GENESYS™ 4.1
Where insight begins

Excel®
Connector
Guide

Vitech

Vitech Corporation
2270 Kraft Drive, Suite 1600
Blacksburg, Virginia 24060
540.951.3322 FAX: 540.951.8222
Customer Support: support@vitechcorp.com
www.vitechcorp.com

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CUSTOMER RESOURCE OPTIONS

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Beginner	**IT / Sys Admin**
Intermediate	**Student**

PREFACE

This Excel Connector Guide provides information on how to install and use an Excel extension developed to connect the GENESYS™ database to Microsoft® Excel®. The connector is a .NET application that extends the Excel spreadsheet provided in Microsoft Office® 2010 and 2013. Figure 1 displays the extended blank Excel worksheet.
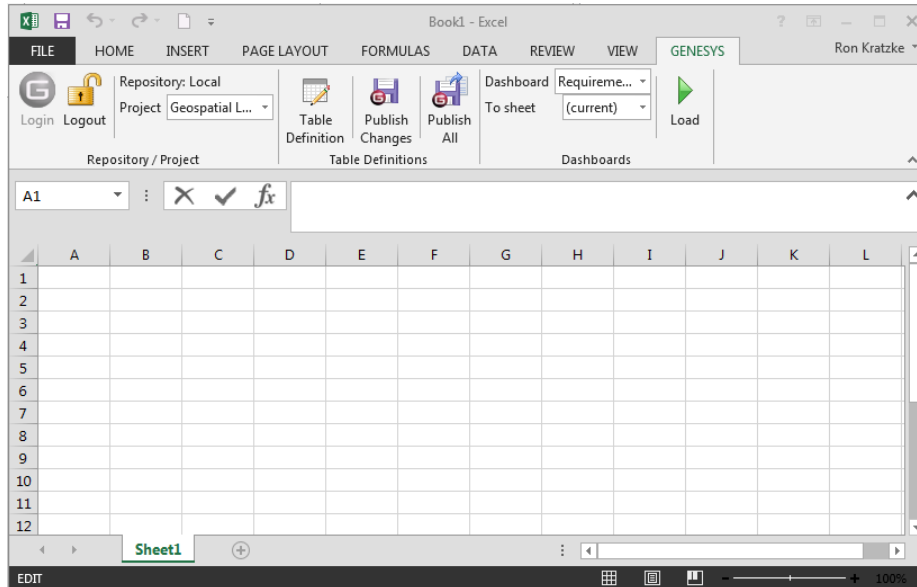
Figure 1 Sample Excel Connector

This guide describes the process to import and add the extension in Excel, how to interface directly with the GENESYS repository and individual projects in the repository, how to use the features in the Excel extension to import and export data out of the GENESYS data repository, and how to use the dashboard features coded into the Excel extension.

This guide is intended to augment the MBSE with GENESYS training course and the reference material provided with GENESYS. The ultimate goal of this guide is to expose the user to the Excel extension and thereby extend the use and application of GENESYS for both system design and development, and project management associated with the system development project.

The following additional resources are available for use with this guide:

- For descriptions of GENESYS including database classes and folders, different views, diagram notation, and the mechanics of entering data into GENESYS, the reader is referred to the GENESYS Help/Documentation folder.
- For the definition of schema terms, the reader is referred to the GENESYS schema, which contains descriptions for each schema entity.
- For application of GENESYS to system and architecture design, the reader is referred to the GENESYS System Definition Guide (SDG) and Architecture Definition Guide (ADG) supplied with the GENESYS software installation.

GENESYS EXCEL CONNECTOR INSTALLATION AND MANAGEMENT

1.1 Installing the Excel Connector

The GENESYS Excel connector is installed via a standard, familiar Windows setup program. Please note that separate installers are available for either 64-bit or 32-bit Windows and Excel operating environments. The connector runs in Microsoft Excel 2010 and later versions.

The files for installing the Excel Connector are named: "GENESYS40ExcelConnector_x86.exe" (for 32-bit Windows operating systems) and "GENESYS40ExcelConnector_x64.exe" (for 64-bit Windows operating systems).

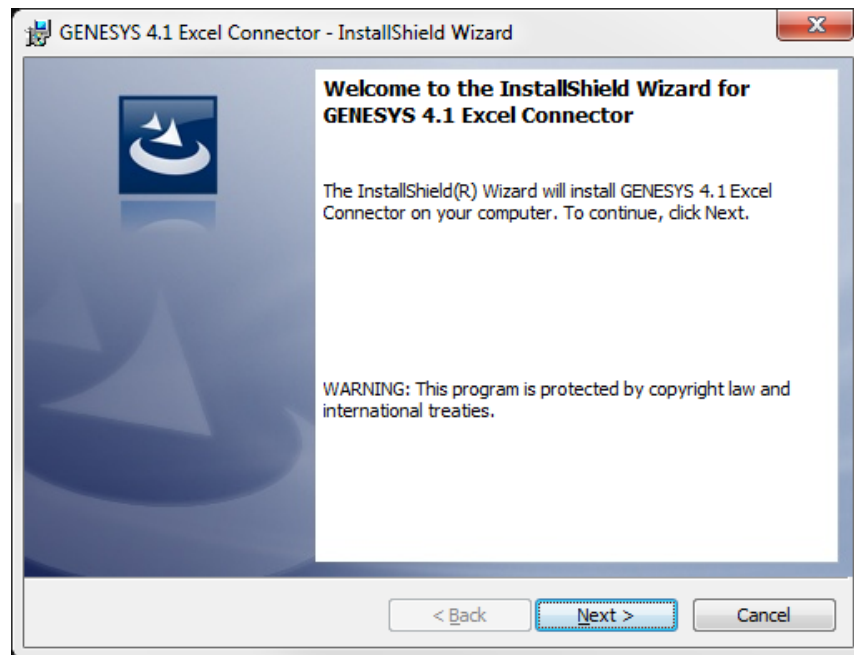Double-click the installer .exe file to begin the installation. Click "Next."

