Trademarks

Any brand or product names are trademarks or registered trademarks of their respective holders.

The Genesis Group Trademark Information

GenWatch3® is a registered trademark of GenCore Candeo, LTD., a subsidiary of Burks GenCore Co., Inc. D.B.A. The Genesis Group and Phil Burks.

Copyright

Disclaimer

License

Support

Customer satisfaction is our number one priority at Genesis. We are here to provide you with the best software possible, and we want to know when you have any questions, concerns or problems with GenWatch3 so that we can make it better a product for everyone.

Refer to the *Troubleshooting & Support* section of the GenWatch3 Manual Shell (Book 600-2.15.0-AA.1) for complete support and contact information.

Document History

Revision	Description	Author
2.0.2	Initial Release	JAW
2.0.3	Revised to 2.0.3	JAW
2.0.4	Added the Radio Affiliation report description	JAW
2.0.4	Changed description for Radio Affiliation report	JAW
2.0.5	Release Revision	TDW
2.0.6	Updated screenshots	REB
2.0.6	Corrected chapter reference	CLB
2.0.6	Corrected Image Directory	KIH
2.0.6.6	Revisions Before Release	CLB
2.2	Document Reviewed	WRK
2.3	Revisions Before Release	CWF
2.4	Revisions Before Release	CWF
2.5	Revisions Before Release	CWF
2.6	Revisions Before Release	CWF
2.7	Revisions Before Release	JAW
2.7	Updated section on Report Wizard	WRK
2.8	Revisions Before Release	ATG
2.9	Revisions Before Release	CWF
2.10	Added description for Group PTTs By Site	JAW
2.10	Revisions Before Release	CWF
2.11	Conversion to docx	BCY
2.11	Moved Group PTTs By Site report into Group section.	REB
2.12	Removed sections referencing GenGET reports	CWF
2.13	Revisions Before Release	ATG
2.14	Revisions Before Release	JAW
2.15	Revisions Before Release	REB

600-2.15.0-Y.1

Table of Contents

Goals

This manual describes the role and function of the GW_Reports module in the GenWatch3 solution.

Who Should Read This Manual?

This manual is written for the intended audience of novice to mid-level Motorola trunked radio system users and novice to mid-level PC users.

How This Manual Is Organized

This manual is organized as follows:

- **Overview:** Gives a general overview of the GW_Reports GUI (graphical user interface).
- **Using GenWatch3 Database Reports:** Describes the process of running a GenWatch3 database report.
- **Excel Workbooks for GenWatch3 Database Reports:** Describes how GW_Reports uses integrated Microsoft Excel workbooks.

This manual contains the following images, used to indicate that a segment of text requires special attention:

- **Additional Information**: Additional information is used to indicate shortcuts or tips.
- **Warning**: Warnings are used to indicate possible problem areas, such as a risk of data loss, or incorrect/unexpected functionality.

Note about Daylight Saving Time Change

NOTE:

For data sources that do not provide packet timestamp information:

If a call is in process when the time changes in the host machine's time zone for daylight saving time, and if you are running a report that includes that call, you WILL see unusual call lengths. The time and date stamp for all calls comes from the computer that is hosting the GenWatch3 archive database. As such, when Windows automatically changes the time, a call in process could appear to be excessively long or even could have negative time. This is isolated only to calls occurring at exactly 2:00AM on the day that the time moves forward or backward by one hour.

For data sources that do provide packet timestamp information:

If a call is in process when the time changes in the data source that provides timestamp information to GenWatch3 for daylight saving time, and if you are running a report that includes that call, you WILL see unusual call lengths. The source hardware will be the determining factor if there is a possibility for unexpected call lengths due to daylight saving time.

If you have this situation and need help getting a report to show its results correctly, contact Genesis for assistance. For more information on daylight saving time, please see: http://aa.usno.navy.mil/faq/docs/daylight_time.php

This chapter describes the GW_Reports GUI and gives an overview of the options available in the GW_Reports GUI.
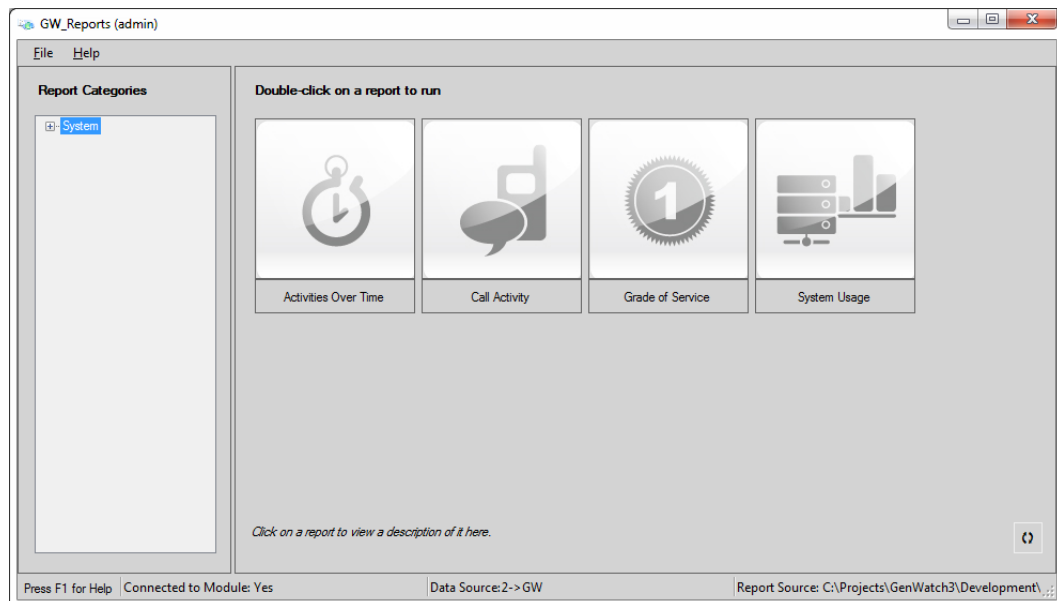
Figure 1.1 – GW_Reports GUI

