

# **APLICOM A-SERIES SW CONFIGURATOR**

**User's manual  
Rev. 13.2.0  
(SW version 13.2.0)**

Document code K530800



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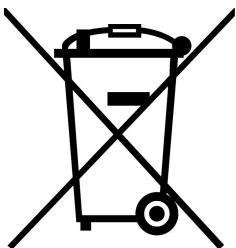
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## REVISION HISTORY

Rev.	Date	Editor	Description
13.2.0	17.11.2021	KWe	Updated for Configurator version 13.2.0
13.1.0	25.02.2021	MHe	Updated for Configurator version 13.
13.0.12	12.10.2020	MHe	Updated for Configurator version 12.2.0: added BLE in advanced editor.
13.0.11	23.08.2019	MHe	Added note about Tomcat version in OTAP server information
13.0.10	11.06.2019	MHe	Updated for Configurator version 12.0.0
13.0.8	23.03.2018	MHe	Updated for Configurator version 11.2.8
13.0.6	18.12.2017	MHe	Updated advanced editor's Temperature Monitoring tab
13.0.4	29.11.2017	MHe	Updated advanced editor's WLAN and General tab pictures
13.0.2	16.05.2017	MHe	Added WLAN in advanced editor
13.0.0	05.11.2016	MHe	Updated for new name: A-series SW Configurator and version 11.0.0.
12.10.2	18.08.2016	MHe	Updated image of Parameter set in advanced editor. Added Radio access technology note.
12.10.0	06.05.2016	MHe	Updated for Configurator version 10.40.0. Added A9 TRIX and description for version reporting. Added A9 NEX/TRIX/IPEX OTAP delete.
12.8.4	03.03.2015	MHe	Updated for Configurator version 10.34.0. Added note about EBS configuration and updated screenshots in CAN interface configuration.
12.8.2	15.12.2015	MHe	Updated for Configurator version 10.32.2. Added old/new path type in OTAP server options.
12.8.0	30.11.2015	MHe	Updated for Configurator version 10.32.0. Added Cold Chain Temperature SW option. Updated OTAP server instructions. Updated some screenshots. Minor editorial changes.
12.6.6	22.09.2015	MHe	Editorial changes, removed deprecated information about parameters tab and changed the parameters tab image. Added note about box and polygon geofences.
12.6.4	30.06.2015	MHe	Editorial changes. Updated some pictures. Added note about A-GPS.
12.6.2	05.06.2015	MHe	Updated for Configurator version 10.30.2. Editorial changes.
12.6.0	23.04.2015	MHe	Updated for Configurator version 10.30.0 with A9 NEX support
12.4.0	15.01.2015	MHe	Updated for Configurator version 10.20.0
12.2.0	08.05.2014	MHe	Updated for A1 SW v10.6.0. Added Fuel Alert
12.0.0	17.04.2013	JKa	Updated for A1 SW v10.0.0. Pictures in this document have been updated where functionality has changes. Track SW and Telematics SW have been upgraded for suitability to new extended GSM module and have been renamed to TRAX SW and MAX SW with new product codes.
11.0.0	20.12.2012	HRa	Updated for Configurator version 6.2. Replaced DLKP with 3PAD.
10.0.0	8.10.2012	JTu	Added A9 support
9.2.0	05.07.2012	HRa	Added CAN ID Forwarder and RS-485 tachograph interface. Revised CAN configuration. Reviewed.
9.0.0	13.05.2011	HRa	Review.
8.0.3	27.04.2011	HRa	Added MAX RDL Card DL and MAX RDL Tacho DL sections of advanced editor.
8.0.2	07.04.2011	AMu	Corrected text: TC65 module to TC65i
8.0.0	04.10.2010	HRa	Review changes.
7.1.1	22.09.2010	HRa	Updated for Configurator version 5.0.0. Added BASIX.
7.1.0	24.03.2010	HRa	Updated I/O config and Garmin interface tabs of advanced editor.
7.0	10.06.2009	HRa	Review changes.
6.2	04.06.2009	HRa	Added Copy to OTAP server. Updated OTAP server appendix.
6.1	26.01.2009	HRa	Added device and configuration search.

6.0	18.12.2008	HRa	Review changes.
5.1	12.12.2008	HRa	Added A1 SW Garmin interface option.
5.0	29.10.2008	HRa	Review changes.
4.1	16.09.2008	HRa	Updated for TRAX 4.0.
4.0	13.06.2008	HRa	Review changes.
3.1	26.05.2008	HRa	Updated advanced editor chapter: parameters, IO config, transports, alarms, actions, com1Config.
3.0	27.03.2008	HRa	Review changes.
2.3	11.03.2008	HRa	Added chapters about new advanced editor pages, COM1 interface and Flags. Updated OTAP server setup chapter. Added chapter about using flags with event handlers.
2.2	07.12.2007	HRa	Fixed defects found in review.
2.1	03.12.2007	HRa	Added chapters about new features, Delete Custom SW (OTAP) and Java application auto-start configuration.
2.0	12.10.2007	HRa	Fixed defects found in review.
1.5	08.10.2007	HRa	Added description of OTAP SMS.
1.4	25.09.2007	HRa	Fixed defects found in review.
1.2	17.09.2007	HRa	Updated for A-series SW Configurator version 2.0.
1.1	16.08.2007	HRa	Updated for A-series SW Configurator version 1.5 beta.
1.0	06.06.2007	HRa	Original.

# 1 INTRODUCTION

Aplicom A-series SW Configurator (hereinafter referred to as the Configurator) is application software for creating configurations for A11 SW, A11 LTE SW, A9 PRO SW, A9 TRIX SW and A9 NEX SW (hereinafter referred to as A-series SW), and updating the A-series SW and its configuration to Aplicom A11, A11 LTE, A9 PRO, A9 TRIX and A9 NEX devices. Each SW is for its corresponding device. The Configurator can also be used to install custom software to the Aplicom A-series devices.

This document describes the functionality of A-series Configurator. It is essential to be familiar with A-series SW before using the Configurator. Therefore, it is highly recommended to read the user manual of the A-series device in use.

The Configurator can update A-series devices locally using serial cable connection and remotely using Over-The-Air Provisioning OTAP. The Configurator offers three different ways for creating and editing configurations for A-series SW, configuration wizard, advanced configuration editor and a text editor for editing the XML configuration files.

## 1.1 System requirements

A PC that meets the following minimum hardware and software requirements is required for installing and using Aplicom A-series SW Configurator.

- Microsoft Windows operating system
- Java SE Runtime Environment (version 1.8 or newer)
- Approx. 20 MB of free disk space for installation.
- One COM port for communication with the device (for local updates and/or usage as a GSM modem).

To use OTAP features of the Aplicom A-series SW Configurator, a server is required. The server must meet the following minimum software requirements.

- HTTP server.
- Java servlet container that supports Java version 1.8. Apache Tomcat (version 8) is recommended.
- OTAP server components (included in *SW Package for A-series*).

## 1.2 SW Package for A-series

Aplicom A-series SW Configurator is delivered as part of the SW Packages for A-series devices.

The SW Packages for A-series devices are available for download in Aplicom extranet:  
<http://www.aplicom.com/en/extranet>

## 1.3 System architecture

This chapter describes a typical example of a complete tracking system built with the A-series devices. The example system uses Over-The-Air Provisioning (OTAP) for updating configurations and software of the A-series devices.

The server must be equipped with an Internet connection with a static IP address or domain name. The example server has a communication handler which stores the data received from A-series units to a database. The example server also contains an OTAP server for handling OTAP updates. The OTAP server hosts the files required for OTAP updates and receives OTAP notifications from A-series units. The OTAP server consists of HTTP server and Java servlets for processing notification and requests made by the Configurator and A-series devices.

Aplicom A-series SW Configurator is used to create configurations for A-series SW, and to update software and configuration of A-series units either locally using a serial cable or remotely using OTAP.



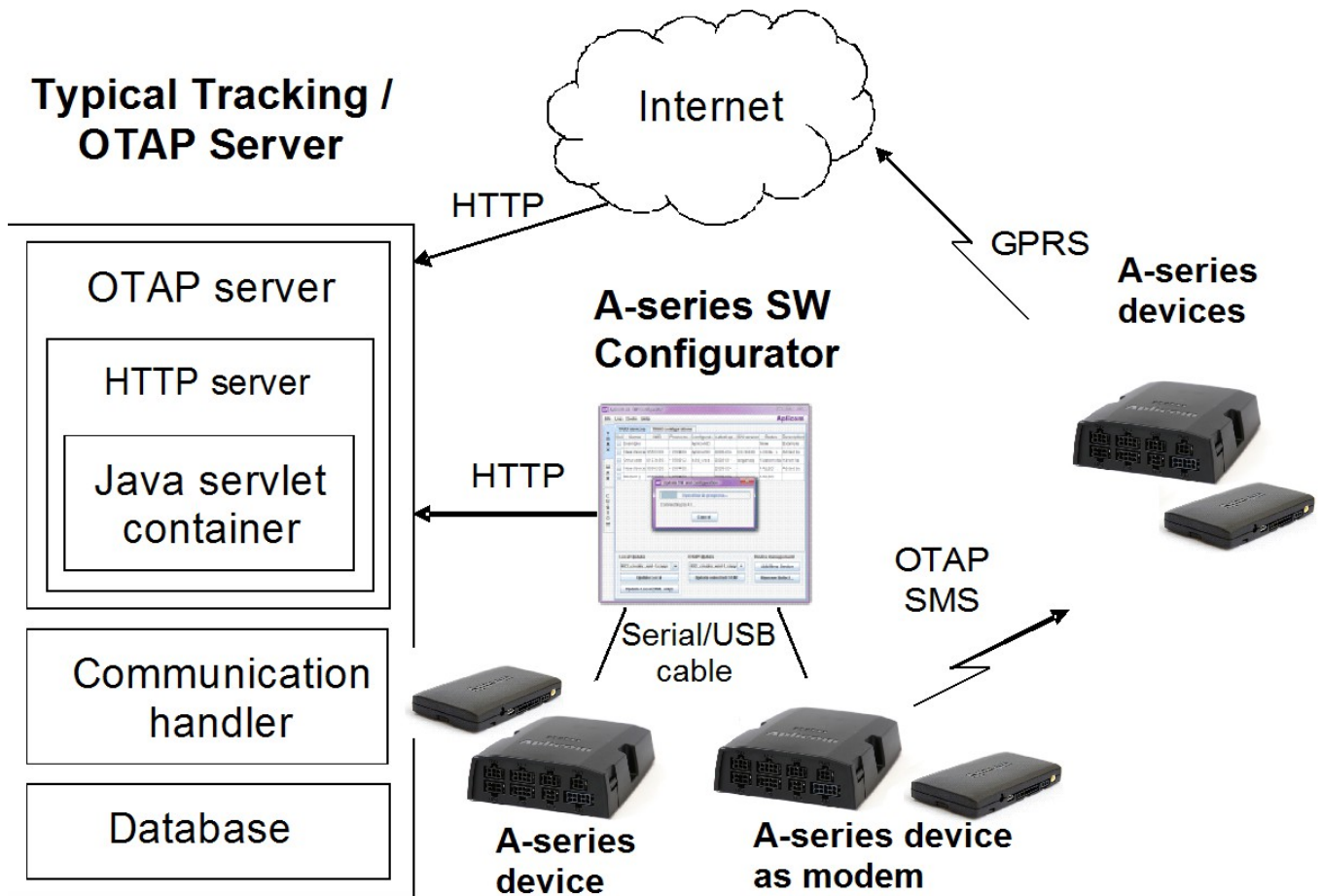


Figure 1. System architecture.

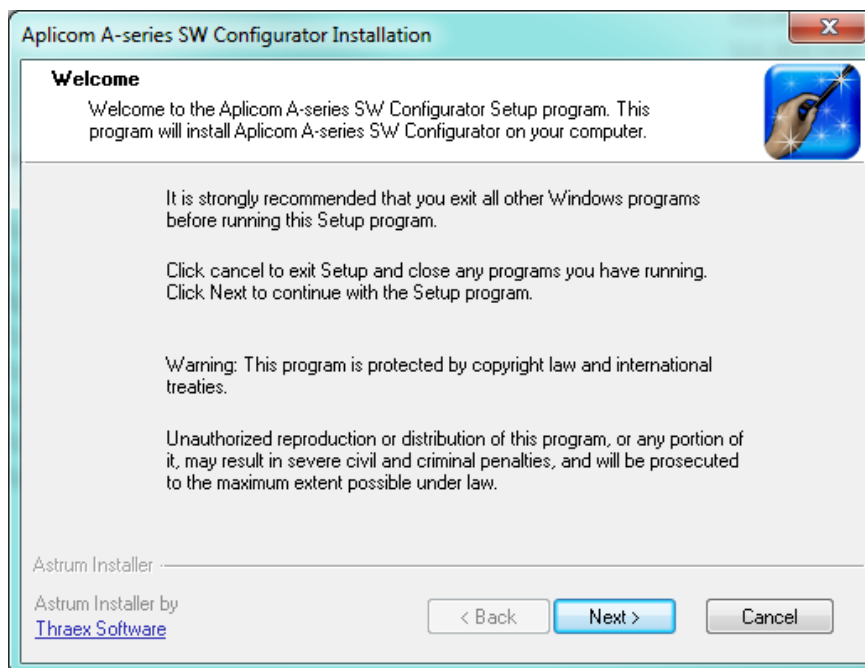
## 2 INSTALLING AND UNINSTALLING

### 2.1 Installing A-series SW Configurator

Install Java SE Runtime Environment (version 1.8 or newer). Java Runtime Environment is available for download at Oracle's web site.

Installation program for Aplicom A-series SW Configurator can be found in D208900\_A-series\_SW\_Configurator directory in the *SW Package for A-series devices* or from Aplicom extranet ([www.aplicom.com/en/extranet](http://www.aplicom.com/en/extranet)). Double click A-series\_SwConfigurator.exe to start the Configurator installation program and follow the on-screen instructions to install the Configurator.

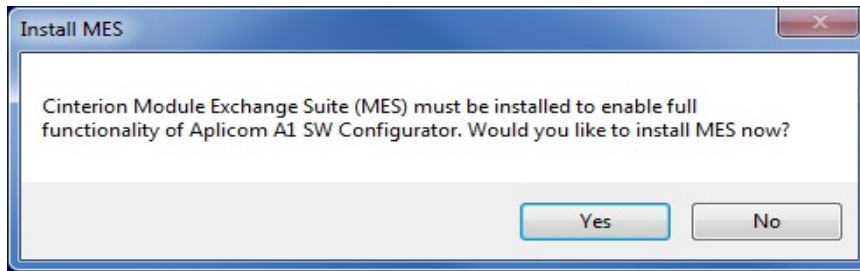
The Configurator can be installed over a previous version. The installation program will not replace any settings or data files of the previous installation.



