GW3-TRBO®
Reports
Software Version 4.26.1
Module Book

600-4.26.1-Y.1
2/24/2026

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Refer to the GW3-TRBO Manual Overview for your full license. All license information contained on pages 4-7 (Book 600-4.26.1-AA.1) are to be considered as contained herein.

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 GW3-TRBO so that we can make it better a product for everyone.

Refer to the *Troubleshooting & Support* section of the GW3-TRBO Manual Shell (Book 600-4.26.1-AA.1) for complete support and contact information.

Document History

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2.7	Updated section on Report Wizard	WRK
2.8	Revisions Before Release	ATG
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2.13	Revisions Before Release	ATG
2.14	Revisions Before Release	JAW
2.15	Revisions Before Release	REB
2.16	Revisions Before Release	JPS

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About this Manual

Goals

This manual describes the role and function of the Reports module in the GW3-TRBO solution.

Who Should Read This Manual?

This manual is written for the intended audience of novice to mid-level MOTOTRBO 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 Reports graphical user interface (GUI).
- **Using GW3-TRBO Database Reports:** Describes the process of running a GW3-TRBO database report.
- **Excel Workbooks for GW3-TRBO Database Reports:** Describes how 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 progress 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 GW3-TRBO archive database. As such, when Windows automatically changes the time, an active call 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 GW3-TRBO 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.

Chapter 1 Overview

This chapter defines the Reports GUI and the organization of the channel information.

This chapter contains the following sections:

- **What is Reports?:** Defines the Reports GUI.

What is Reports?

This chapter describes the Reports GUI and gives an overview of the options available.

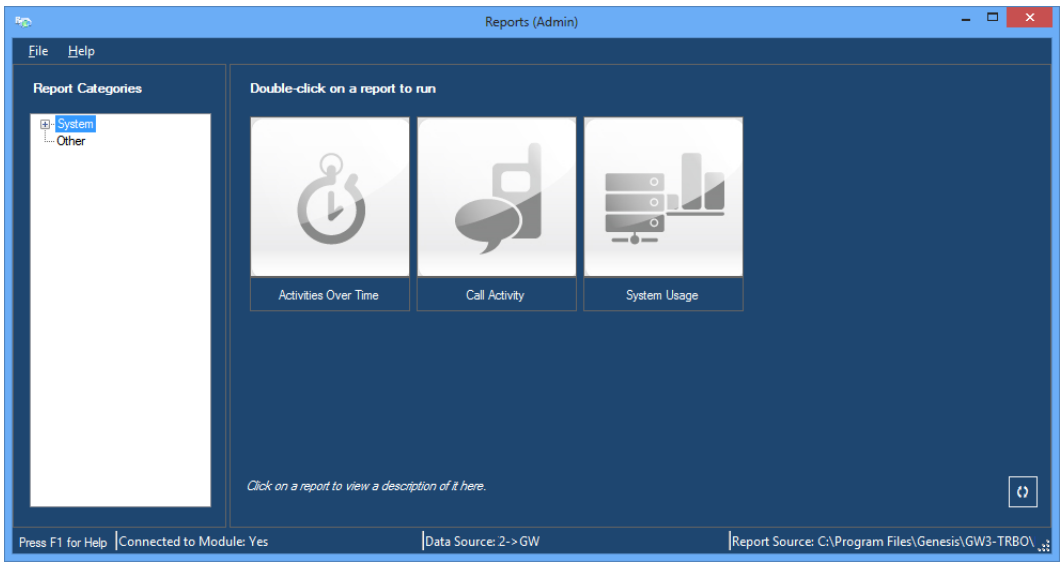

Figure 1.1 – Reports GUI

The Reports GUI has the following sections:

- **Report Categories Tree:** This tree shows available categories for GW3-TRBO reports and all Excel workbooks saved to the *Reports* directory under the GW3-TRBO installation directory.
- **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 GW3-TRBO 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 Reports data source. This data source only applies to GW3-TRBO database reports (described in the *Reports* 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.

