GenWatch3

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Refer to the GenWatch3 Manual Overview for your full license. All license information contained on pages 4-7 (Book 600-2.16.4-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 GenWatch3 so that we can make it a better product for everyone.

Refer to the *Troubleshooting & Support* section of the GenWatch3 Manual Shell (Book 600-2.16.4-AA.1) for complete support and contact information.

Document History

Revision	Description	Author
2.0.5	Initial Release	JAW
2.0.5	Revision for release	TDW
2.0.6	Updated screenshots	REB
2.0.6	Added Authorized Client setup sections	JAW
2.0.6.6	Changes before release	WRK
2.2	Document Reviewed	WRK
2.3	Release Revisions	REB
2.4	Revisions Before Release	CWF
2.5	Revisions Before Release	CWF
2.6	Revisions Before Release	CWF
2.8	Revisions Before Release	WRK
2.9	Revisions Before Release	CWF
2.10	Revisions Before Release	JAW
2.11	Converted to Docx format	CWF
2.12	Revisions Before Release	ATG
2.13	Revisions Before Release	ATG
2.14	Revisions Before Release	JAW
2.15	Revisions Before Release	REB
2.16	Revisions Before Release	JPS

600-2.16.4-KK.1

Table of Contents

Goals

This manual provides instructions on creating and managing GW_Location connections.

Who Should Read This Manual?

This manual is written for the intended audience of novice to mid-level trunked radio system users and novice to mid-level PC users. If your GenWatch3 installation is licensed for Location connections and you are responsible for setting up these connections, you should read this manual.

How This Manual Is Organized

This manual is organized as follows:
- **Overview:** Defines the GW_Location module and GW_Location Graphical User Interface (GUI) and gives instructions on creating and managing location connections.
- **Astro® 25 Outdoor Location Solution Connections:** Describes how to create and manage ASTRO® 25 Outdoor Location Solution connections.

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.

This chapter defines the GW_Location module and the GW_Location GUI, shown in Figure 1.1, and gives instructions on managing location connections.

This chapter contains the following sections:

- **Terms:** Describes the terms that are needed to understand the GW_Location module.
- **What is GW_Location?:** Defines the GW_Location module and GW_Location GUI.
- **Location Information in GenWatch3:** Describes how GenWatch3 uses location information provided by GW_Location connections.
- **ASTRO® 25 Outdoor Location Solution Connections:** Describes properties of the GW_Location connections and how to manage them.
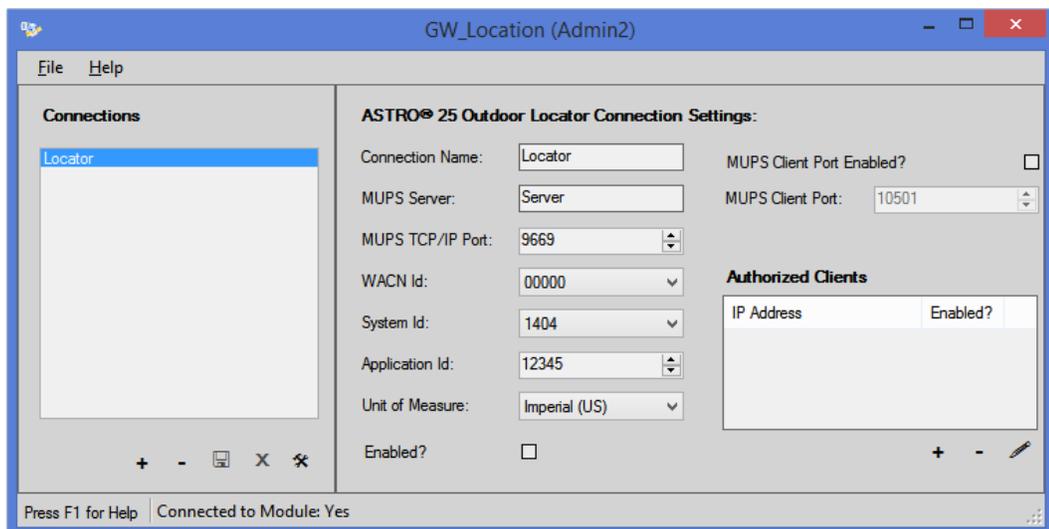
Figure 1.1 – GW_Location GUI

Terms

- **GPS Server:** A system that receives and processes GPS information packets from GPS-capable radios.
- **Location Connection:** Connection to a GPS server.

What is GW_Location?

