Communication Center Manual

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1 Introduction

1.1 About This Document

This document describes the Communication Center, which is used for real time GPRS communication and/or SMS communication with the Cello unit. The Communication Center is installed as part of the Cellocator Evaluation Suite.

1.2 Overview

The Cellocator Communication Center application is used for real time GPRS communication and/or SMS communication with the Cello unit.

The Communication Center has a wide range of features, including the following:

- Receive GPRS and SMS messages.
- Send commands through GPRS or SMS communication.
- Interrogate the unit in order to get the current location and the unit's current status (inputs, outputs, GPS data, etc).
- Receive emergency transmissions from the unit (input's triggering).
- Operate unit outputs.
- Program the unit's behavior OTA (by changing the unit's EEPROM content).
- Forward data messages from the Communication Center to a serial port on the unit and receive data messages from the serial port.
- Control duration of time during which an ACK message is sent to the unit.

1.3 Abbreviations

Abbreviation	Description
Cello-IQ	Cellocator Safety and Eco-driving monitoring device
CC	Communication Center
CSA	Cellocator Safety Application
CM	CSA Manager
CAN	Controller Area Network
CCC	Command and Control Center
DB	Database
FMS	Fleet Management System
GPRS	General Packet Radio Service
OTA	Over the Air
PGN	Parameter Group Number
RMS	Root Mean Square

Abbreviation	Description
RSSI	Received Signal Strength Indication
SMS	Short Message Service (GSM)

1.4 References

All the reference documents listed in the following table can be downloaded from the Knowledge Base section of the Cellocator website (www.Cellocator.com).

#	Reference	Description
1	Programming Manual	This document describes the features supported by the various units and provides details about their configuration parameters. The document is available in PDF format and in online, HTML based application. Refer to the relevant product section on the Knowledge Base for the correct document.
2	Wireless Protocol	This document explains each unit's wireless communication structure for each of the relevant products. They describe every byte of the incoming/outgoing packets, which can be sent or received by the unit over-the-air. The document is available in PDF format and in online, HTML based application. Refer to the relevant product section on the Knowledge Base for the correct document.

1.5 Revision History

Version	Date	Description
1.2	March 7, 2017	Separation from the Evaluation Manual. Reorganization and editing of the content.

2 Installing the Communication Center

The Communication Center is installed as part of the Cellocator Evaluation Suite.

❯ **To install the Evaluation Suite:**

1. Double-click the **Evaluation suite setup [version number]** Installer Package file.

2. In the displayed Installation Wizard *Welcome* screen, click **Next**.

3. Select the relevant installation type: **Typical**, **Custom** or **Complete**. Note that whichever type you select, the Communication Center is automatically installed.

4. Proceed with the wizard's onscreen instructions.

5. Upon successful completion of the installation, click **Close** to close the wizard.

The Communication Center is installed.

NOTE: When the installation is complete, verify that no error messages were generated, the installation folder has been created in the selected destination, and the Communication Center and other debugging tools appear in the *Start* menu, as shown below.
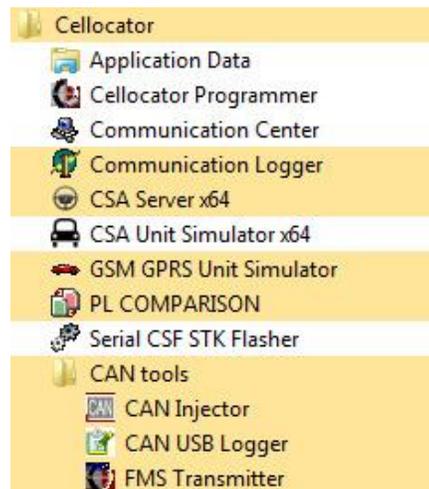
Figure 1: Start Menu Options

Refer to the *Cellocator Evaluation Suite Manual* for further details.

3 Getting started with the Communication Center

This section introduces the Communication Center, and includes an overview of the architecture, as well as a walkthrough of the Communication Center window and its components.

3.1 Architecture

The following diagram shows the main Communication Center components and how they interact with the Cellocator unit.
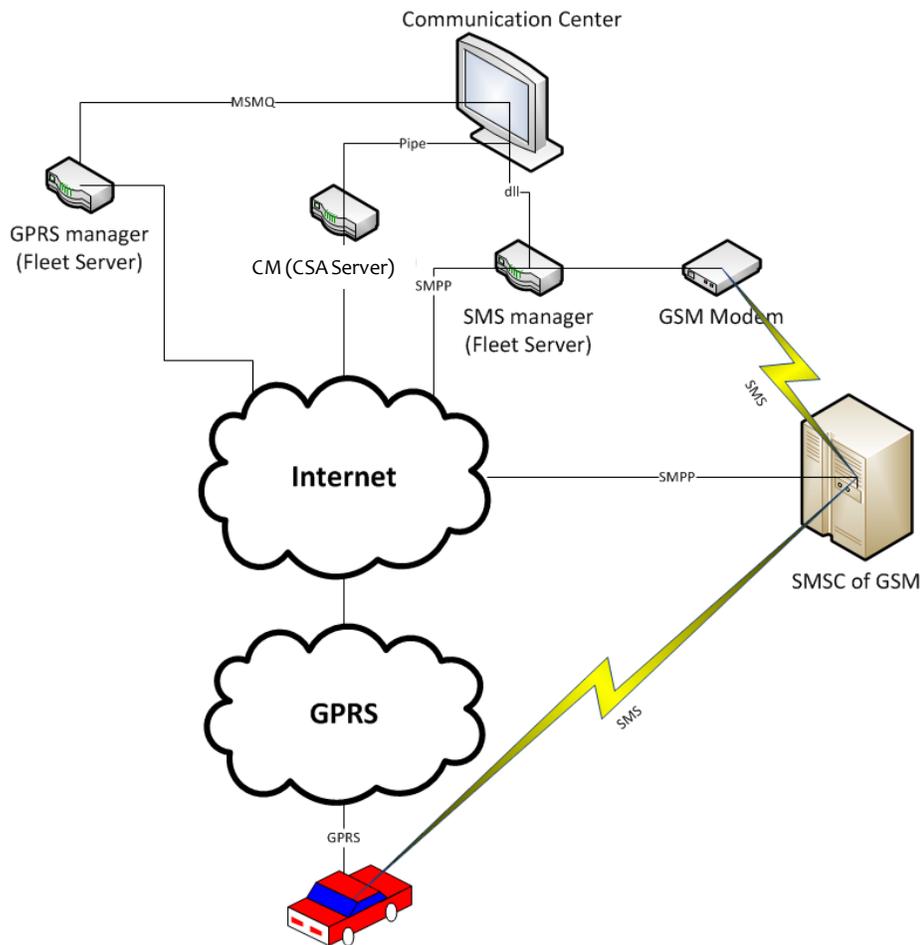
Figure 2: Communication Center Architecture

3.1.1 *Main Communication Center components*

- ◆ **GPRS Manager:** The GPRS Manager is a set of functions and APIs which enable bi-directional communication with Cellocator units through the MCGP OTA protocol, including IP/port/socket management, monitoring and other management features.

- ◆ **CSA Server (CSA Communication Manager Server):** Cellocator's CSA Server supports the CSA OTA protocol. The CSA Server communicates directly by sending downlink commands and processing CSA related uplink messages, from Cellocator units while communicating with the Communication Center.

- ◆ **SMS Gateway:** The SMS Gateway application maintains and manages the SMS communication between the Communication Center and the Cellocator unit. It supports the internet SMPP protocol or GSM modem allowing Internet or cellular communication links to the unit, as shown in Figure 2.

- ◆ **CSA messages flow:** The uplink message flow originates at the Cellocator unit and terminates in the Communication Center database. The unit sends uplink messages using the TCP or UDP protocol to the CSA Server. The uplink messages flow is specified below.

  a. The CSA Server receives the uplink message and sends an acknowledge message back to the unit.

  b. The message is then sent to the Communication Center.

  c. The Communication Center displays the CSA message.

  d. The Communication Center enables the user to send commands to the unit through the CSA Server.

3.2 Starting the Communication Center

The Communication Center is installed as part of the Evaluation Suite package. To start the Communication Center software, perform the following steps:

1. Open the Communication Center by selecting **Start > Programs > Cellocator> Communication Center**. The *Select Hardware Type* window is displayed, as shown below.

Figure 3: Select Hardware Type

2. Select the relevant hardware type (from **Cello**, **Compact**, or **CelloTrack Family**), and then click **OK**.

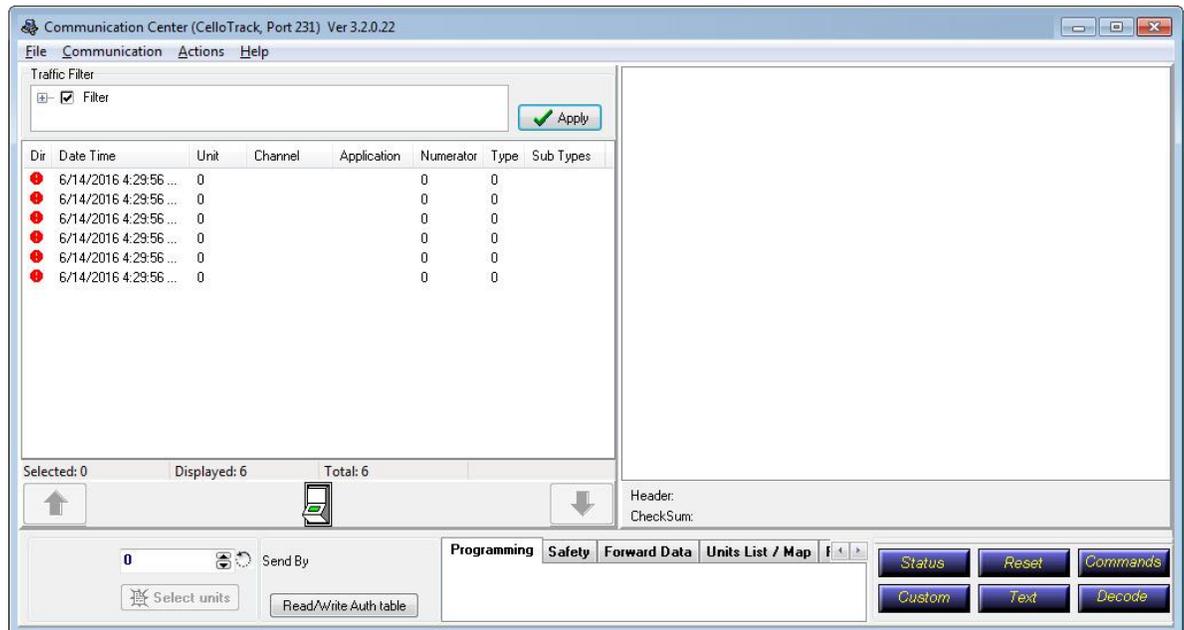   The Communication Center opens, as shown below.

Figure 4: Launching the Communication Center

3.3 Communication Center window

This section describes the Communication Center window and its various components.