Microsoft Excel is required to run GW3-TRBO reports

Chapter 2 Using GW3-TRBO Database Reports

This chapter contains the following sections:

- **Terms:** Describes terms that are used in GW3-TRBO database reports.
- **What are GW3-TRBO Database Reports?**: Describes the GW3-TRBO database reports.
- **Data Source:** Describes the Reports data source and how to change it.
- **Report Files:** Describes the location and function of the files used within Reports.
- **Reports:** Lists and describes the reports available with Reports.
- **Reporting Overview:** Provides a walkthrough of running a GW3-TRBO 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 *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 can view your data.
- **SQL Query:** A question asked of the database, such as, “Which radio IDs issued activity between 1/1/2026 and 1/31/2026?” The *Report Wizard* builds an SQL query behind the scenes as you select parameters.
- **Data Source:** Database used when executing an 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 one or more entries.

What are GW3-TRBO Database Reports?

GW3-TRBO database reports provide information archived to the GW3-TRBO database (GW). Each GW3-TRBO database report includes a *Report Wizard* to guide you through parameter selection. Reports uses your GW3-TRBO username 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

Reports allows you to specify a reporting data source. The data source contains two parts:

- **Database Server Name:** This is the name of the machine that is hosting SQL Server.
- **Database Instance Name:** This is the name of the GW3-TRBO database within the database server.

GW3-TRBO archives data to the GW database on the database server specified within the GW3-TRBO database settings.

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

1. Double-click on the **Data Source** label. This will show the *GW3-TRBO - Reports Login* window.

Figure 2.1 – Reports Login Window

2. Click the button. This will show the *Data Source Selector* window.

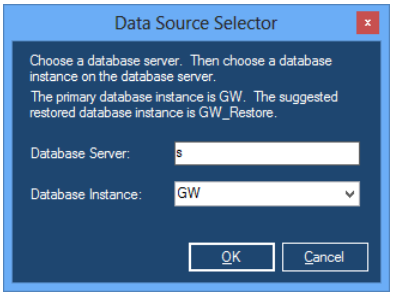

Figure 2.2 – Data Source Selector Window

3. Enter a **Database Server** value.
4. Choose/Enter a **Database Instance** value. This list contains the common GW3-TRBO 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 username.
7. Press **Enter** or click the **OK** button. This will validate the specified username and password against the specified data source.

Report Files

The Reports List is dynamically loaded on startup based on the existence of certain files in predefined locations. The sections below describe these files in detail.

Report Files

Local reports include

1. The DLL files (files with a .dll extension) within the GW3-TRBO install directory.

   DLL File: Each 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 GW3-TRBO install directory.

   This allows you to launch non-Reports Excel files from the 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 GW3-TRBO 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 GW3-TRBO data directory is under *C:\ProgramData\Genesis\GenWatch3*.

Reports

The following reports are included in the GW3-TRBO reports list based on license:

- **System**
  - **Activities Over Time*:** Shows group, private and data statistics for a given date range.
  - **Call Activity*:** Shows activity from the calls table for the selected types of calls in the selected date range.
  - **Grade of Service*:** Provides actual and statistical grade of service achieved within a specific time range.
  - **Grade of Service for Sessions*:** Provides actual and statistical grade of service achieved within a specific time range by sessions.
  - **System Summary:** Replicates the System Summary graphs available within the GUI.
  - **System Usage:** Provides four different reports and graphs summarizing usage on your system.
  - **System Usage for Sessions*:** Provides three different reports and graphs summarizing usage on your system by sessions.
- **System/Agency**
  - **Activities by Agency Over Time*:** Shows usage statistics by agency for each radio ID included in the report.
- **System/Busy**
  - **Busy Detail*:** Shows activity from the busies table for the selected types of calls in the selected date range.
  - **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/Diagnostics**
  - **System Diagnostics:** Shows system diagnostics for the given date range.
    - Note: Repeater diagnostics are available only if using the R01.06.00 or higher firmware version with an IP connection.
    - Note: System Diagnostics packets are throttled to omit duplicate packets that are sent within three seconds of one another
- **System/Diagnostics/APM**
  - **APM Alarms:** Shows alarm information received from the APM.