The GenWatch3 GW_Location module manages communication to and from GPS servers via Location connections. Managing this communication includes:
- Creating and maintaining sessions to one or more GPS servers.
- Reporting connection and session-related errors to the event log.
- Converting proprietary GPS information packets to GenWatch3 GPS Location packets.

These are just a few of the functions of the GW_Location module. Most of its functions are transparent to GenWatch3 users.

The GW_Location GUI allows you to manage location connections. These connections reside in the GW_Location module and provide connections to one or more GPS servers. Through this GUI you can:
- Add a new connection.
- Update an existing connection.
- Delete an existing connection.

These options are discussed in detail within the specific connection type sections below.

Location Information in GenWatch3

GenWatch3 uses location information to:
- **Provide *last known location* information to radio-originated activity:** Radio based activities such as affiliations, push-to-talks and emergency alarms include the last reported location information of the radio.
- **Report radios that move improbable distances in a short time:** *GW_SAM* uses time and distance formulas to determine if a radio ID is moving in mysterious ways.
- **Provide GPS information to other third party applications:** GW_GenSPOut allows you to create custom outputs and forward GPS location information to a serial, TCP/IP or UDP port.
- **Notify users of predefined sensor state change or specific event activity:** GW_Trigger allows you to create notifications that fire on the presence or lack of radio events (such as unit registration or deregistration) or sensor notifications (such as door opened).

ASTRO® 25 Outdoor Location Solution Connections

The ASTRO® 25 Outdoor Location Solution (ASTRO® 25 OLS) is a radio location solution that reports the following activity:

- **Location:** GPS and telemetry information provided when the radio satisfies one or more pre-defined criteria for reporting location. The ASTRO® 25 OLS provides two criteria (settable at the radio level) for location reporting:
    - o **Cadence:** This is time-based reporting. For example, a radio may report its GPS location information every 30 seconds, regardless of change in position.
    - o **Distance:** This is movement-based reporting. For example, a radio may report its GPS location information when it moves 50 meters from its last reported GPS location.
- **Radio Events:** Present and absent notifications when the radio's GPS device registers or unregisters from the ASTRO® 25 OLS.
- **Sensor Events:** Location and current sensor state information reported when the status of a sensor changes. For example, when a door opens.

If a location report contains duplicate sensor names, GenWatch3 will append a number to the corresponding sensor value and type fields in the GenWatch3 packet. For example, if you have two sensors named 'Door', the first will be shown as 'Door', while the second will be shown as 'Door_001'.

ASTRO® 25 OLS activities are reported via a TCP/IP connection. In order to receive activity from the ASTRO® 25 OLS, you must connect and register to the ASTRO® 25 OLS. GW_Location allows you to define the settings required to connect and register to the ASTRO® 25 OLS.

600-2.16.4-KK.1

Connection settings

Each ASTRO® 25 OLS connection includes the following settings:

- **Connection Name:** Alias of the connection, used to identify the connection among other connections.
- **MUPS Server:** IP address or network computer name of the computer hosting the MUPS (Motorola Universal Processing Server) software.
- **MUPS TCP/IP Port:** TCP/IP port on the MUPS computer.
- **MUPS Client Port Enabled?**: Enables the option to forward MUPS packets to a compatible client, such as GenGET. (another Genesis application)
- **MUPS Client Port:** The port that MUPS packets are forwarded to if Forwarding Enabled is checked.
- **WACN Id:** WACN Id of the system monitored by the MUPS.
- **System Id:** System Id of the system monitored by the MUPS.
- **Application Id:** Id presented to the MUPS during session negotiation.
- **Unit of Measure:** Unit of measure used by the MUPS when delivering speed, distances and heights.
- **Enabled:** Indicates if the connection should be started.

Authorized Clients

ASTRO® 25 OLS allows only one connected client, which is occupied by GW_Location. To facilitate additional clients, the ASTRO® 25 OLS connection allows you to add one or more clients to the **Authorized Clients** list. The **Authorized Clients** list contains a list of TCP/IP IP addresses that can connect to GW_Location, receive GPS reports and even send requests to the ASTRO® 25 OLS. Each authorized client entry contains the following settings:

- **IP Address:** IP address of the client.

    NOTE: Use *ANY* if you do not wish to limit client connections for this Application Id to a specific IP Address.