The GW_Reports GUI has the following sections:
- **Report Categories Tree:** This tree shows available categories for Excel Workbooks saved to the *Reports* directory selected as the **Report Source**. If the **Reports Source** is set to local folders (this is the default), GenWatch3 reports will also be included.
- **Report List:** This list shows Excel Workbooks that are part of the selected category.
- **Report Description:** Shows the description of the selected report (if available). Shows nothing if a workbook saved to the *Reports* directory under the GenWatch3 installation directory is selected.
- **Data Source:** Shows the current reporting data source as [Database Server Name]→[Database Instance Name]. Double-click this label to change the GW_Reports data source. This data source only applies to GenWatch3 database reports (described in the *Report Varieties* section below).
- **Report Source:** Shows the current report source folder. Double-click this label to change the report folder.
- **Refresh Reports Button:** Refreshes the reports list.

Report Varieties

The GW_Reports license allows for two types of reports:

- **GenWatch3 Database Reports:** These reports use data archived by GenWatch3. If your GenWatch3 installation is archiving data (includes the GW_Archiver module), please refer to *Chapter 2 Using GenWatch3 Database Reports* for instructions on using GW_Reports. There are two categories of GenWatch3 database reports:
  - o **Core Reports:** These reports are included as a part of the GW_Reports option
  - o **Premium Reports:** These reports are purchased individually as a supplement to the core reports.

❌ Microsoft Excel 2007 or newer is required to run GenWatch3 reports.

Chapter 2   Using GenWatch3 Database Reports

This chapter contains the following sections:

- **Terms:** Describes terms that are used in GenWatch3 database reports.
- **What are GenWatch3 Database Reports?**: Describes the GenWatch3 database reports.
- **Data Source:** Describes the GW_Reports data source and how to change it.
- **Report Files:** Describes the location and function of the files used within GW_Reports.
- **Reports:** Lists and describes the reports available for GW_Reports.
- **Reporting Overview:** Provides a walkthrough of running a GenWatch3 database report.
- **Using the Report Wizard:** Describes the *Report Wizard* and how to define report parameters and generate a report.
- **Advanced Reporting Options:** Discusses options available for advanced reporting.

Terms

- **Parameters:** Reporting options chosen within the GW_Reports *Report Wizard*. These include date/time, locations, agencies, radio IDs, talkgroups, etc.
- **SQL Database Connection:** Allows you to view data in the SQL database. Requiring a connection ensures that only valid users are allowed to view your data.
- **SQL Query:** A question asked of the database, such as, "Which radio IDs issued activity between 1/1/2007 and 1/31/2007?" The GW_Reports *Report Wizard* builds an SQL Query behind the scenes as you select parameters.
- **Data Source:** Database used when executing a SQL query.
- **Drop-down List:** Fixed list of options from which you must choose exactly one option.
- **Parameter Grid:** List of options where you must select (click the checkbox in the Enable column of) one or more entries.

What are GenWatch3 Database Reports?

GenWatch3 database reports provide information stored by the GW_Archiver module to the GenWatch3 database (**GW**). Each GenWatch3 database report includes a *Report Wizard* to guide you through parameter selection. GW_Reports uses your GenWatch3 user name and password to build an SQL database connection. This connection is used to execute the SQL query defined within a report. This SQL query includes the parameters you choose in the *Report Wizard*.

Data Source

GW_Reports allows you to specify a reporting data source. The data source is comprised of two parts:

- **Database Server Name:** This is the name of the machine that is hosting the SQL Server database.
- **Database Instance Name:** This is the name of the GenWatch3 database within the SQL Server database.

GenWatch3 archives data to the **GW** database instance on the database server name specified within the GenWatch3 database settings.

To change your GW_Reports data source, follow the steps below:

1. Double-click on the data source label. (See Figure 1.1 section 4). This will show the *Reports Login* window.

Figure 2.1 – Reports Login Window

2. Click the ⋯ button. This will show the *Data Source Selector* window.
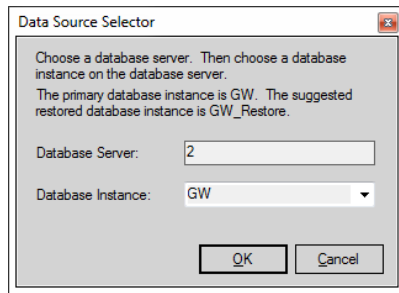
Figure 2.2 – Data Source Selector Window

3. Enter a **Database Server** value.
4. Choose/Enter a **Database Instance** value. This list contains the common GenWatch3 database instance names. You can also type in an instance name.
5. Click **OK**. This will close the *Data Source Selector* window and return you to the *Reports Login* window.
6. Enter the **Password** for the specified user name.
7. Press **Enter** or click the **OK** button. This will validate the specified **User Name** and **Password** against the specified data source.