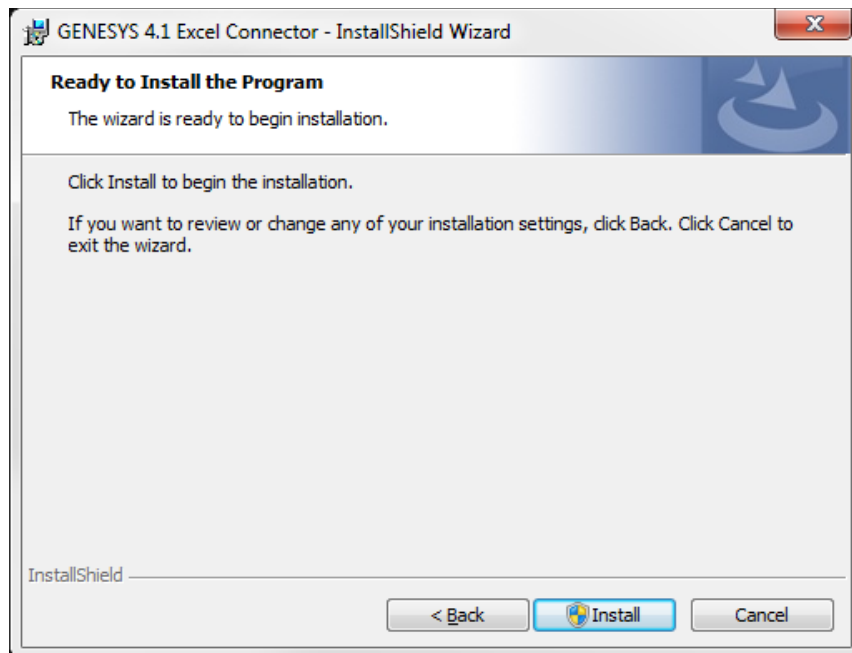**Figure 2 Excel Connector Installer, Step 1**

Review and accept the licensing agreement terms, and click "Next."

Figure 3 Excel Connector Installer, Step 2
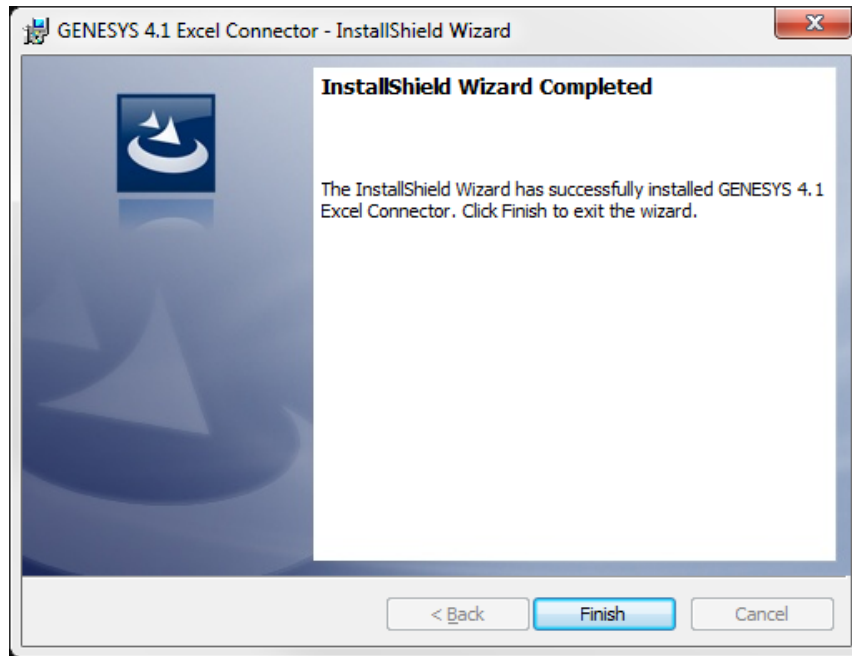
Click "Install" to begin the installation.

Figure 4 Excel Connector Installer, Step 3

The setup program will run and install the Excel Connector. When the process completes, simply click "Finish" to complete the installation. The connector will now be available for use in any Excel worksheet.

Figure 5 Excel Connector Installer, Step 4

1.2 Managing the Excel Connector

Add-ins to Excel are sometimes disabled by customers. Note that in order for our connector to work, you may be required to adjust your settings by enabling the ability of Excel to use Add-ins.

Once installed, the GENESYS Excel connector can be managed via standard Microsoft Office add-in tools. Note that the steps below apply to Microsoft Excel 2013 installations, and may vary slightly in different versions of Excel.

The extension to GENESYS in Excel is accessed via the "GENESYS" tab in an open workbook, as shown in Figure 6 below. To manage the connector, first click the "FILE" tab.
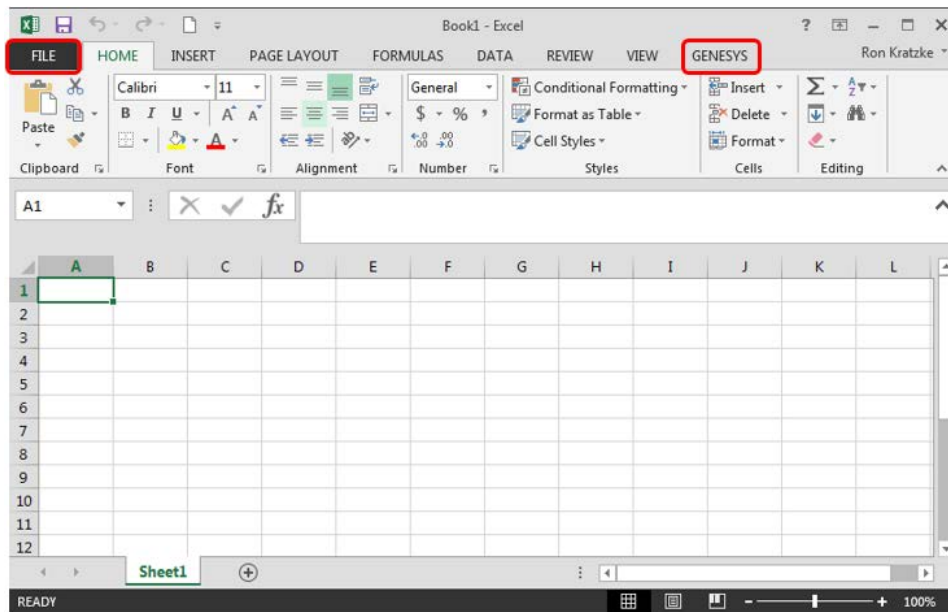