◆ Menu bar

◆ Incoming Messages Log pane

◆ Decoded Messages Information pane

◆ Control Interface panel
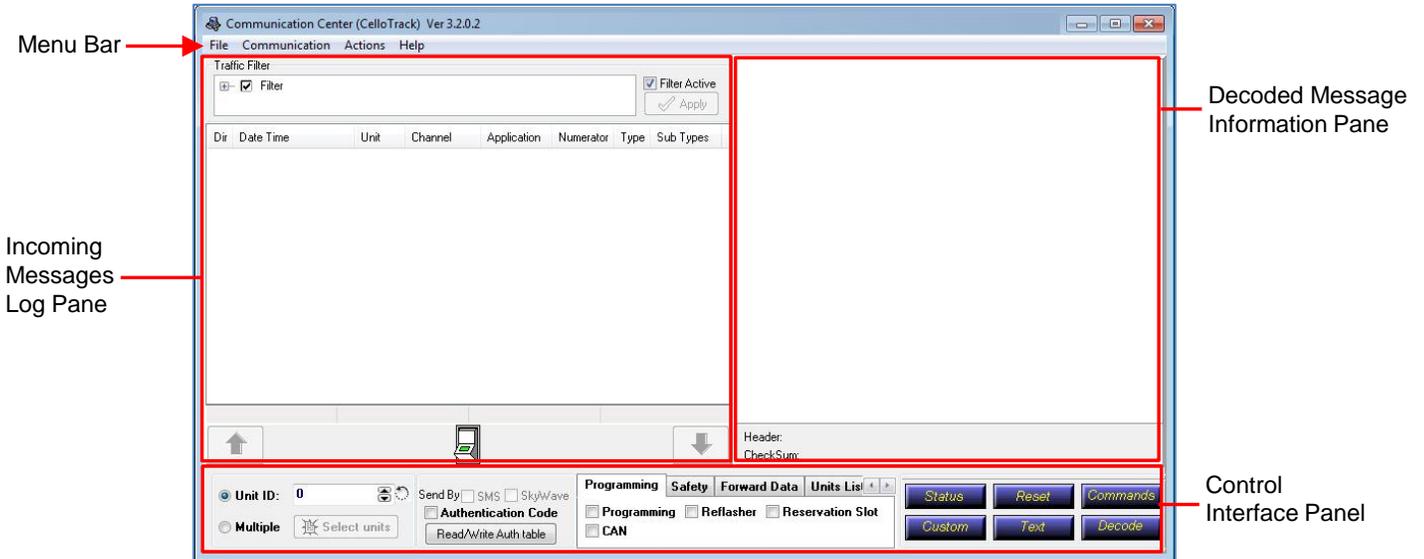
Figure 5: Communication Center Window

3.3.1 Menu Bar

The menu bar contains a number of menu options that enable you to perform key Communication Center operations, as listed in the table below.

Menu Name	Description
File	Enables you to close the Communication Center (by clicking Exit).
Communication	Provides access to three communication options; click on one of the following menu options to display the relevant window. • **SMS Manager:** Enables you to define various SMS settings, including general SIM, SMS, and SMPP settings. • **Unit's Phone Number:** Enables you to define the unit's phone number. • **SkyWave Manager:** Enables you to view and analyze SkyWave satellite server data. Refer to the *Defining Communication Settings* section for more details.

Menu Name	Description
Actions	Provides access to the following options: • **Reload Telemetry File:** Enables you to reset the current display (refer to *Decoded Messages Information pane* for more details). • **Decode Messages:** Enables you to decode messages from a specific message (Hex string) or the log file (refer to *Decoding specific messages (Hex strings)* for more details). • **Generate KML:** Enables you to export trip data (refer to *Generating KML files to display trips in Google Earth* for more details). • **CSA File Display:** Enables you to analyze trip maneuvers and crashes (refer to *Analysing trip manoeuvres and crashes* for more details).
Help	Provides information about the installed version of the Communication Center.

3.3.2 Incoming Messages Log Pane

The Incoming Messages Log pane displays a list of short entries about messages received, and is split into the following three main sections:

◆ In the Traffic Filter panel in the top of the pane you can filter the incoming messages according to the options selected (**Direction**, **Unit ID**, **Channel**, and **Application**).

◆ The main section of the Incoming Messages Log pane displays a list of messages received and the result of the transmissions (if a message was sent). Each incoming message entry includes the type of message received and the source: GPRS *Message Type 0 received from unit #XXXX* or *SMS Message Type 0 received from unit #XXXX (*where XXXX is the ID of the unit (in its decimal representation) that sent the message.

This section also displays various action results. In the case of a transmission from the Communication Center to an end unit, an entry indicates the transmission results: *Command transmission terminated with error level XXX* (when XXX is the transmission result code given by the Communication Server). For a complete list of transmission result codes, refer to the *Wireless Protocol* document.

◆ Below the Incoming Messages Log pane, a Lock/Unlock button enables you to stop the display of incoming messages (by clicking it to Lock). This can be especially useful when there are lot of incoming messages and you want to catch a specific message, or group of messages. To the right and left of the Lock/Unlock button are two arrow buttons, which enable you to change the selected message displayed.

Note that the Application column displays either **Fleet** or **Safety**, according to the channel of communication. In addition, the Sub Types column is only relevant to Safety messages and displays a number which is a form of message type or ID.
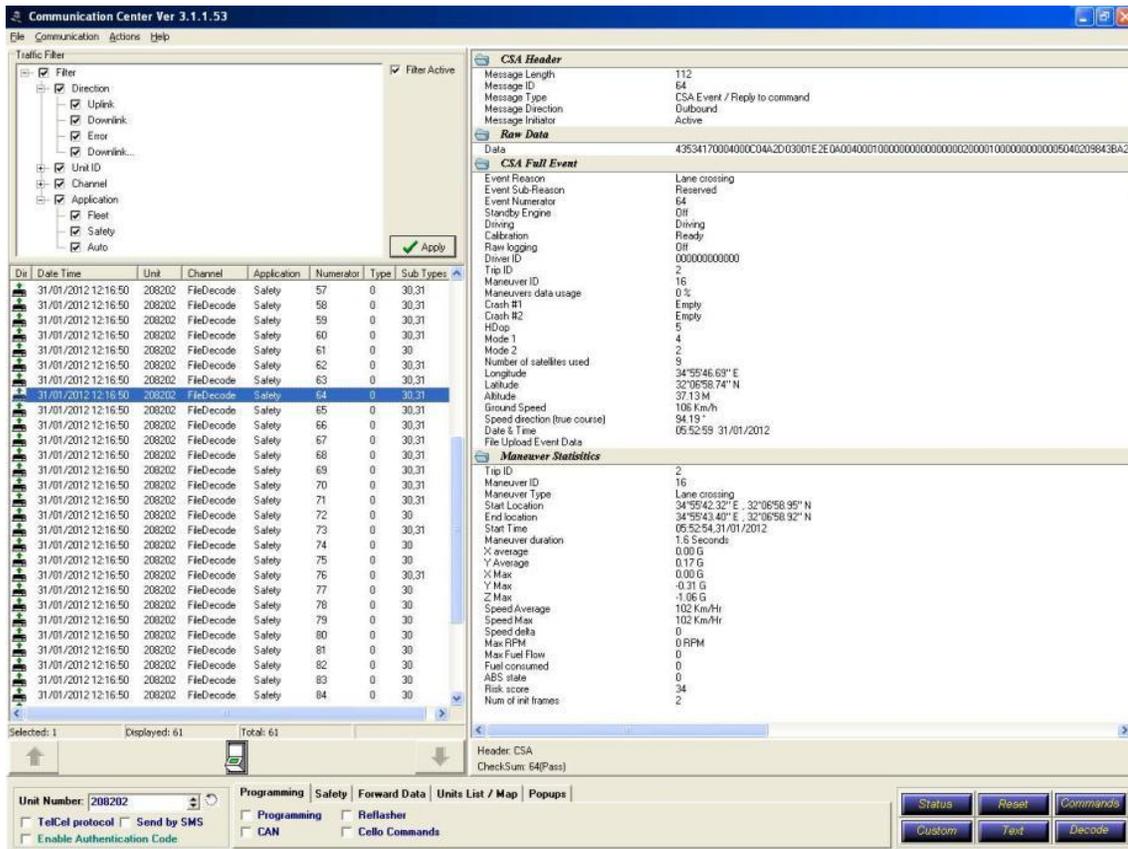
Figure 6: Incoming Messages Log Pane

You can also right-click on a message to perform the following:

◆ Select a unit (all commands work on one selected unit)

◆ Copy the Hex string to your computer's clipboard

◆ Process (decode the message)

◆ Export messages as a text file (.TXT)

◆ Export messages to Excel (in the displayed Export Sections/Fields selection dialog box, select the relevant data types and messages to export)

◆ Delete selected messages from the Incoming Messages Log pane

◆ Clear all messages from the Incoming Messages Log pane

◆ Display location information for messages like Message type 0 or CSA module 6 (GPS Stamp)

◆ Display Wireless Protocol information for the specific (an HTML page is displayed)

Figure 7: Right-click Menu Options

Note that you can select all messages in the Incoming Messages Log pane by pressing `Ctrl+A`. In addition, a small text box below the Lock/Unlock button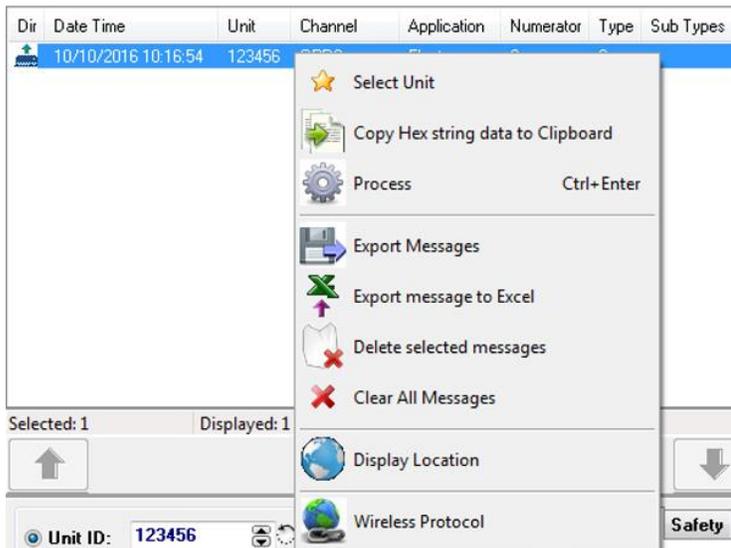 displays the last outgoing message from the Communication Center to the unit. You can also right-click the text message and copy it to your clipboard.

3.3.3 Decoded Messages Information pane

This window is the heart of the software. The information is shown as a list of messages that can be expanded to show the data they hold (see Figure 6). The basic text of the message includes the kind of message it was designed to decode and the type of data shown in the message. Right-click on a line to perform a number of operations, including shrink or expand the message, and choose display options (such as km/h or m/sec).

To display only those fields you are interested in, select the relevant messages and then right-click a message and select **Filter Marking**. This action filters and displays only those messages marked.

If you want to reload the **Telemetry.ini** file, select *Actions* from the menu bar and then **Reload Telemetry File**. This will reset the current display.

NOTE: The definition information has its source in the **Telemetry.ini** file. Do not change the definitions of this file. Changes can cause file corruption.

3.3.4 Control Interface

The Control Interface panel enables you to modify parameters in order to test the units. In general, you must specify the unit's serial numbers in the Unit ID field and the end unit destination address (if one exists).

