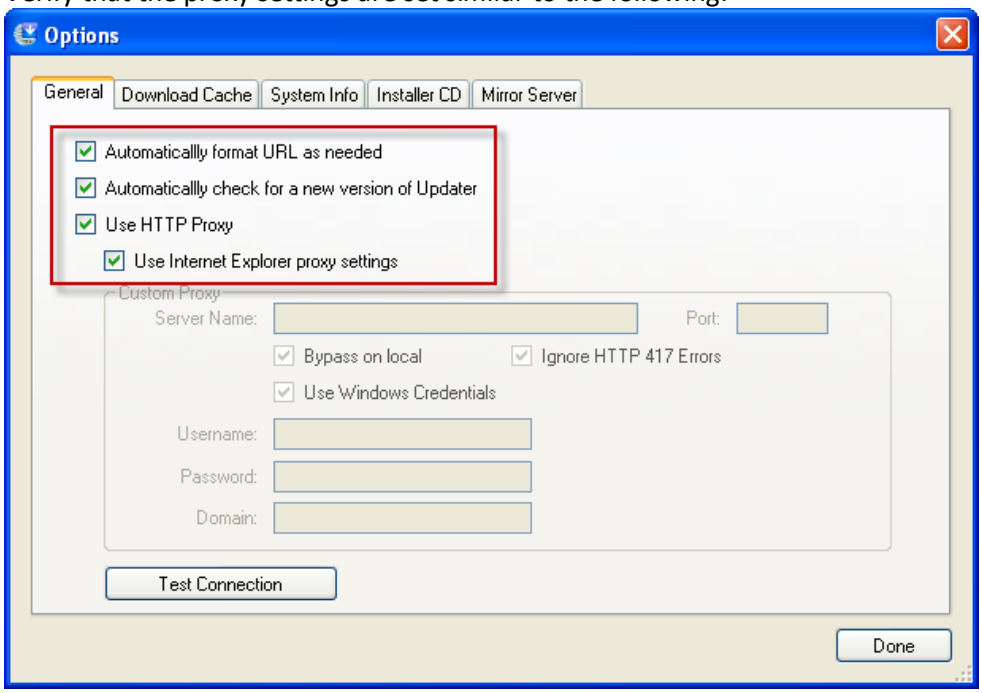
3. Run Grin**Global_Updater_Setup.exe**

4. After the Updater application has been successfully installed on your computer, **do not attempt to download or install any GRIN-Global applications (including any updates to the Updater application itself) until you have properly configured the HTTP Proxy settings in the Updater application**.