Figure 6 Excel GENESYS and FILE tabs

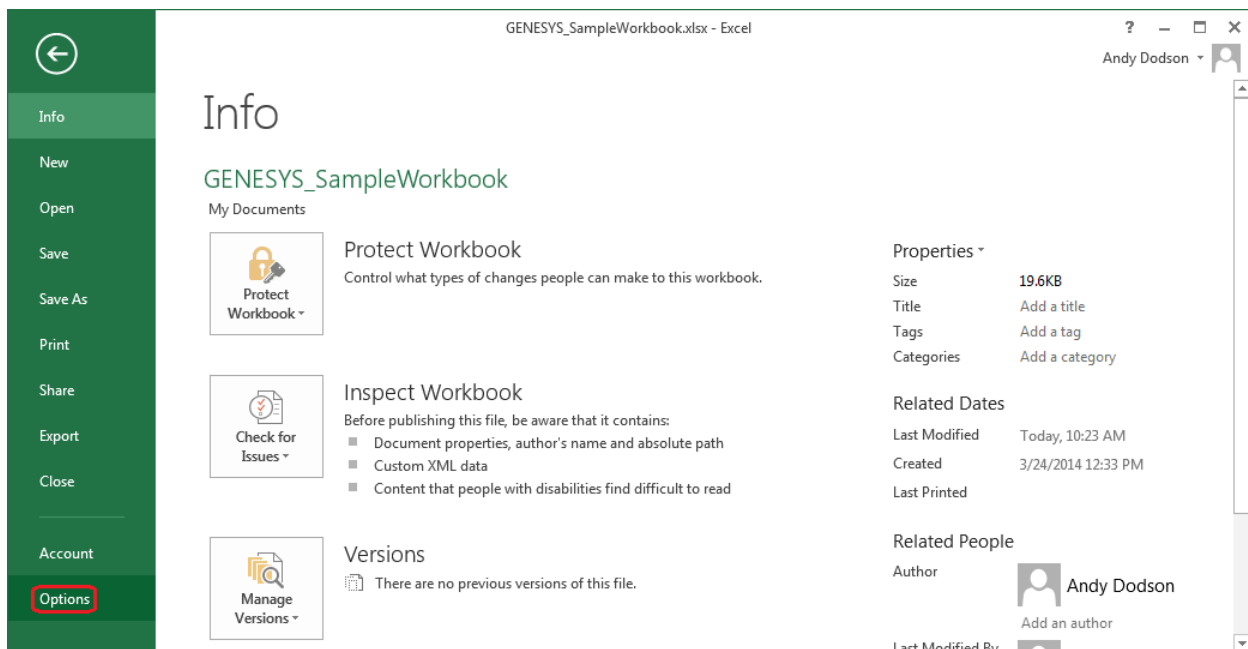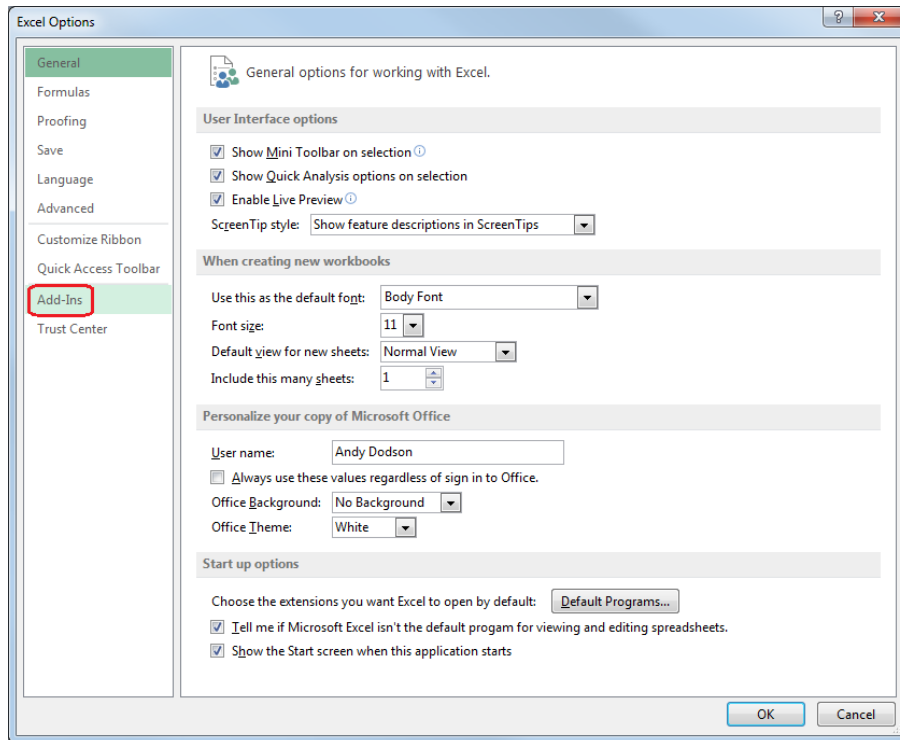Once in the "FILE" tab, click the "Options" item from the menu on the left.
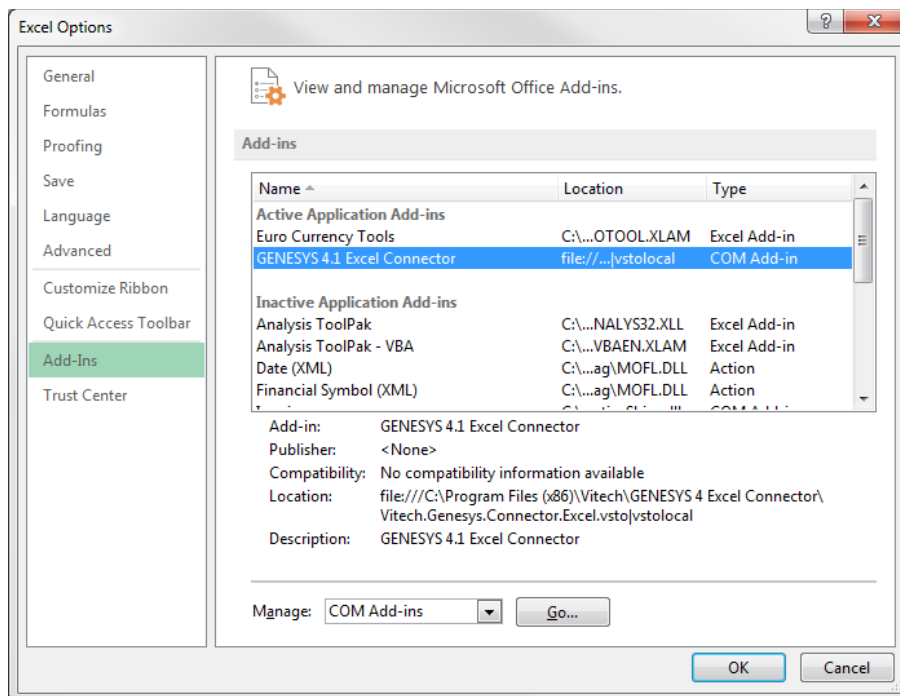