A set of buttons and tabs in the three Control interface sections (*Debug*, *Communication*, and *Evaluation tools*) provides you with tools to send commands to the units. Refer to the following sections for more information.

4   Defining Communication Settings

The Communication section of the Control Interface panel enables you to define the destination unit(s), the communication method (GPRS, SMS), and messages authentication, as described in the following sections.

Note that you can also access various communication settings via the *Communication* option in the menu bar. These communication settings are also described in the following sections.

Figure 8: Communication Section

4.1   Defining the destination unit(s)

In order to send messages and commands to a unit, the unit ID must first be defined. Once defined, the selected unit ID is subject to all commands and actions activated via the Communication Center.

Click the **Unit ID** option button and enter the relevant ID (or use the arrow buttons to scroll to the relevant ID). Alternatively, select **Multiple** to enable the **Select units** button, via which you can select any number of units, all of which will use the commands and actions activated.

4.2   Defining the communication method (GPRS, SMS)

Select the **Send By SMS** checkbox to ensure all communications are sent by SMS rather than GPRS. Selecting this checkbox opens up a window in which you enter the unit's phone number (this option is also available by selecting **Communication > Unit's Phone Number** from the menu bar).
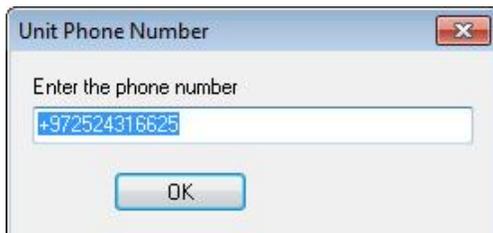
Figure 9: Unit Phone Number

From the *Communications* option in the menu bar, you can also display the SMS Manager (by selecting **SMS Manager**) to define various SMS settings, including general SIM, SMS, and SMPP settings.
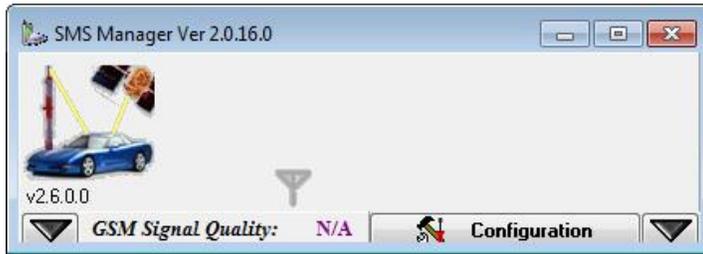
Figure 10: SMS Manager

4.3   Setting an authentication code for messages

Select the **Authentication Code** checkbox to add an authentication code to the sent messages.

Click the **Read/Write Auth table** button to display the Authentication table window, as shown below, and review /edit the authentication code.
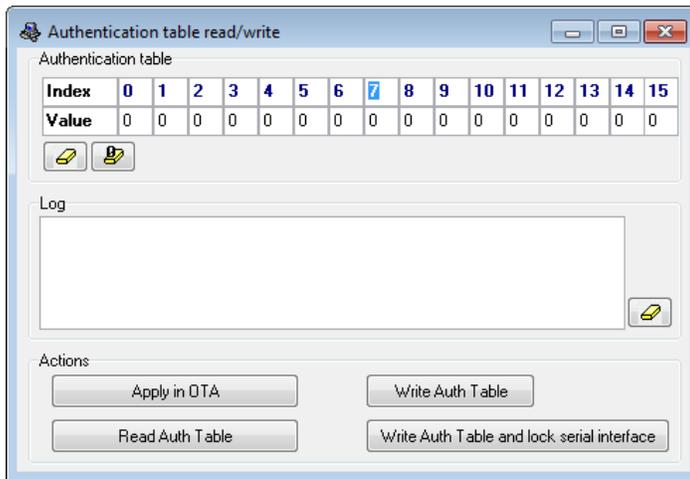

Figure 11: Authentication Table Window

5 Basic Unit Evaluation

This section describes how to work with the Debug section of the Control Interface panel, which includes six buttons, as shown below:
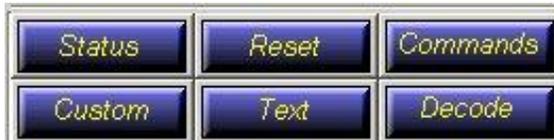

Figure 12: Debug Section

The Debug section enables you to send messages to the unit and decode received messages from the unit, as described in the following sections.

5.1 Enquiring about the status of a unit

Click the **Status** button to send status commands. The command structures are defined in the **Commands.ini** file.

5.2 Resetting a unit

Click the **Reset** button to send reset commands. The command structures are defined in the **Commands.ini** file.

5.3 Sending predefined commands

Click the **Commands** button to display a dropdown menu with commands defined in the **Commands.ini** file, including commands for output activation and deactivation, changing operational mode of the unit, setting tracking intervals, etc. Refer to the *Wireless Protocol* for additional information.

5.4 Sending custom commands

Click the **Custom** button to display the Custom Commands window, which enables you to send commands without the need to re-set the **Commands.ini** file, and to restart the software.
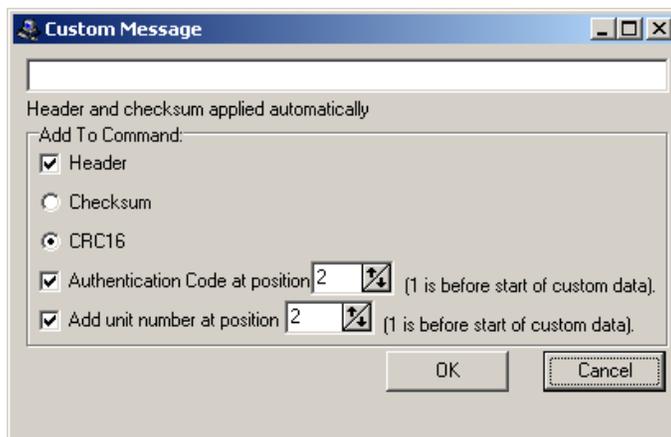

Figure 13: Custom Message Window

The Custom Commands window includes the following fields:

- **Hex string editor text field:** You can add a custom command in the form of a hexadecimal string in the following format: XX XX XX XX XX (Example: 4D 43 47 50 00 00 00 00…).

- **Header:** Select the checkbox to determine if a default header, defined in the **Commands.ini** file, is added at the beginning of the custom message (nothing precedes it).

- **Checksum/CRC16:** Select the relevant option button to add an 8-bit additive checksum or a 16-bit cyclical redundancy check (CRC16) at the end of the custom message (nothing appears after this value).

- **Authentication Code at position:** Select the checkbox to add a 32-bit authentication code at any specified position, relative to the user custom hex string. Thus, a position of 1 is before the first defined byte and after the header. The Authentication Code which contains 4 bytes is added to the OTA message.

- **Add unit number at position:** Select the checkbox to add the unit number, as a 32 bit unsigned integer, at the position specified. The position is relative to the custom hex string. Thus a position of 1 is before the first defined byte and after the synchronization string.

5.5 Sending SMS text messages

Click **Text** and then **Send Text Message** to send an SMS text message. In the displayed window, enter the SMS text and the SMS address number in the relevant fields, as shown below.
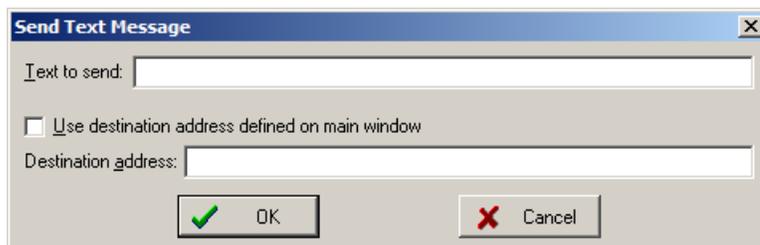
Figure 14: Send Text Message Window

The **Automatic Text Message** option (displayed when clicking **Text** in the Debug section) is not implemented.

5.6 Decoding specific messages (Hex strings)

Click **Decode** to decode a message from a specific message (Hex string) or the log file (the Communication Center creates a log file **messagelogfile.txt**) via the Decode String window, as shown below.
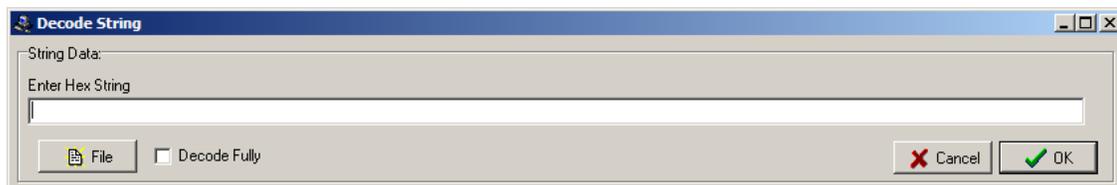
Figure 15: Decode String Window

The Decode String window includes the following:

◆ **Enter Hex String text field:** Single or multiple messages can be copied from the **messagelogfile.txt** file and pasted in the Hex string box and then decoded by clicking **OK**.

◆ **File:** Click the **File** button to upload the relevant **messagelogfile.txt** file (every message that the Communication Center receives is written to this file).

◆ **Decode Fully:** Select the **Decode Fully** checkbox to simulate online decoding as if the messages are received by the Communication Center one after the other.

6 Advanced Evaluation

The Evaluation Tools section of the Control Interface panel provides you with a number of tools and options to assist in evaluating the product, as described in the following sections.

The image below displays the main tabs in the Evaluation Tools section.

Figure 16: Evaluation Tools Section

6.1 OTA Programming

In order to remotely define the configuration memory of a unit, select the **Programming** checkbox in the Programming tab. The OTA Programmer window is displayed, as shown below.

The OTA Programmer enables you to remotely manage (via OTA commands) the configuration memory of a unit or several units, including reading a full PL or specific parameters from a unit, edit a stored or uploaded PL, and download specific parameters or the whole PL to a single unit or group of units.
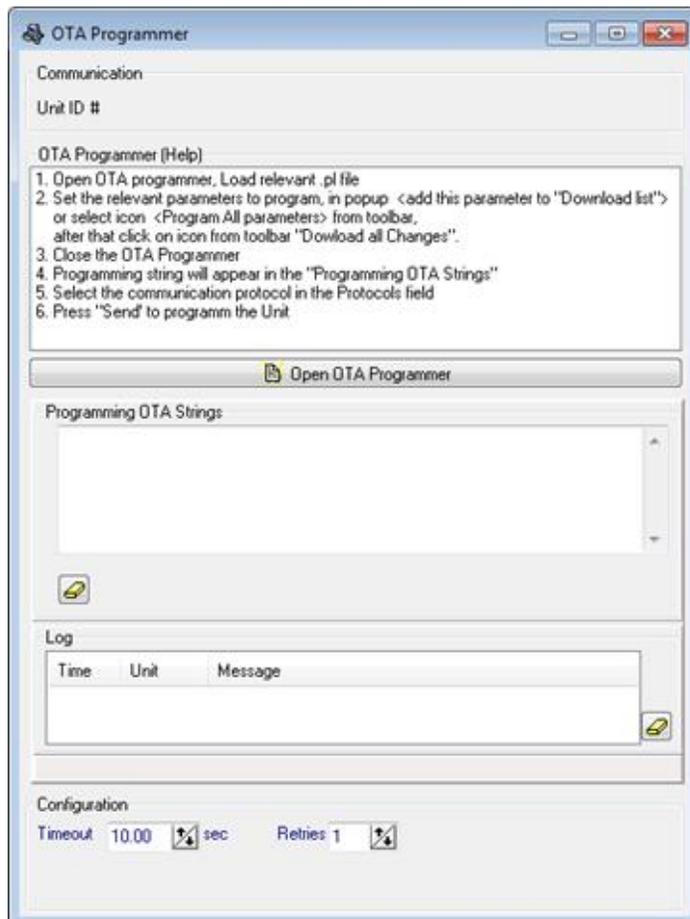

Figure 17: OTA Programmer Window

The OTA Programmer window includes a number of key components:

◆ **Communication**: This section at the top of the window displays the selected unit ID or indicates that multiple units are selected.