    - **APM Call Activity:** Shows the min/max power, loss and VSWR per call within a user-defined date range.
    - **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.
    - **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**
    - **Activities by Talkgroup by Site Over Time:** Shows group statistics by site for each group included in the report.
    - **Activities by Talkgroup Over Time:** Shows group statistics for each group included in the report.
    - **Group PTTs:** Provides time and call count information about group PTTs.
    - **Group PTTs by Site:** Provides time and call count information about group PTTs by site.
    - **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.
    - **Group Usage for Sessions*:** Provides time and session count information about group-based sessions.
- **System/Radio Commands**
    - **Radio Commands:** Shows radio commands issued to specific radio ID(s) from the GUI.
- **System/Subscriber**
    - **Activities by Radio Over Time:** Shows usage statistics for each radio ID included in the report.
    - **Interconnect Usage**:** Shows interconnect usage detail for a given date range.
    - **Radio Activity:** Shows commands sent to radios and events received from radios as archived in the database.
    - **Radio Last Activity:** Shows most recent activity originated by the selected radio ID(s).
    - **Radio Activity Detail:** Shows all activity originated from or targeting the selected radio ID(s).
    - **Radio Affiliation*:** Shows detailed activity originated by the selected radio ID(s) that can be used to determine a radio ID's talkgroup affiliation.
    - **Radio Discovery:** Reports on dynamically discovered groups, radios and their feature sets.
    - **Radio PTTs:** Shows PTT counts or durations for each selected radio ID summarized by hour and by day of the week.
    - **Radio State*:** Shows the current state for all radios, including location, agency, inhibited status, emergency status, and current group.

    - **Radios With Zero Usage:** Details subscribers that have zero usage over a given timeframe.
    - **Reject Reasons**:** Shows each reject reported within the given date range.
- **System/Zone/Site**
    - **Activities by Site Over Time:** Shows usage statistics for each site included in the report.
- **System/Zone/Site/Channel**
    - **Channel Activities*:** Shows channel-based statistics for a given date range divided into the selected intervals.
    - **Channel Usage:** Shows channel-based usage statistics.
    - **Channel Usage for Sessions*:** Shows channel-based usage statistics by sessions.
    - **RSSI Details:** Shows the Received Signal Strength Indication values that are available in the specified time range.

Reports denoted with * are reports designed for Connect Plus connection data.

Reports denoted with ** are reports designed for Capacity Max connection data.

If one or more of the above reports are missing, you may not be licensed for the missing report(s). Please contact GW3-TRBO support for more information regarding your license or check your list of licensed reports under the Reports module in the License Manager (see *Chapter 7 – GW3-TRBO License Manager* of the *GW3-TRBO Core Manual*)

Call-based reports depend on accurate frequency data in the Alias module. If reports are showing higher than expected calls, check to ensure that each frequency is used only once per site in 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), GW3-TRBO reports will also be included.

The report list contains each GW3-TRBO report located in your GW3-TRBO installation directory. It also includes each Microsoft Excel workbook you have saved to the *Reports* directory under the GW3-TRBO data directory. This chapter's instructions pertain only to the GW3-TRBO 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 GW3-TRBO installation directory do not have descriptions.

The status bar at the bottom of the window 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 Reports data source. This data source applies only to GW3-TRBO database reports. You can also double-click the report source folder to change it.

To load a report, follow the steps below:

1. Load Reports.
2. In the report list, double-click on the report that you wish to load. This will show the *GW3-TRBO Reports Login* window.
3. Enter the password for your GW3-TRBO login and click the **OK** button. This will load the *Report Wizard* for the selected report. (This step is needed only 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 Alias database.)
4. To filter the report by system, site, zone, talkgroup, etc., click the **Filter** button, and choose the parameters for each page in the *Report Wizard*. Users with the 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…** button 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 an indication in the status bar of Excel that a background query is running.
8. Once the query completes, the notification in the status bar 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 zero 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 include 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 include 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 may change as ownership of the physical radio changes. 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 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.