Figure 7 Excel FILE tab, Options menu item

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In the Options dialog that opens, select the "Add-ins" option from the menu on the left.

Figure 8 Excel Options dialog, Add-ins Menu Item

In the Add-ins dialog that opens, select "COM Add-ins" from the "Manage:" combo box at the bottom, then click the "Go…" button.

Figure 9 Excel Add-ins dialog, Manage COM Add-ins Option

In the COM Add-ins dialog that opens, select the GENESYS Excel Connector item. Any of three actions can be performed:

1) The GENESYS connector can be unchecked. Clicking "OK" will then disable the connector from running in workbooks.

2) If the GENESYS connector is unchecked, it can be checked. Clicking "OK" will then enable the connector to run in workbooks.

3) The GENESYS connector can be selected, and the "Remove" button can be clicked. The connector will be uninstalled.
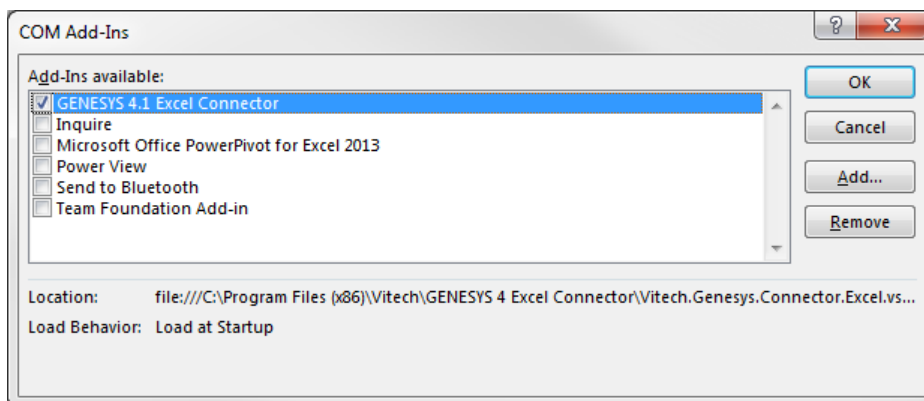

Figure 10 COM Add-ins Dialog, Managing the GENESYS Connector

CONNECTING EXCEL WITH GENESYS

1.3 Connecting to GENESYS from Excel

With Excel opened on your desktop, navigate to a blank workbook, or open a blank workbook. Select the GENESYS tab on the ribbon. You can then 'connect' Excel by logging in to GENESYS using the icon on the left-hand side of the ribbon.
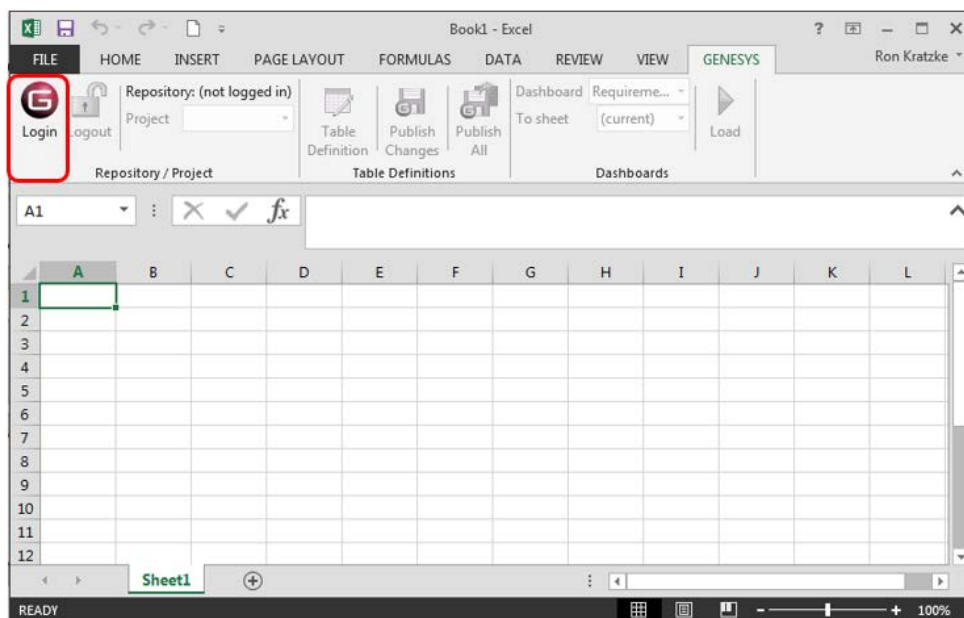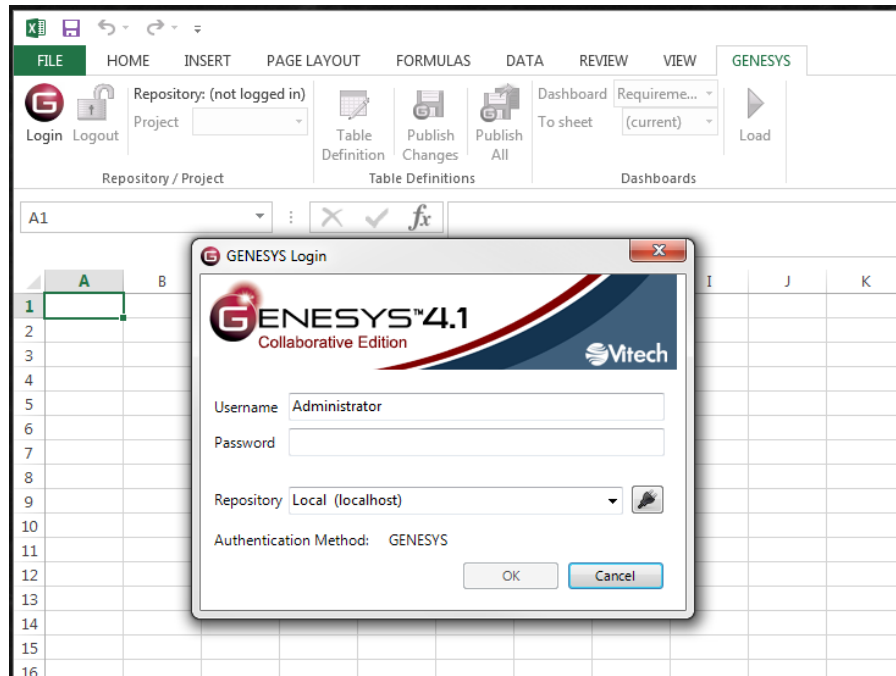