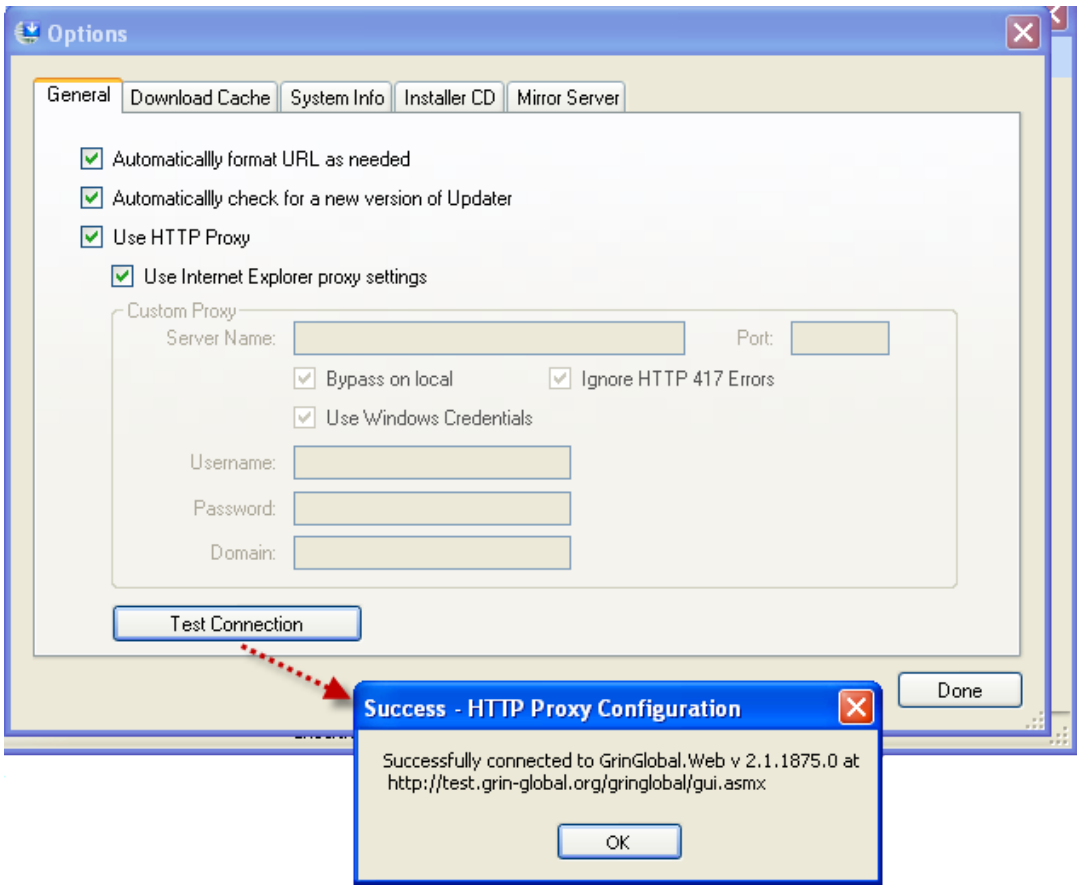
   Start **Updater**; immediately select **Tools | Options…**