◆ **Open OTA Programmer**: This button opens the Parameter Library Explorer window, via which you can define the parameters in a PL file. See the procedure below for more details.

◆ **Programming OTA Strings**: This pane automatically displays any changes made to the PL. Click the **Send** button to send the modifications to the chosen destination. The **Eraser** button deletes all the strings displayed.

◆ **Log**: This pane displays all the transmissions communicated between the unit and the Programmer application. The **Eraser** button deletes all log entries.

◆ **Configuration**: This section enables you to define Programmer settings. It is recommended to select the **Wait to ACK** checkbox to ensure the Programmer should wait for an ACK by the unit. The **Timeout** parameter defines how long the Programmer waits for an ACK; the **Retries** parameter defines how many times the Programmer should retry.

In addition, you should select the **Reset unit after programming** checkbox to ensure the unit is reset after programming changes have been sent, and select the **Enforce message type 11** checkbox to ensure Type 11 messages are sent to the relevant units that use Type 11 messages (such as the Cello IQ and Cello CANiQ).

The following process describes how to define the configuration memory of the unit.

1. Ensure you have the correct ID(s) selected in the Communication Panel (see the *Select the Destination Unit IDs* section).

2. In the OTA Programmer window, click **Open OTA Programmer**. The Parameter Library Explorer window is displayed.
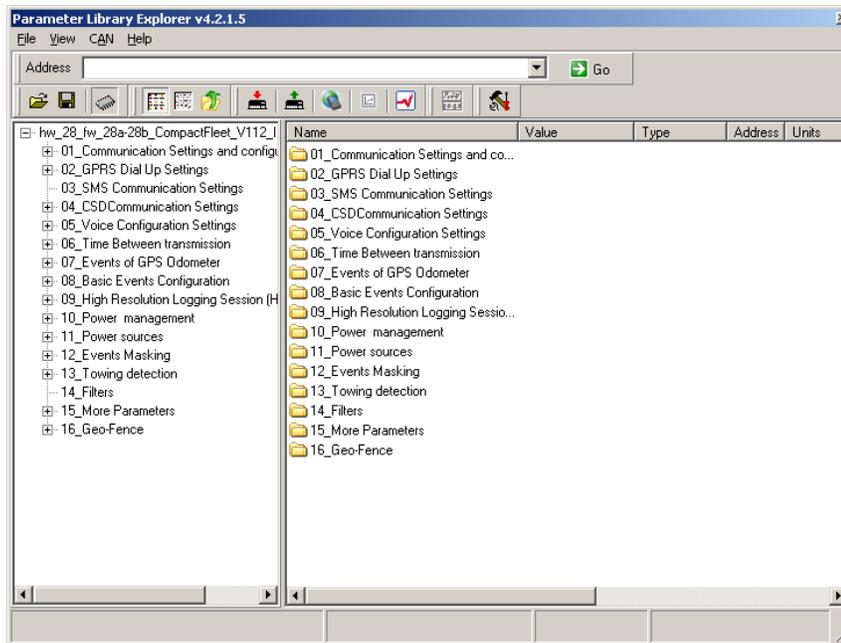

Figure 18: Parameter Library Explorer Window

3. In the Parameter Library Explorer window, click the Open icon to load the relevant PL file.

4. Locate the relevant parameters to program.

   In the image below, the **Default target IP Address (for GPRS)** parameter is being modified.
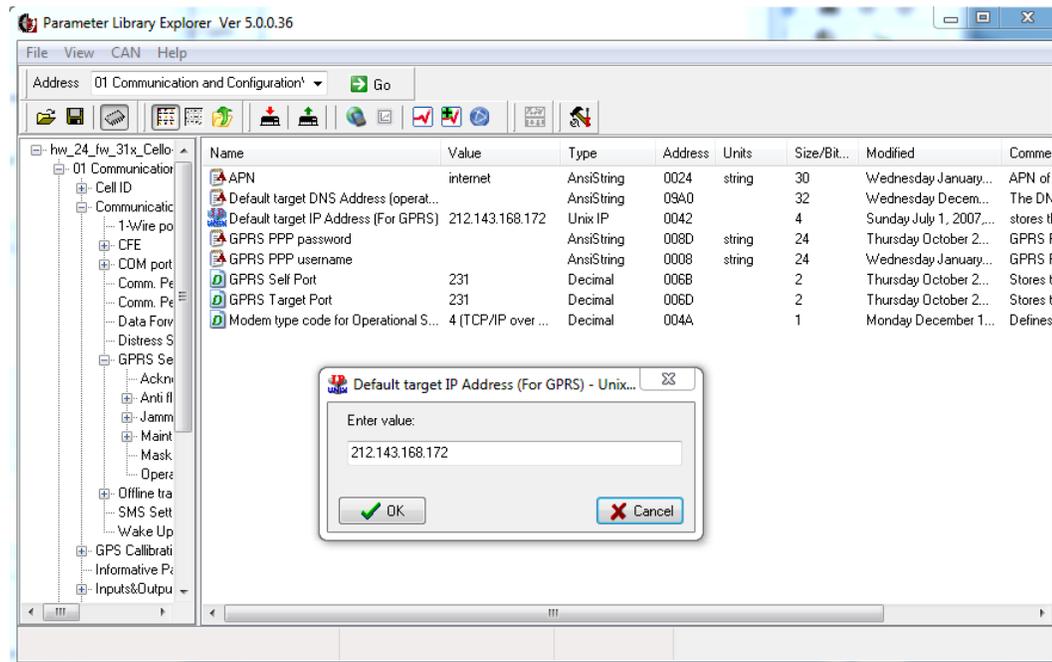

Figure 19: Programming a Parameter

For example purposes, in this procedure we are modifying individual parameters in the PL and preparing the PL for downloading to the unit. See the following *Configuration Scenarios* section for other configuration scenarios.

5. Once the parameter value has been modified, click **OK**.

6. In the displayed confirmation message, you are prompted to add the parameter to the "Download List", which is the internal list included in the OTA Programmer application. Click **Yes** to confirm.

7. Click ![icon] (Download All Changes) to generate the relevant programming OTA strings to the parameters in the download list and add these strings to the list of OTA strings ready to be sent to the unit. These strings are displayed in the Programming OTA Strings pane in the OTA Programmer window.

8. Repeat steps 4-7 as required.

9. When all changes are completed, close the Parameter Library Explorer window.

10. Validate that the **Reset unit after programming** checkbox is selected.

11. Click **Send** to program the unit with the modification(s).

    The messages communicated between the OTA Programmer and the unit are displayed in the Log pane. Validate that successful downloaded is reported in the Log pane at the end of the session.

NOTE: After OTA programming, a Reset Command must be sent to the unit if **Reset unit after programming** is not selected.

Configuration Scenarios

In addition to the scenario mentioned in the procedure above, there are typically another three scenarios you may need to implement.

♦ **Scenario 1 – Saving the configuration memory of a unit to a PL file:** In this scenario, first select the destination unit ID in the Communication Panel, upload the entire unit's configuration memory by clicking ![icon] (Upload from unit icon) in the Parameter Library Explorer window, and save it to the appropriate PL file.

♦ **Scenario 2 – Download an existing PL file to a group of units:** In this scenario, first select the destination unit IDs in the Communication Panel, open the existing PL file in the Parameter Library Explorer window and click ![icon] (the Download to unit(s) icon), to generate the Programming OTA strings for the PL parameters. Then click Send in the OTA Programmer window.

♦ **Scenario 3 – Update existing PL according to existing values in the unit:** In this scenario, first select the destination unit ID in the Communication Panel, define the relevant configuration settings in the OTA Programmer window, and select the relevant PL file in the Parameter Library Explorer window. For each of the relevant parameters, right-click and select Upload this Parameter (as shown below). Then click Save.

Name	Value	Type	Address	Units	Size/Bit...
APN	internet	AnsiString	0024	string	30
Default target DNS Address (operat...		AnsiString	09A0		32
Default target IP Address		Upload this Parameter	0042		4
GPRS PPP password			008D	string	24
GPRS PPP username		Download this Parameter	0008	string	24
GPRS Self Port			006B		2
GPRS Target Port	231	Decimal	006D		2
Modem type code for Operational S...	4 (TCP/IP over ...	Decimal	004A		1

Figure 20: Upload a Parameter

6.2 OTA firmware upgrading (Reflasher)

In order to perform an OTA firmware upgrade for compatible units, select the **Reflasher** checkbox in the Programming tab. This displays the OTA Unit Reflasher window.

NOTE: Before beginning the upgrade process, first ensure that the unit is communicating with the computer you are using for the upgrade (at least one message from the unit should be displayed in the Incoming Message Log Pane). Otherwise the upgrade may be done by SMS, which can be an expensive and slow process.
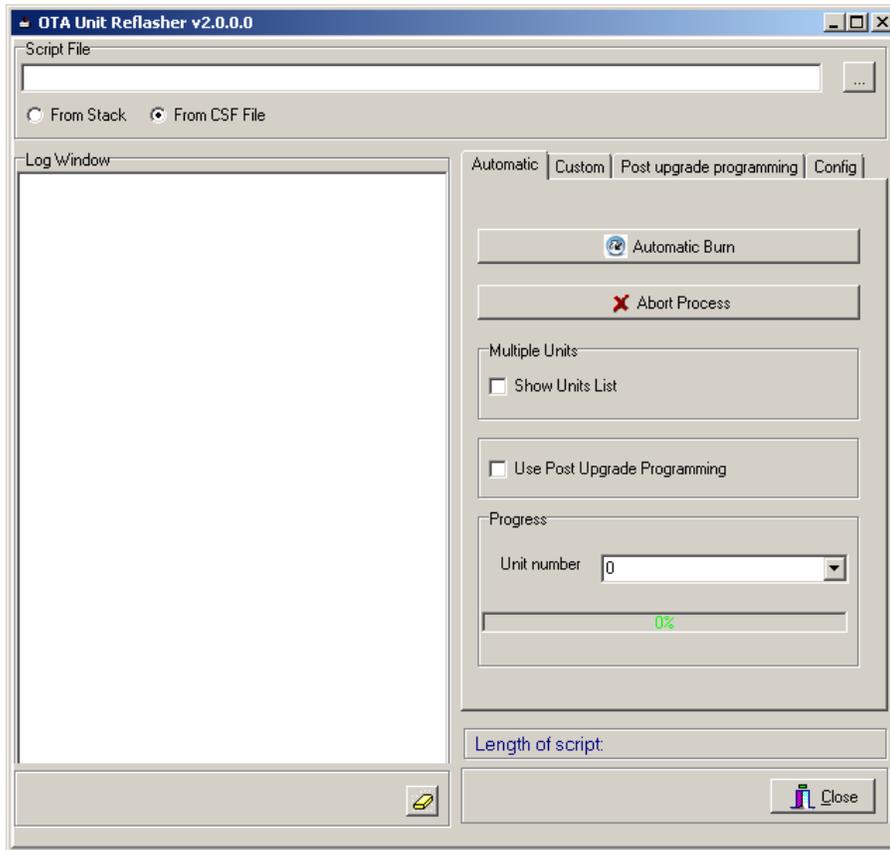

Figure 21: OTA Unit Reflasher

➢ **To perform the upgrade with the Reflasher:**

1. Select the **Reflasher** checkbox in the **Programming** tab to display the OTA Reflasher Unit window, as shown in Figure 21.