Report Files

The Reports List is dynamically loaded when opening the GW_Reports GUI based on the **Report Source** selection. The sections below describe the *Local* and *Shared* options in detail.

Report Files

Local reports include
1. The DLL files (files with a .dll extension) within the GenWatch3 install directory.

   ℹ️ **DLL File:** Each GW_Reports report has a corresponding DLL (dynamic linked library) file. The GW_Reports DLL file includes the interfaces (windows) of the report's wizard and the Excel Spreadsheet template for the report.

2. The Excel files (XLS, XLSX, XLSM, XLTX, XLTM) that have been saved in:
   a. The current user's \(My)Documents\Genesis\GenWatch3\Reports folder.
   b. The *Reports* directory under your GenWatch3 install directory.

 This allows you to launch non-GW_Reports Excel files from the GW_Reports GUI. Simply choose File, Save As to save an Excel Spreadsheet to the current user's *\Documents\Genesis\GenWatch3\Reports* folder. Note that changing the file format when saving the report may cause Excel to change the destination folder, so ensure you are saving to the correct folder.

Shared reports include

1. Only the Excel files (XLS, XLSX, XLSM, XLTX, XLTM) that have been saved in the user-selected shared report folder.

Image Files

The images shown in the Reports List are pulled from one of two directories based on the **Reports Source** selected:

- **Local Reports**: The *Reports* directory under your GenWatch3 data directory
- **Shared Reports**: The user-selected shared report folder

If an image (BMP, JPG, GIF or PNG) has the same name as a DLL file in the *Reports* directory, then this image will be used for that report in the Reports List. If an image (BMP, JPG, GIF or PNG) has the same name as an Excel file (XLS, XLSX, XLSM, XLTX, or XLTM file) in the Reports List, then this image will be used for that Excel file.

This allows you to create and show images for any Excel files you add to the *Reports* directory. If an image is not found for a DLL or an Excel file, then the default "No Picture" image is shown for that item in the reports list.

The GenWatch3 data directory is under *C:\ProgramData\Genesis\GenWatch3*.

Reports

The following reports are included in the GenWatch3 reports list based on license:

- **System**
  - o **Activities Over Time:** Shows group, private and data statistics for a given date range.
  - o **Call Activity:** Shows activity from the calls table for the selected types of calls in the selected date range.
  - o **Grade of Service:** Provides actual and statistical grade of service achieved within a specific time range.
  - o **System Summary:** Replicates the System Summary graphs available within the GUI.
  - o **System Usage:** Provides four different reports and graphs summarizing usage on your system.
- **System/Agency**
  - o **Activities By Agency Over Time:** Shows usage statistics by agency for each radio ID included in the report.
- **System/Busy**
  - o **Busy Detail:** Shows activity from the busies table for the selected types of calls in the selected date range.
  - o **Busy Summary By Site:** Shows a summary by interval and site of all busies that occurred on the selected system infrastructure within the selected interval. The Top 25 Busiest Sites tab shows the top 25 sites with the most busies during the interval.
- **System/Console**
  - o **Radio Commands:** Shows radio commands issued to specific radio ID(s) from the GUI. (Included with GW_Halcyon)
- **System/Diagnostics**
  - o **System Diagnostics:** Shows system diagnostics for the given date range.
    - ▪ Note**:** System Diagnostics packets are throttled omit duplicate packets that are sent within three seconds of one another.
- **System/Diagnostics/APM**
  - o **APM Alarms:** Shows alarm information received from the APM.
  - o **APM Call Activity:** Shows the min/max Power, Loss and VSWR per call within a user-defined date range.
  - o **APM Channel Activity:** Shows raw activity such as power, loss and VSWR from APM for the selected sites and subsites in the selected date range.
  - o **APM Channel Levels Over Time:** Shows APM Power, Loss and VSWR statistics for each selected frequency on the selected interval in the selected time range.
- **System/Group**

- o **Activities By Talkgroup By Site Over Time:** Shows group statistics by site for each group included in the report.
- o **Activities By Talkgroup Over Time:** Shows group statistics for each group included in the report.
- o **Group PTTs:** Provides time and call count information about group PTTs.
- o **Group PTTs By Site:** Provides time and call count information about group PTTs by site.
- o **Group Usage By Radio:** Shows group usage summary for each radio ID; for non-group based calls, the usage is shown by the radio ID's default group.
- **System/Subscriber**
  - o **Activities By Radio Over Time:** Shows usage statistics for each radio ID included in the report.
  - o **Interconnect Usage:** Shows interconnect usage detail for a given date range.
  - o **Radio Activity:** Shows commands sent to radios and events received from radios as archived in the database.
  - o **Radio Activity Detail:** Shows all activity originated from or targeting the selected radio ID(s).
  - o **Radio Affiliation:** Shows detailed activity originated by the selected radio ID(s) that can be used to determine a radio ID's talkgroup affiliation.
  - o **Radio Discovery:** Reports on dynamically discovered groups, radios and their feature sets.
  - o **Radio Events:** Shows event types for the specified radio ID(s) in the specified talkgroups for the specified time period.
  - o **Radio PTTs:** Shows PTT counts or durations for each selected radio ID summarized by hour and by day of the week.
  - o **Radio State:** Shows the current state for all radios, including location, agency, inhibited status, emergency status, and current group.
  - o **Reject Reasons:** Shows reject reasons with details for a given date range.
- **System/RFSS/Site/Channel**
  - o **Channel Activities:** Shows channel-based statistics for a given date range divided into the selected intervals.
  - o **Channel Usage:** Shows channel-based usage statistics.

