



GenWatch3®
GW_Location
Software Version 2.23.5
Module Book

GenWatch₃

600-2.23.5-KK.1
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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 600-2.23.5-AA.1) for complete support and contact information.

Document History

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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 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.
- **Raw Data Files:** Describes how GenWatch3 archives raw data files.

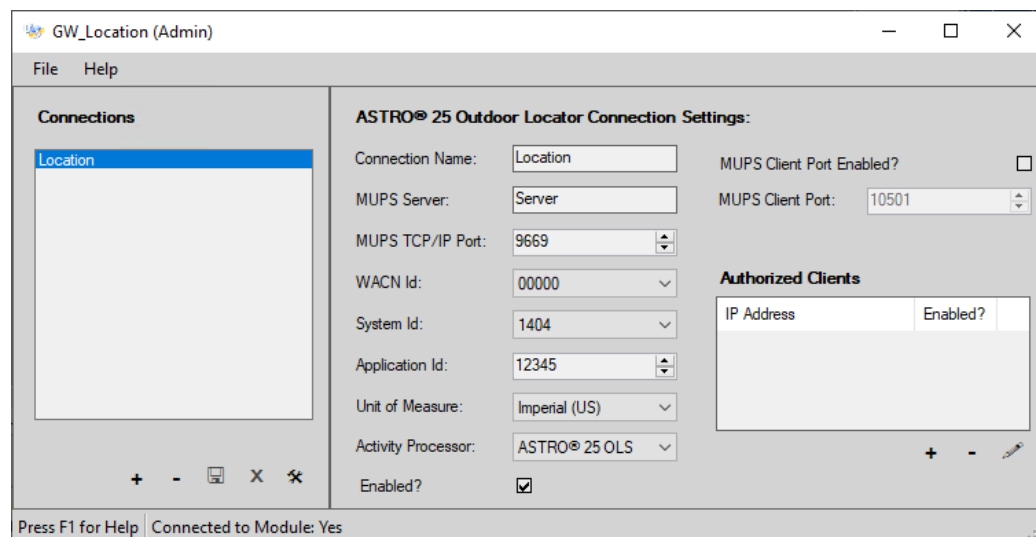


Figure 1.1 – GW_Location GUI

Terms

- **GPS Server:** A system that receives and processes GPS information packets from GPS-capable radios.
- **Location Connection:** Connection to a GPS server.
- **Motorola Universal Processing Server (MUPS):** A Motorola 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 when a door opens).

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 predefined criteria for reporting location. The ASTRO® 25 OLS provides two criteria (settable at the radio level) for location reporting:
 - **Cadence:** This is time-based reporting. For example, a radio may report its GPS location information every 30 seconds, regardless of change in position.
 - **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.

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 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 altitudes.
- **Activity Processor:** Specifies where location activity is processed for this system.

- *ASTRO® 25 OLS*: This connection will forward activity to the rest of GenWatch3.
- *IMW*: This connection will not forward activity to the rest of GenWatch3. An IMW connection for this system must be enabled and configured in the GW_Connect module to receive location events/reports. The one exception to this is that the response to a command (such as a GPS Immediate Location Request) will be forwarded to ensure the command succeeds.
- **Enabled**: Indicates whether 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 IP addresses that can connect to GW_Location via TCP/IP, 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?**: Checked if this client is allowed to send Immediate Location Request packets.
- **Triggered Location Request And Triggered Location Device Type Request Enabled?**: Checked if this client is allowed to send Triggered Location Request and Triggered Location Device Type Request packets.
- **Digital Output Change Request Enabled?**: Checked if this client is allowed to send Digital Output Change Request packets.
- **Triggered Location Stop Request Enabled?**: Checked if this client is allowed to send Triggered Location Stop Request packets.



The number of authorized clients is limited by your license. To purchase the use of 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 result in a confirmation prompt.
3. Click **Yes**.

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 an HPD 1000 Data Modem, the ID will be “0”. However, the packet details show the ID in the HPD 1000 Data Modem ID field.

Loading the Advanced Options Window

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 window).
3. Click the **Options** button. The *Advanced Options* window will appear.

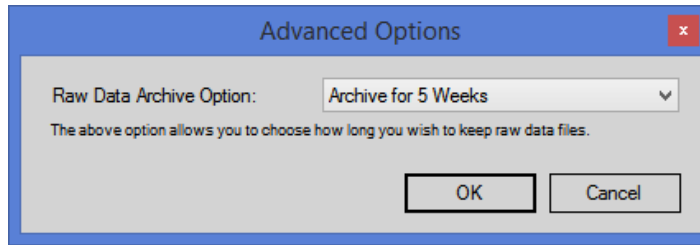


Figure 1.2 – Advanced Options Window

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' worth of raw data files per GW_Location connection (2-20 GB depending on GPS server activity). You may wish to conserve hard drive space by choosing to keep only 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 10/12/2020 would be:

GW3_20201012_15.RAW

Changing the Raw Data File Directory

Changing the GenWatch3 raw data directory is usually not recommended.

However, if the default location might not have enough disk space to store the raw data, you may wish to move this archive operation to another drive. For instructions on how to change the raw data file directory, see the *GenWatch3 Config Files* section of *Chapter 3 – GenWatch3 Service* in the *GenWatch3 Core Manual*.



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.