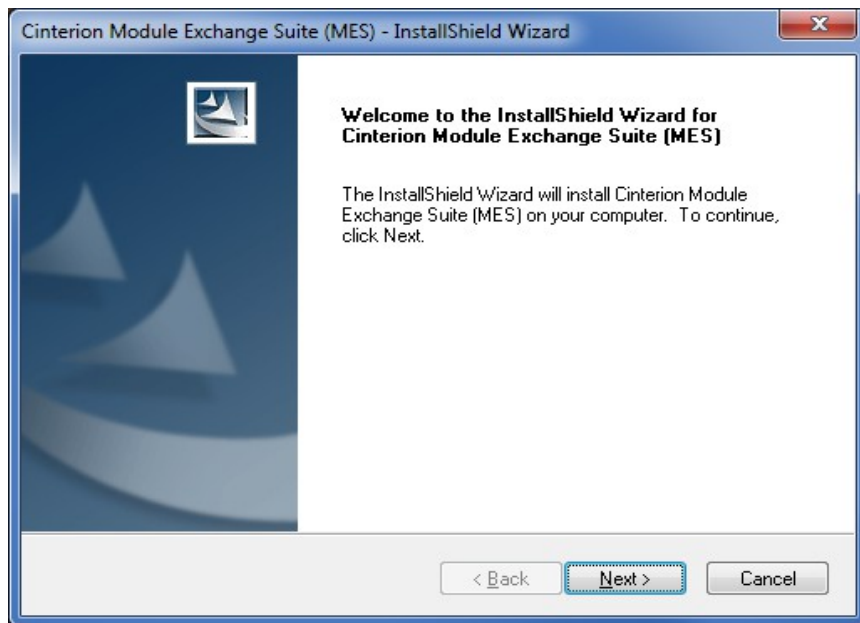
Click **Next** to continue. In the next steps the installation program will ask where Aplicom A-series SW Configurator and shortcuts should be installed. Click **Next** on both steps to accept the default install locations. Click **Finish** to install Aplicom A-series SW Configurator.



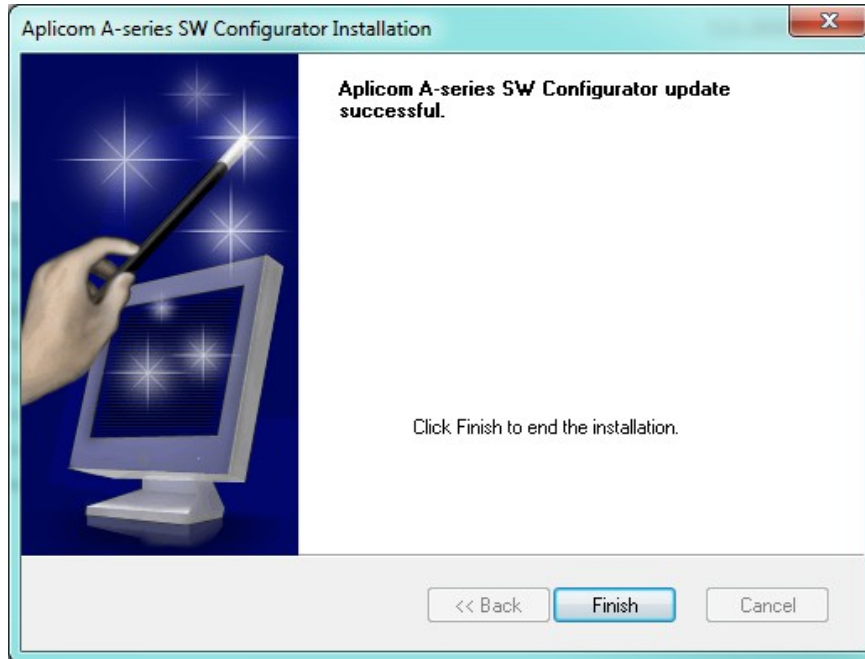
The installation program will ask for permission to install Module Exchange Suite (MES). The MES is required for updating A-series locally, so it is highly recommended to install MES now (if not already installed).



Select **Yes** to install MES. The MES installation program will be started.



Click **Next** to proceed. The MES installation program will present its licence agreement. Read the licence agreement and select **Yes** to accept the licencing terms for MES. The installation program will install MES.



Aplicom A-series SW Configurator is now installed and ready to use. Click **Finish** to exit the installation program.

The installation program created shortcuts for Aplicom A-series SW Configurator on desktop and in start menu. Double click the desktop shortcut to start the Configurator.

## 2.2 Uninstalling A-series SW Configurator

A-series SW Configurator uninstallation program can be started via Start Menu -> Aplicom A-series SW Configurator Uninstaller. Alternatively the A-series SW Configurator can be uninstalled via the Windows Control Panel.

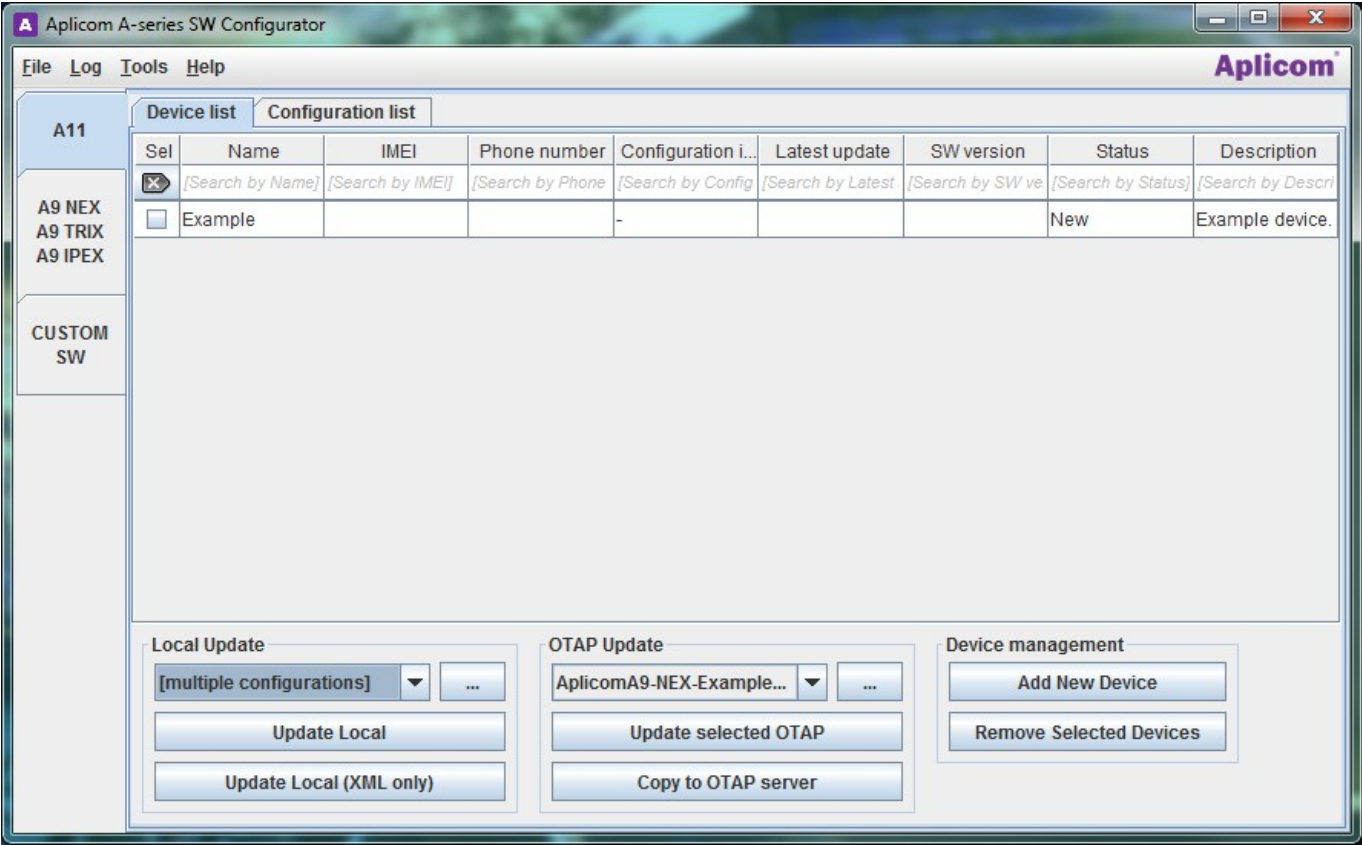
**Note!** The uninstaller will not delete the data directory contents (configurations, etc.) if it's stored in the user's application data directory.

### 3 CONFIGURATOR OVERVIEW

The Configurator has separate sections for managing different types of A-series devices and their configurations (vertical tabs on left).

**Note!** Some sections might not be enabled by default. They can be enabled via Configurator options (Tools -> Options -> Sections). See chapter 14 for more information about Configuration options.

The CUSTOM SW section of the Configurator are described in chapter 13.



### 3.1 Data and log files

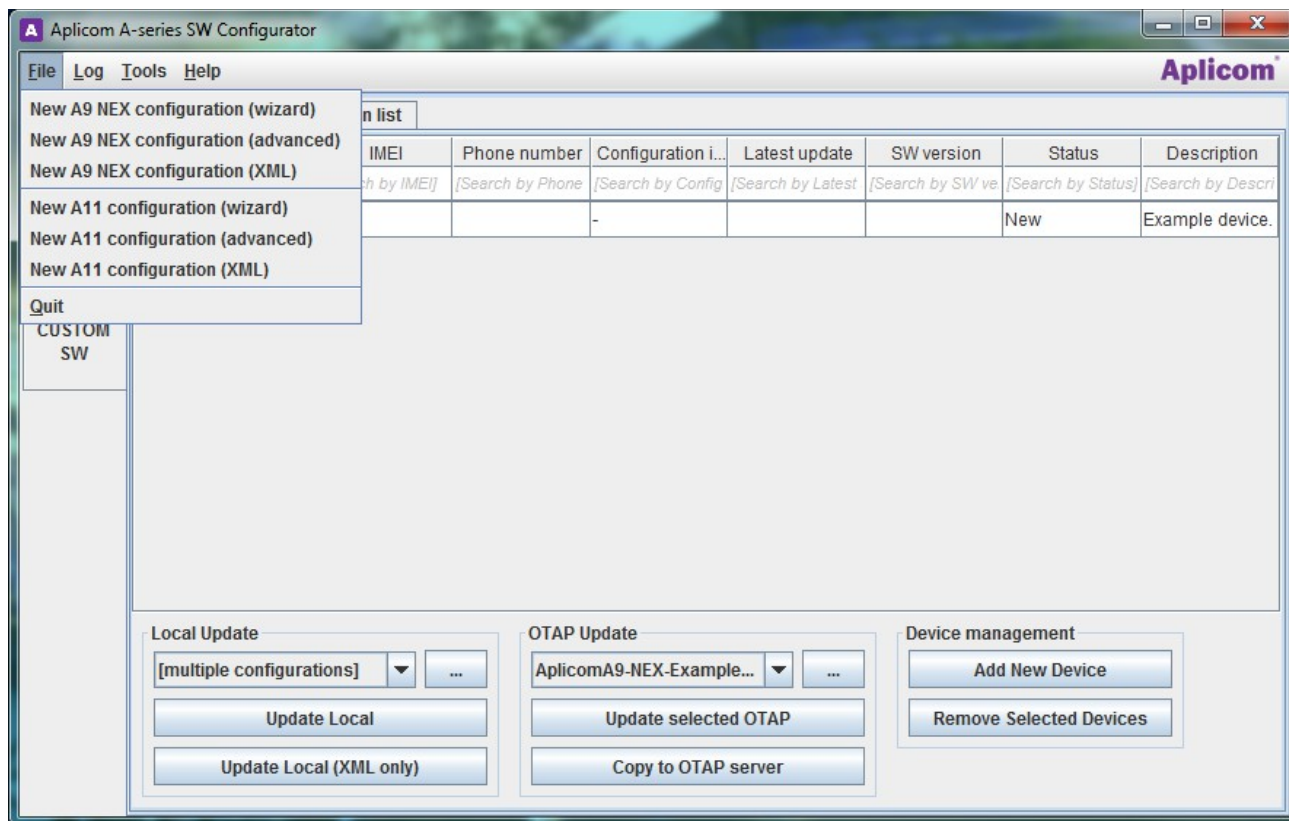
The Configurator stores all settings and data files in its data directory. By default, the data directory is the same as the Configurator installation directory. Typically, the default data directory location is `C:\Program Files\A-series SW Configurator`. Location of the data directory can be changed by editing the `properties.xml` file.

The data directory has the following structure:

- **data** (contains configurations and SW)
  - **a11** (contains configurations and A11 SWs for A11 devices)
    - **configs**
    - **software**
  - **a11lte** (contains configurations and A11 LTE SWs for A11 LTE devices)
    - **configs**
    - **software**
  - **a9pro** (contains configurations and A9 PRO SW IMlet suites for A9 PRO/IPEX PRO devices)
    - **configs**
    - **software**
  - **a9trix** (contains configurations and A9 TRIX SWs for A9 TRIX/IPEX devices)
    - **configs**
    - **software**
  - **a9nex** (contains configurations and A9 NEX SWs for A9 NEX devices)
    - **configs**
    - **software**
  - **custom** (contains custom IMlet suites)
    - **software**
- **logs** (contains Configurator's log files)
  - **debuglog.txt** (contains information that is often useful for troubleshooting)
  - **eventlog.txt** (contains information about successful and failed updates)
- **a11-devices.txt** (list of A11 devices)
- **a11lte-devices.txt** (list of A11 LTE devices)
- **a9pro-devices.txt** (list of A9 PRO/IPEX PRO devices)
- **a9nex-devices.txt** (list of A9 NEX devices)
- **a9trix-devices.txt** (list of A9 TRIX/IPEX devices)
- **custom-devices.txt** (list of custom devices)
- **properties.xml** (settings for the Configurator)

## 3.2 Main menu

This chapter describes the functionality available through the main menu of the Configurator.



### 3.2.1 File menu

Note! Items in file menu depend on enabled sections.

**New <A-series device> configuration (wizard)** Opens a new configuration wizard for the A-series device. See chapter 6 for more information about the configuration wizard.

**New <A-series device> configuration (advanced)** Opens a new advanced configuration editor for the A-series device. See chapter 7 for more information about the advanced configuration editor.

**New <A-series device> configuration (XML)** Opens a new XML configuration editor for the A-series device. See chapter 8 for more information about the XML editor.

**Quit** Exits the Configurator.

### 3.2.2 Log menu

#### View event log

Displays the event log of the Configurator. All successful and failed update and delete operations are logged into the event log.

#### View OTAP log

Displays the log of the OTAP server. The OTAP log contains information about OTAP update and delete operations. See chapter 12 for more information about OTAP functionality.



## View data directory

Views the Configurator data directory.

### 3.2.3 Tools menu

#### Options

Opens the Configurator Options window. See chapter 14 for more information about the available options.