If one or more of the above reports are missing, you may not be licensed for the missing report(s). Please contact GenWatch3 support for more information regarding your license or check your list of licensed reports under the GW_Reports module in the License Manager (see Chapter 7 of the *GenWatch3 Core Manual*)

Call based reports depend on accurate frequency data in the GW_Alias module. If reports are showing higher than expected calls, check to ensure that each frequency is only used once per site in GW_Alias.

Reporting Overview

The Report Categories tree shows available categories for Excel Workbooks saved to the *Reports* directory selected as the **Report Source**. If the **Reports Source** is set to local folders (this is the default), GenWatch3 reports will also be included.

The Report List is to the right of the Report Categories and contains each GenWatch3 report located in your GenWatch3 *Reports* directory under the current user. It also includes each Microsoft Excel workbook that you have saved to the *Reports* directory under the GenWatch3 data directory. This chapter's instructions only pertain to the GenWatch3 reports shown in the Reports List, not the Microsoft Excel workbooks that you may have added to the list.

The description of a report is displayed below the Report List (if available). Workbooks saved to the *Reports* directory under the GenWatch3 installation directory do not have descriptions.

The status bar at the bottom of the screen displays the source for the data and the report files. The current reporting data source is displayed as [Database Server Name]→[Database Instance Name]. Double-click this label to change the GW_Reports data source. This data source only applies to GenWatch3 database reports (described in the *Report Varieties* section in Chapter 1). You can also double-click the report source folder to change it.

To load a report, follow the steps below:
1. Load GW_Reports.
2. In the Report List, double-click on the report that you wish to load. This will show the *Reports Login* window.
3. Enter the **Password** for your GenWatch3 login and click the **OK** button. This will load the *Report Wizard* for the selected report. (This step is only needed if you are logged in via Genesis authentication. Some wizards may take several seconds to load, due to the number of radio IDs, talkgroups, etc. in the GW_Alias database.)
4. To filter the report by System, Site, RFSS, Talkgroup, etc, click the **Filter** button, and choose the parameters for each page in the *Report Wizard*. Users with the GW_Security *Administrator* privilege may optionally bypass this step and go directly to step 5 to run the report with no additional filtering parameters. Otherwise, click the Next button ▸ to move through each of the *Report Wizard* pages. On the last *Report Wizard* page, the **Go to Summary…** will become enabled.
5. Click the **Go to Summary…** button. This will load the *Report Summary* window. This window summarizes the parameters that you have selected.

6. Click the **Run Report…** button on the *Report Summary* window. This will load the Excel workbook for this report and run the report query, including the parameters that you selected in the *Report Wizard*.
7. While the query is running you will see the following spinning globe toward the bottom-right (bottom-left in Excel 2007) of the Excel workbook:
8. Once the query completes, the globe will disappear and the Excel workbook will contain your query results.
9. You may save this Excel workbook in an alternate location, print the workbook or simply close the workbook and discard the changes. You can also minimize the workbook, return to the *Report Wizard*, change the parameters and run the report again.

 When running an unfiltered report as administrator there may be records that show Talkgroup or Radio ID values of 0 if they have not yet been added to the Alias module.

Report Parameters

The Excel workbook shows the parameters selected in the *Report Wizard*. If your parameters included radio ID selection, the report will contain a Radio IDs tab. This tab will list each radio ID included in the query. If your parameters included talkgroup selection, the report will contain a **Talkgroups** tab. This tab's sheet will list each group included in the query. All other parameters are shown in the header section of each sheet in the report. These parameter tabs are shown with a light-blue background.

Historical Alias Reporting

Over time a radio ID's alias my change as ownership of the physical radio changes. GW_Alias keeps track of the ending date and time of a radio alias, excluding the default GW$ aliases.

Reports that show detailed information at the radio level (such as the **Call Activity** report) may transition between radio aliases to reflect the radio's alias at the time of the activity. Reports that summarize activity on the radio level (such as the **Radio PTTs** report) may split a radio ID's summary to multiple lines to reflect changes in radio ID's alias somewhere in the date range of the report.

Using the Report Wizard

Each report includes a Wizard to help you choose report parameters. The goal of the *Report Wizard* is to eliminate the need to type in report parameters. Each parameter is selected from a drop-down list or a parameter grid.
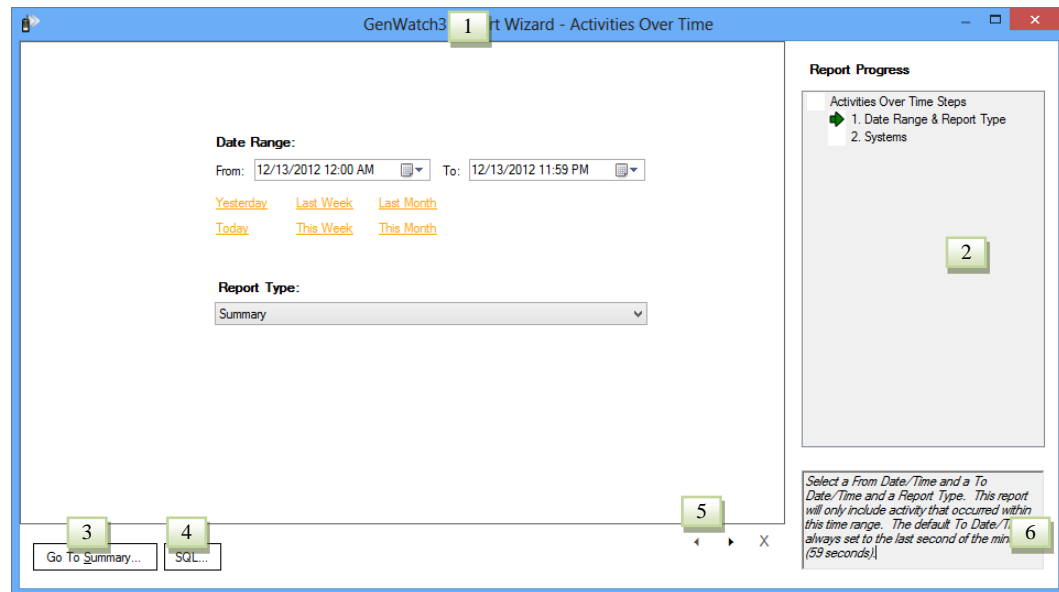
Figure 2.3 – Report Wizard Window