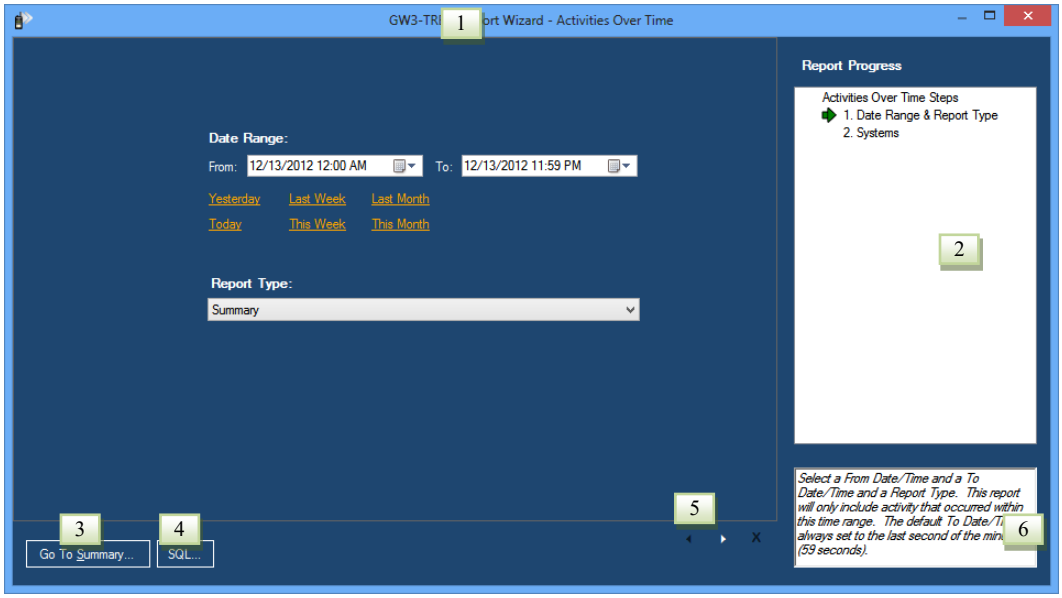

Figure 2.3 – Report Wizard Window

Common Report Wizard Elements

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

1. **Report Title:** This title shows in the title bar 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* page. This button is available when you navigate to the last page. It is also available on the first page for users with the Security *Administrator* privilege and allows the report to be run with only the filters on the first window.
4. **SQL… button:** Shows the SQL query used to execute the report. This button is available when you navigate to the last page. It is also available on the first page for users with the Security *Administrator* privilege.
5. **Previous / Next buttons:** Allow navigation through the filter pages.
6. **Page Help:** Describes the current page.