5. Verify that the proxy settings are set similar to the following:



6. Test the connection:

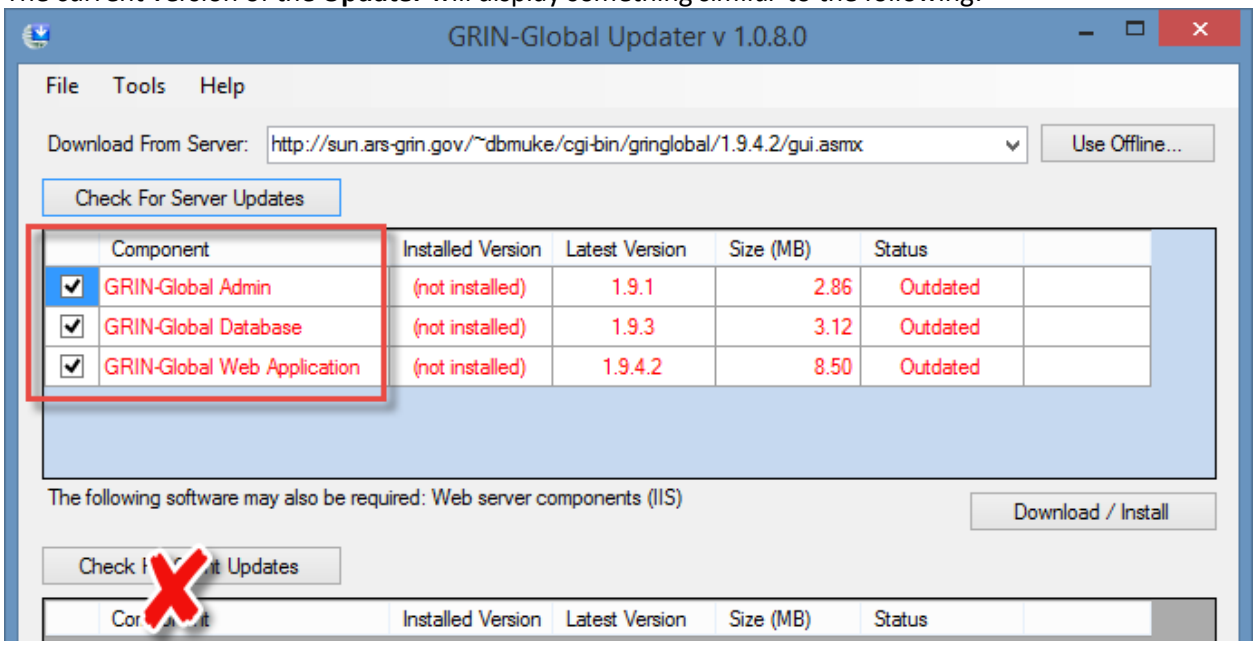


As of February, 2015, please use:

http://sun.ars-grin.gov/~dbmuke/cgi-bin/gringlobal/1.9.4.2/gui.asmx

for the server address in the Updater.

The current version of the **Updater** will display something *similar* to the following:



You must be pointing to the correct server in order to download the GRIN-Global components: **Admin**, **Database**, **Web Application**, and the **Curator Tool**.

Verify that the Latest Version is higher than the Installed Version.

If you are still having difficulties with the installation after having followed the steps above, check with your local systems administrator or contact feedback@ars-grin.gov.

Installing GRIN-Global on a Non-Windows Server

Only the 1.0.7 version of GG is currently compatible with MySQL, PostgreSQL, or Oracle.

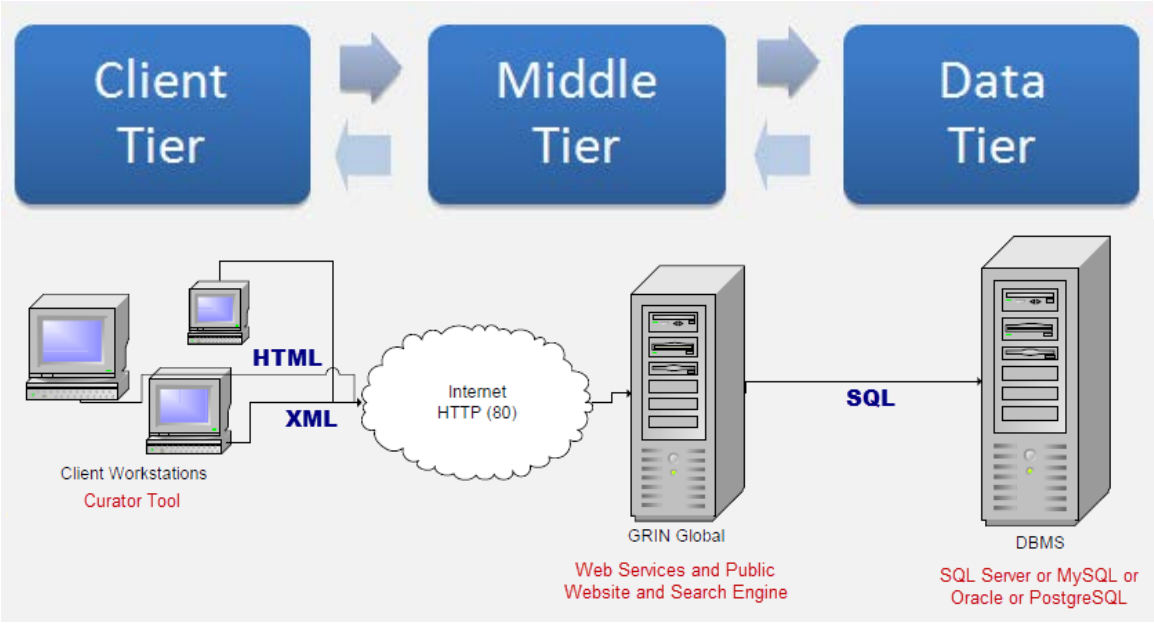
Background Information

GRIN-Global was designed to primarily run in a Windows environment, but it is possible to have a non-Windows server house a MySQL, PostgreSQL, or Oracle database. However, to do so, you will need to first install GG on a Windows-based PC, and then port the database from the Windows-based PC over to the non-Windows server by backing up the Windows database and restoring it to the non-Windows server.