Common Report Wizard Elements

Each *Report Wizard* contains some common elements found in all of the Wizards

1. **Report Title:** This title shows in the title bar of the form (blue section at the top of the form)
2. **Report Progress:** Where you are in the *Report Wizard* parameter selection process.
3. **Go to Summary… button:** Displays the *Report Summary* window. This button is available on the first screen for users with the GW_Security *Administrator* privilege and allows the report to be run with only the filters on the first screen.
4. **SQL… button:** When you navigate to the last page this button appears on the *Report Wizard* just above the Report Progress label. Clicking this button will show the SQL query used to execute the report. This button is available on the first screen for users with the GW_Security *Administrator* privilege.
5. **Previous / Next buttons:** These buttons will allow you to navigate through the filter pages.
6. **Page Help:** Shown in the bottom right of the *Report Wizard*. This box describes the current page.

The following reports will not display the **Go to Summary… button** on the first screen for users with the GW_Security *Administrator* privilege:

- Trio Billed Call Detail (only available when trio is installed)

Report Summary

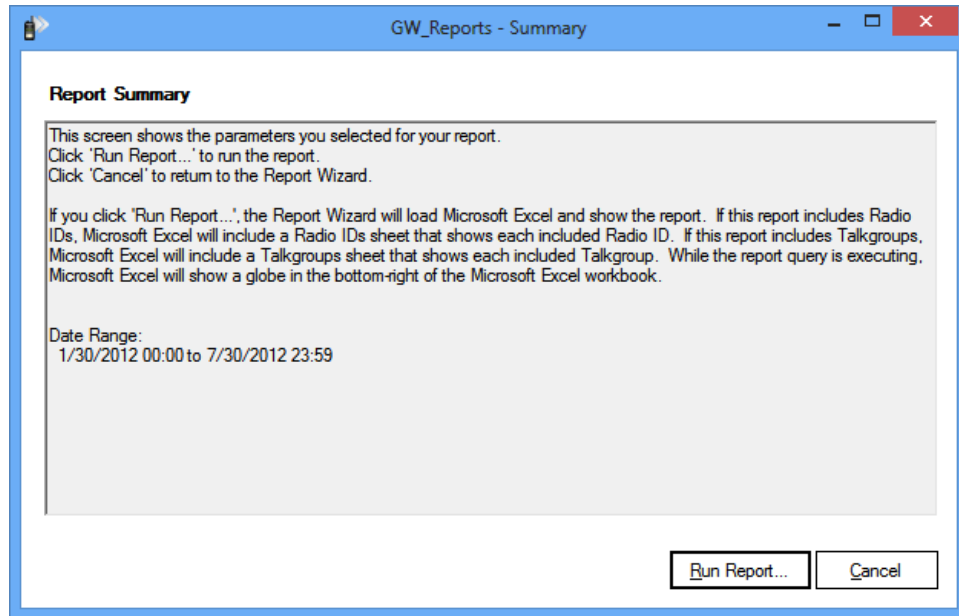This window provides a summary of parameters selected in the *Report Wizard*.

Figure 2.4 – Report Summary Window

Report Wizard Attachments and Filters

The *Report Wizard* filters the selection choices for radio IDs and talkgroups by the **Group Filter** and **Agency Filter** set up for your GenWatch3 user in the GW_Security GUI. The **Talkgroups** grid will only contain talkgroups in the user's **Group Filter** and groups assigned to an agency in the user's **Agency Filter**. The **Radio IDs** list will only contain radio IDs that have a **Default Group** of one of the talkgroups in the user's **Group Filter** or are assigned to an agency that is in the **Agency Filter**.

The *Report Wizard* filters the selection choices for sites by the **Site Filter** set up for your GenWatch3 user in the GW_Security GUI. The **Sites** grid will only contain sites in the user's **Site Filter**.

The *Report Wizard* filters the selection choices for agencies by the **Agency Filter** set up for your GenWatch3 user in the GW_Security GUI. The **Agency** grid will only contain agencies in the user's **Agency Filter** and the talkgroup and radio ID grids will only contain selections assigned to the agencies in the user's **Agency Filter**.

Examples:
Group Filtering: If your user has access only to talkgroup 1, you will not see talkgroup 5 listed as a selection choice in the **Talkgroups** grid.