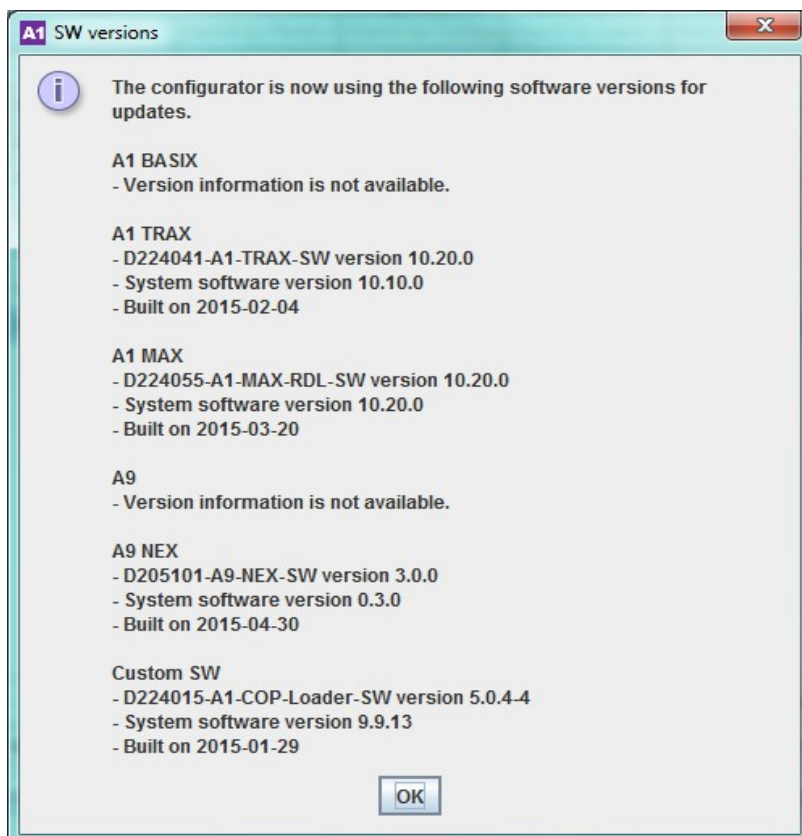
#### View SW versions

Displays the `SW versions` window, that lists the software versions used by the Configurator. Following information is displayed:

- A11 SW version
- A11 LTE SW version
- A9 PRO SW version
- A9 NEX SW version
- A9 TRIX SW version
- Custom software name and version.

**Note!** Version information for each software is displayed only if the relevant Configurator section is enabled.

The listed software versions will be used when updating the devices using local and OTAP updates.



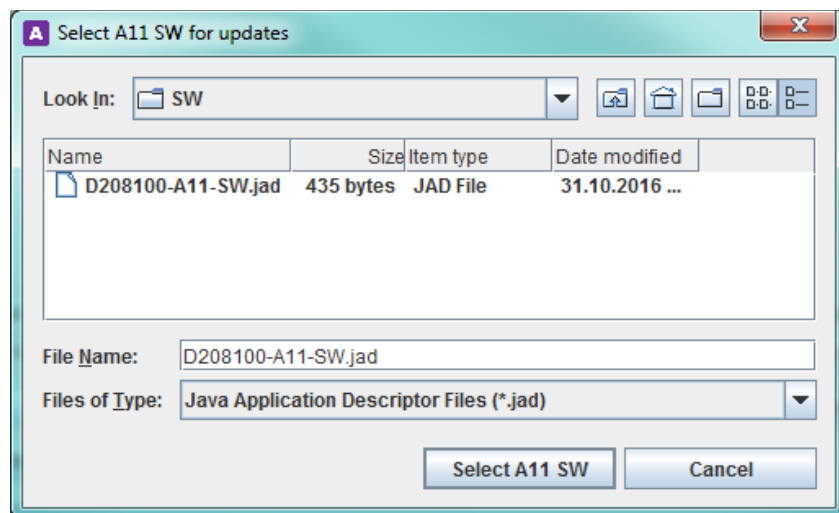
#### Configure Java auto-start

Opens the `Java auto-start` configuration window. See chapter 15 for more information about configuring the Java application auto-start.



**Select A11 SW for updates**

Selects a new A11 SW version that will be used by the Configurator when updating A11 devices.



The Configurator will ask for a location of Java Application Descriptor (JAD) file of the new A11 SW version. The Configurator expects to find the new A11 SW JAR file in the same directory and with the same name as the selected JAD file. After the new A11 SW is selected, the Configurator displays the SW versions window.

**Note!** The selected IMlet suite is copied to `data/a11/software` directory in the Configurator's data directory.

**Select <A-series device> SW for updates**

Selects a new SW version that will be used by the Configurator when updating the selected devices (A11, A11 LTE, A9 PRO etc.).

The Configurator will ask for a location of Java Application Descriptor (JAD) file of the new SW version. The Configurator expects to find the new JAR file in the same directory and with the same name as the selected JAD file. After the new SW is selected, the Configurator displays the SW versions window.

**Note!** The selected SW is copied to `data/<device name>/software` directory in the Configurator's data directory.

**Select Custom SW for updates**

Selects a new custom SW version that will be used by the Configurator when updating custom devices.

The Configurator will ask for a location of Java Application Descriptor (JAD) file of the new custom SW version. The Configurator expects to find the new custom SW JAR file in the same directory and with the same name as the selected JAD file. After the new custom SW is selected, the Configurator displays the SW versions window.

**Note!** The selected IMlet suite is copied to `data/custom/software` directory in the Configurator's data directory.

**Delete data from A-series**

Locally deletes data (SW, configurations, logs, etc) from selected devices. See chapter 11.4 for more information about deleting data from A-series device.

**Delete <select A-series device> SW (OTAP)**

Deletes the selected SW and its configuration from selected devices using OTAP. See chapter 12.3 for more information about the OTAP delete functionality.

### **Delete Custom SW (OTAP)**

Deletes a custom SW from selected devices using OTAP. See chapters 13.3 and 12.3 for more information about the OTAP delete functionality.

## **3.2.4 Help menu**

### **About**

Displays the Configurator version information.

### **User Manual**

Displays the Configurator User Manual (this document) as a PDF file.

**Note!** The `User Manual` menu item is available only if the Configurator User Manual PDF is found in the Configurator installation directory. The User Manual PDF is not included in the Configurator Installation program. However, if the installation program is started from the *SW Package for A-series*, it automatically copies the User Manual PDF to the Configurator installation directory.

## 4 QUICK START

This chapter provides step-by-step instructions to configure the device to send position data to a mobile phone using SMS when

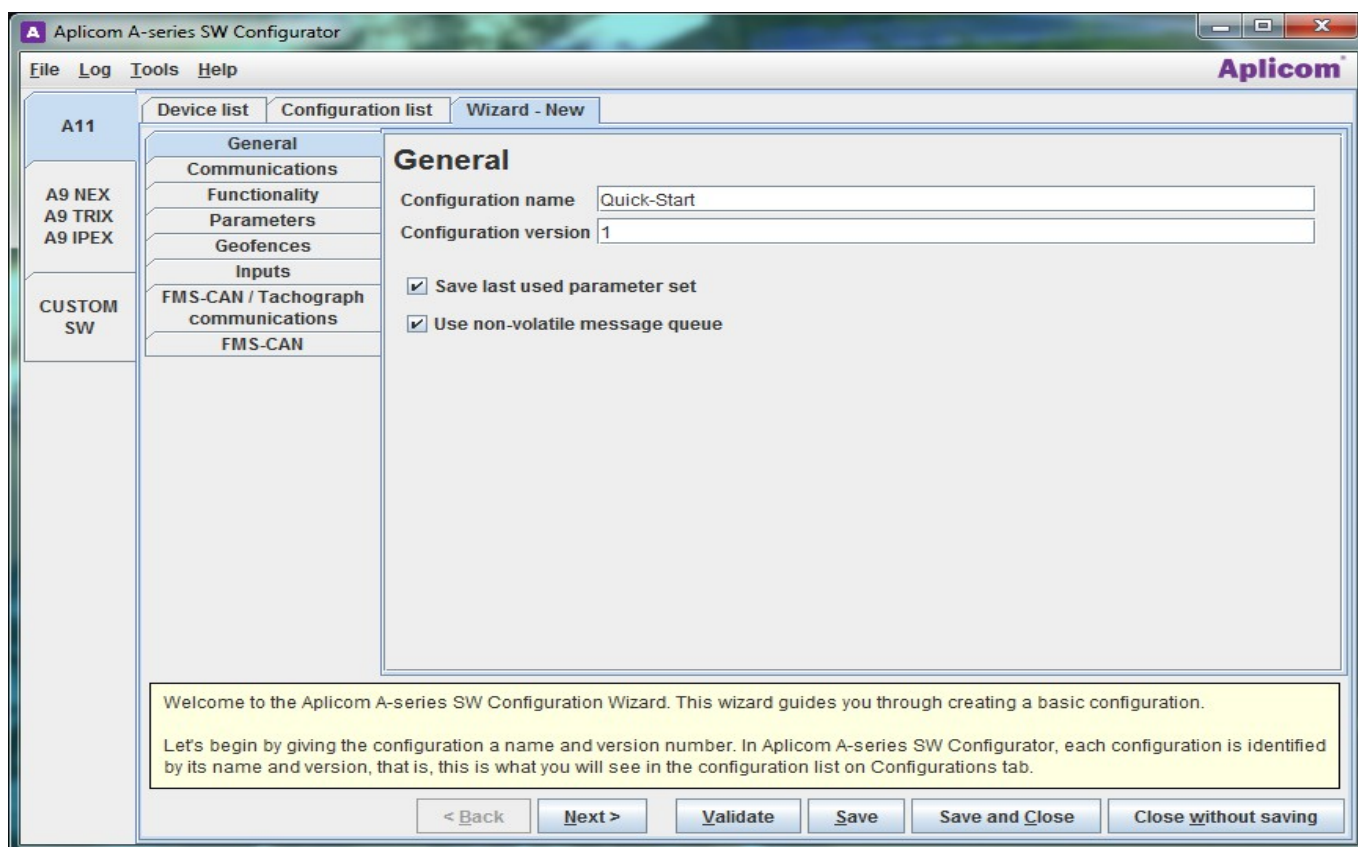
- A11 SW starts.
- Ignition (IGN) line changes state.
- The device has travelled one kilometre since last DISTANCE\_TRAVELED message was sent.

Chapter 4.1 describes the steps required to create the configuration and chapter 4.2 describes the steps required for installing the configuration to A11 device.

**Tip!** A11 is used in this example but configuring other A-series devices is very similar.

### 4.1 Creating a configuration

1. Open the configuration wizard by selecting **File -> New A11 Configuration (wizard)**.
2. Enter a name and version for the configuration.



3. Click the **Next** button to proceed to configure communication settings.
4. Select **T protocol verbose (human-readable)** from the **Message format** drop-down list.
5. Select **SMS** from the **Communications type** drop-down list.

The screenshot shows the 'Aplicom A-series SW Configurator' window with the 'Wizard - New' tab selected. The left sidebar shows a tree view with 'A11' selected, and 'A9 NEX', 'A9 TRIX', and 'A9 IPEX' under it. The 'CUSTOM SW' section is also visible. The main area is titled 'Communications' and contains the following fields:

- Message format:** A dropdown menu set to 'T protocol compact (human-readable)'.
- Communication type:** A dropdown menu set to 'SMS'.
- SMS communication parameters:** A section containing a 'Phone number' field with the value '+358012345678'.

Below the configuration fields, there is a yellow informational box with the following text:

The communications step defines how the Aplicom device communicates with the server. The server could simply be just a mobile phone that receives SMS short messages or it could be a custom-built server application that does further processing on the data received from Aplicom devices.

Message format defines how the data packets are formatted and communication type defines how the data is transmitted to a server.

At the bottom of the window, there are five buttons: '< Back', 'Next >', 'Validate', 'Save', and 'Save and Close'. A 'Close without saving' button is also present in the bottom right corner.

6. Enter your mobile phone number to the `Phone number` field. The phone number must be in international format, for example +358012345678. The international format beginning with '00' is not accepted.
7. Click the `Next` button to proceed to configure the events that should be reported by the device.
8. Select at least following events:
  - `SOFTWARE_START`
  - `IGN_ON`
  - `IGN_OFF`
  - `DISTANCE_TRAVELED`

The screenshot shows the 'Functionality' tab of the 'Wizard - New' configuration screen. The left sidebar lists device models (A11, A9 NEX, A9 TRIX, A9 IPEX) and custom SW options. The main area is titled 'Functionality' and contains a list of events to monitor, each with a checkbox. Below the list is a yellow informational box and a row of navigation buttons.

**Functionality**

Send event snapshot

- ☒ on startup (SOFTWARE\_START event)
- ☒ when the ignition is switched (IGN\_ON event)
- ☒ when the ignition is switched off (IGN\_OFF event)
- ☐ when vehicle starts moving (START\_MOVING event)
- ☐ when vehicle stops (STOP\_MOVING event)
- ☐ when direction changes (DIRECTION\_CHANGED event)
- ☒ when distance set in parameters is traveled (DISTANCE\_TRAVELED event)
- ☐ when speed goes over speed limit (SPEED\_LIMIT event)
- ☐ when speed goes below speed limit (SPEED\_LIMIT event)
- ☐ when iButton login is detected (IBUTTON event)
- ☐ when iButton logout is detected (IBUTTON event)

The functionality phase defines the events that the device reports to the server. An event snapshot is sent using the communication settings defined in communications phase whenever any of the selected events occurs. An event snapshot contains the state of the device at the time of the event occurrence and information about the event.

< Back   Next >   Validate   Save   Save and Close   Close without saving

9. Click the **Next** button to proceed to configure parameters for the events.
10. Check the **Generate an event every X meters** check box in default parameter set and enter 1000 as the parameter value. The other parameters are not used in this configuration.

The screenshot shows the 'Parameters' tab of the 'Wizard - New' configuration screen. The left sidebar is the same as the previous screen. The main area is titled 'Parameters' and is divided into two columns: 'default' and 'alternative'. Each column contains a list of parameters with checkboxes and input fields. Below the columns is a yellow informational box and a row of navigation buttons.