After porting the database to the non-Windows server, you will then point to the database in its new location with a parameter in the GRIN-Global Admin tool. Follow the detailed steps in this section for this type of installation.

The GRIN-Global (GG) system is a 3-tier based system. The three tiers are the: **client**, **middle**, and **data** tiers.

- The **data tier** is the database where the plant genetic resource data is permanently stored – GRIN-Global is designed to handle four database engines: SQL Server, MySQL, Oracle, PostgreSQL. Organizations can implement any one of these as their database engine. (Only GG version 1.0.7 is currently compatible with these other database engines.)
- The **middle tier** consists of three sub-components: the GG Public Website, the Search Engine, and Web Services. (Web Services sends and receives data used by any Client Tier application.)
- The **middle tier** runs under the IIS web server on a Windows computer.
- The GG **client tier** application – the Curator Tool – never talks to the data tier directly, but instead communicates only with the **middle tier's** Web Services, using HTML and XML through port 80 on the IIS server. (By using port 80, the CT is very firewall friendly.)
- Since the **middle tier** manages the data between the **data tier** and the **client tier** (the Curator Tool), the CT never needs a database connector to the GG database because it never connects directly to that database; instead the CT requests data from the **middle tier** which in turn uses its database connector to retrieve the data from the remote database (**data tier**)



Install GG on a Windows-based Computer

The ideal environment for installing GG is a Windows-based computer that has not yet had any applications installed on it, especially database applications. Having a "clean" system avoids any possible conflicts that may occur when there are two or more database engines installed on the same PC. For example, if a PC has SQL Server 2005 running on it, during the GG installation, GG will load a 2008 version of SQL Server. Sometimes having more than one database engine installed on the same box, such as SLQ Server and MySQL, can also complicate installation of GG.

1. The following has been faded out for now since only GG 1.0.7 has all been tested for the four database engines.

   Install a version of your preferred database engine on the Windows computer. For example, if you intend to run Oracle, MySQL, or PostgreSQL on the remote server, install the Windows version on your Windows box now. NOTE: MySQL installations should use the MySQL Windows Essentials 5.1 installer and ensure that the InnoDB storage engine is set as the default.

3. Navigate your browser to the GRIN-Global test download website: use: http://sun.ars-grin.gov/~dbmuke/cgi-bin/gringlobal/1.7.1/

   Download and install the GG **Updater** application by following the instructions in the GRIN-Global Installation Guide. (The Updater installation steps begin on page 9, but the first eight pages include background material you should review before installing.)

4. Refer to the section *Server Components: Installing (or Updating)* section in the Installation Guide and follow the steps for installing the three GG server components on a Windows-based computer. Create the GG server using a localhost database connection – it should automatically detect your preferred database installed in step 2 above and install the GG database to it.

Note

You do not need to install the Curator Tool on the server to get your GG server up and running.

The Curator Tool is an application designed to be used on the curator's desktop PC and does not typically

run on the server, but if you prefer, you can also install it on the server.

Note that whenever you install the Curator Tool on a PC, a version of SQL Server Express will also be installed. The Curator Tool uses this database engine only for its lookup tables. There should not be any clash with the main database engine by installing SQL Server Express.

Load Your Local Data to the New MySQL GRIN-Global Database

1. Start the GG Administrator Tool. You will use the Import Wizard in the Administrator Tool to complete these next steps.
2. Follow the instructions in the Import Wizard Cookbook for preparing your local data for importing to GG using the Import Wizard.

Note

For examples of sample data, refer to the spreadsheets at http://www.grin-global.org/index.php/Training There is a zip file listed under the *Training Exercises* section, in the table's fourth row, that contains all of the sample .csv files.