Agency Filtering: If your user has access only to agency "Home," you will only see location, agency, talkgroup and radio ID selection choices that are assigned to the agency "Home" in GW_Alias.

Group and Agency filtering: If your user has a group filter with talkgroup 1 and an agency filter with the agency "Home," you will see talkgroup 1 and any radio ID with its' default group set to talkgroup 1 as well as all groups and radio IDs assigned to agency "home."

Site Filtering: If your user has access only to site 1 on WACN 00000 and System 1404, only Site 1 for the specific WACN and System will be available.

If a user's role is granted the *ViewAllGroups* privilege for the GW_Reports module in the GW_Security GUI, he or she will be able to see all talkgroups and radio IDs regardless of his or her attachment list.

If a user's role is granted the *ViewAllAgencies* privilege for the GW_Reports module in GW_Security, he or she will be able to see all agencies and their associated talkgroups and radio IDs. Also if this option is selected the user will have the ability to report on resources without agency information making *ViewAllAgencies* also have the same privileges as *ViewAllGroups*.

If a user's role is granted the *ViewAllSites* privilege for the GW_Reports module in the GW_Security GUI, he or she will be able to see all sites regardless of his or her attachment list.

Report Wizard Grids and Filtering

Most of the *Report Wizard* parameters contain at least one grid. These grids contain selection choices for a particular parameter, such as System, RFSS, Site, Talkgroup, Radio ID, etc. In some cases, selecting an item on a grid will add more items to another grid. In the case of Location and Agency selection, the **Agency** grid will initially have no entries. As you select (click the box in the Enable column) Locations, the *Report Wizard* will add Agencies under the selected Locations to the **Agency** grid. If you come to a window that contains a grid and the grid does not hold all of the values you expect to see, make sure that a selection on a grid on a previous page is not required to provide the "missing" values.

Figure 2.5 – Radio ID Selection Grid

If a grid only contains one item, this item will automatically be selected. This feature keeps you from having to click on a grid item when there is no actual decision to make.

Each *Report Wizard* grid that allows multiple selections will provide a **Select All** and an **Unselect All** button. The **Select All** button selects each item in the grid, while the **Unselect All** button unselects each item in the grid.

The **Select All** button selects starting at the top of the list of items and selects up to the maximum number of allowed selects for the report.

(i) On grids that allow only one selection selecting a second entry will clear the initial selection.

(i) The **Position** column on the **Frequencies** grid refers to the channel number defined in the Alias module.

Grid Filtering

Some grids can potentially contain thousands of items. The following grids provide a filter option to narrow the list of items and make item selection easier:

- **Channels**
- **Radio IDs**
- **Talkgroups**

Figure 2.6 – Radio ID Selection Grid Filter

The filter option contains the following options:

1. **Column List:** This control contains a selectable list of grid columns. This is where you select the column you wish to filter on.
2. **Parameter Text:** This control contains the text used to filter the results. Press Enter on this control to apply the filter to the grid. Any item containing the **Parameter Text** will be shown in the filtered list. This means that if you select **Radio ID** from the **Column List** and enter a Parameter Text of '1' only radio IDs containing the number one will be shown. i.e. 1, 10, 210, etc. If you select **Alias** from the **Column List** and enter a **Parameter Text** of 'am' only Aliases containing the letters 'am' will be shown. Examples include James, Amber, and 8030AM.
3. **Clear Button:** This button removes the filter from the grid. Press this button to show all items in the grid.

To filter a grid, follow the steps below:

1. Choose a column from the **Column List**.
2. Type your filter into the **Parameter Text**.
3. Press Enter while the cursor is in the **Parameter Text** box. This will apply your filter to the grid.

(i) *Report Wizard* grid selections are exclusive. This means that if you select talkgroups 1, 3 and 5 in the **Talkgroups** grid and 1, 2, 3 in the **Radio IDs** grid, then the report will only include activity that occurred for radios 1, 2 or 3 on groups 1, 3 or 5.

If you wish to report on activity for a range of groups, select the talkgroups in the **Talkgroups** grid and select all radio IDs in the **Radio IDs** grid. If you wish to report on all activity for a range of radio IDs, select the radio IDs in the **Radio IDs** grid and select all groups in the **Talkgroups** grid. This same approach can be taken for all *Report Wizard* grids.

Other Report Parameter Types

In addition to grids, the *Report Wizard* uses the following methods of parameter selection:

- **Date Range:** This control consists of two date and time selector controls. The **From** date and time is the start of the date/time range, while the **To** date and time is the end of the date/time range. This control also contains date range shortcuts such as **Yesterday** and **This Week**. Click on a link to auto-fill the selected range.

Date Range:

From: 12/13/2012 12:00 AM   To: 12/13/2012 11:59 PM

Yesterday   Last Week   Last Month
Today   This Week   This Month

Figure 2.7 – Date Range Parameter Control

Although it is not shown in the **From** date range, the **From** date range second value is always 0. Although it is not shown in the **To** date range, the **To** date range second value is always 59. These implied values ensure that your report includes all seconds within the selected minutes.

- **Report Type:** This control allows you to select the detail of the report. The selections include:
    - **Summary:** Each row in the report shows the usage of the frequency, group, radio ID, etc., summarized for the entire date/time range.
    - **Monthly:** Each row in the report shows the usage of the frequency, group, radio ID, etc., for each month in the date/time range.
    - **Daily:** Each row in the report shows the usage of the frequency, group, radio ID, etc., for each day in the date/time range.
    - **Hourly:** Each row in the report shows the usage of the frequency, group, radio ID, etc., for each hour in the date/time range.
    - **Quarter-Hourly:** Each row in the report shows the usage of the frequency, group, radio ID, etc., for four 15-minute increments in the date/time range. These increments are 0, 15, 30 and 45.