- **Application Id:** Application Id the client must present in the Location-Registration-Request packet.
- **Enabled?**: Checked if this authorized client is enabled.
- **Immediate Location Request Enabled?**: True if this client is allowed to send Immediate Location Request packets.
- **Triggered Location Request Enabled?**: True if this client is allowed to send Triggered Location Request and Triggered Location Device Type Request packets.
- **Digital Output Change Request Enabled?**: True if this client is allowed to send Digital Output Change Request packets.
- **Triggered Location Stop Request Enabled?**: True if this client is allowed to send Triggered Location Stop Request packets.

The number of authorized clients is limited by your license. To purchase additional authorized clients, please contact your GenWatch3 vendor.

The communication interface used from and to accepted clients is the Motorola ASTRO® 25 Outdoor Location Solution Application Programming Interface described in Motorola document 6871008P22-D.

Authorized Client Validation

In order to receive reports from an ASTRO® 25 Outdoor Locator, an authorized client must perform the following steps:

1. From an enabled IP Address in the Authorized Clients list, connect to the **MUPS Client Port** on the machine that is hosting the GenWatch3 service.
2. Send a Location-Registration-Request packet providing the **Application Id** value specified in the Authorized Client. If the Application Id provided by the client does not match, GW_Location will respond with an UNAUTHORIZED APPLICATION (error code 3) Location-Registration-Answer.

Adding a New Connection

To add a new ASTRO® 25 OLS connection, follow the steps below:

1. Click the **Add** button: GW_Location shows a blank ASTRO® 25 OLS connection in the ASTRO® 25 Outdoor Locator Connection Settings panel.
2. Update the connection properties.
3. Click the **Update** button to add the new connection. To cancel adding the new connection, click the **Cancel** button.

Updating an Existing Connection

After you create an ASTRO® 25 OLS connection, the properties of that connection are static (do not change). If for any reason you need to change the properties of a connection (TCP/IP port needs to be changed, the **Connection Name** has a typo, etc.) take the following steps:

1. Select the connection that you wish to update from the **Connections** list: This will show the properties of this connection in the **ASTRO® 25 Outdoor Locator Connection Settings** panel.
2. Change the settings that you wish to change.
3. Click the **Update** button: This will save your changes and inform the GW_Location module of the changes. If you wish to cancel this update, click the **Cancel** button.

Deleting an Existing Connection

If you ever need to delete an existing connection (in case a connection is no longer valid, etc.), take the following steps:

1. Select the connection that you wish to delete from the **Connections** list: This will show the properties of this connection in the **ASTRO® 25 Outdoor Locator Connection Settings** panel.
2. Click the **Delete** button: This will show the dialog shown in Figure 1.2.
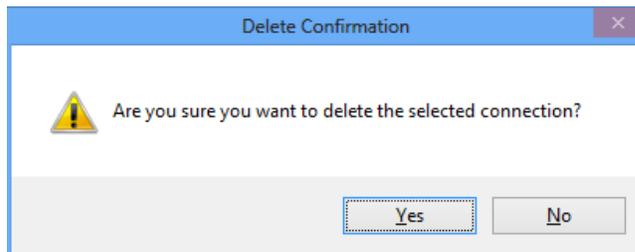
Figure 1.2 – Delete Confirmation

3. Click **Yes** to delete the connection. Click **No** to cancel the delete.

Loading the Advanced Options Screen

To load the *Advanced Options* window, take the following steps:
1. Load the GW_Location GUI.
2. Click on a connection in the **Connections** list: This will show the connection's properties and enable the **Options** button (bottom left of the screen).
3. Click the **Options** button: The *Advanced Options* window will appear.
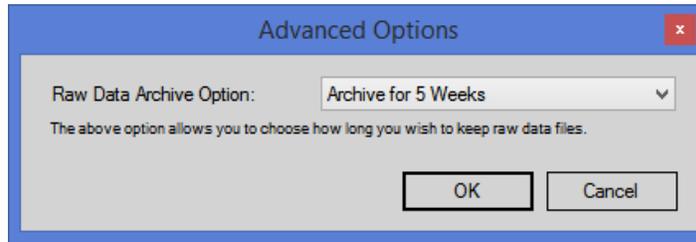
Figure 1.3 – Advanced Options Window

Connection Advanced Options

Each GW_Location connection has advanced options. The list below describes the advanced options:
- **Raw Data Archive Option:** This option allows you to choose how long the GenWatch3 raw data files remain on your GenWatch3 computer.
  - **Do Not Archive:** GenWatch3 should not archive raw data files.
  - **Archive for 1 Week:** GenWatch3 should archive one week's worth of raw data files.
  - **Archive for 2 Weeks:** GenWatch3 should archive two weeks' worth of raw data files.
  - **Archive for 5 Weeks:** GenWatch3 should archive five weeks' worth of raw data files. (default)

Raw Data Files

GenWatch3 stores raw data files on your GenWatch3 computer. Genesis and Motorola support personnel use these files to help diagnose GPS server data decode issues you may have with GenWatch3.