Report Summary

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

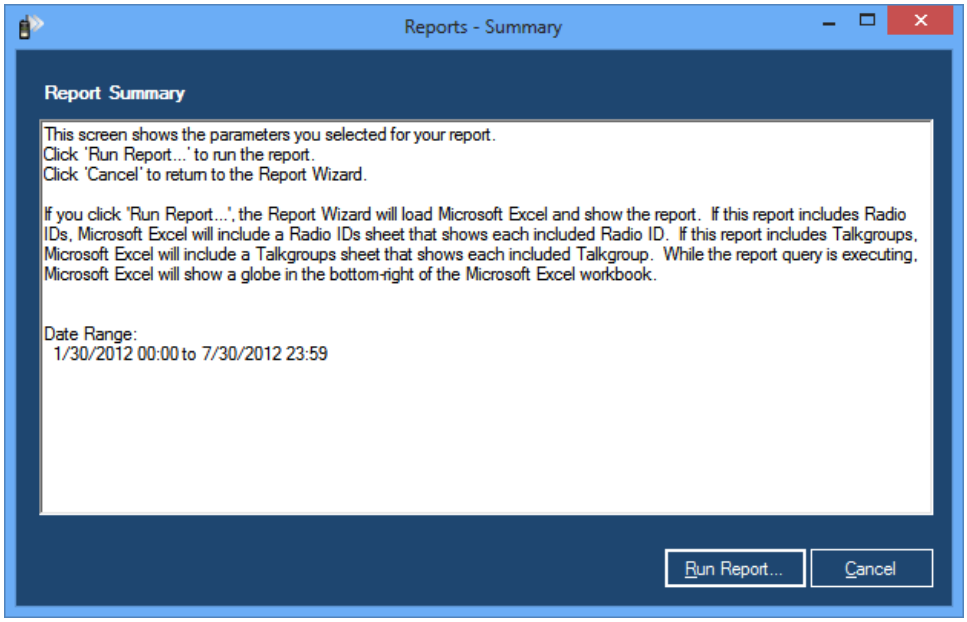

Figure 2.4 – Report Summary Window

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 GW3-TRBO user in the 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 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 GW3-TRBO user in the 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 the Alias module.

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 System 1404, only Site 1 for the specific System will be available.

If a user's role is granted the *ViewAllGroups* privilege for the Reports module in the 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 Reports module in the Security GUI, 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* when all agencies are selected.

If a user's role is granted the *ViewAllSites* privilege for the Reports module in the 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 each parameter, such as system, zone, 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 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.

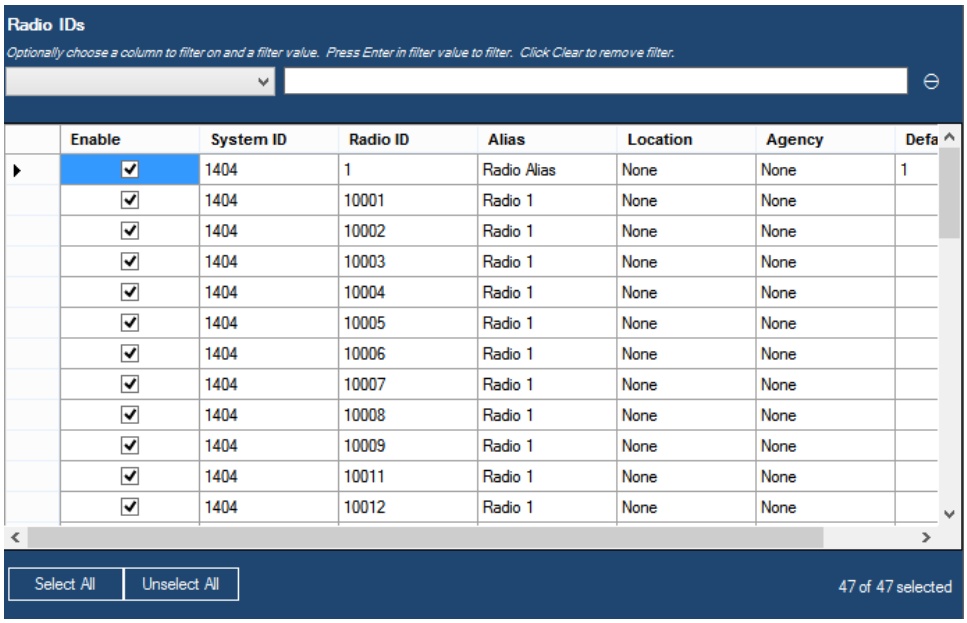

Figure 2.5 – Radio ID Selection Grid

If a grid contains only 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 selections for the report.

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

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**

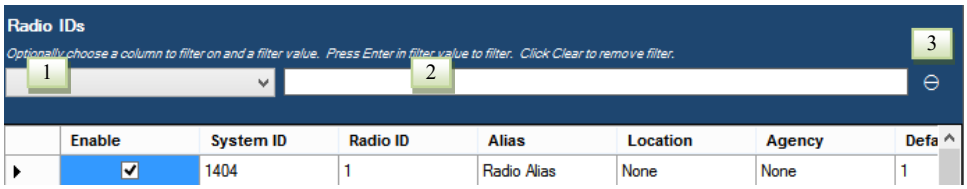

Figure 2.6 – Radio ID Selection Grid Filter

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 1 will be shown. Examples include "1," "10," and "210." 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.