Report Type:

Summary

Figure 2.8 – Report Type Parameter Control

The Monthly report type only reports over full calendar months and will truncate partial months. For example, the full month of January is January 1ˢᵗ 12:00 AM through February 1ˢᵗ 12:00 AM. Setting the Date Range from 1/1/2018 12:00 AM to 2/15/2018 12:00 AM would result in a Monthly report for January.

- **Check Boxes:** These controls allow you to indicate a yes/no selection. Some reports will use these for inclusive decisions (i.e. "include this option in the report as well") or for exclusive decisions (i.e. "only include what I have selected in the report"). The *Help* window of the report will tell whether the check boxes are inclusive or exclusive.

Group   ☑

Figure 2.9 – Check Box Parameter Control

- **GET Data Source:** Some GenWatch3 reports use data from an external GET database. The GET Data Source selector allows you to choose the server name and database name of the GET database.
  - **Server**: Drop-down list containing all local and linked servers on the GenWatch3 database.
    NOTE: You may need to add your GET database as a linked server in order to make it available in the Server dropdown list.
  - **Database:** Drop-down list containing all databases on the selected server.

GET Data Source:
Server:
WILBUR\MSSQLSERVER2012
Database:
GET_APM_ST

Figure 2.10 – GET Data Source Parameter Control

NOTE: To access a GET database via a linked server, you will need a user with the *db_datareader* permission on the GET Data Source database. In SQL Server Management Studio, you can then set up the linked server to access the database through this user by following these steps:
1. Open the Linked Server Properties window (Figure 2.11) by right-clicking on the linked server under the **Server Objects** and **Linked Servers** nodes.
2. On the **Security** page, select the **Be made using this security context** option.
3. Enter the user name and password in the **Remote login** and **With password** fields.
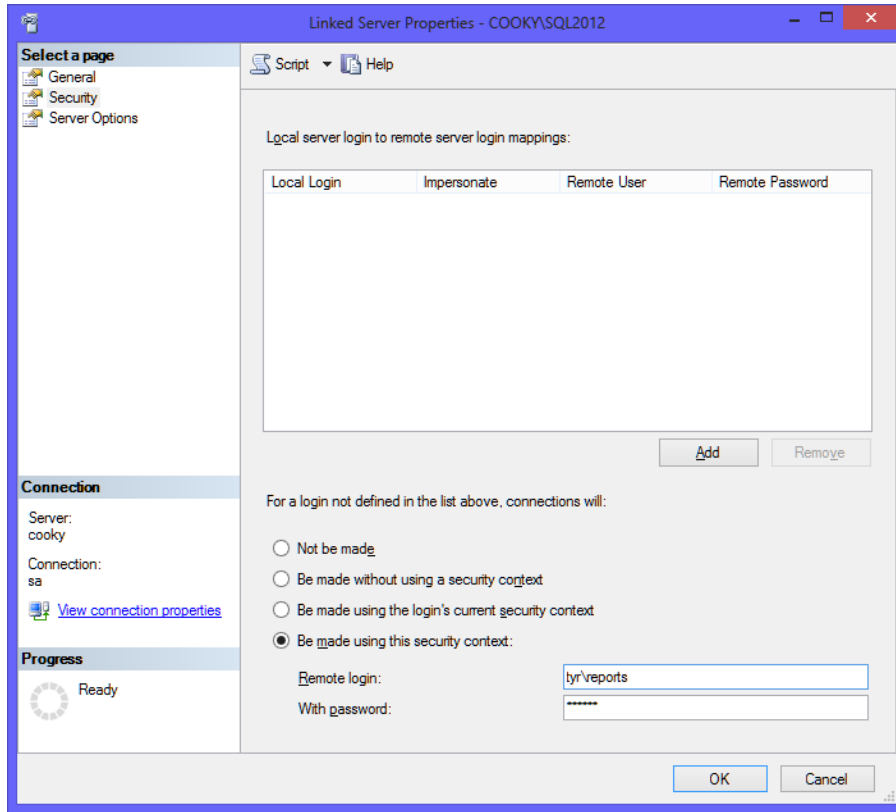
Figure 2.11 – Linked Server Properties in SQL Server Management Studio

Advanced Reporting Options

Because GenWatch3 uses Microsoft Excel workbooks, you can go beyond the reporting offered in the GW_Reports GUI. There are many third party programs and applications (purchased from vendors other than Genesis) that can be used to write reports on the GenWatch3 database. The data in the GenWatch3 database is YOURS and you should be able to report on it as you wish.

Contact GenWatch3 support to receive the structure of the GenWatch3 database. This will define the tables in the GenWatch3 database and all fields in these tables.

600-2.15.0-Y.1

This chapter describes how GW_Reports uses integrated Microsoft Excel workbooks. This chapter also describes how to alter these workbooks and how to revert back to the original workbook.

This chapter contains the following sections:
- **Overview**: Describes how GW_Reports uses Microsoft Excel to run and display report queries.
- **Customizing a Workbook:** Describes how to customize a Microsoft Excel workbook template.
- **Reverting Back to an Original Template:** Describes how to revert back to an original GW_Reports Excel workbook template.