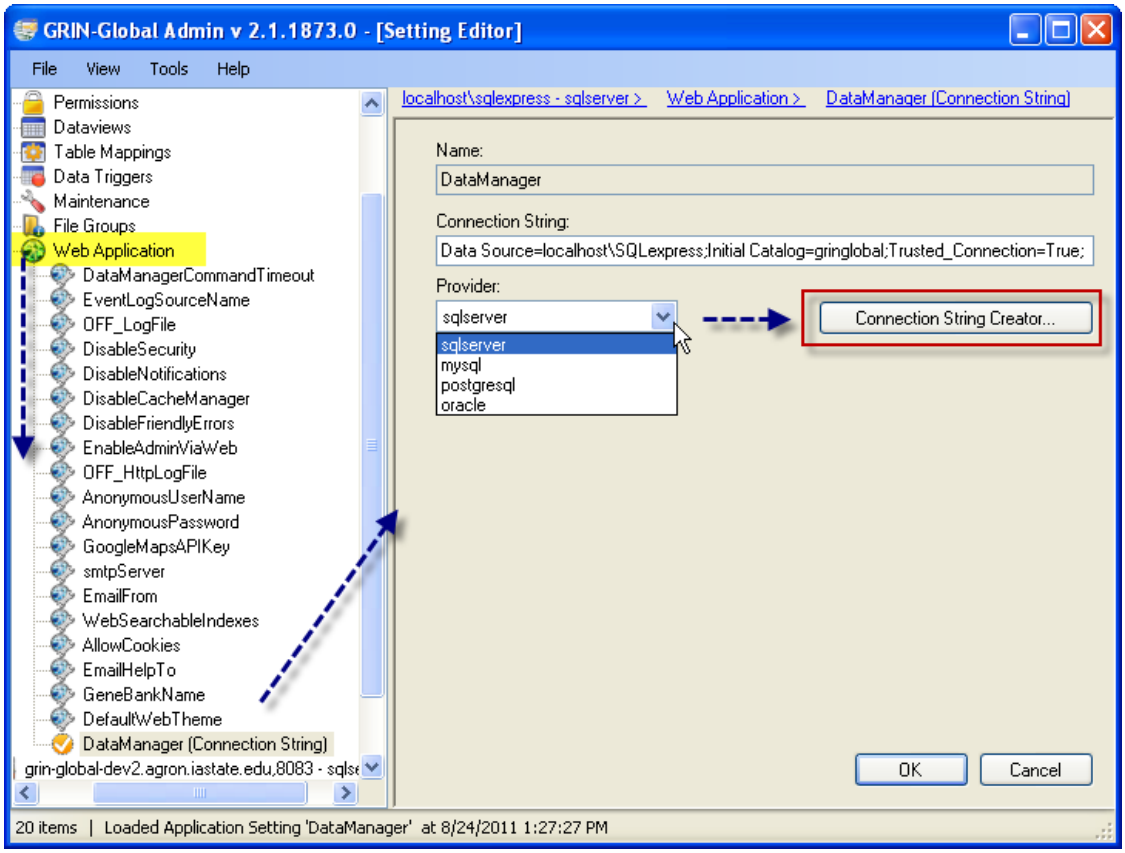
Load the Data into Your Remote MySQL Database Server

1. Backup the MySQL GRIN-Global database from your localhost Windows server.
2. Copy the backup file over to your remote MySQL database and restore it there.