2. Verify that the **From CSF File** option is selected in the Script File section.

3. Click [...] to browse to the relevant .CSF file. Verify that the .CSF file is suitable to the hardware number, model type etc, of the unit you are upgrading, otherwise the upgrade will not start due to incompatibility errors.

4. In the **Custom** tab, ensure that the **Size** field in the Chunk Upload section is set to 220. This ensures the chunks of data are transferred at the optimal rate, though performance is reliant on the capabilities of your network; if required, this **Size** value can be reduced.

5. Click the **Automatic** tab, and in the Multiple Units section, select the **Show Units List** checkbox. The Units List window is displayed, as shown below.
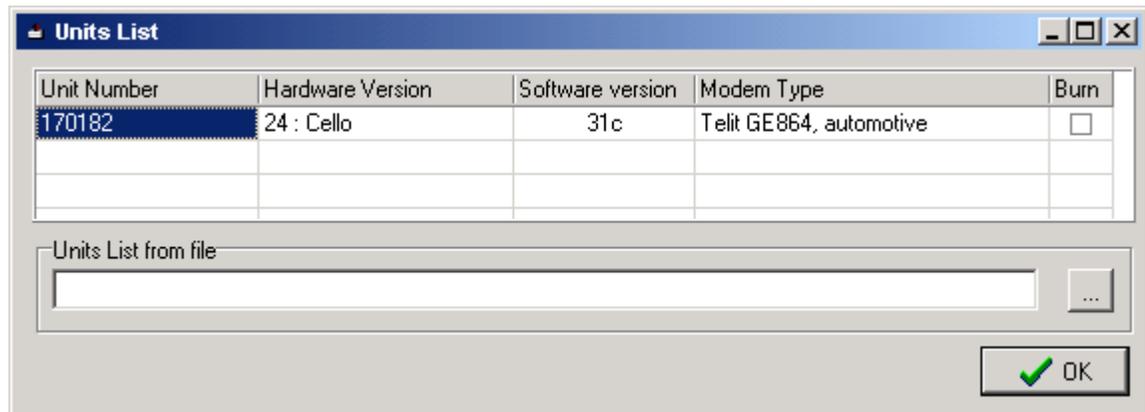

Figure 22: Units List Window

6. Select the relevant units from the list by selecting the **Burn** checkbox (in the far right column),

   OR

   In the *Units List from file* section, click [...] to browse for the relevant text file that includes a list of the units you would like to upgrade.

   NOTE: To ensure a smooth and optimal upgrade process with the OTA Reflasher, it is recommended to load up to a maximum of 10 units in any upgrading session.
   ----

7. Click **OK**.

8. In the **Automatic** tab, click **Automatic Burn**.

   The OTA Reflasher starts upgrading all of the listed units simultaneously and the status of each unit (for example, "Upload Completion") is displayed in the Log Window pane and the Units List window.

   The upgrade progress for each unit can be viewed in the Progress section of the **Automatic** tab (select the relevant unit from the **Unit number** dropdown list).

   The upgrade process typically takes 20-40 minutes per upgrade session, though this depends on your computer, your network strength, and the number of units being upgraded.

Figure 23: Log Window

As displayed in the example Log Window above, the status of the upgrade process for each unit is shown. When complete, *Process Completion (Unit <number>)* is shown, together with the updated version information for the unit.

If during the upgrade one (or more) of the units fails, the Log Window displays the error code and will continue to upgrade the rest of the units.

Note that at as long as the upload is progressing you can stop the process by clicking **Abort Process** in the **Automatic** tab.

NOTE: When flashing a FW to the CelloTrack Nano and all chunks have been uploaded and an "End Chunk Upload" message is displayed in the Log pane, the communication between the application and the unit is disconnected while the unit replaces the FW code and verifies the new FW. When the anticipated time for this process elapses, the flasher resumes communication with the unit. Note that for the Cellocator Nano the whole Reflash process typically takes around 7 minutes.

6.3   Evaluating the Car Sharing application

To program and evaluate reservations via the car sharing application, select the **Reservation Slot** checkbox in the Programming tab; this displays the Reservation Slot window. Note that this feature is relevant to specific product variants which support car sharing; for further information, contact Cellocator CS personnel.
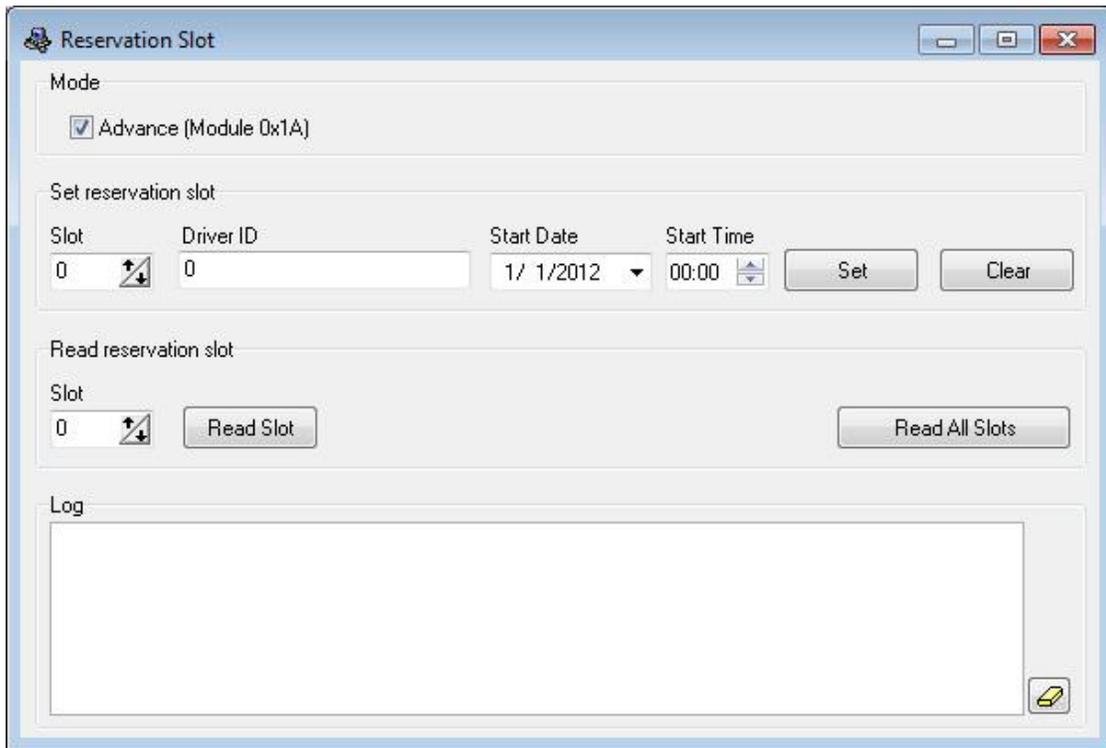
Figure 24: Reservation Slot Window

NOTE: The records of the reservation time slots are different from the records of the Master slots in the PL, which are used for Master cards.

The Reservation Slot option enables you to set up to 30 reservation time slots per unit. These reservation messages are sent to the Cello unit, which can then be reviewed in the Communication Center for evaluation purposes.

➤ **To set a reservation time slot:**

1. Verify the **Advance** checkbox at the top of the window is selected.

2. In the *Set reservation slot* section of the Reservation Slot window, define the following:

   - Slot number (by clicking on the arrow icons)
   - Driver ID number (in decimal format)
   - Start date and time for the time slot (according to the UTC time standard)

3. Click **Set**. The time slot is reserved, and an entry is also displayed in the Log pane to confirm the reservation slot.

➤ **To read a reservation slot:**

1. Verify the **Advance** checkbox at the top of the window is selected.

2. In the *Read reservation slot* section of the Reservation Slot window, use the arrow icons to select the relevant time slot, and click **Read Slot**.

   OR

   Click **Read All Slots** if you want to read all the reservation time slots.

3. The information for the selected time slots is sent from the Cello unit and displayed in the Log pane.

6.4 Evaluating the Serial Port

To evaluate the type of message and format that is sent and received to and from the serial port of the unit and/or CFE, select the **MDT** checkbox in the Forward Data tab.
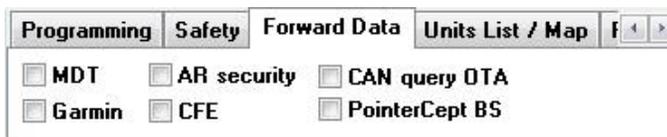

Figure 25: Forward Data Tab

The Forward Data window is displayed, via which you can set various parameters to evaluate the type of message and format communicated via the serial port.
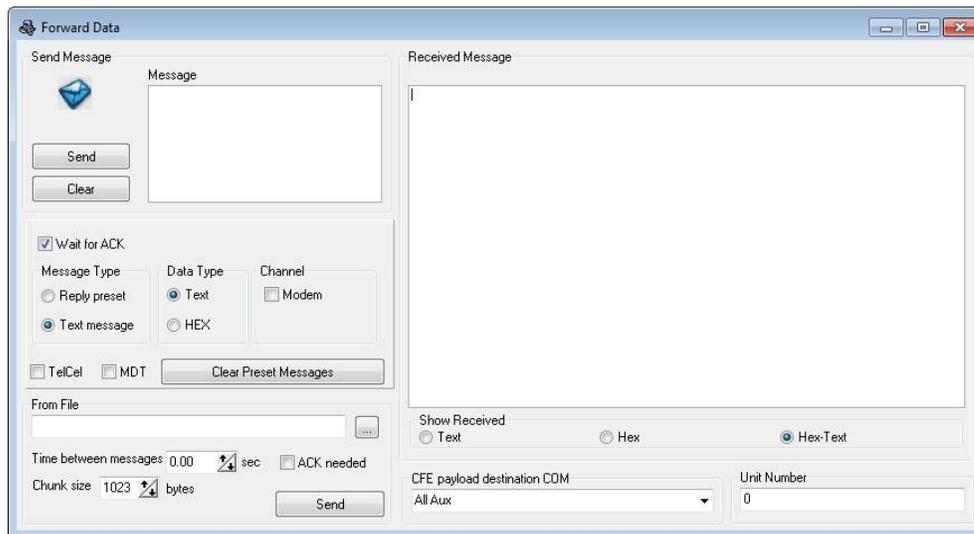

Figure 26: Forward Data Window

In the *Send Message* section, you can define a message (ASCII or HEX) and data type; once defined, enter the message in the Message box and click **Send**. You can send the same message multiple times by clicking the **Send** button again. To erase the message, click **Clear**. You can also select the **Wait for ACK** checkbox if you expect that the device connected to the serial port should acknowledge with an ACK.