**Parameters**

**default**

- ☒ Generate an event every 1000 meters
- ☐ Consider moving if moved 150 meters in 60 seconds
- ☐ Detect direction change when turned 60 degrees in 15 seconds
- ☐ Enable speed limit 40 km/h
- ☐ When idle, send alive message every 60 seconds
- ☐ Power off delay after IGN off 30 seconds

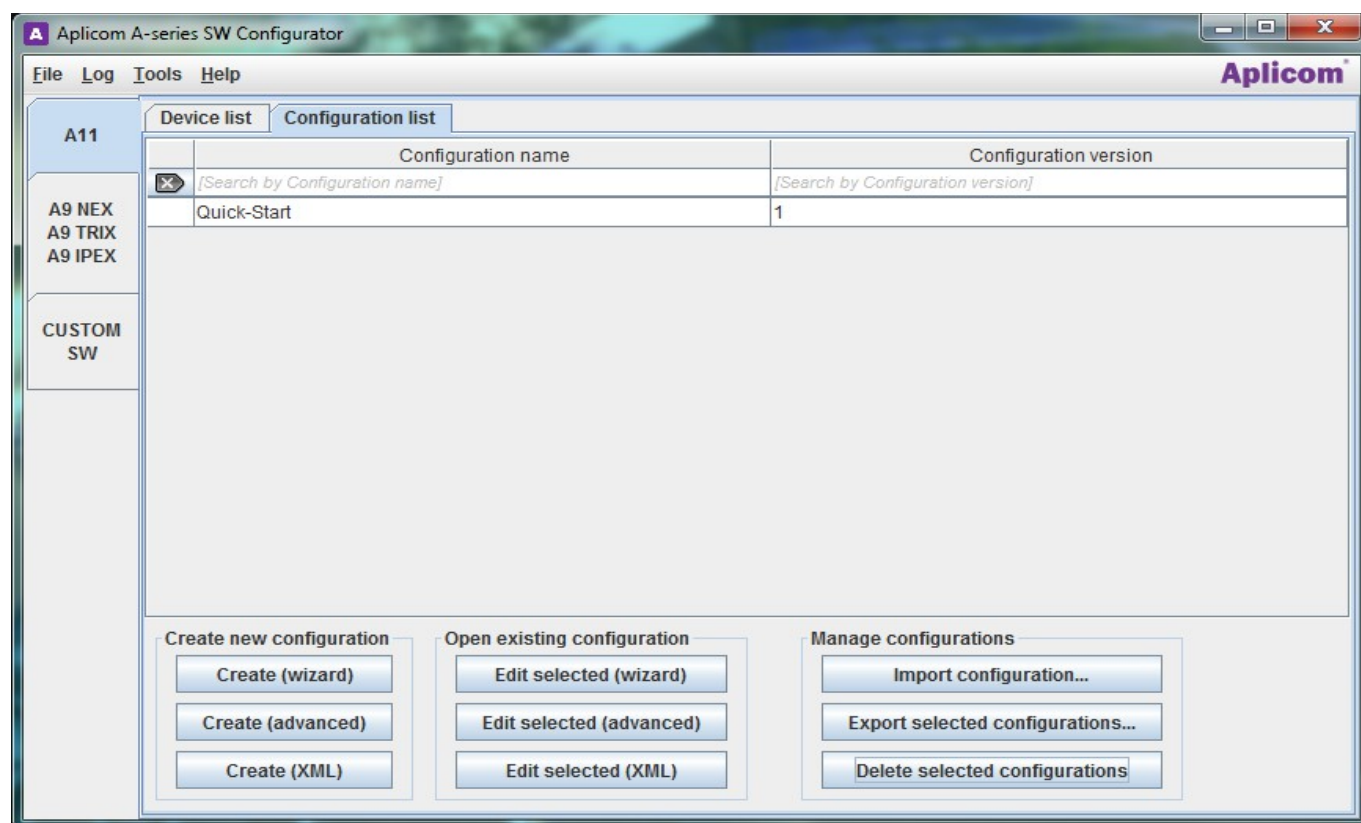
**alternative**

- ☐ Generate an event every 0 meters
- ☐ Consider moving if moved 0 meters in 0 seconds
- ☐ Detect direction change when turned 0 degrees in 0 seconds
- ☐ Enable speed limit 0 km/h
- ☐ When idle, send alive message every 0 seconds
- ☐ Power off delay after IGN off 0 seconds

These parameters can be used to tweak various aspects of the device behavior. Parameters are grouped into parameters sets. In this configuration wizard, two parameter sets can be defined, default and alternative.

< Back   Next >   Validate   Save   Save and Close   Close without saving

11. Click the **Save** and **Close** button to save the configuration and close the wizard. The new configuration will appear in the configuration list.





## 4.2 Installing the configuration to A-series device

To use the newly created configuration, it must be installed to A-series device.

First steps for devices with USB (A11, A11 LTE and A9 PRO):

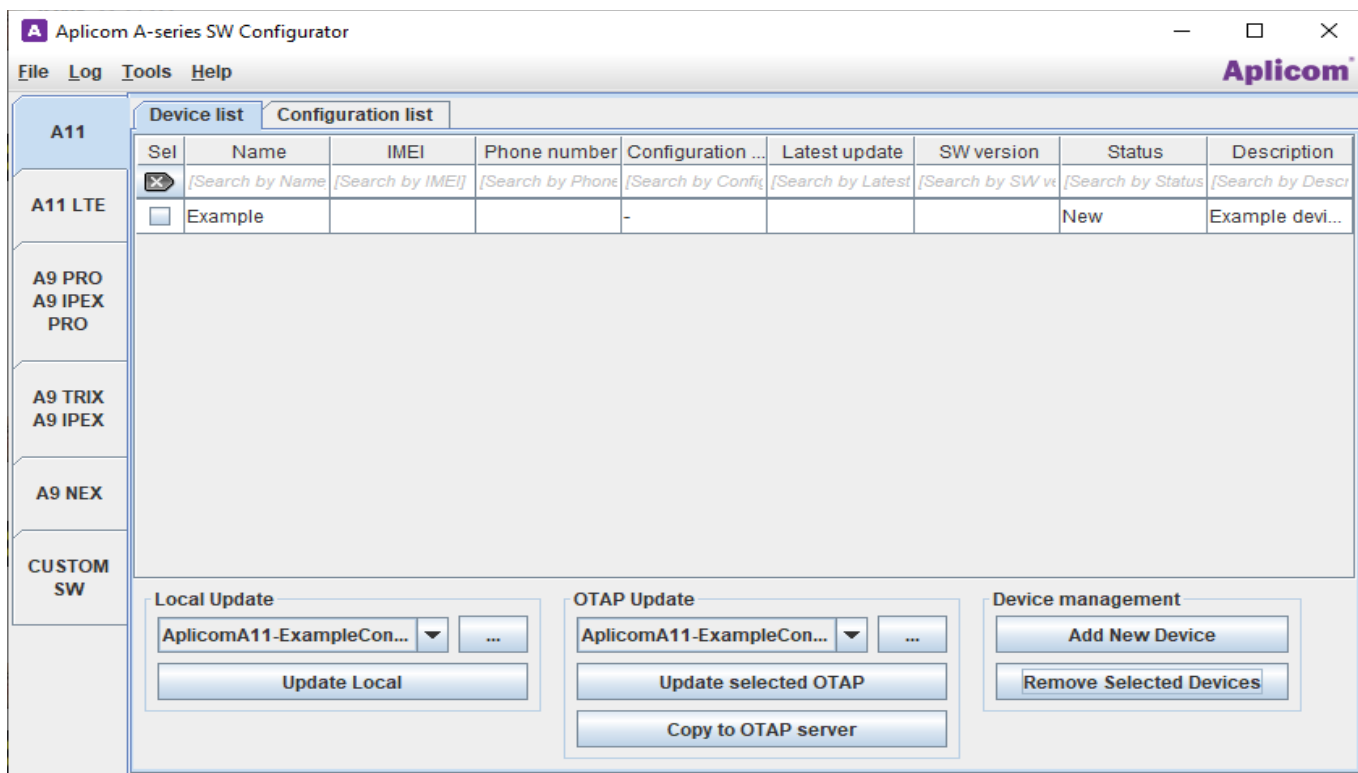
1. Connect the device to computer using a standard micro USB cable between
2. Open the **Configurator Options** dialog by selecting **Tools -> Options**.
3. Select the correct computer serial port from the COM port for local updates drop-down list and click the **OK** button to close the options dialog. Select one of the USB interface's virtual COM ports (Nameless Cinterion EhxUSB Modem port or one of Cinterion Ehx USB Com Ports 3 – 5. **Note!** Ports 1 and 2 cannot be used.)

First steps for other devices:

1. Connect the A-series device to computer using a data cable between COM1 of the device and a serial port of the computer. Connect data cable D337055 to the Serial connector of the device.
2. Open the **Configurator Options** dialog by selecting **Tools -> Options**.
3. Select the correct computer serial port from the COM port for local updates drop-down list and click the **OK** button to close the options dialog.

Last steps common for all A-series devices:

4. Select the **Device list** tab to view the device management section of the Configurator.
5. Select the newly created configuration from the drop-down list in **Local Update** section.
6. Power on the A-series device and switch the IGN line on. On all A9 devices, use DIN1/IGN line (IGN is default).
7. Click the **Update Local** button to install the new configuration to A-series device. See chapter 11 for more information about local update.
8. After the update is completed, the device will restart and take the new configuration in use.



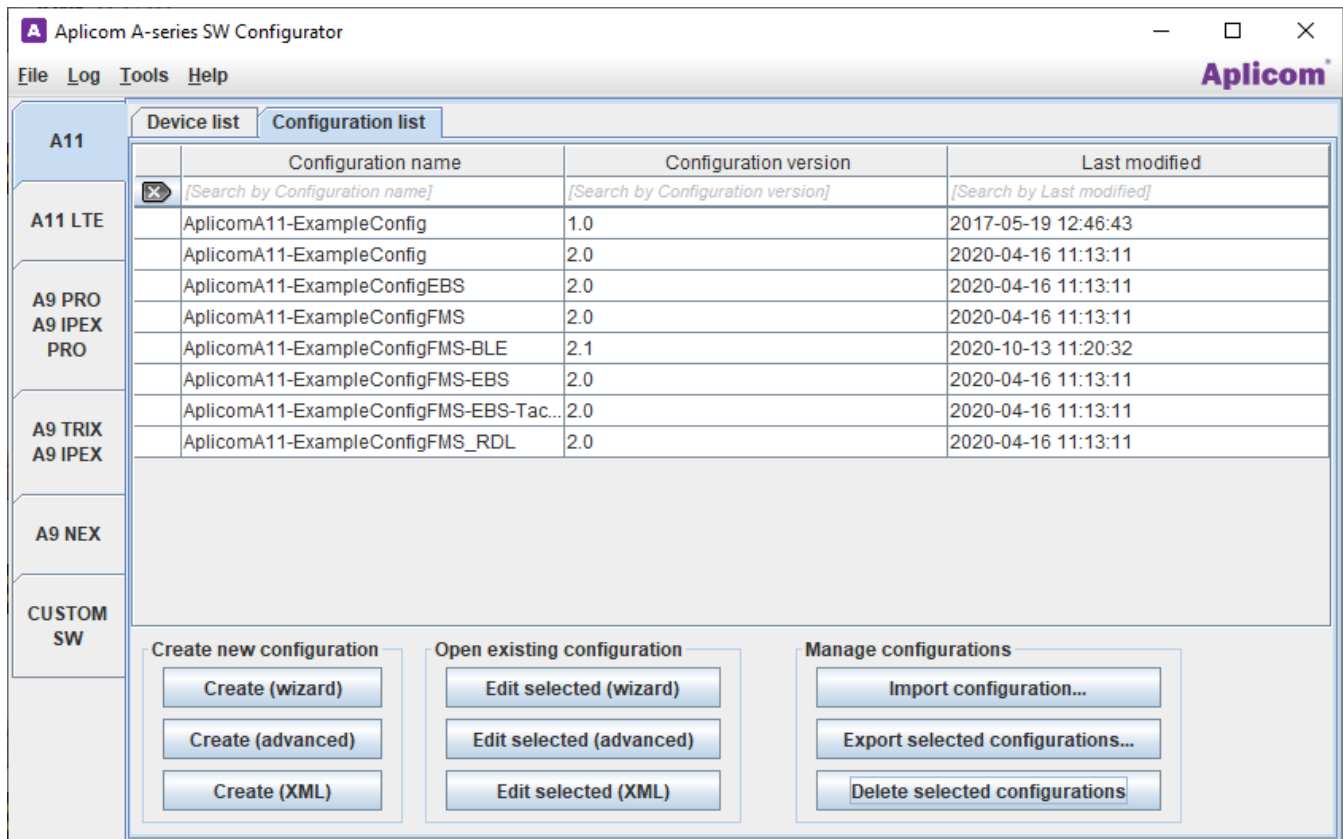
After the above steps the device will send an SMS to your mobile phone every time when:

- Software starts.
- Ignition (IGN) line changes state.
- The device has travelled one kilometer since last `DISTANCE_TRAVELED` message was sent.

See chapter 11 for more information about the local update.

## 5 CONFIGURATION MANAGEMENT

The `Configuration list` tab contains a list of available configurations and provides functionality to add, edit and remove configurations. When the Configurator is started for the first time the configuration list will contain the example configurations.



### 5.1 Configuration list

All configurations are listed in the configuration list. Each configuration is identified by its name and version number. As a side effect, changing the name or version number of a configuration will create a copy of the configuration. This doubles as a very simple backup and version control functionality as the old versions are always kept in the configuration list.

The configuration files are stored in the Configurator's data directory. See chapter 3.1 for more information about contents of the data directory.

### 5.2 Creating a new configuration

Click the `Create (wizard)` button to create a new configuration using the configuration wizard. A new configuration wizard will be opened. See chapter 6 for more information about the configuration wizard.

Click the `Create (advanced)` button to create a new configuration using the advanced configuration editor. A new advanced configuration editor tab will be opened. See chapter 7 for more information about the advanced configuration editor.

Click the `Create (XML)` button to create a new configuration and open it in the XML editor. A new XML editor tab will be opened with a template configuration. See chapter 8 for more information about the XML editor.

### 5.3 Editing a configuration

#### Configuration wizard

Select a configuration from the list and click the `Edit selected (wizard)` button to open an existing configuration for editing in the configuration wizard. Note that the configuration wizard only supports editing simple



configurations. If the selected configuration has been created or modified outside the configuration wizard, some configuration settings may be lost. The configuration wizard displays a warning if it does not know how to handle the selected configuration. See chapter 6 for more information about the configuration wizard.

### Advanced configuration editor

Select a configuration from the list and click the `Edit selected (advanced)` button to open an existing configuration for editing in the advanced configuration editor. See chapter 7 for more information about the advanced configuration editor.

### XML editor

Select a configuration from the list and click the `Edit selected (XML)` button to open an existing configuration for editing in the XML editor. Note that changing the name or version attributes of the configuration's root tag will create a new configuration and leave the old configuration intact. See chapter 8 for more information about the XML editor.

## 5.4 Deleting configurations

Select the configurations to delete and click the `Delete selected configurations` button to delete the selected configurations. The Configurator will ask for confirmation before deleting the configurations.

## 5.5 Importing and exporting configurations

Click the `Import configuration` button to import a configuration to the configuration list. The Configurator will display a window for selecting the XML configuration file to import.

Select one or more configurations from the list and click the `Export selected configurations` button to export the selected configurations. The Configurator will display a window for selecting location for the exported XML configuration files.

**Note!** An imported configuration is copied to data directory of the Configurator. Therefore, modifying the imported configuration in the Configurator does not modify the original configuration that was selected during import and vice versa.

## 5.6 Searching configurations

The configuration list has a search bar that can be used to search for configurations by one or more field. Type search terms in the fields of the search bar and press Enter to search configurations. The configuration list will be limited to configuration that match the entered search terms. Click the `x` button in top-left corner of the configuration list to clear all search terms and reset the configuration list display to all available configuration.

## 6 CONFIGURATION WIZARD

Select **File** -> **New** <select A-series device> configuration (wizard) to start building a new configuration using the configuration wizard. A new configuration wizard can be opened also by clicking the **Create (wizard)** button on the **Configuration list** tab.