Overview

The GW_Reports module uses Microsoft Excel to run and display report queries. Each report binary (DLL) contains its Excel report template. When you run a report for the 1st time, GW_Reports creates a copy of this Excel workbook in the *Reports* directory under the current user's *\Documents\Genesis\GenWatch3* directory. This copy of the Excel workbook is the template used to generate the Excel workbook for the report.

These Excel files are used as templates, but they have the normal .xls extension. They do not have the .xlt extension experienced Excel users may expect.

Excel displays numeric data that it has rounded to some extent. This can cause small deviations, generally in fractions of a second, for each row of data with numeric values that have been rounded. On some of the reports running over large data sets these rounding errors may add up to several seconds if you total the numbers from all rows being reported on.

Customizing a Workbook

You may wish to customize the GW_Reports report workbooks. Customization may include your company's logo, different color schemes, etc. To customize a report template, simply make changes to the report template saved in the \Reports directory under the current user's *\Documents\Genesis\GenWatch3* directory.

Each report contains two things that are altered by GW_Reports every time you run the report.

- **Report parameters:** Report parameters are shown in cells with light blue backgrounds (Figure 3.1). These cells show the parameters selected while using the *Report Wizard*.

Figure 3.1 – Workbook Report Parameters

- **Query Tables:** Query tables are the tables that show the actual report results. Query tables are shown below the parameters section and have dark blue background and white text (Figure 3.2).

Figure 3.2 – Workbook Query table

The location of each of the items mentioned above are stored within each Excel workbook, on a hidden sheet named "Parameters." If your customization moves the cell positions of parameters or query tables, then you must update the Parameters sheet with the new cell positions. To do this, you must unhide the hidden parameters sheet. To unhide this sheet:

1. In Microsoft Excel, choose Format->Sheet->Unhide. This will show a dialog containing the Parameters sheet.
2. Click **OK**. This will show the Parameters sheet in the tabs along the bottom of the Microsoft Excel workbook.
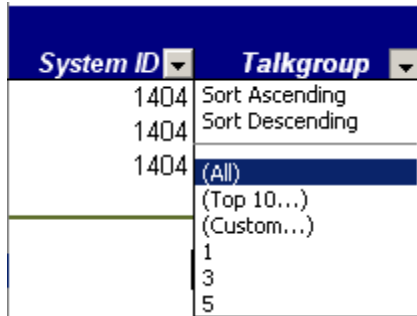
Once you are satisfied with your report changes, you may hide the parameters sheet by clicking Format->Sheet->Hide while the Parameters sheet is selected.

The \Reports folder under GenWatch3 installation directory should only contain GenWatch3 reports that have the .xls extension. If saving in any other supported excel format the files should be placed in the Current User's *\Documents\Genesis\GenWatch3\Reports* directory.

Filtering Report Results

You will notice that each column in the Microsoft Excel query table contains a drop-down list (Figure 3.3). This list contains column-based filtering options. You can add one or more conditions to each column. Only the rows whose values satisfy these conditions will be shown on the report. Each time the report is refreshed (each time you run the report) these filters are reset.

Figure 3.3 – Workbook Filter Options

If you apply report filters, the column totals (shown in the last row of the report results) may or may not be indicative of the filtered report results. In some cases, filtering will filter out the total row.

Customizing Charts

Some charts allow for a wide range of data. For example, some charts will show one point of information (Summary-based reports) and some may show hundreds (15-minute interval reports over two days). The latter may result in "squished" x-axis labels (shown in figure 3.4 below). To remedy this, you can change number of points in the x-axis.
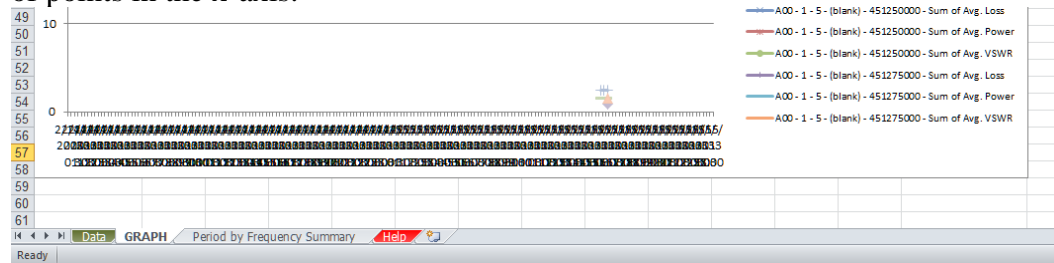

Figure 3.4 – Squished X-Axis Labels

To change the number of points in the x-axis:
1. Right-click on the x-axis: This will show the x-axis options menu.
2. Choose Format Axis…: This will load the Format Axis options screen.
3. Under Interval between labels, select Specific interval unit.
4. Enter a number for the interval unit. The chart reflects this number as you change it, so play around with the number until the x-axis looks good.
5. Click Close.
6. If you wish to preserve these changes for the next time you run this report, save your changes to the Excel file.

Reverting Back to an Original Template

If you have customized a GW_Reports template and wish to revert back to the original report template, delete the report template from the *Reports* directory under the current users *\Documents\Genesis\GenWatch3* directory. The next time you run this report, GW_Reports will recreate the template.

When deleting the template, be careful not to delete any files with a .dll extension. Only delete files with an .xls extension

You can also rename the report template, if you want to preserve the template you are replacing.