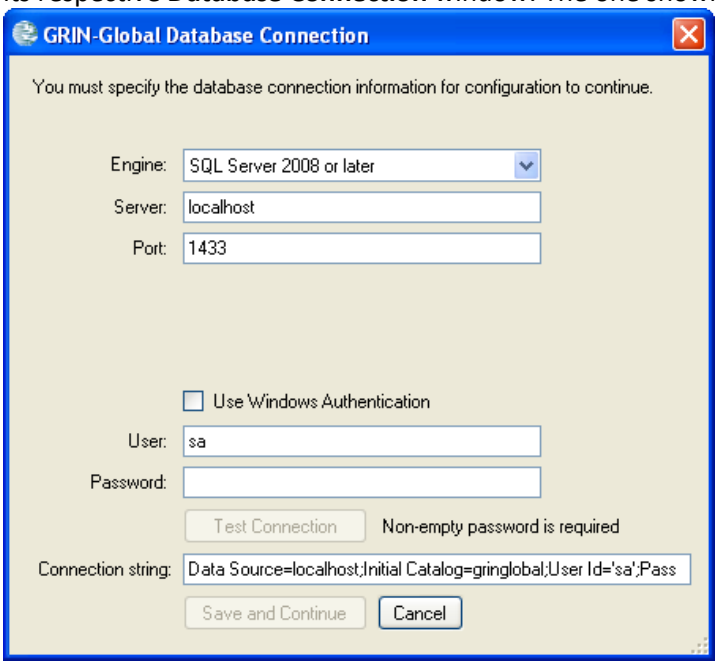
Modify the Database Connection Used by the Middle Tier Web Services

In this step, you will use the GG Admin Tool to point to your new remote database.

1. Start the Admin Tool.
2. Click on the **Web Application** branch; select **DataManager (Connection String)**.
3. Modify the **Connection String** box to point to your remote server. To do so, click the **Provider** dropdown box; select the database type that matches the target remote database engine type. Then click the **Connection String Creator…** button.


GRIN-Global Admin v 2.1.1873.0 - [Setting Editor]
File
View
Tools
Help
Permissions
Dataviews
Table Mappings
Data Triggers
Maintenance
File Groups
Web Application
DataManagerCommandTimeout
EventLogSourceName
OFF_LogFile
DisableSecurity
DisableNotifications
DisableCacheManager
DisableFriendlyErrors
EnableAdminViaWeb
OFF_HttpLogFile
AnonymousUserName
AnonymousPassword
GoogleMapsAPIKey
smtpServer
EmailFrom
WebSearchableIndexes
AllowCookies
EmailHelpTo
GeneBankName
DefaultWebTheme
DataManager (Connection String)
grin-global-dev2.agron.iastate.edu,8083 - sqlse
localhost\sqlexpress - sqlserver >
Web Application >
DataManager (Connection String)
Name:
DataManager
Connection String:
Data Source=localhost\SQLexpress;Initial Catalog=gringlobal;Trusted_Connection=True;
Provider:
sqlserver
sqlserver
mysql
postgresql
oracle
Connection String Creator...
OK
Cancel
20 items | Loaded Application Setting 'DataManager' at 8/24/2011 1:27:27 PM

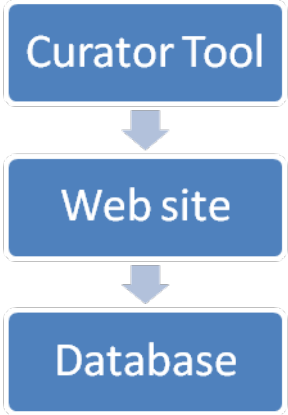
Complete the fields on the **Database Connection** window to generate the correct **Connection String** text. Click the **Save and Continue** button when complete. (Each database engine type has its respective **Database Connection** window. The one shown here pertains to SQL Server.)



5. To test your remote database, reboot the Windows server that hosts the GG Web Services and Public Website. After the server reboots completely, on your client PC open a browser and connect to the localhost GG Public Website using (http://localhost/gringlobal/search.aspx). If the Public Website comes up without errors, you can be assured that the new remote database is working and connected properly because the following conditions are true:

    A. Windows IIS web server is running and accepting HTTP requests from the client

    B. the remote GG database is accepting remote database queries
    (the local GG Public Website in the middle tier depends on the GG database connection being valid and available)

How to Troubleshoot Connection Problems

GRIN-Global is essentially a three-tier system: outermost being the Curator Tool, then the web site, and finally the database. Troubleshooting connection issues can be tricky because each layer must be able to talk successfully to the next deeper one.