Configuration wizards for all devices are described in chapters starting from 6

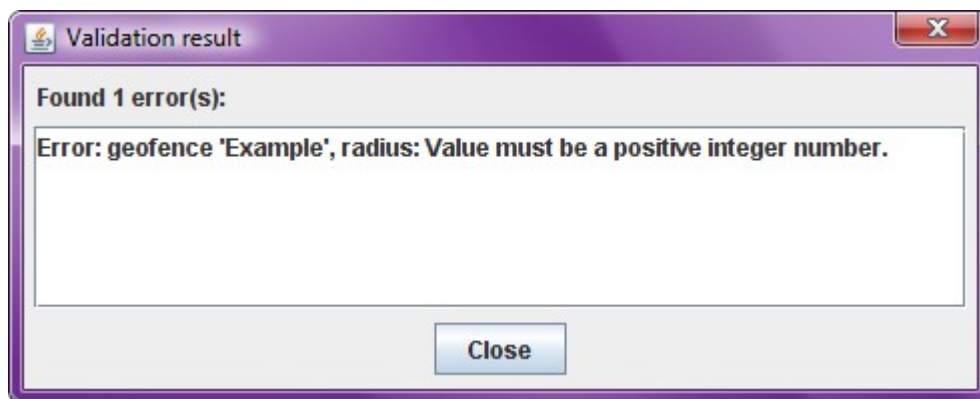
### 6.1 Buttons

There is a row of buttons at the bottom of the configuration wizard:

**Next** Moves to next page in the configuration wizard.

**Back** Moves to previous page in the configuration wizard.

**Validate** Validates the configuration. If the current configuration contains any errors, the Configurator displays the found errors. See chapter 9 for more information about the validation.



After validation, an error and warning indicators (!!)

 are displayed next to the field that contains an error. Hold the mouse cursor above the error indicator for a short time to view the reason for the error.

Latitude	<input type="text" value="62.500000"/>	degrees
Longitude	<input type="text" value="26.700000"/>	degrees
Radius	<input type="text" value="-2000"/>	meters !!
Parameter set	<div><div>Default</div><div>Error Value must be a positive integer number.</div></div>	
<input type="checkbox"/> Send snapshot on enter		
<input type="checkbox"/> Send snapshot on exit		

The error indicators are displayed until the next validation.

**Save** Saves the configuration. The configuration is validated before it is saved.

**Save and Close** Saves the configuration and closes the wizard. The configuration is validated before it is saved.

**Close without saving** Closes the wizard without saving the configuration.

## 6.2 Wizard steps

The configuration wizards are designed to provide a simple way to create simple configurations. Configuration wizard supports one communication method for GPS data, two parameter sets, any number of geofences and digital inputs of the device. Configuration wizard can create configurations that send a message to a server using GPRS or SMS when any of the selected events occurs. Configuration wizard supports following events:

- SOFTWARE\_START
- IGN\_ON
- IGN\_OFF
- START\_MOVING
- STOP\_MOVING
- DIRECTION\_CHANGED
- DISTANCE\_TRAVELED
- SPEED\_LIMIT
- IBUTTON
- ALARM\_ACTIVE
- GEOFENCE
- INPUT\_CHANGED

The configuration wizards are divided into several steps. Each step defines one specific part of an SW configuration. A short help text is displayed on each wizard step. This chapter describes the configuration options supported by the configuration wizard. See the device's SW user manual for more information about configuring the SW.

The wizard steps are listed on the left side of the wizard. The wizard steps can be completed in any order. Use the wizard step list or **Next** and **Back** buttons to navigate between the wizard steps.

## 6.2.1 General

The `General` step defines general configuration settings.

The screenshot shows the 'Aplicom A-series SW Configurator' window with the 'Wizard - New' tab selected. On the left, a tree view lists device types: A11, A11 LTE, A9 PRO / A9 IPEX PRO (highlighted), A9 TRIX / A9 IPEX, A9 NEX, and CUSTOM SW. The main area is titled 'General' and contains the following fields and options:

- Configuration name:** A text field containing 'New\_configuration'.
- Configuration version:** A text field containing '1'.
- Save last used parameter set:** A checked checkbox.
- Use non-volatile message queue:** A checked checkbox.

At the bottom, a yellow informational box contains the following text:

Welcome to the Aplicom A-series SW Configuration Wizard. This wizard guides you through creating a basic configuration.

Let's begin by giving the configuration a name and version number. In Aplicom A-series SW Configurator, each configuration is identified by its name and version, that is, this is what you will see in the configuration list on Configurations tab.

Navigation buttons at the bottom include: < Back, Next >, Validate, Save, Save and Close, and Close without saving.

### Configuration name and version

The name and version of this configuration. The configurator identifies each configuration by its name and version. The name and version set here will be displayed in the configurations list on the `Configuration list` tab.

### Save last used parameter set

If this option is selected, the SW saves the parameter set it was using during shutdown. The saved parameter set will be used next time when the SW starts. If this option is not selected, the default parameter set will be activated every time the SW starts. The parameter sets are defined in the `Parameters` step. See chapter 6.2.4 for more information about the `Parameters` step.

### Use non-volatile message queue

If this option is selected, the SW will store the message queue to disk when communication is not possible. The SW will start sending the stored messages when the communication is possible again. If this option is not set, the SW will discard messages if the communication is not possible.

## 6.2.2 Communications

The **Communications** step defines how the SW communicates with a server. The server could simply be just a mobile phone that receives SMS messages or it could be a custom-built server application that does further processing on the data received from the device.

**Note!** These communication settings are only used for sending regular snapshots.

**Aplicom A-series SW Configurator**

File Log Tools Help

Device list Configuration list Wizard - New

**Communications**

Message format: G protocol v2.0 (binary, for grouped data)

Communication type: GPRS

GPRS communication parameters

Connection type: TCP/IP

Destination: 192.168.0.0:7777

APN: internet

User name:

Password:

DNS: 0.0.0.0

The communications step defines how the Aplicom device communicates with the server. The server could simply be just a mobile phone that receives SMS short messages or it could be a custom-built server application that does further processing on the data received from Aplicom devices.

Message format defines how the data packets are formatted and communication type defines how the data is transmitted to a server.

< Back Next > Validate Save Save and Close Close without saving

### Message format

The message format defines the protocol for formatting and transmitting the messages. Available protocols are compact and verbose T protocol, D protocol and G protocol for device supporting it.

T protocol is a human-readable plain text protocol. T protocol's verbose format contains name and value of each field on it's own line and compact format contains semicolon separated values and no field names. See *S100301 Aplicom T Protocol Specification* for more information about T Protocol.

D protocol is a machine-readable binary data format. The benefit of using the D protocol is its much smaller packet size compared to the T protocol. See *S100300 Aplicom D Protocol Specification* for more information about D Protocol.

G protocol is also a machine-readable binary data format. The benefit of using the G protocol is its new features and grouped structure compared to the G protocol. See *S100304 Aplicom G Protocol Specification* for more information about G Protocol.

### Communication type

Two types of communications are available, GPRS and SMS.

### Communication parameters

Communication parameters define the destination for messages sent by the SW. For SMS communication, a phone number is required. For GPRS communication, **Connection type** (TCP/IP or UDP/IP), GPRS network settings (APN, user name and password) and **Destination** must be specified. A **Destination** consists of an IP

address or domain name and a port number. An IP address of a Domain Name Server (DNS) must be specified, if a domain name is used as the Destination.

### 6.2.3 Functionality

The functionality phase defines the events that the SW reports to a server. An event snapshot is sent using the communication settings defined in communications phase whenever any of the selected events occurs. An event snapshot contains the state of the device at the time of the event occurrence and information about the event.

The screenshot shows the 'Aplicom A-series SW Configurator' window with the 'Wizard - New' tab selected. The left sidebar lists device models: A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIx, A9 IPEX, A9 NEX, and CUSTOM SW. The main panel is titled 'Functionality' and contains a list of events to monitor, each with a checkbox. The events are: 'on startup (SOFTWARE\_START event)', 'when the ignition is switched (IGN\_ON event)', 'when the ignition is switched off (IGN\_OFF event)', 'when vehicle starts moving (START\_MOVING event)', 'when vehicle stops (STOP\_MOVING event)', 'when direction changes (DIRECTION\_CHANGED event)', 'when distance set in parameters is traveled (DISTANCE\_TRAVELED event)', 'when speed goes over speed limit (SPEED\_LIMIT event)', 'when speed goes below speed limit (SPEED\_LIMIT event)', and 'when iButton login is detected (IBUTTON event)'. Below the list, a yellow box contains a descriptive text about the functionality phase. At the bottom, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

**Functionality**

Send event snapshot

- ☒ on startup (SOFTWARE\_START event)
- ☒ when the ignition is switched (IGN\_ON event)
- ☒ when the ignition is switched off (IGN\_OFF event)
- ☐ when vehicle starts moving (START\_MOVING event)
- ☐ when vehicle stops (STOP\_MOVING event)
- ☐ when direction changes (DIRECTION\_CHANGED event)
- ☒ when distance set in parameters is traveled (DISTANCE\_TRAVELED event)
- ☐ when speed goes over speed limit (SPEED\_LIMIT event)
- ☐ when speed goes below speed limit (SPEED\_LIMIT event)
- ☐ when iButton login is detected (IBUTTON event)

The functionality phase defines the events that the device reports to the server. An event snapshot is sent using the communication settings defined in communications phase whenever any of the selected events occurs. An event snapshot contains the state of the device at the time of the event occurrence and information about the event.

< Back   Next >   Validate   Save   Save and Close   Close without saving

**Note!** Used parameter set affects the detection of some of these events. If the corresponding setting is not set in the parameter set, the event snapshot will not be sent.

## 6.2.4 Parameters

Parameters affect the behaviour of the device. These parameters are grouped into parameter sets. Two parameter sets can be defined in the configuration wizard, default and alternative.

**Aplicom A-series SW Configurator**

File Log Tools Help

Device list Configuration list Wizard - New

A11

A11 LTE

A9 PRO  
A9 IPEX  
PRO

A9 TRIX  
A9 IPEX

A9 NEX

CUSTOM  
SW

General  
Communications  
Functionality  
**Parameters**  
Geofences  
Inputs  
FMS-CAN / Tachograph  
communications  
FMS-CAN

### Parameters

**default**

- ☒ Generate an event every  meters
- ☒ Consider moving if moved  meters in  seconds
- ☒ Detect direction change when turned  degrees in  seconds
- ☒ Enable speed limit  km/h
- ☒ When idle, send alive message every  seconds
- ☒ Power off delay after IGN off  seconds

**alternative**

- ☐ Generate an event every  meters
- ☐ Consider moving if moved  meters in  seconds
- ☐ Detect direction change when turned  degrees in  seconds
- ☐ Enable speed limit  km/h
- ☐ When idle, send alive message every  seconds
- ☐ Power off delay after IGN off  seconds

These parameters can be used to tweak various aspects of the device behavior. Parameters are grouped into parameters sets. In this configuration wizard, two parameter sets can be defined, default and alternative.

< Back Next > Validate Save Save and Close Close without saving

Each parameter set contains following parameters.

### Generate an event every X meters

Defines the distance in meters that must be travelled between two consecutive DISTANCE\_TRAVELLED events.

### Consider moving if moved X meters in Y seconds

Defines the thresholds for movement detection.

### Detect direction change when turned X degrees in Y seconds

Defines the thresholds for direction change detection.

### Speed limit

Defines the velocity threshold for GPS based speed limit check.

### When idle, send alive message every X seconds

If this option is enabled the device will send an alive message when no other messages have been sent for the

defined time period. See the device's SW User Manual for more information about alive messages.

### Power off delay after IGN off

If this option is enabled, the A9 device will stay operational for the specified time after the ignition (IGN) is switched off. If this option is disabled, the A9 device will go into sleep mode immediately after IGN is switched off.

## 6.2.5 Geofences

The geofences phase configures the geofences used by the device. Each geofence defines geographical location defined by its center point and radius. Also box and polygon geofences are supported. Parameters for box and polygon geofences are edited with XML editor. Each configuration can have zero or more geofences.

**Note!** It is not recommended to define overlapping geofences. Having two or more geofences overlap can cause the GEOFENCE events to be generated in unpredictable order. In wizard configuration this could result in incorrect parameter set being activated when the overlapping geofences are visited.

Each geofence defines geographical location defined by its center point and radius. A configuration can have zero or more geofences.

To add a geofence, click the Create button. To remove a geofence, select the geofence from the list and click the Remove button. To rename a geofence, select the geofence from the list and click the Rename button.

To create a geofence, click the **Create** button to create a new geofence. The Configurator will ask for a name for the geofence. The new geofence will appear in the geofence list and its details will be displayed.

To rename a geofence, select a geofence from the list and click the **Rename** button. The Configurator will ask for a new name for the geofence.

To remove a geofences, select one or more geofences from the list and click the **Remove** button. The Configurator will ask for confirmation before removing the selected geofences.

The following settings can be configured for each geofence.

### Latitude

Latitude of geofence's center point in decimal latitude degrees. Period must be used as decimal separator. Negative latitude is southbound and positive latitude is northbound.



## Longitude

Longitude of geofence's center point in decimal longitude degrees. Period must be used as decimal separator. Negative longitude is westbound and positive longitude is eastbound.

## Radius

Radius of the geofence in meters.

## Parameter set

The selected parameter set will be used whenever the vehicle is inside this geofence. The default parameter set is always used when the vehicle is not inside any geofence.

## Send snapshot on enter

If this option is selected, the SW will send an event snapshot when the vehicle enters this geofence area.

## Send snapshot on exit

If this option is selected, the SW will send an event snapshot when the vehicle exits this geofence area.

## 6.2.6 Inputs

The **Inputs** phase is used to select which inputs are monitored. A threshold value can be defined for each analogue input. The wizard always sets the measurement range for analogue inputs to 0..5000 mV. The SW monitors each input line and sends an event snapshot when any of the selected events occur.

**Aplicom A-series SW Configurator**

File Log Tools Help

Device list Configuration list Wizard - New

**Inputs**

Send snapshot when

A/D input 1 goes	<input type="checkbox"/> over	<input type="checkbox"/> below	<input type="text" value="2500"/>	mV
A/D input 2 goes	<input type="checkbox"/> over	<input type="checkbox"/> below	<input type="text" value="2500"/>	mV
A/D input 3 goes	<input type="checkbox"/> over	<input type="checkbox"/> below	<input type="text" value="2500"/>	mV
Digital input 1 goes	<input type="checkbox"/> high	<input type="checkbox"/> low		
Digital input 2 goes	<input type="checkbox"/> high	<input type="checkbox"/> low		
Digital input 3 goes	<input type="checkbox"/> high	<input type="checkbox"/> low		
Digital input 4 goes	<input type="checkbox"/> high	<input type="checkbox"/> low		

The inputs step defines which inputs are monitored. A threshold value can be defined for each analogue input. The analogue inputs measure voltage in range 0..5000 mV. The device monitors each input line and reports the selected events to server.

< Back Next > Validate Save Save and Close Close without saving

## 6.2.7 FMS-CAN / Tachograph communications

The FMS-CAN / Tachograph communications step defines GPRS communication settings for sending FMS-CAN and tachograph snapshots to a server.

The screenshot shows the 'Aplicom A-series SW Configurator' window with the 'Wizard - New' tab selected. The left sidebar lists device models: A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. The main panel displays the 'FMS-CAN / Tachograph communications' configuration step. The configuration fields are as follows:

Field	Value
Connection type	TCP/IP
Destination	192.168.0.1:1234
APN	internet
User name	
Password	
DNS	0.0.0.0

Below the configuration fields, a yellow box contains the text: 'The FMS-CAN/Tachograph communications step defines the GPRS communication settings for sending Tachograph and FMS-CAN snapshots to a server.'

At the bottom of the window, there are five buttons: '< Back', 'Next >', 'Validate', 'Save', and 'Save and Close'. A 'Close without saving' button is also present in the bottom right corner.

