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Refer to the GW3-TRBO Manual Overview for your full license. All license information contained on pages 4-7 (Book 600-2.15.0-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 a better product for everyone.

Refer to the *Troubleshooting & Support* section of the GW3-TRBO Manual Shell (Book 600-2.15.0-AA.1) for complete support and contact information.

Document History

Revision	Description	Author
2.0.5	Revision before release	JAW
2.0.5	Replaced GW3-TRBO trademark with registered trademark.	JAW
2.0.6	Updated Figure 1.1	REB
2.0.6.6	Documentation Review	REB
2.1	Added IP Console Inhibit and Slot Disable security privileges	REB
2.1	Revision for release	WRK
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
2.8	Revisions Before Release	ATG
2.9	Revisions Before Release	CWF
2.10	Revisions Before Release	CWF
2.11	Converted to Docx format	CWF
2.12	Added Repeater Disable/Enable commands	JAW
2.13	Revisions Before Release	ATG
2.14	Revisions Before Release	JAW
2.15	Revisions Before Release	REB

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Table of Contents

Goals

This manual describes the role and function of the Halcyon 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. If your GW3-TRBO installation is licensed for RC 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 Halcyon module and Halcyon Graphical User Interface (GUI) and gives instructions on configuring RC connections.
- **Additional Setup:** Describes the GW3-TRBO setup outside of Halcyon required for Halcyon to perform its RC-based functions.
- **Delivery and Validation:** Describes how Halcyon makes decisions when delivering and acknowledging radio events and when processing radio command requests.

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.

Important Note

The MOTOTRBO "backbone" that GW3-TRBO uses is a powerful stream of data that, as time goes by, will be revealing much more of its power. You may notice GW3-TRBO terms, setup options or real-time activity properties that may not make sense in the current MOTOTRBO world. If you see terms, options or properties that are not adequately explained in your GW3-TRBO documentation, please contact support, look in the Glossary section of the GW3-TRBO Manual Shell, or on our GW3-TRBO web site. If you see terms, options or properties that you understand, but do not pertain to MOTOTRBO, please disregard them for the time being. As new MOTOTRBO features are added over time, you will begin to understand that your GW3-TRBO is ready for those MOTOTRBO enhancements!

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This chapter defines the Halcyon module and the Halcyon GUI and gives instructions on configuring RC connections.

This chapter contains the following sections:
- **Terms**: Defines terms used in this document.
- **What is Halcyon?:** Defines the Halcyon module and Halcyon GUI.
- **RC Connection:** Describes the RC connection and its configuration.
- **Notes on Halcyon Connections:** Provides some additional information on these connections.
- **Other Connection Functions:** Describes the Cancel, Update and Delete functions.
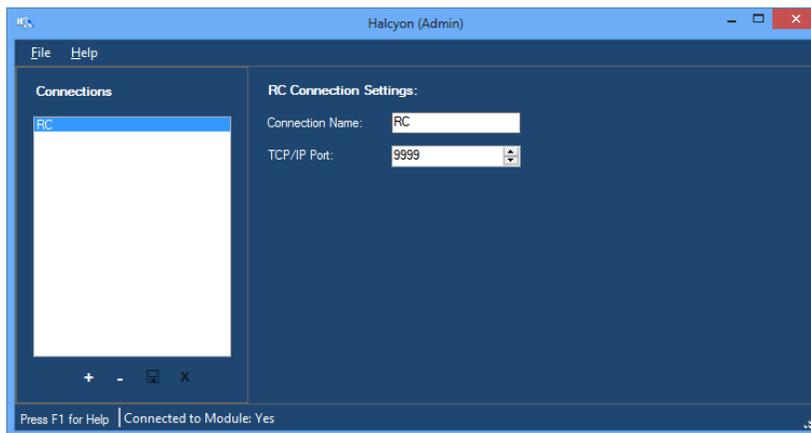

Figure 1.1 – Halcyon GUI

Terms

- ⓘ **RC Connection**: This is a TCP/IP (Internet protocol) connection that allows RC users to connect to the Halcyon module. The RC GUI is described in detail in the *RC module book*.
- ⓘ **Client**: A user connected to Halcyon via an RC connection.

What is Halcyon?

The GW3-TRBO Halcyon module manages RC connections. Managing these connections includes:

- Accepting connection requests from RC GUIs.
- Processing radio commands (such as Call Alert, Selective Inhibit, etc.) issued by RC clients.
- Relaying system events (such as Emergency Alarms) to RC clients.