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 include only 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 autofill the selected range.

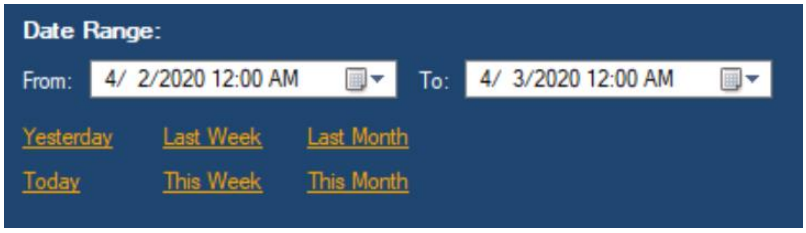

Figure 2.7 – Date Range Parameter Control

- **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 one of four 15-minute increments in each hour of the date/time range. These increments are 0, 15, 30 and 45.

Figure 2.8 – Report Type Parameter Control

The Monthly report type reports only over full calendar months and will truncate partial months. For example, the full month of January is January 1, 12:00 AM through February 1, 12:00 AM. Setting the Date Range from 1/1/2026 12:00 AM to 2/15/2026 12:00 AM would result in a Monthly report for January.

- **Checkboxes:** 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 checkboxes are inclusive or exclusive.

Figure 2.9 – Checkbox Parameter Control

- **GET Data Source:** Some GW3-TRBO 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 GW3-TRBO 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.

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 username and password in the **Remote login** and **With password** fields.

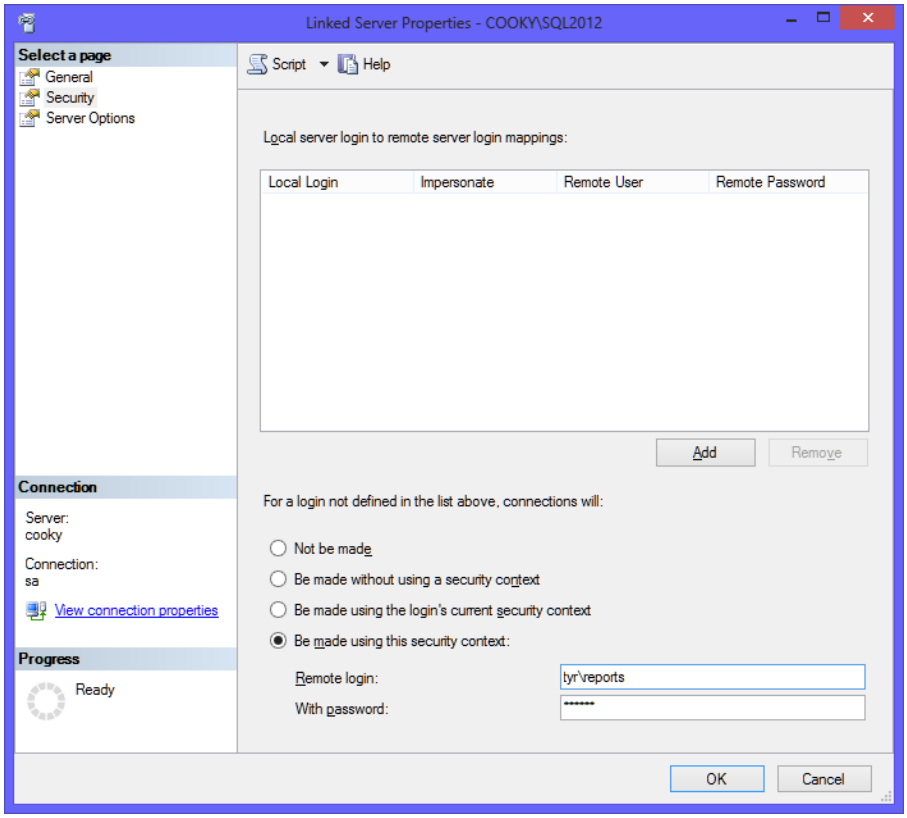

Figure 2.11 – Linked Server Properties in SQL Server Management Studio

Advanced Reporting Options

Because GW3-TRBO uses Microsoft Excel workbooks, you can go beyond the reporting offered in the 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 GW3-TRBO database. The data in the GW3-TRBO database is YOURS, and you should be able to report on it as you wish.