Figure 11 GENESYS Login Using Ribbon Button

Clicking on the GENESYS Login button will launch and bring up the GENESYS login screen.

Figure 12 Excel Spreadsheet with GENESYS Login

Log in to GENESYS using the appropriate Username and Password. This connects Excel with the Repository. Once logged into GENESYS, the controls on the GENESYS ribbon will be "active" and no longer be grayed out.

1.4 The GENESYS Ribbon in Excel

There are several sections on the GENESYS ribbon in Excel which are used to control access to the GENESYS database.
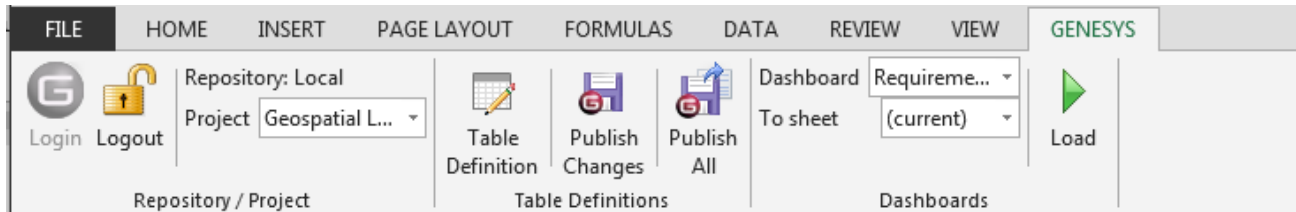
Figure 13 GENESYS Ribbon in Excel

The Repository / Project section controls access to a particular system design project in the GENESYS repository. Within this section the "Project" selection provides a drop-down menu where the user can select the particular project with the selected repository. This is the project from which all other Queries will be associated in Excel.

The Table Definitions section of the ribbon allows the user to define a table to facilitate import / export of information in the selected project's system design repository in GENESYS. Each control in this section is described below:

- Table Definition: Opens a separate dialog box used to define what design repository information will be used in the excel spreadsheet; a detailed explanation of the features of the Table Definition dialog box features is provided in the next section of the document.
- Publish Changes: a quick button command used to publish (or "push") changes in the spreadsheet into the design repository.
- Publish All: a quick button command used to publish ALL of the entities from the spreadsheet in to the project design repository.

The Dashboards section of the ribbon allows the user to select a particular Dashboard from the drop-down menu and display the information in Excel workbook. Detailed description of the Dashboard functionality is provided in Section 1.7 below.

IMPORTING DATA FROM GENESYS INTO EXCEL

1.5   Querying the GENESYS project from Excel

The user can make a simple query of the selected project using the options provided in the ribbon. Clicking on the Table Definition button, the user will open a new dialog box used to query the design repository. This dialog box is used to either query (or extract) information from the database as well as import or update information into the database. Table Definitions when saved are saved to the project which was selected in the Project drop-down menu within the Project Repository section of the Excel GENESYS ribbon.
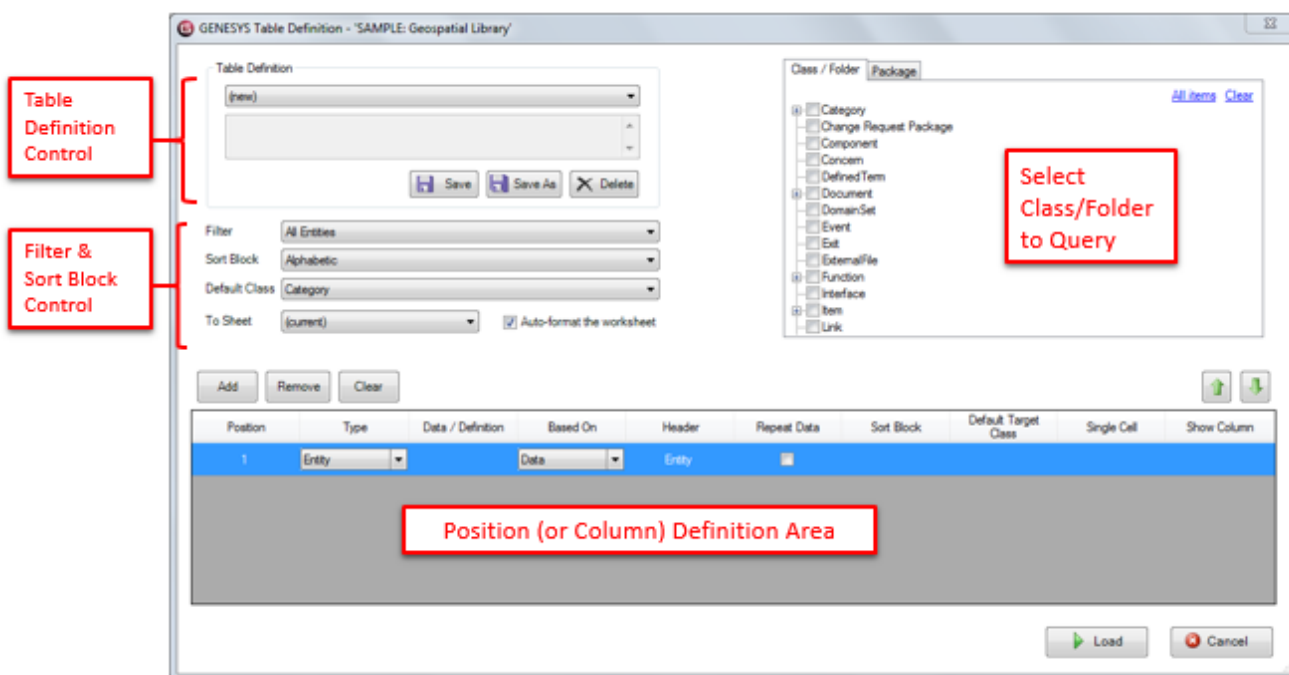
Figure 14 GENESYS Table Definition Dialog Box