These are just a few of the functions of the Halcyon module. Most of its functions are transparent to (not seen by) the RC clients (GW3-TRBO users).

The Halcyon GUI (Figure 1.1 on previous page) allows you to configure RC connections. These connections interact with the Halcyon module to provide radio system interaction (sending commands and monitoring for events) to end users. Through this screen you can configure an RC connection.

RC Connection

If you are licensed for an RC connection, you will need to configure it via the Halcyon GUI. See the *GW3-TRBO Core Manual* for more information on viewing your license.

To configure an RC connection, take the following steps:
1. Load the Halcyon GUI.
2. Click on the **Add** button (If you have no connections configured, the **Add** button will be flashing): This will bring up the **RC Connection Settings** panel as shown in Figure 1.2.
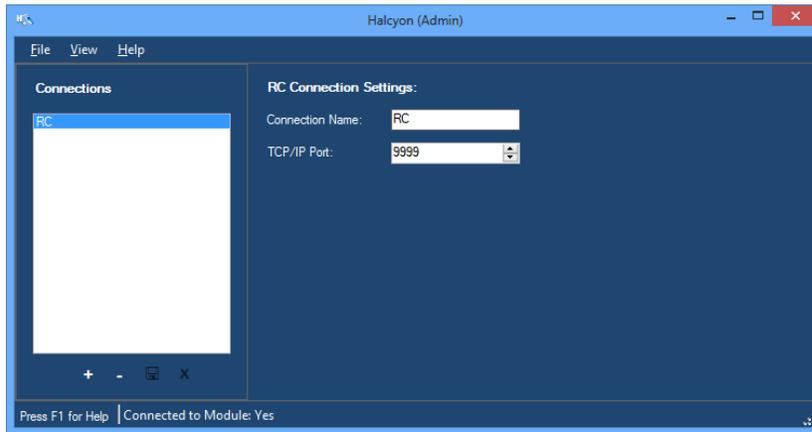

Figure 1.2 – RC Connection Settings

3. Enter a **Connection Name**: This is for reference only; it is not used by GW3-TRBO. This connection name is only displayed in the Halcyon GUI.
4. Enter a **TCP/IP Port**: In most cases the default port of 9999 will work. If this port interferes with another application on your GW3-TRBO machine, you may need to change this port number.
5. Click the **Update** button: This will save your changes and inform the Halcyon module of the new connection. If you wish to cancel adding this connection, click the **Cancel** button.

NOTE: You can only configure one RC connection. All RC clients are handled by a single RC connection.

Other Connection Functions and Options

Updating an Existing Connection

When you create a connection, the properties of that connection are static (do not change). If for any reason you need to change the properties of a connection (RC TCP/IP port needs to be changed, 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 **RC 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 Halcyon 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, 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 **RC Connection Settings** panel.
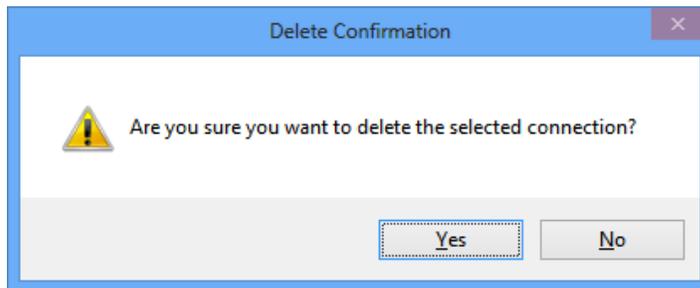2. Click the **Delete** button: This will show the dialog shown in Figure 1.4.

Figure 1.3 – Delete Confirmation Dialog

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

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In addition to creating the Halcyon connections (described above), the following setup must be performed in order for Halcyon to perform its various RC-based functions:

Alias Setup

In the Alias GUI, take the following actions:

- **Specify a Default Group for each radio ID:** *Default Group* has had many pseudonyms over the years, such as Home Talkgroup. This is the preferred group of the agency responsible for this radio ID.
- **Channels:** Set a distinct *Channel Position* for each Channel under each site. In a Capacity Plus or Connect Plus connection, the channel position must be the peer ID of the associated repeater. In an IP Site Connect connection, the channel position must always be 1. In an RF control station connection, the channel positions should be set up in the same order that the control stations are listed in the Trbo GUI.
- **Specify the Agency for each radio ID and group within an agency:** This is the agency that the radio ID and group are assigned to.