Contact GW3-TRBO support to receive the structure of the GW3-TRBO database. This will define the tables in the GW3-TRBO database and all fields in these tables.

Chapter 3 Excel Workbooks for GW3-TRBO Database Reports

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

This chapter contains the following sections:

- **Overview**: Describes how Reports uses Microsoft Excel to run and display report queries.
- **Customizing a Workbook:** Describes how to customize a Microsoft Excel workbook template.
- **Reverting to an Original Template:** Describes how to revert to an original Reports Excel workbook template.

Overview

The 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 first time, Reports creates a copy of this Excel workbook in the *Reports* folder under the *Current User\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 .xlsm extension. They do not have the .xltx 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 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* folder under the *Current User\Documents\Genesis\GenWatch3* directory and save the modified report to the CustomTemplates subdirectory.

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

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

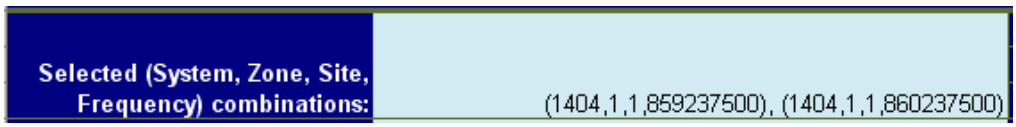

Figure 3.1 – Workbook Report Parameters

- **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.

System ID	Talkgroup	Talkgroup Alias	Radio ID	Radio Alias
1404	5	GW$5	1	James
1404	3	GW$3	1	James
1404	1	mine1	1	James

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 *TRBO Parameters* or *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.

If you desire to change the Excel file type to something other than .xlsm, you must save the files to the current user's *\Documents\Genesis\GenWatch3\Reports* folder to open it from the Reports GUI.

Filtering Report Results

Each column in the Microsoft Excel query table contains a drop-down list. 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.

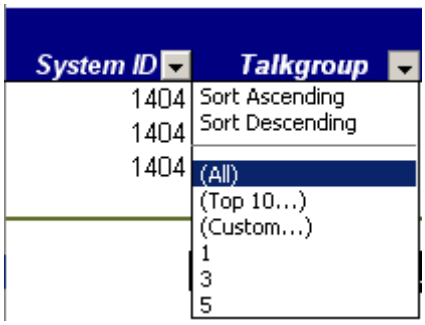

Figure 3.3 – Workbook Filter Options

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. To remedy this, you can change the number of points in the x-axis.

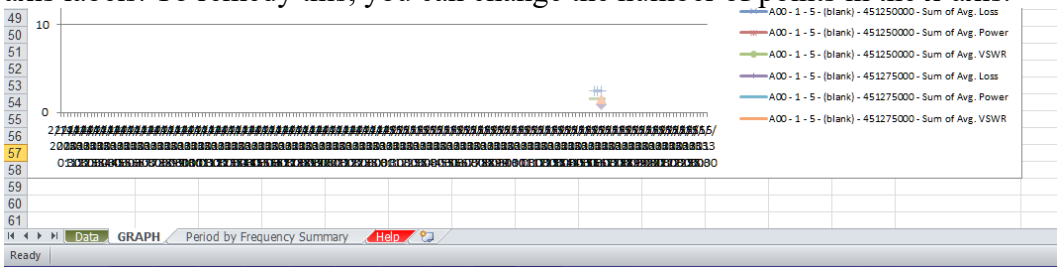

Figure 3.4 – Squished X-Axis Labels

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* window.
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 experiment 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 to an Original Template

If you have customized a Reports template and wish to revert to the original report template, delete the report template from the *CustomTemplates* directory under the current user's *\Documents\Genesis\GenWatch3\Reports* directory.

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

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