Note that to delete the pre-configured MDT messages, click **Clear Preset Messages**.

You can also choose a file that contains the message(s) you want to send; to select the file, click on the Browse button in the *From File* section, and browse to the relevant file. You can also define the message to be sent in chunks; define a chunk size and time between each chunk sent, to ensure the receiving end has enough time to receive the

chunks. Select the **ACK needed** checkbox if you want an ACK after each chunk is sent. Then click **Send**.

The right side of the window shows the received messages the serial port receives. If you are expecting Text messages, select the **Text** option button; if you are expecting HEX messages select **Hex**; and if you are expecting a combination of both to be received, select **Hex-Text**.

In order to evaluate one of the CFE serial ports, choose which CFE serial port you are connecting to in the CFE payload destination COM option list (for example, all aux ports or just one specific port).

The Unit Number field must include the unit ID of the serial port to which you want to send the message.

6.5   Evaluating a Garmin device and Cellocator MDT

To evaluate the type of message and format that is sent and received to and from a Garmin device or Cellocator MDT, select the **Garmin** checkbox in the Forward Data tab. The Garmin window is displayed, as shown below.
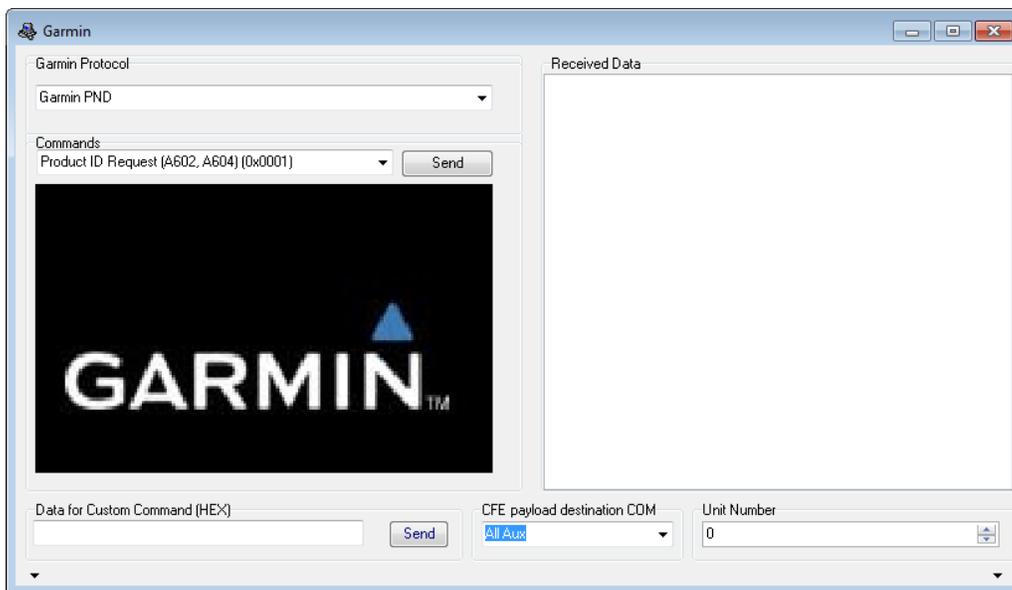

Figure 27: Garmin Window

In the Garmin Protocol dropdown list, select from **Garmin PND** or **Garmin compatible MDT**. In the Commands dropdown list, parameters can be set to control the type of message and format. For additional information about the Garmin interface, refer to the Garmin PNA Integration Overview. For information regarding the possible commands that can be sent, contact Cellocator CS.

6.6   Evaluating the CFE

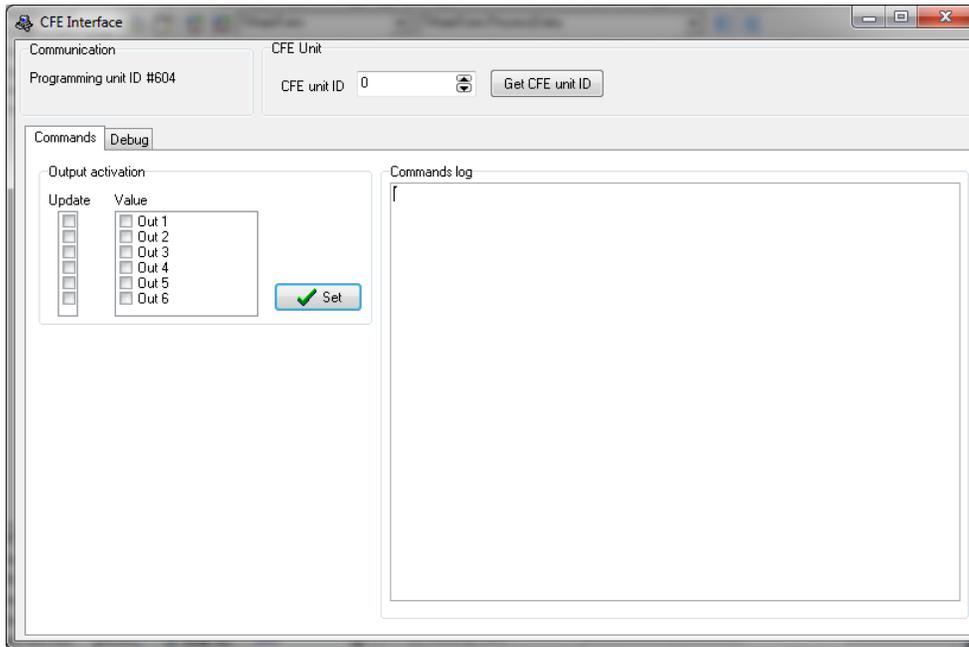When the **Forward CFE** checkbox in the Forward Data tab is selected, the CFE Interface window is displayed.

Figure 28: CFE Interface Window

You can get the CFE unit ID by clicking the **Get CFE unit ID** button. You can monitor communication with the CFE via the *Commands log* area.

You can activate the CFE outputs via the Command tab. Define per output if it should be activated by selecting the checkbox in the *Value* column. Then define which outputs should be updated by selecting the checkbox in the *Update* column. Then update the outputs by clicking **Set**.

In order to evaluate the serial port of the CFE, refer to the *Evaluating the Serial Port* section.

The Debug tab is currently not in use.

6.7   Evaluating the Cello-AR Security system

The Cello-AR is a unique variant of the Cello-IQ 30. To evaluate the Cello-AR security system capabilities, select the **AR security** checkbox in the Forward Data tab. The following window is displayed, via which you can evaluate various features of the Cello-AR system. For information regarding the possible commands that can be sent, contact Cellocator CS.
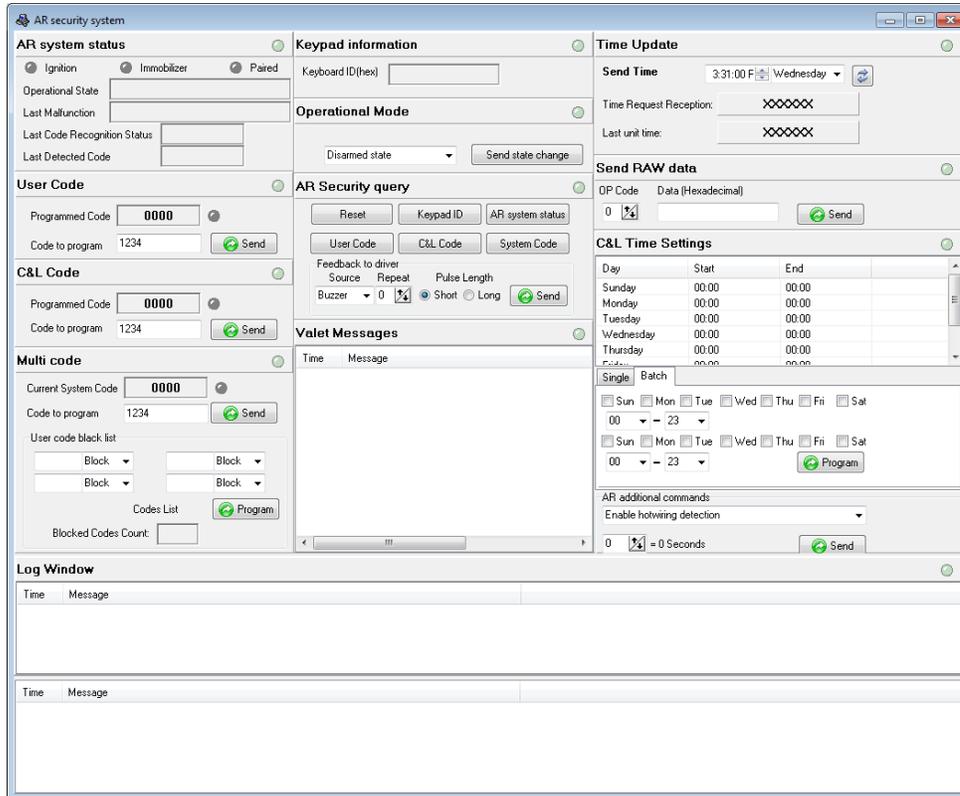

Figure 29: AR Security Window

6.8 Evaluating the PointerCept Gateway

To control the type of message and format that is sent and received to and from a PointerCept Gateway, select the **PointerCept BS** checkbox in the Forward Data tab.

The Forward to PointerCept Base Station window is displayed, in which commands can be selected for the Gateway and Chaser functionality. For information regarding the possible commands that can be sent, contact Cellocator CS.
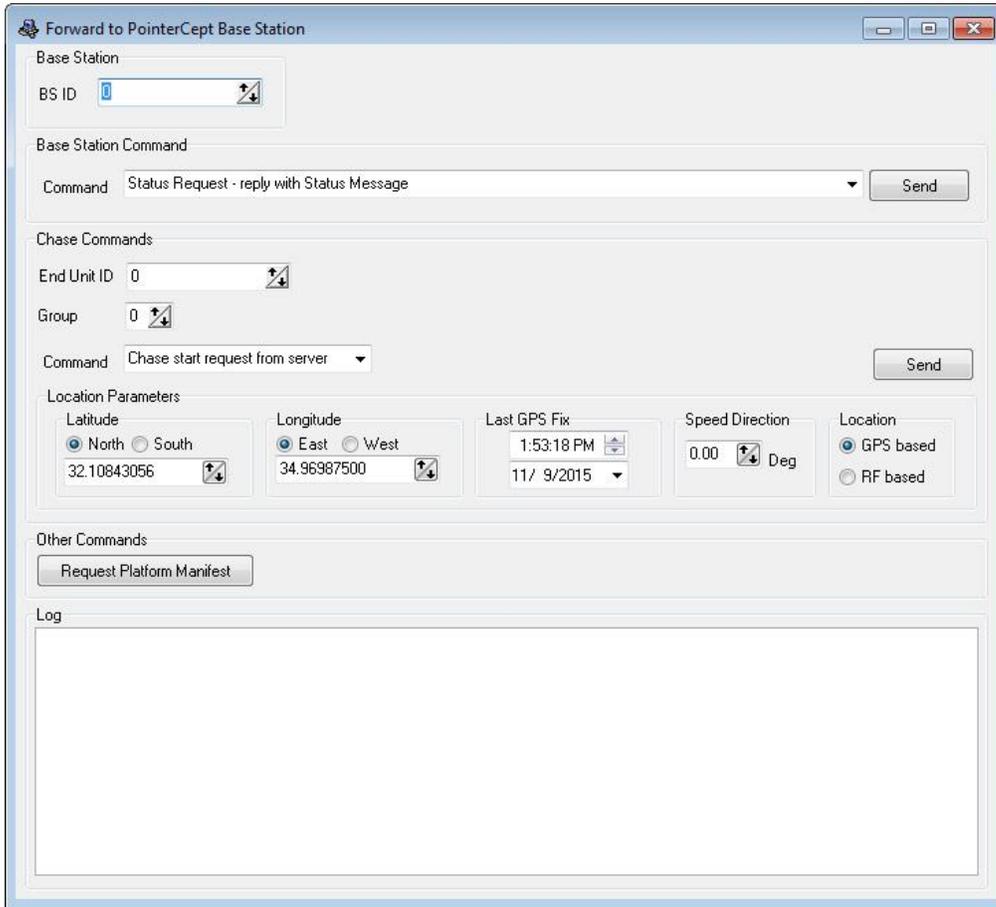