## 6.2.8 FMS-CAN

The FMS-CAN phase configures the FMS-CAN parameters and selects events to monitor. A FMS-CAN snapshot is sent to server when any of the selected events occurs. The FMS-CAN snapshots are sent using the communication settings defined in FMS-CAN / Tachograph communications step.

**Note!** FMS-CAN snapshots are always sent using F protocol. See *S100302 Aplicom F Protocol Specification* for more information about F protocol.

**Aplicom A-series SW Configurator**

File Log Tools Help

Device list Configuration list Wizard - New

**A11**

**A11 LTE**

**A9 PRO**  
**A9 IPEX**  
**PRO**

**A9 TRIx**  
**A9 IPEX**

**A9 NEX**

**CUSTOM**  
**SW**

General  
Communications  
Functionality  
Parameters  
Geofences  
Inputs  
FMS-CAN / Tachograph communications  
**FMS-CAN**

### FMS-CAN

**FMS-CAN events**

Send CAN snapshot when

- ☐ harsh braking is detected
- ☐ speed limit is exceeded
- ☐ speed returns to allowed range
- ☐ engine overheats
- ☐ engine temperature returns to normal
- ☐ engine RPM is too high
- ☐ engine RPM returns to normal
- ☐ cruise control is turned on
- ☐ cruise control is turned off

**FMS-CAN parameters**

Harsh braking detection limit  
0 km/h/s

Engine overheating threshold  
°C

Engine overrevolutions threshold  
0 RPM for 0 seconds

The FMS-CAN phase configures the FMS-CAN parameters and selects events to monitor. A FMS-CAN snapshot is sent to server when any of the selected events occurs. The FMS-CAN snapshots are sent using and the communication settings defined in FMS-CAN / Tachograph communications step. FMS-CAN snapshots are always sent using F protocol.

< Back Next > Validate Save Save and Close Close without saving

## 7 ADVANCED EDITOR

Select File -> New <A-series device> configuration (advanced) or File -> New <A-series device> configuration (advanced) to start building a new configuration using the advanced configuration editor. The advanced configuration editor can be opened also by clicking the Create (advanced) or Edit selected (advanced) button on the Configuration list tab.

The XML configuration sections are described in detail in *Configuration syntax* chapters of corresponding A-series device's *SW User Manual*.

This document does not explain all individual settings found in the advanced editor pages. Instead, only the key elements of the advanced editor user interface are described here. Meanings and valid values of the individual settings on each page can be found in corresponding chapter of selected A-series device's *SW User Manual*.

### 7.1 Buttons

There is a row of buttons at the bottom of the advanced editor:

#### Next

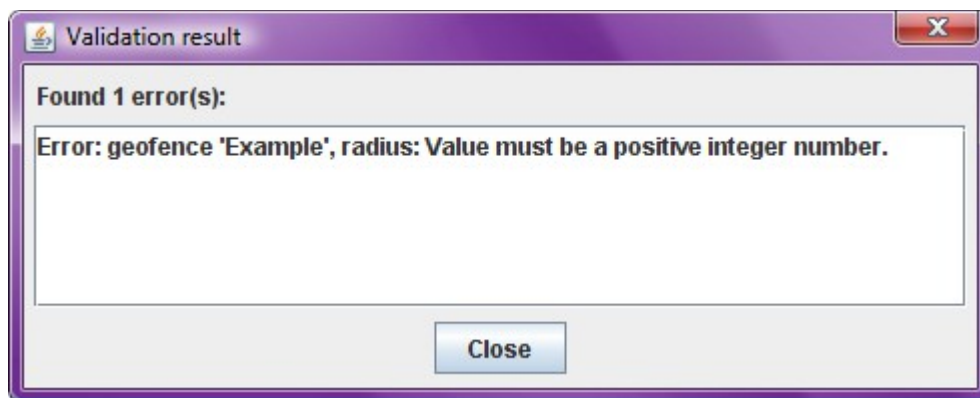
Moves to next page.

#### Back

Moves to previous page.

#### Validate

Validates the configuration. If the current configuration contains any errors or warnings, the Configurator displays a list of found errors and warnings. See chapter 9 for more information about the validation.



After validation, an error and warning indicators (!!)

 are displayed next to the field that contains an error. Hold the mouse cursor above the error indicator for a short time to view the reason for the error.

Latitude	<input type="text" value="62.500000"/>	degrees
Longitude	<input type="text" value="26.700000"/>	degrees
Radius	<input type="text" value="-2000"/>	meters !!

**Error**  
Value must be a positive integer number.

The error indicators are displayed until the next validation.

#### Save

Saves the configuration. The configuration is validated before it is saved.

## Save and Close

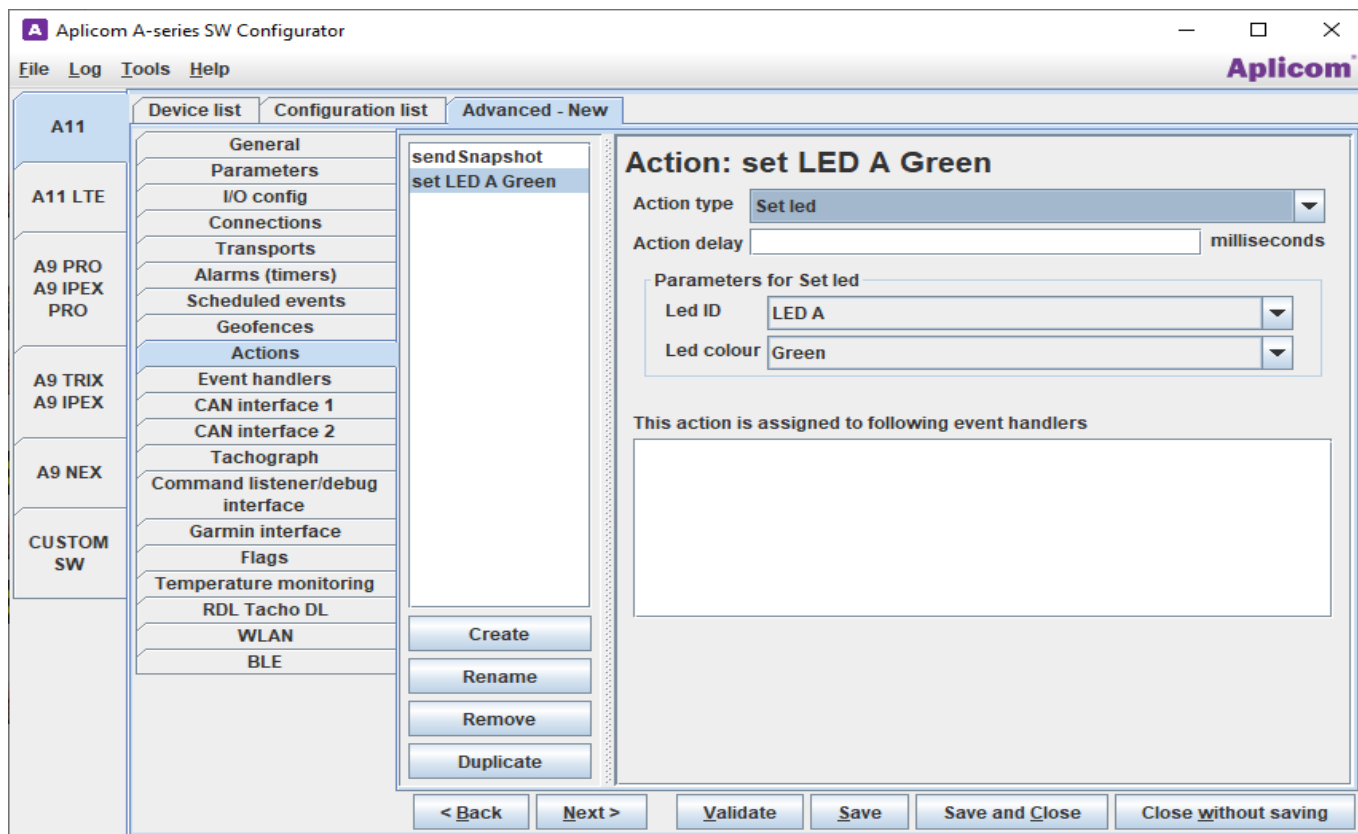
Saves the configuration and closes the advanced configuration editor. The configuration is validated before it is saved.

## Close without saving

Closes the advanced configuration editor without saving the configuration.

## 7.2 Item lists

Many of the advanced editor pages consist of a list of items and an editor for those items. In this chapter the Actions and Event handlers lists are used as an example.



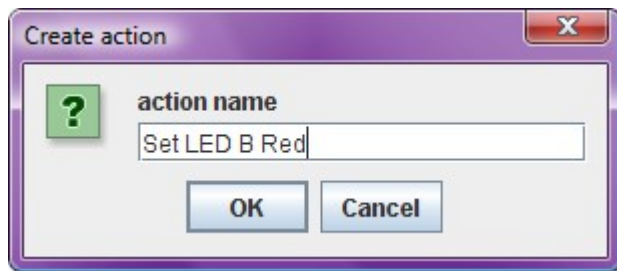
A list of available items (actions in the above example picture) is on the left. An editor for single item is displayed on the right side of the list.

The item list looks exactly the same on all advanced editor pages that utilise the item list. The item editor is different for each type of item.

Below the item list, there are buttons for adding, renaming and deleting items from the list.

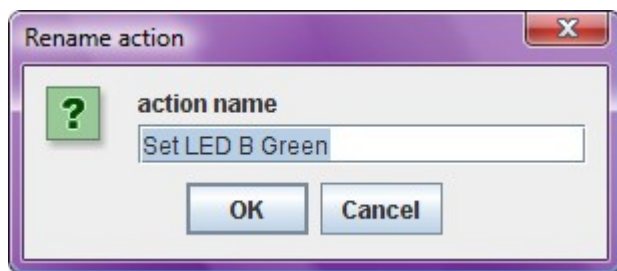
### 7.2.1 Create

Click on the **Create** button to add an item to the list. The Configurator will ask for a name for the new item. Enter the name of the new item and click **OK** to accept the entered name and create the item.



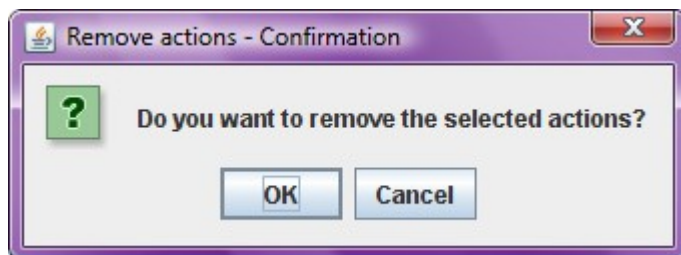
### 7.2.2 Rename

Select an item from the item list and then click on the **Rename** button to rename the selected item. The Configurator will ask for a new name for the selected item. Enter a new name for the item and click **OK** to accept the new name.



### 7.2.3 Remove

Select one or more items from the item list and then click on the **Remove** button to remove the selected items. The Configurator will ask for a confirmation before removing the items. Click **OK** to remove the selected devices.



### 7.2.4 Duplicate

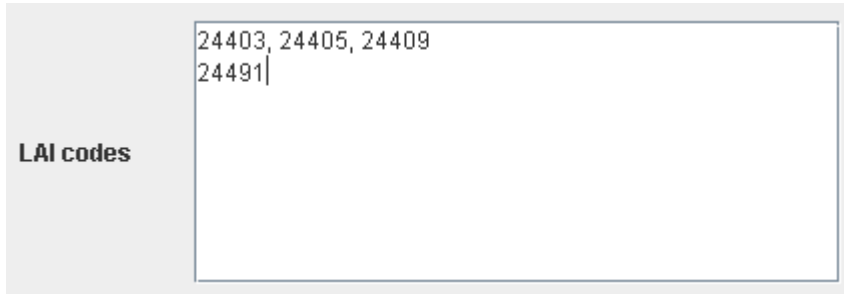
Select an item from the item list and then click on the **Duplicate** button to create a copy of the selected item. The Configurator will ask for a name for the new item. Enter the name of the new item and click **OK** to accept the entered name and create the item.



### 7.3 Value lists

Value lists are used to display and edit a list of values. The items in a value list are separated by one of the value separator characters: white space (space, tab or line break), comma (,) or semicolon (;).

For example, the `LAI codes` parameter of `Net changed` event handler is displayed as a value list:



The screenshot shows a text input field labeled "LAI codes" containing the following text:

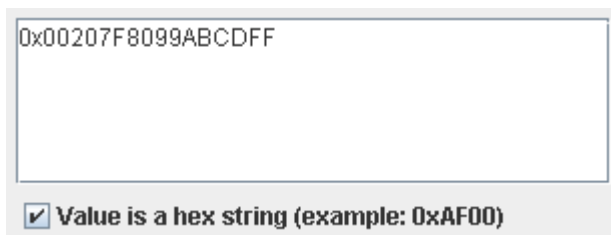
```
24403, 24405, 24409  
24491|
```

### 7.4 Hex strings / binary data

Some parameters accept a hex string or binary data as their value. A hex string must start with `0x`, which must be followed by even number of hexadecimal digits (0-9, A-F). Lower case digits are also accepted.

Text fields that support hex string values have a `Value is a hex string` checkbox below them. This checkbox must be selected in order to enter a hex string value. Otherwise the value is interpreted as a normal string value.

For example, the `Default data` parameter of `Send data` action accepts a hex string value. Hex string `0x00207F8099ABCDFF` is interpreted as binary data value containing 8 bytes (0x00, 0x20, 0x7F, 0x80, 0x99, 0xAB, 0xCD and 0xFF) by A-series SW.



The screenshot shows a text input field containing the hex string `0x00207F8099ABCDFF`. Below the field is a checkbox labeled `Value is a hex string (example: 0xAF00)` which is checked.

If the `Value is a hex string` checkbox in the above example is deselected, then the value would be interpreted as a normal string value `"0x00207F8099ABCDFF"`.

## 7.5 Advanced editor pages

This chapter briefly introduces the pages of the advanced editor. The advanced editor pages are in the same order as the XML configuration sections are described in the *Configuration syntax* chapters of corresponding A-series device's *SW User Manual*.

### 7.5.1 General

The **General** page is used to define name and version for the configuration and to define which parameter set should be loaded at start-up.

If the selection “Enable reporting version information to Aplicom server” is selected, anonymous version information about the device's software is reported to Aplicom server. The version reporting is needed for A-GPS, so if it is used the reporting is enabled regardless of the checkbox's setting.

If the selection “Save flag states on shutdown” is selected, flag states are stored at shutdown so that they hold their value over the power cycle (Proxy usage flag, Tacho DL flag and Card DL flag are cleared at shutdown).