The dialog box has four main sections. The various options in the overall dialog box provide for the following:

- Select Class/Folder to Query section allows the user to select the Class or Folder from which to extract information for the spreadsheet. Selecting the Package tab allows the user to select Packages from which to extract information.
- Column Definition Area allows for customizing the selection and display of information associated with entities selected from the repository. The Position listed is associated with the column number in the Excel spreadsheet.
- Filter & Sort Block Control area provides the ability to filter and sort information before it is placed in the Excel spreadsheet. The Filter's and Sort Blocks' drop-down menus are populated from the GENESYS project selected.
- Table Definition Control area allows the creation, opening, and saving of the definition of a table.

  [NOTE: User-created tables (the table definitions) are unique to and saved with the particular project. If the user wants to use a table definition in multiple projects, then the table definitions (only) need to be saved using Advanced Options on Export. The table definitions can then be imported into other projects as desired.

Once all the selections have been made, the user will populate the workbook using the "Load" button. An example of constructing and loading a table is shown below.

The table definition for a table of requirements listing the Requirement number, name, description, and the "refined by" requirements is provided as an example.

Figure 15 Example Table Definition

For this example, the Requirement class was selected in the upper right-hand Class/Folder to Query section. The Sort Block "Numeric" was selected to provide an output in numeric order. The column selection in the Position (or Column) Definition Area provides for the display of, in order from top to bottom:

1. Requirement Number – by selecting Entity Attribute, then number, and providing a unique Header title.
2. Entity Name – by selecting Entity Attribute, then name, and providing a unique Header title. (NOTE: the Type "Entity" provides for the number and name in the same cell if the Sort Block = Numeric. If you use the Type = Entity and you intend to update the information on the table and push this information back into GENESYS then, you must use the Sort Block = Alphabetic.)
3. Description – by selecting Entity Attribute, then description, and providing a unique Header title.
4. Refined By requirements – by selection Relationship, then the "refined by" relation. In order to list the "refined by" requirements in a sorted order, select Sort Block of "Numeric"; and to keep all of the "refined by" requirements in a single row, check the option Single Cell.

Note: When using Sort Blocks in table definitions, Sort Blocks in GENESYS have specific representations associated with them. For example: the "Numeric" sort block lists number and name. (Sort Block definitions are defined in the GENESYS project). If you use the Numeric sort block and intend to change information in this table and push the information back into GENESYS, then use the Entity Attribute with Name specified to facilitate this feature.

Figure 16 Example of Completed Query

Once the project information has been exported out to the Excel worksheet, the display of the information can be changed using the normal features of Excel. The user can format individual cells and columns much you would with any Excel spreadsheet. The file can also be saved as you would with any Excel file (you do not have to use the .csv format).

Note that Column A of the spreadsheet contains the GENESYS Unique ID number. This information is required in all worksheets as the index to enable moving any changed information back in to the project repository.

1.6   Manipulating Project Data in Excel

With the project data in an Excel worksheet, the user can edit the information in any of the cells. Commonly the project team will extract Requirement information providing the Requirement Name, Description, Type, and Origin. An example of this export is provided below.
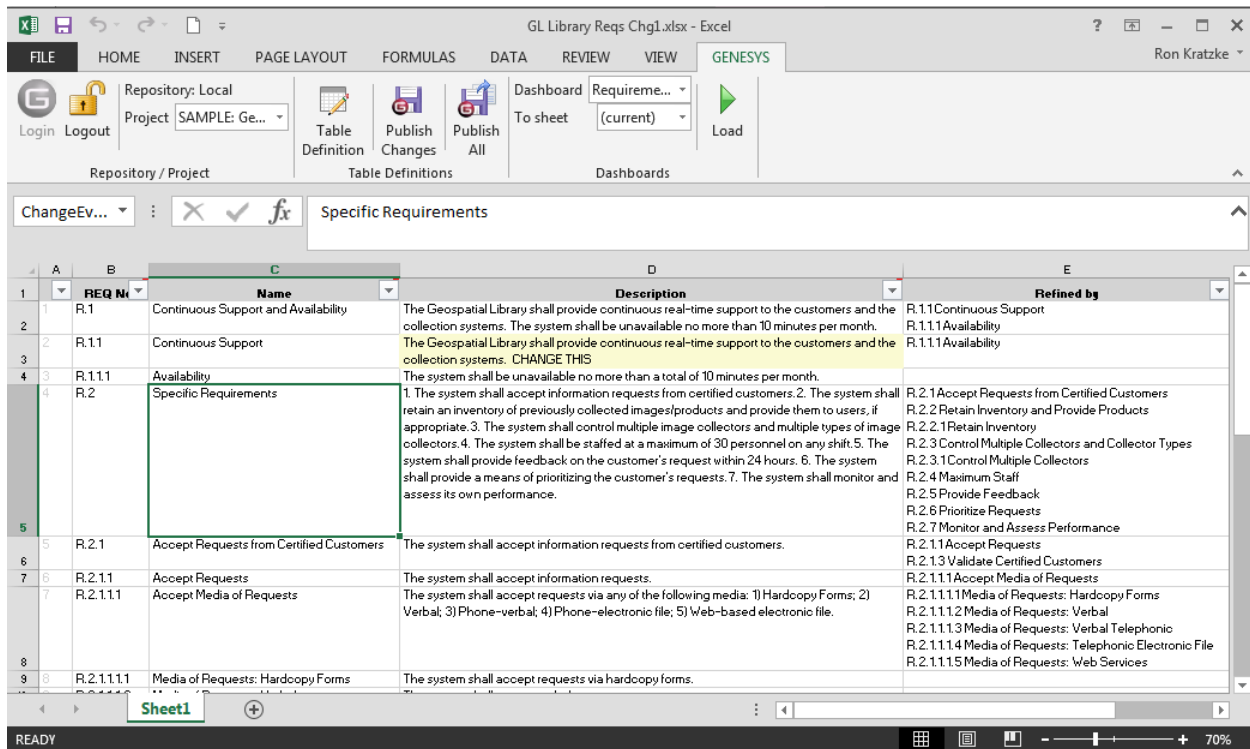
10