Figure 30: Forward to PointerCept Base Station Window

6.9 Evaluating the Auxiliary Satellite Interface

From the *Communications* option in the menu bar, you can display the SkyWave Communication Manager (by selecting **SkyWave Manager**), which enables you to access SkyWave server data and ensure messages sent by the Cello unit via satellite are received by the SkyWave satellite server (using the Auxiliary Satellite Interface feature). For further information, contact Cellocator CS.
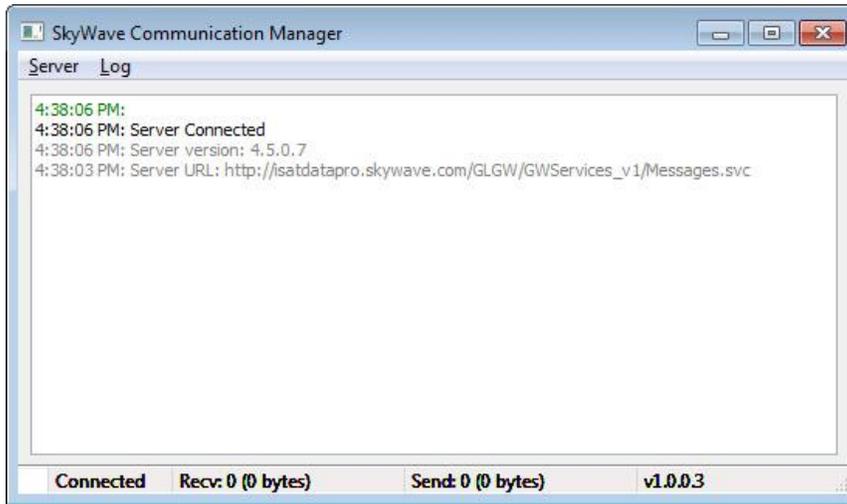

Figure 31: SkyWave Communication Manager

7 CSA Evaluation and Working with CSA files

This section explains how to evaluate the CSA application and programming. This section also explains how to use the KML support to view the unit trip in Google Earth, and how to analyse the manoeuvres and crashes in a CSA file via the CSA File Display window.

7.1 Evaluating the CSA application

In order to evaluate the CSA application and communication channel, select the **CSA Commands** checkbox in the Safety tab. Note that this section is only relevant for units that support CSA, such as the Cello-IQ and Cello-CANiQ.

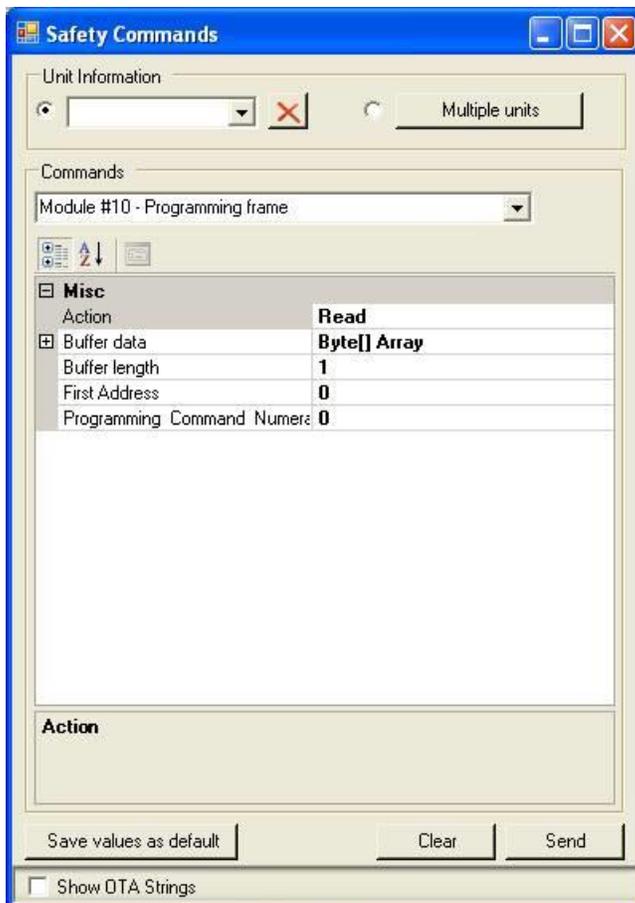*Figure 32: Safety Tab*

The Safety Commands dialog is displayed.

Figure 33: Safety Commands

This dialog enables you to send commands to units by selecting the unit and then the command from a list of default commands.

You can also see the structure of the command by selecting the **Show OTA Strings** checkbox, which opens an expanded pane. In this same pane, you can also enter your own customized command and send it to the selected unit. This tool can be especially useful while debugging command building routines / components in your SW platform.

Refer to the Programming Manual for more details (refer to the relevant product section on the Cellocator website for the relevant document).

7.2   Evaluating CSA Programming

The CSA programming feature enables the user to program the CSA programming parameters and to download the updated configuration files (PL) into one or multiple appropriate units. CSA programming operates only on CSA programming parameters (and cannot update Fleet Management parameters) via the CSA channel. Note that this section is only relevant for units that support CSA, such as the Cello-IQ and Cello-CANiQ.

Evaluating CSA Programming is recommended for Safety applications integrated only with the Cello CSA feature capabilities via the CSA channel, and which do not integrate with the Cello Fleet Management features. If the Safety application also integrates with the Fleet Management features, it is recommended to use and evaluate the standard OTA Programming, as described in the *OTA Programming* section.

To work with CSA Programming, first select the **CSA Programming** checkbox in the Safety tab. The CSA Programming window is displayed.
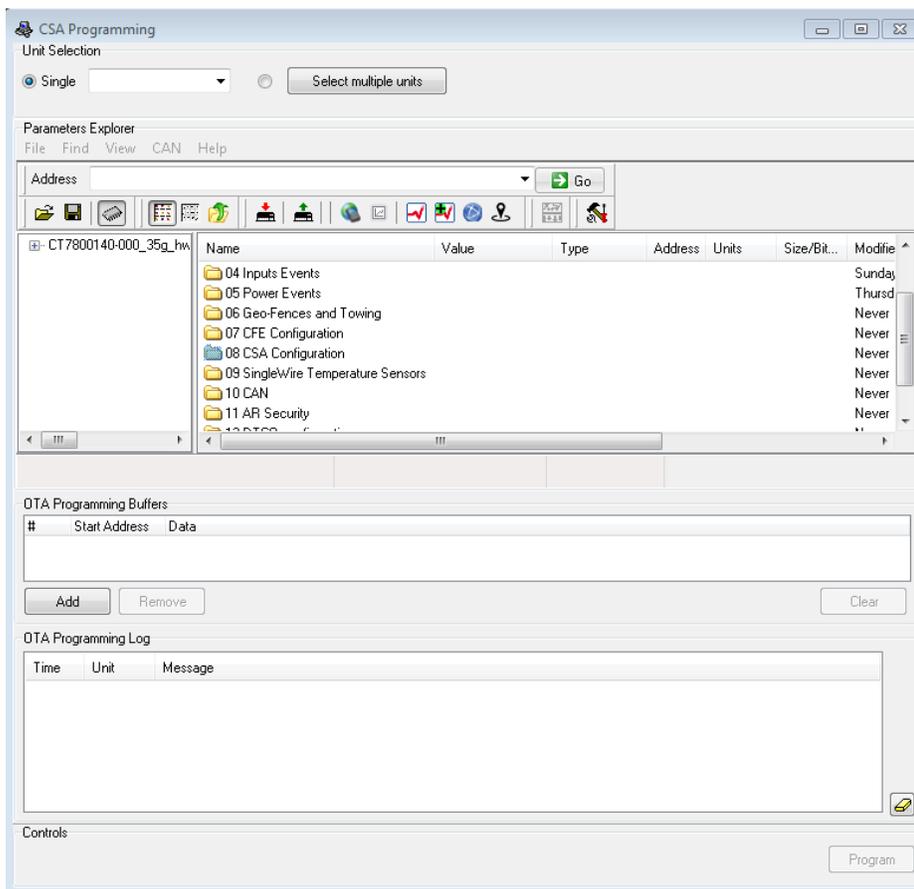

Figure 34: CSA Programming

CSA programming allows you to program only the CSA parameters (the 08 CSA Configuration folder in the following image). All other parameters are blocked.

The actual process of CSA Programming is similar to the methods described in the *OTA Programming* section.

7.3 Monitoring the number of CSA messages

In order to monitor the number of messages sent and received, select the **CSA Monitor** checkbox in the Safety tab.

The CSA Monitor window is displayed, which counts incoming and outgoing messages. The user can clear these counters using a dedicated command.

Figure 35: CSA Monitor

7.4 Generating KML files to display trips in Google Earth

The Communication Center supports the KML generator. The **Keyhole Markup Language** (**KML**) is an XML notation for expressing geographic annotation and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers, such as **Google Earth, Google Maps,** and **Google Maps for mobile.**

The KML Export feature assists system engineers, integrators and others evaluating unit functionality to visualize CSA trips with their driving maneuvers, detailed statistics, trip scores and other relevant information using the Google Earth application.

NOTE: In order to execute the KML export, it is assumed that each maneuver is sent with its statistics report and also trip statistics are sent to the Communication Center. Otherwise there will not be sufficient data for adequate KML exporting.

The Communication Center allows the selecting of trip reports and converts them to KML format files, adding to each event a dedicated icon, as shown in the KML icons table.

To generate KML files, from the **Actions** menu select **Generate KML**. The Trip Export window is displayed, as described in the following section.