Security Setup

The RC tool relies on a GW3-TRBO user and that user's role to determine:

- **Radio Event Delivery:** This includes emergency alarms (EA). Halcyon validates the event's group or radio ID (by way of the radio ID's Default Group) before sending the event to a connected RC tool. (see *Event Delivery Validation* section below for more information.)
- **Valid Radio Command Request Types:** These are requested from RC tools for Halcyon to issue a radio command such as selective inhibit. Halcyon validates command request types selected under the Halcyon section of the user's role before sending the command.

In the Security GUI, take the following actions:

- **Select Role Privileges:** In all RC roles, ensure that the appropriate privileges are selected under the Halcyon section. Reference the GW3-TRBO Core Manual, Chapter 8 for descriptions of the Halcyon role privileges.
- **Establish User Group Filters:** For all RC users, ensure that all valid groups are selected in the **Group Filter** section or all valid agencies are selected in the **Agency Filter**. If you want your users to have access to all groups, select the *ViewAllGroups* privilege on the user's role. This privilege overrides the **Group Filter** selection made at the user level and allows all users with this role access to all groups and all radio IDs.

Chapter 3   Delivery and Validation

This section describes some of the decisions that Halcyon has to make when delivering radio events and processing radio command requests.

Event Delivery

This section describes the validation path(s) that Halcyon uses when determining if it should send an event to a particular RC user.

Event Delivery Validation

The following validation methods are used to determine if a connected RC tool should receive an event:

- **Emergency Alarms:** The following must be true in order for a user to receive an emergency alarm event:
    - The user's **Group Filter** (in Security) must contain the group on which the emergency alarm occurred or the user's **Agency Filter** must contain the agency assigned to the group on which the emergency alarm occurred. Alternatively the user's role can use the *ViewAllGroups* privilege under the Halcyon section; this privilege bypasses **Group Filter** validation.

Radio Command Validation

When Halcyon validates a radio command (such as selective inhibit), it validates the command on two levels:

- **Command Type Validation:** Compares the command type to the command types defined as a privilege on a user's role. This is defined in the Security GUI.
- **Group Filter Validation:** The validation of radio commands depends on the user's filters in the Security module. A radio ID's default group is assigned in the Alias module. The following are valid configurations for processing radio commands:
  1. **Group Filter**: The group of the radio command (if any) and the default group of the radio ID must be in the user's group filter.
  2. **Agency Filter**: The agency or agencies assigned to the command's group (if any) and the radio ID's default group must be present in the user's **Agency Filter**.
  3. **Group and Agency filtering**: A combination of the two above mentioned filters may also result in validation of radio commands so long as the command's group and the radio ID's default group are present in the user's **Agency Filter** or **Group Filter**.
  4. *ViewAllGroups*: In the Security module, if the user's role has the *ViewAllGroups* privilege under Halcyon all group filters are ignored and all radio commands will be processed.

Command Type Validation

RC tools can only issue radio command types that are included as privileges in their user's role under the Halcyon section of **Role Privileges** in Security. Each radio command is listed below with its required privilege(s):

Radio Command	Required Privilege(s) in the Halcyon Section of Security
Call Alert	Call Alert
Database Snapshot	Database Snapshot
Radio Check	Radio Check
Selective Inhibit Cancel Selective Inhibit	Selective Inhibit
IP Console Inhibit Cancel IP Console Inhibit	IP Console Inhibit
Slot Disable	Slot Disable
Repeater Enable	Repeater Disable
Repeater Disable	Repeater Disable

Group Filter Validation

In addition to radio command specific role privileges, the user must have **Group Filter** (in Security) access to each radio ID and group in the command, the appropriate **Agency Filter** or the user's role must have the *ViewAllGroups* privilege under the Halcyon section of **Role Privileges** (set up in Security at the Role level).

Validation Example

To issue a Radio Check command on radio ID 32226, your user's **Group Filter** must include the **Default Group** of radio ID 32226. Because no group is included in this radio command, only the **Default Group** of the radio ID is validated in the group filter validation.

If your user's role includes the *ViewAllGroups* privilege under the Halcyon section of the **Role Privileges** section in Security, your **Group Filter** list is not considered and the command will pass **Group Filter** validation.

Validation Rejection

Rejection occurs when a command is requested of Halcyon and the user issuing the command fails command type or group filter validation. RC users cannot access commands, radio IDs and groups that do not pass command type and group filter validation. Because all of these things are selected in RC (as opposed to typed), the user's invalid commands are proactively rejected.