The screenshot shows the 'Aplicom A-series SW Configurator' window. The 'Advanced - New' tab is active, displaying the 'General' configuration page. On the left, a tree view lists device models (A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, CUSTOM SW) and their respective configuration sections (General, Parameters, I/O config, Connections, Transports, Alarms (timers), Scheduled events, Geofences, Actions, Event handlers, CAN interface 1, CAN interface 2, Tachograph, Command listener/debug interface, Garmin interface, Flags, Temperature monitoring, RDL Tacho DL, WLAN, BLE). The 'General' section is selected for the A11 device. The main area contains the following fields and options:

- Configuration name:** new\_a11\_config
- Configuration version:** 1
- Default parameter set:** default (dropdown)
- Start-up radio access technology:** Only 2G (default) (dropdown)
- OTAP password:** Default ("0000" or value from syswinit.properties) (dropdown)
- ☒ Save last used parameter set on shutdown
- ☐ Enable reporting version information to Aplicom server (always enabled with A-GPS)
- ☐ Save flag states on shutdown
- Configuration description:** (empty text area)

At the bottom, there are buttons for navigation and saving: < Back, Next >, Validate, Save, Save and Close, and Close without saving.



7.5.2 Parameters

The Parameters page is used to define parameter sets for the configuration.

Aplicom A-series SW Configurator

File Log Tools Help

Aplicom

A11

A11 LTE

A9 PRO  
A9 IPEX  
PRO

A9 TRIX  
A9 IPEX

A9 NEX

CUSTOM  
SW

Device list

Configuration list

Advanced - New

General

Parameters

I/O config

Connections

Transports

Alarms (timers)

Scheduled events

Geofences

Actions

Event handlers

CAN interface 1

CAN interface 2

Tachograph

Command listener/debug interface

Garmin interface

Flags

Temperature monitoring

RDL Tacho DL

WLAN

BLE

default

Parameter set: default

GPS Read Interval5 seconds

☐ Enable A-GPS (enables also version information reporting needed for A-GPS)

Distance between events1000 meters

Direction change angle60 degrees

Direction change time window15 seconds

Speed limit (GPS based)40 km/h

Moving check time window (GPS based)60 seconds

Moving check distance (GPS based)150 meters

Accelerometer sensitivity5 - default

Start moving delay (accelerometer)seconds

Stop moving delay (accelerometer)seconds

Communication threshold99

Max. comm. threshold when roaming

Alive message interval60 seconds

Alive message transport iddefault

Power off delay30 seconds

Power off eventsIgnition off event (default)

Power off modePower down (default)

Wake-up reasons (if none selected, using ign and/or motion to match the selected power off events)☐ GPS lost/found (sleep only)☐ IO wakeup☐ COM2 (sleep only)☐ COM3 (sleep only)☐ 3PAD, DLKP or iButton (sleep only)☐ Ignition line (recommended)☐ Motion detection☐ COM4 (sleep only)☐ COM5 (sleep only)

Wake-up timeseconds

Clock-based wake-up time, UTC hh:mm

Comm fail timeout3600 seconds

GPRS reattach timeout1800 seconds

Harsh braking limit (GPS based)8 km/h/s

Acceleration limit (GPS based)8 km/h/s

ACC based event limits (SW option D246007)

Forward acceleration limit (ACC based)mG

Harsh braking limit (ACC based)mG

Lateral acceleration limit (ACC based)mG

ACC shock event (SW option D246017)

ACC based shock/crash detection limitmG

Create

Rename

Remove

Duplicate

< Back

Next >

Validate

Save

Save and Close

Close without saving

7.5.3 I/O config

A11 is used as an example in this section.

The I/O config page is used to configure the I/O interfaces of A-series.

AD thresholds, read interval and measurement range is defined in the AD and digital input configuration section. Default threshold for AD inputs 1 to 4 is required. If any other AD or power supply threshold value is empty, it will not be written to the configuration file.

A flag is bound to each digital input of the device. The Input flag change time determines the time an input must be in its new state before the bound flag is updated. If left empty, the value is not written to configuration and flag is not updated automatically. The Input flag change time parameters do not affect INPUT\_CHANGED events in any way.

Digital output or open collector operating mode can be selected separately for each output of the device in the `Output configuration` section. A9 has also buzzer mode which is used to control external buzzer.

Type and parameters of 3PAD can be configured in the `3PAD configuration` section.

The screenshot displays the 'Aplicom A-series SW Configurator' application window. The 'Configuration list' tab is active, and the 'I/O config' section is selected in the left-hand navigation pane. The main area shows the following configuration options:

- AD input configuration**
  - AD poll interval: 5 seconds
  - AD input 1 thresholds: Default 2500 mV, Limit A, Limit B, Limit C
  - AD input 2 thresholds: Default 2500 mV, Limit A, Limit B, Limit C
  - AD input 3 thresholds: Default 2500 mV, Limit A, Limit B, Limit C
  - AD input 4 thresholds: Default 2500 mV, Limit A, Limit B, Limit C
  - Main power thresholds: mV
  - AD/DIN(1-4) reference level: <not configured / default>
- Digital input configuration**
  - Input flag 1 change time: milliseconds
  - Input flag 2 change time: milliseconds
  - Input flag 3 change time: milliseconds
  - Input flag 4 change time: milliseconds
  - Input flag 5 change time: milliseconds
  - Input flag 6 change time: milliseconds
  - Input flag 7 change time: milliseconds
  - Input flag 8 change time: milliseconds
  - Input flag 9 change time: milliseconds
  - Input flag 10 change time: milliseconds
- Output configuration**
  - Output 1 mode: <not configured / default>
  - Output 2 mode: <not configured / default>
  - ☐ Enable higher power out voltage (6V)
- 3PAD configuration**
  - 3PAD type: 0 - Disabled
- Power down configuration**
  - ☒ Automatically log out iButton on powerdown
- Pulse counter configuration**
  - Pulse counter poll interval: seconds
  - ☐ Pulse counter 1 ☐ Pulse counter 2
  - Sample store interval: seconds

At the bottom of the window, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

Aplicom A-series SW Configurator

File Log Tools Help

Aplicom

Device list Configuration list Advanced - New

A11

A11 LTE

A9 PRO  
A9 IPEX  
PRO

A9 TRIX  
A9 IPEX

A9 NEX

CUSTOM  
SW

General  
Parameters  
I/O config  
Connections  
Transports  
Alarms (timers)  
Scheduled events  
Geofences  
Actions  
Event handlers  
CAN interface 1  
CAN interface 2  
Tachograph  
Command listener/debug  
interface  
Garmin interface  
Flags  
Temperature monitoring  
RDL Tacho DL  
WLAN  
BLE

☐ Enable higher power out voltage (6V)

3PAD configuration  
3PAD type 0 - Disabled

Power down configuration  
☒ Automatically log out iButton on powerdown

Pulse counter configuration  
Pulse counter poll interval seconds

☐ Pulse counter 1 ☐ Pulse counter 2

Sample store interval seconds  
Sample buffer size samples  
Pulse count scaling factor  
Pulse rate period seconds  
Pulse rate low limit pulses/period  
Pulse rate high limit pulses/period  
Pulse rate low hysteresis pulses/period  
Pulse rate high hysteresis pulses/period  
State change time seconds

Fuel alert configuration (SW option D246006)

Tank 1

Fuel Sensor No sensor, disabled  
Fuel Channel <not configured / default>  
Fuel level threshold mV  
Fuel delay seconds  
Fuel counter limit threshold exceeds

Tank 2

Fuel Sensor No sensor, disabled  
Fuel Channel <not configured / default>  
Fuel level threshold mV  
Fuel delay seconds  
Fuel counter limit threshold exceeds

< Back Next > Validate Save Save and Close Close without saving

## 7.5.4 Connections

The **Connections** page is used to define data connections between A-series device and server.

Configuration variables can be used for parameters Username, Password, DNS Server Address, and Access Point Name to allow changing connection parameters at runtime. See chapter *Configuration variables* in corresponding A-series device's *SW User Manual* for more information about variables.

**Note!** A connection is enabled only when the configuration contains a transport that uses the connection. Therefore, it is necessary to configure a transport that uses the connection even if the connection is only used to receive DATA\_EVENTS.

**Note!** COM2 – COM5 connections are supported only in A11 devices.

The screenshot shows the 'Aplicom A-series SW Configurator' application window. The 'Device list' tab is active, showing a list of device models on the left: A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. The 'Configuration list' tab is also visible, showing a list of configuration categories: General, Parameters, I/O config, Connections, Transports, Alarms (timers), Scheduled events, Geofences, Actions, Event handlers, CAN interface 1, CAN interface 2, Tachograph, Command listener/debug interface, Garmin interface, Flags, Temperature monitoring, RDL Tacho DL, WLAN, and BLE. The 'Connections' category is selected, and the 'connection' sub-category is highlighted. Below the list, there are buttons for 'Create', 'Rename', 'Remove', and 'Duplicate'. The main configuration area is titled 'Connection: connection'. It contains the following fields and options:

- Bearer Type:** GPRS (dropdown menu)
- Parameters for GPRS:**
  - Connection Type:** TCP/IP (dropdown menu)
  - Username:** [text field] with a checkbox for 'Read from variable %' followed by a text field.
  - Password:** [text field] with a checkbox for 'Read from variable %' followed by a text field.
  - DNS Server Address:** 0.0.0.0 [text field] with a checkbox for 'Read from variable %' followed by a text field.
  - Access Point Name:** internet [text field] with a checkbox for 'Read from variable %' followed by a text field.
  - Session timeout:** [text field] seconds
  - ☒ Persistent connection
  - ☐ Connection can receive data
  - R protocol mode:** Disabled (dropdown menu)
  - R protocol buffer size:** [text field] messages
  - R protocol timeout:** [text field] seconds

At the bottom of the window, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

## 7.5.5 Transports

The `Transports` page is used to define the transport methods, data formats and destinations for sending data packets from A-series device to server.

A special connection, `[COM1]`, is always available in the `Connection` drop-down box.

Message format can be customized separately for each transport by selecting which fields to include in the sent snapshot. If the `Select fields to include in snapshots sent using this transport` option is not enabled, a default set of fields is selected. The field selection is only available for binary protocols G, D, E and F. See the device's SW user manual and the G, D, E and F protocol specifications for more information about customizing the binary protocols.

Configuration variables can be used for parameter `Destination Address` to allow changing connection parameters at runtime. See chapter *Configuration variables* in the device's SW user manual for more information about variables.

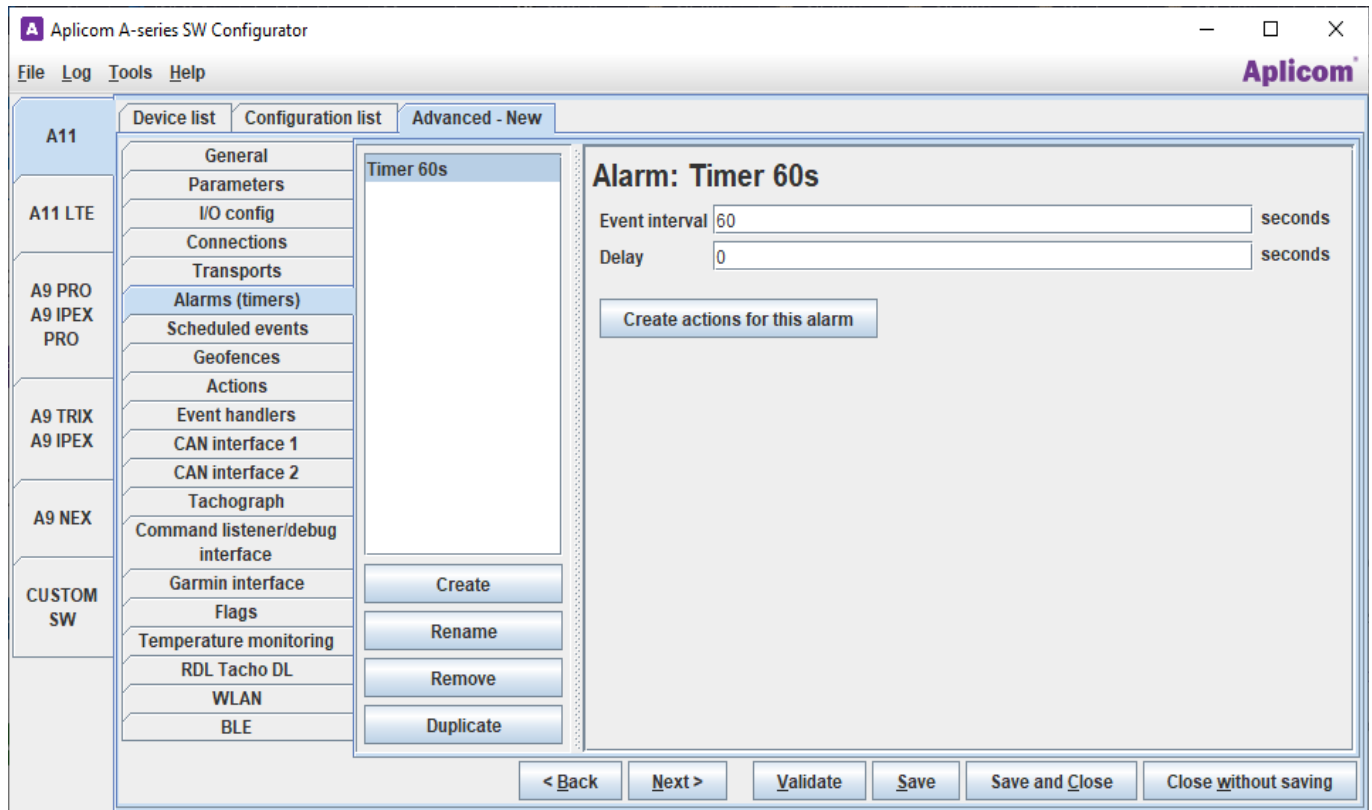
Transport parameter `Queue Size` defines a maximum number of messages that are kept in the dynamic memory. Due to technical reasons in snapshots saving, when expecting to have a long period of disconnection from mobile network, queue size should be increased. Queue size under 20 messages combined with a long period of disconnection from the network can cause unexpected behaviour. This can be avoided by increasing the queue size to 30 or even 50 messages depending on expected network connectivity.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The 'Advanced - New' tab is selected, and the 'Transports' option is highlighted in the left sidebar. The main area displays the 'Transport: default' configuration. The 'Connection' dropdown is set to 'connection'. The 'Formatter' dropdown is set to 'T protocol compact (human-readable)'. The 'Destination Address' is '192.168.0.0:7777', with a checkbox for 'Read from variable %' which is unchecked. The 'Priority' is '1'. The 'Queue Size' is '5' messages, with a checkbox for 'Non-volatile' which is checked and a checkbox for 'Allow concatenation of messages' which is unchecked. At the bottom, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