7.4.1 Exporting trip reports to KML format
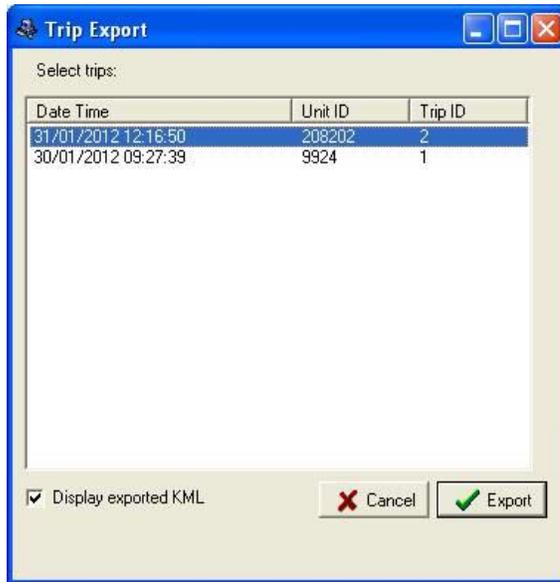
Figure 36: Trip Export Dialog

The Trip Export window enables you to select trip reports and export them to KML format. If Google Earth is installed on the local machine, clicking **Export** automatically launches Google Earth and the selected trips are displayed.
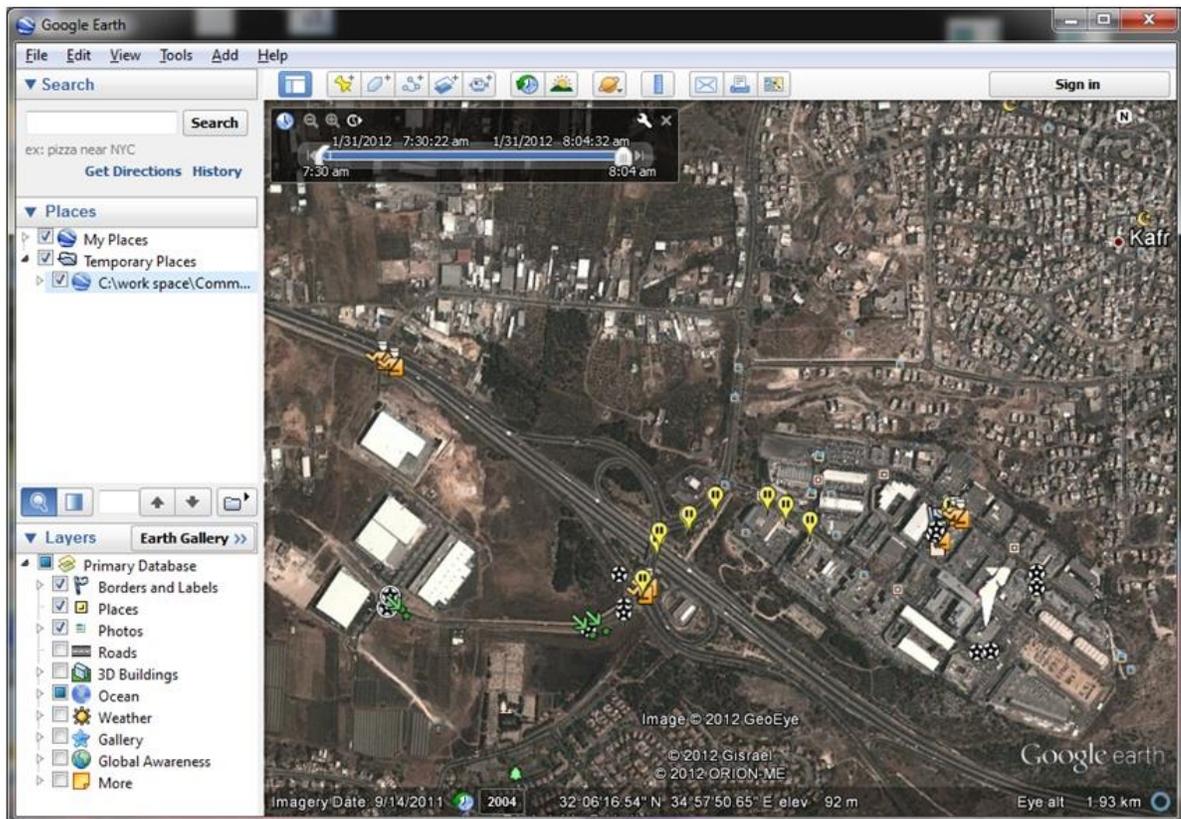
7.4.2 *Displaying KML files in Google Earth*

Figure 37: Displaying in Google Earth

Once exported via the Trip Export dialog, the KML files are displayed in Google Earth under *Temporary Places*; each trip is listed separately.

Each trip file listed includes all maneuvers sent by the unit, as indicated by the various icons (see the following section). At the end of each trip an additional node is displayed which details the trip summary, including safety and eco scores.

7.4.3 *KML icons*

IPUP		RPM stop	
Ignition On		Off-road start	
Ignition Off		Off-road end	
Trip Start		Braking Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Trip End		Acceleration Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Go		Turn Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Halt		Turn&Accel Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Driver Identified		Turn&Brake Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Driving without authentication		Lane departure Start/Stop: Icon colored according to severity of safety score (green / yellow / red)	
Idling session		Heavy Crash event	
Speeding Start		Light Crash event	
Speeding Stop: Icon colored according to severity of safety score (green / yellow / red)		Calibration events	
File upload			

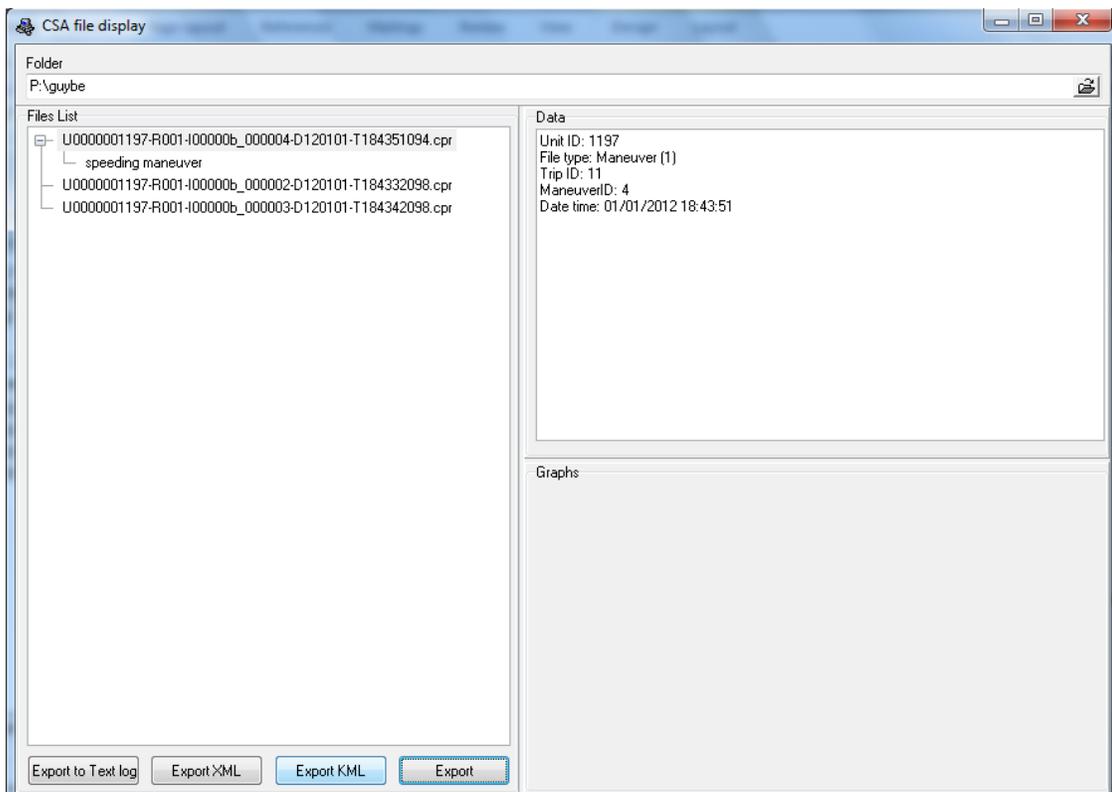## 7.5 Analysing trip manoeuvres and crashes

Figure 38: CSA File Display

The CSA File Display window enables you to analyze trip maneuvers and crashes, based on the raw data sent by the unit via the FTP/TFTP server.

To access this window, select **CSA File Display** from the **Actions** menu. Then select a file to open via an external server, using the folder icon in the top right corner; two types of files are displayed - **.ncp** (non-compressed file which does not include GPS and acceleration data, and contains, for example only maneuver statistics information) and **.cpr** (compressed file which includes all the raw data for GPS and acceleration events – these files hold information aggregated during maneuvers and are used by the CSA to detect, process, log and report the corresponding maneuver).

Double-clicking on a maneuver parses the data and displays it in summary form in the top right pane, and in graphical form in the lower right pane.

You can also export the data for a specific maneuver by selecting it and clicking one of the following options:

- **Export to Text log**
- **Export XML**
- **Export KML**
- **Export** (the file is saved in .CSV format)

8   Miscellaneous

8.1   Viewing the units that have communicated with the Communication Center

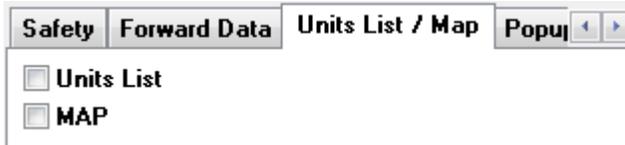Selecting the **Units List** checkbox in the Units List / Map tab displays the Unit List window.

Figure 39: Units List Tab

In this window the units that have made contact with the Communication Center, by sending at least one message, are listed.
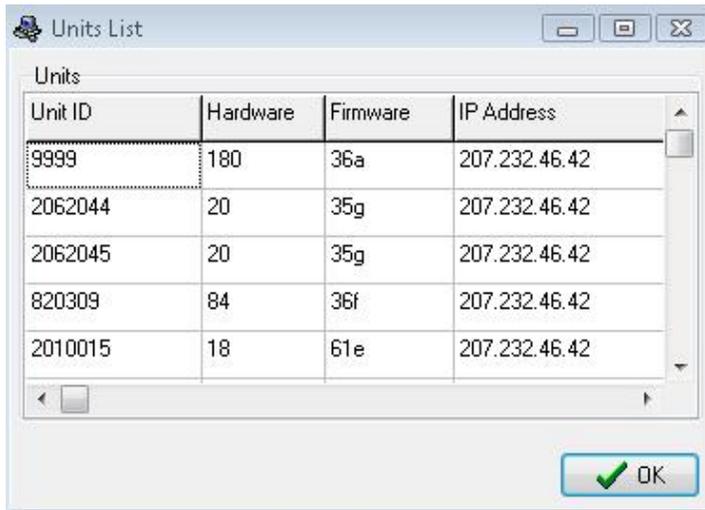

Figure 40: Units List Window

Note that the MAP function is currently not implemented.

8.2   Displaying Message Type 9 popup windows

To display the Message Type 9 message popup windows (only some Type 9 messages support popups) automatically in the Communication Center, ensure the **Show Popup Screen** checkbox in the Popups tab is selected (by default it is selected).

Figure 41: Popups Tab

When the checkbox is not selected, double-click on the message to display the popup window.

Clear the checkbox if you do not want the popups to be displayed.

8.3 Evaluating CAN Data of the Compact CAN unit

The Compact CAN is no longer manufactured. For more information please contact Customer Support.

8.4 Working with Cello Commands

When the **Cello Commands** checkbox is selected on the **Programming** tab it activates the Cello Commands window (for debugging purposes). Operating the Cello Commands requires password and direct instructions from Cellocator CS personnel.