Figure 17 Excel Spreadsheet with Edited Cells

Changes can now be made to items in the spreadsheet. As changes are made to individual cells, the cell is highlighted in yellow to indicate that the text has been edited. The Excel file can be saved with a different file name.
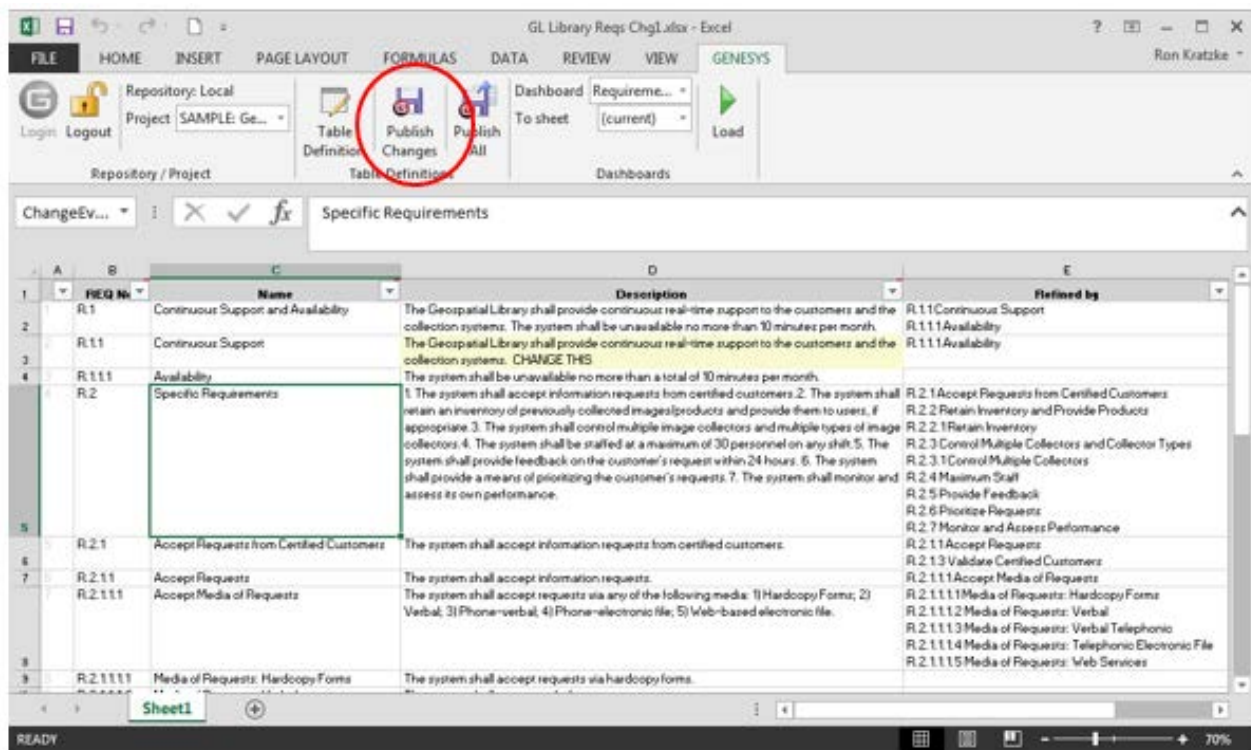

Figure 18 Updating GENESYS with Changed Information

When the worksheet is ready to be published back into the project use the "Publish Changes" or "Publish All" command in the ribbon. "Publish Changes" updates just the attributes that have changed, "Publish All" pushes all of the data in the workbook in to GENESYS and overwrites all of the information in the project repository. When publishing changes, there will be a dialog box that pops up to confirm that you want to make changes to the project file, and once completed, a second box which will come up and tell you the number of changes made to the project.

GAINING INSIGHT INTO THE PROJECT THROUGH DASHBOARDS

The GENESYS ribbon has a section entitled "Dashboards." This section provides a set of dashboards which have been coded into the ribbon. The dashboards are intended as a means for the project leadership to get a high level understanding and status of the project repository maturity on a periodic basis. There are currently three dashboards programmed into the Excel Connector: Requirement Management; Program Management; and Test/Evaluation Planning.