By default, GenWatch3 will keep five weeks (2-20 GB depending on GPS server activity) worth of raw data files per GW_Location connection. You may wish to conserve hard drive space by choosing to only keep one week's worth of raw data files. We suggest you keep the full five weeks, just in case it takes you awhile to notice a GPS server data decode issue.

GenWatch3 stores the GW_Location raw data files in the following directory: *ProgramData\Genesis\GenWatch3\RawData\Location\<WACNId>\<SystemId>*

In the default GenWatch3 installation directory, if the WACN ID is 500 and the system Id is 1404, the GenWatch3 raw data directory is:
    C:\ProgramData\Genesis\GenWatch3\RawData\Location\500\1404

The files in this directory are in the following format:
   *GW3_<year><month><day>_<hour>.RAW*

The raw data file for the 3:00pm hour on 10/12/2010 would be:
    GW3_20101012_15.RAW

600-2.16.4-KK.1

Changing the Raw Data File Directory

Changing the GenWatch3 raw data directory is usually a bad idea. Support personnel will find it convenient if these files are always in the same place. However, if you have a small partition (small disk space) on drive C, you may wish to move this archive operation to another drive. To change the raw data file directory, take the following steps:

1. Browse to the GenWatch3 installation directory. By default this folder is *C:\ProgramData\Genesis\GenWatch3*.
2. Double-click on the following file: *GenWatch3.config*: This may result in a dialog asking you to choose an application to use to open this file. In this case, choose Microsoft Notepad.
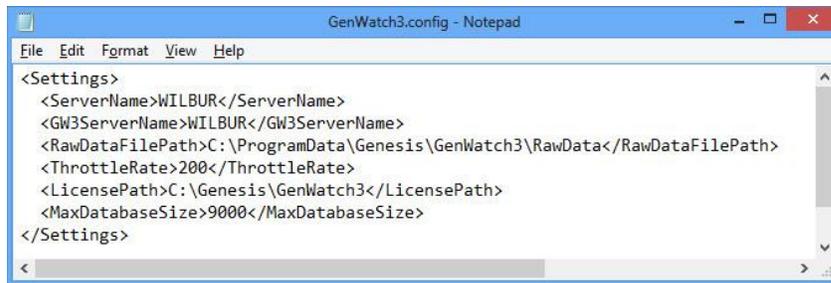
Figure 1.4 – GenWatch3.config File

3. Change the value in the <RawDataFilePath></RawDataFilePath> tag (shown in Figure 1.4) to the desired raw data file path. (i.e. *E:\RawData* or *D:\RawData*). Make sure the path you choose is a valid hard drive, not a CD-ROM or DVD drive)
4. Click **File→Save** to save your changes.
5. GenWatch3 may take up to one hour to recognize this change.
6. If you wish to expedite this change, you can do so by updating an existing Location connection in the Location GUI.
   a. Select a connection in the Location GUI's Location **Connections List.**
   b. Make a minor change then undo it (i.e. Toggle the **Enabled** checkbox twice).
   c. Click the **Update** button.

Warning: Make sure you only change the RawDataFilePath tag. Changing *GenWatch3.config* tags in other areas can cause your computer to become unstable or even unusable. When in doubt, ask for assistance from your IT department or Genesis support.

HPD 1000 Data Modems

HPD 1000 Data Modems are the only devices that do not report their subscriber ID in numeric format. Instead they append their subscriber ID with an h. For example, an HPD 1000 Data Modem with a subscriber ID of 1001 presents its subscriber ID to the MUPS as 1001h. This was done to prevent an overlap in subscriber IDs and HPD 1000 Data Modem IDs. They will never overlap because on HPD 1000 Data Modem IDs are always appended with an h.

Because GenWatch3 IDs are inherently numeric and there is a chance of subscriber IDs overlap when the h is removed, this version of GenWatch3 has limited functionality with HPD 1000 Data Modems. Here are the limitations:

- HPD 1000 Data Modem IDs are not dynamically added or stored in Alias.
- You cannot target HPD 1000 Data Modems when sending location commands from RCM.
- When location activity is received from a HPD 1000 Data Modem, the ID will be 0. However, the packet details show the ID in the HPD 1000 Data Modem ID field.