1.7   Accessing Dashboard Information

To access a dashboard the user selects the type of dashboard from the drop-down menu, then selects where the dashboard should be displayed (current sheet or new sheet); then selects "Load." The figure below provides an example of the Requirements dashboard.
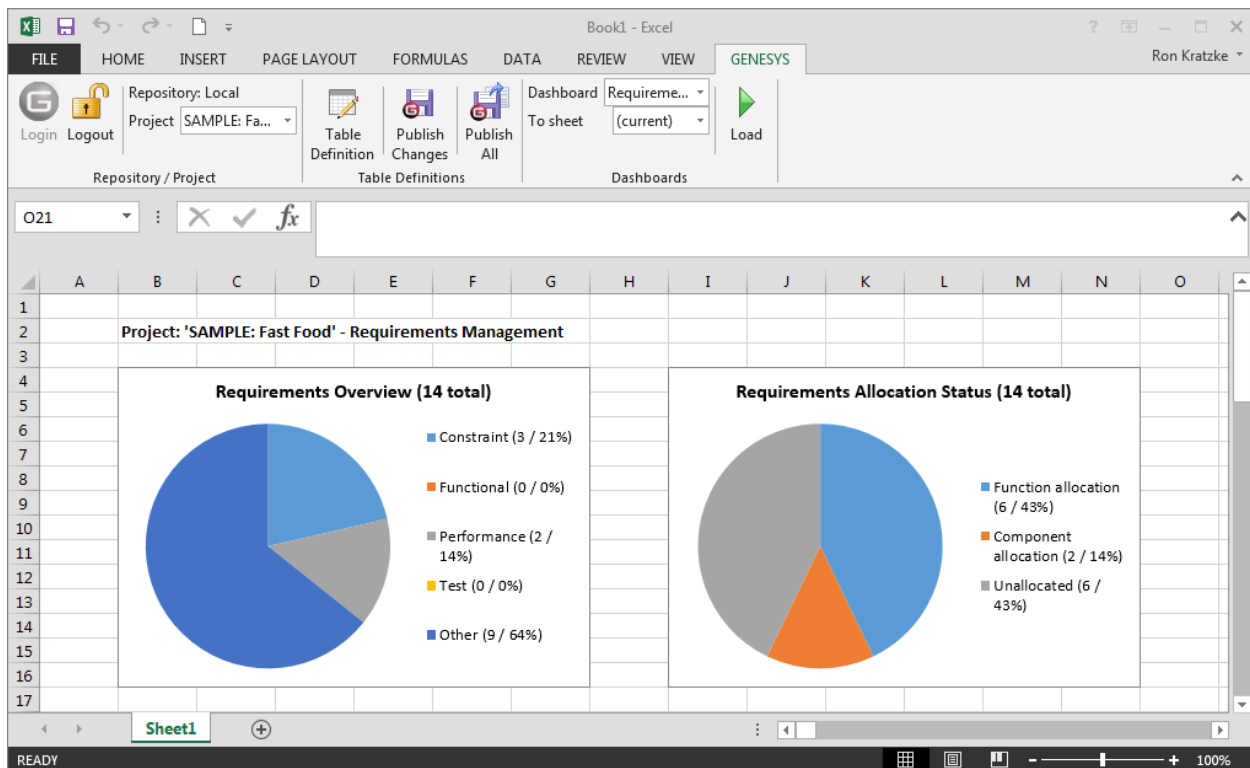

Figure 19 Requirement Dashboard

Each dashboard has several different graphic representations of information extracted directly from the selected project repository. The entire depth and breadth of the data and graphics is not described in this guide - the user is encouraged to explore the dashboards provided.

1.8   Modifying Graphic Displays on the Dashboard

Gathering the data to display on the dashboard is one part of the dashboard solution, displaying the data in unique ways is another part of the dashboard solution. While the data extracted from the project repository is hard-coded into the dashboard, we have provided an initial set of graphical displays which can be altered in Excel to provide enriched presentation.
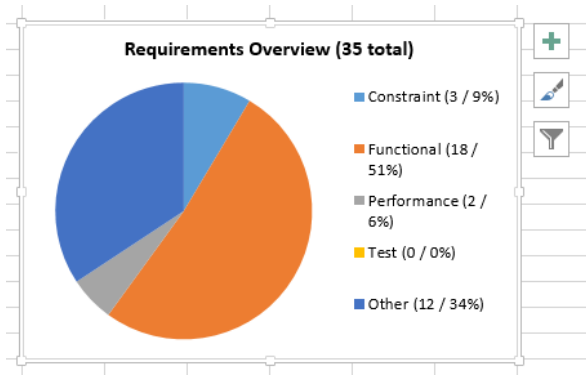
Figure 20 Selecting a Chart to Edit on the Dashboard

The user can select a chart, right-click, and use the Excel drop-down menu together with the control buttons to modify the information display. Using these options, the first row of the Requirement Overview pie chart has been modified to the options shown below.
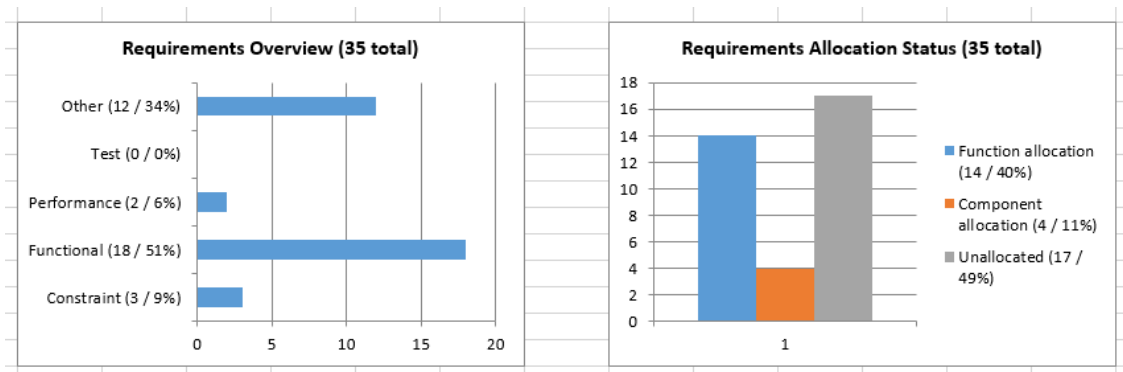
Figure 21 Modified Dashboard Chart Views

We have not provided an exhaustive set of dashboards in the Excel Connector. We encourage users to provide feedback to us with ideas for additional dashboard concepts. Please email us at support@vitechcorp.com. Updates to the Excel Connector functionality and dashboards will be developed and published in service packs for GENESYS.

Vitech Corporation

2270 Kraft Drive, Suite 1600
Blacksburg, Virginia 24060
540.951.3322 FAX: 540.951.8222
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