## 7.5.6 Alarms (timers)

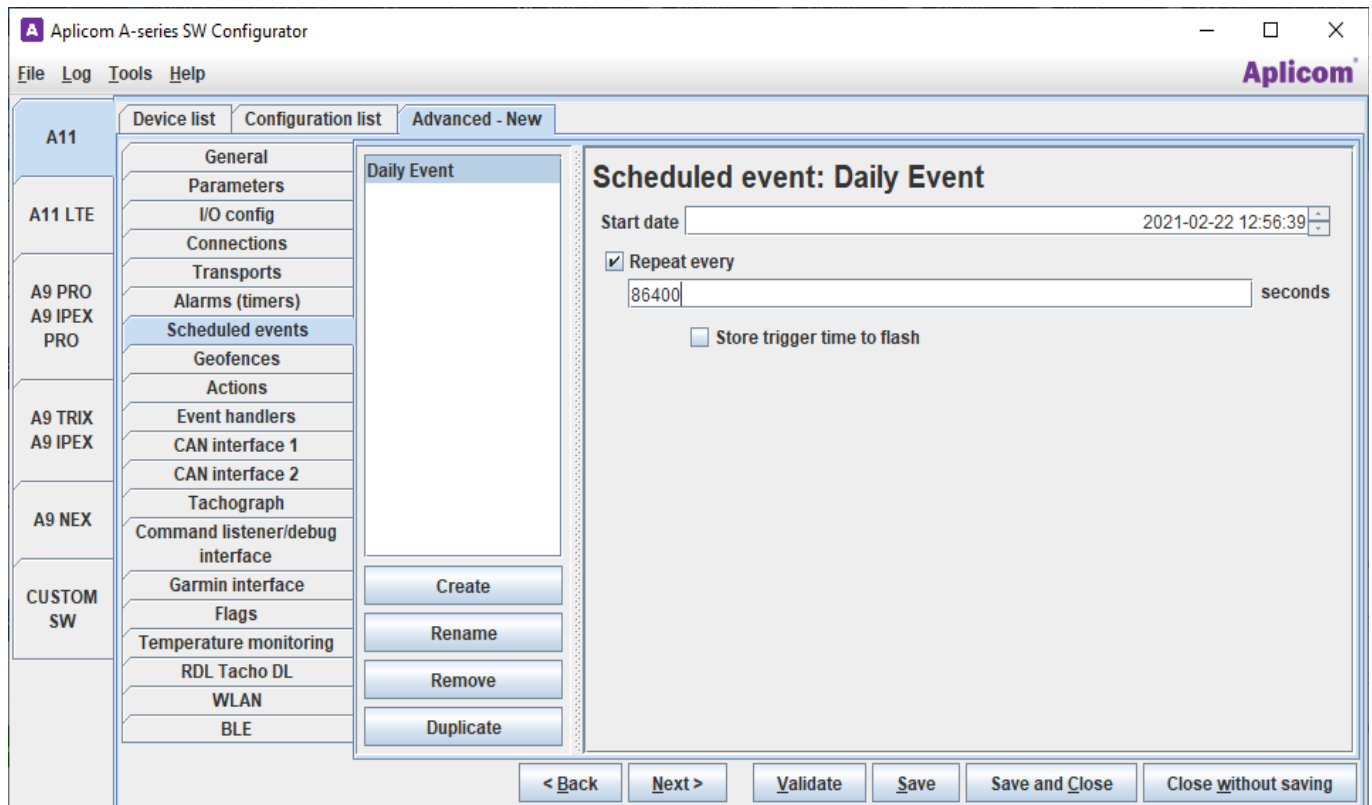
The `Alarms (timers)` page is used to define alarms or timers. Once an alarm is activated and the optional `Delay` has passed, an alarm generates events with the configured `Event interval`. An alarm will keep generating events until it is deactivated. It is possible to deactivate the alarm before the `Delay` has passed, in which case the alarm will not generate any events.

Click the `Create actions for this alarm` button to create new actions for activating and deactivating the currently selected alarm. Existing actions are not changed or overwritten.



## 7.5.7 Scheduled Events

The `Scheduled events` page is used to define scheduled events. Scheduled events are generated at the specified time and optionally repeated with set time interval.



## 7.5.8 Geofences

The **Geofences** page is used to define geofences. A geofence is a circular region that is defined by location of its centre point and its radius. Also box and polygon geofences are supported. Parameters for box and polygon geofences are edited with XML editor. Geofences generate events when entered or left.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The 'Configuration list' tab is active, showing a tree view on the left with categories like A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. The 'Geofences' category is selected, and a list of geofences is shown, with 'Office' selected. The 'Geofence: Office' details are displayed on the right, including Latitude (62.00000 degrees), Longitude (27.00000 degrees), and Radius (100 meters). Below the details are buttons for 'Create', 'Rename', 'Remove', and 'Duplicate'. At the bottom of the window are navigation buttons: '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

Category	Geofence Name	Latitude	Longitude	Radius
A11	Office	62.00000	27.00000	100

## 7.5.9 Actions

The **Actions** page is used to define actions that can be performed in response to an event.

The parameters that are available for an action depend on the selected **action type**. See the *Action reference* appendix of corresponding A-series device's *SW User Manual* for more information about available actions and their parameters.

All event handlers that reference the currently selected action are listed in the **This action is assigned to** following event handlers list. The list is updated automatically whenever the action is assigned to or removed from an event handler.

The screenshot displays the 'Aplicom A-series SW Configurator' application window. The 'Configuration list' tab is active, showing a tree view of configuration categories for various device models (A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, CUSTOM SW). The 'Actions' category is selected, and the 'sendSnapshot' action is highlighted. The right-hand pane shows the configuration for this action.

**Action: sendSnapshot**

Action type: Send snapshot (dropdown menu)

Action delay: 0 milliseconds

Parameters for Send snapshot:

- Transport ID 1: default (dropdown menu)
- Transport ID 2: (dropdown menu)
- Bypass messaging (always immediate sending, message is never stored): Disabled (dropdown menu)
- ☐ Store snapshot also for WLAN display (available in HTTP API)

This action is assigned to following event handlers:

- distanceTraveled
- ignitionOff
- ignitionOn
- startup

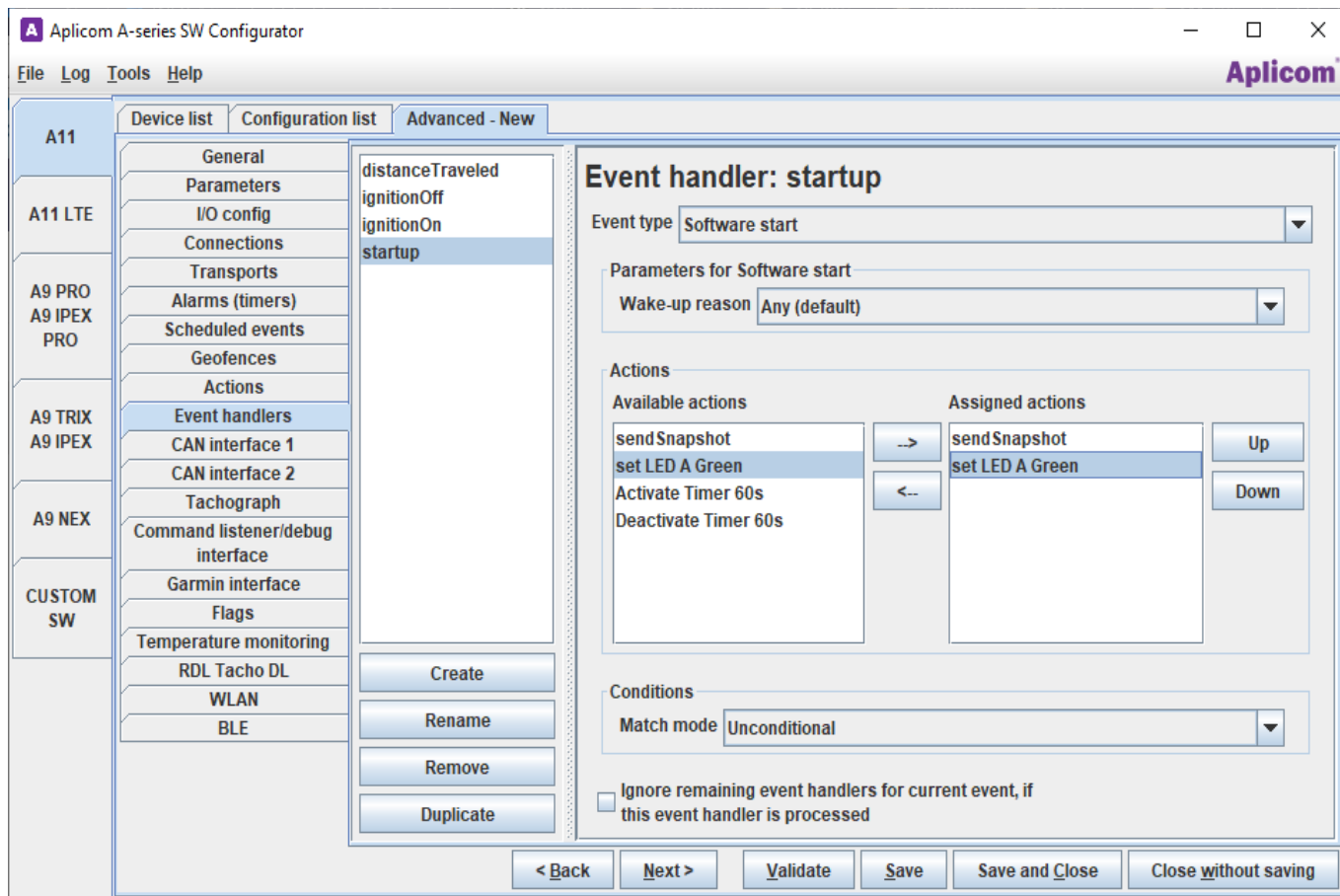
Buttons at the bottom: < Back, Next >, Validate, Save, Save and Close, Close without saving.



## 7.5.10 Event Handlers

The `Event handlers` page is used to define event handlers to process events generated by A-series SW. Each event handler processes a specific type of events. One more actions can be assigned to each event handler.

The parameters that are available for an event handler depend on the selected `event type`. See the *Event handler reference* appendix of corresponding A-series device's *SW User Manual* for more information about available event handlers and their parameters.



The actions are assigned to event handlers using the `Available actions` and `Assigned actions` lists. The actions that can be assigned to the selected event handler are listed in `Available actions` list on left and actions that have been assigned to the selected event handler are listed in the `Assigned actions` list on right.

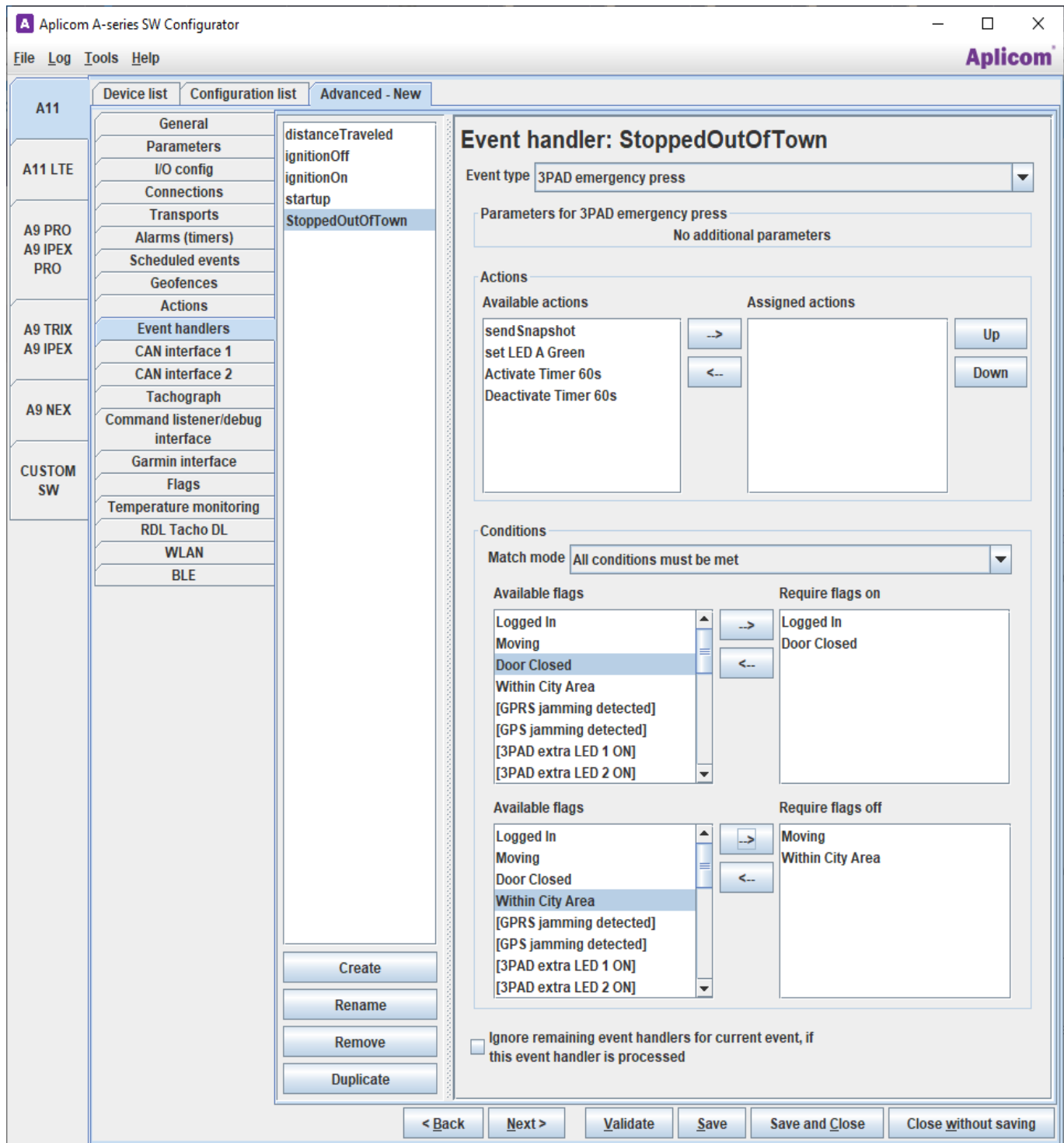
To assign action to event handler, select the action from the `Available actions` list and click the `-->` button.

To remove assigned action from event handler, select the action from the `Assigned actions` list and click the `<--` button.

Use the `Up` and `Down` buttons to change the order of selected actions.

### 7.5.10.1 Conditional event handlers

Event handlers can be made conditional, that is, the actions assigned to event handler are only processed when the specified conditions are met.



Conditions are defined by selecting which flags should be on and which flags should be off. The conditions are enabled or disabled by selecting a match mode:

- **Unconditional:** actions assigned to the event handler are always processed. Conditions are disabled.
- **All conditions must be met:** actions assigned to the event handler are processed, only if all of the flags in *Require flags on* list are set and all of the flags in *Require flags off* list are cleared.
- **Any of the conditions must be met:** actions assigned to the event handler are processed, only if at least one of the flags in *Require flags on* list is set or at least one of the flags in *Require flags off* list is cleared.

### 7.5.10.2 Example of conditional event handler

Consider an event handler, which has conditions defined as follows:

- Match mode is All conditions must be met.
- Require flags on list contains flags Logged In and Door Closed.
- Require flags off list contains flags Moving and Within City Area.

The configuration sets the flags so that

- Logged In is set when the user is logs in and cleared when user logs out.
- Door Closed is set when the driver side door is closed and cleared when driver side door is opened.
- Moving is set when the vehicle starts moving and cleared when the vehicle stops.
- Within City Area is set when the vehicle enters a defined city area and cleared when the vehicle leaves the city area.

The actions assigned to this event handler would be processed only if user is logged in, door is closed, vehicle is not moving and vehicle is outside of the defined city area.

If the Match mode is changed to Any of the conditions must be met, the actions assigned to this event handler would be processed if user is logged in, door is closed, vehicle is not moving or vehicle is outside of the defined city area.

### 7.5.11 CAN Interface

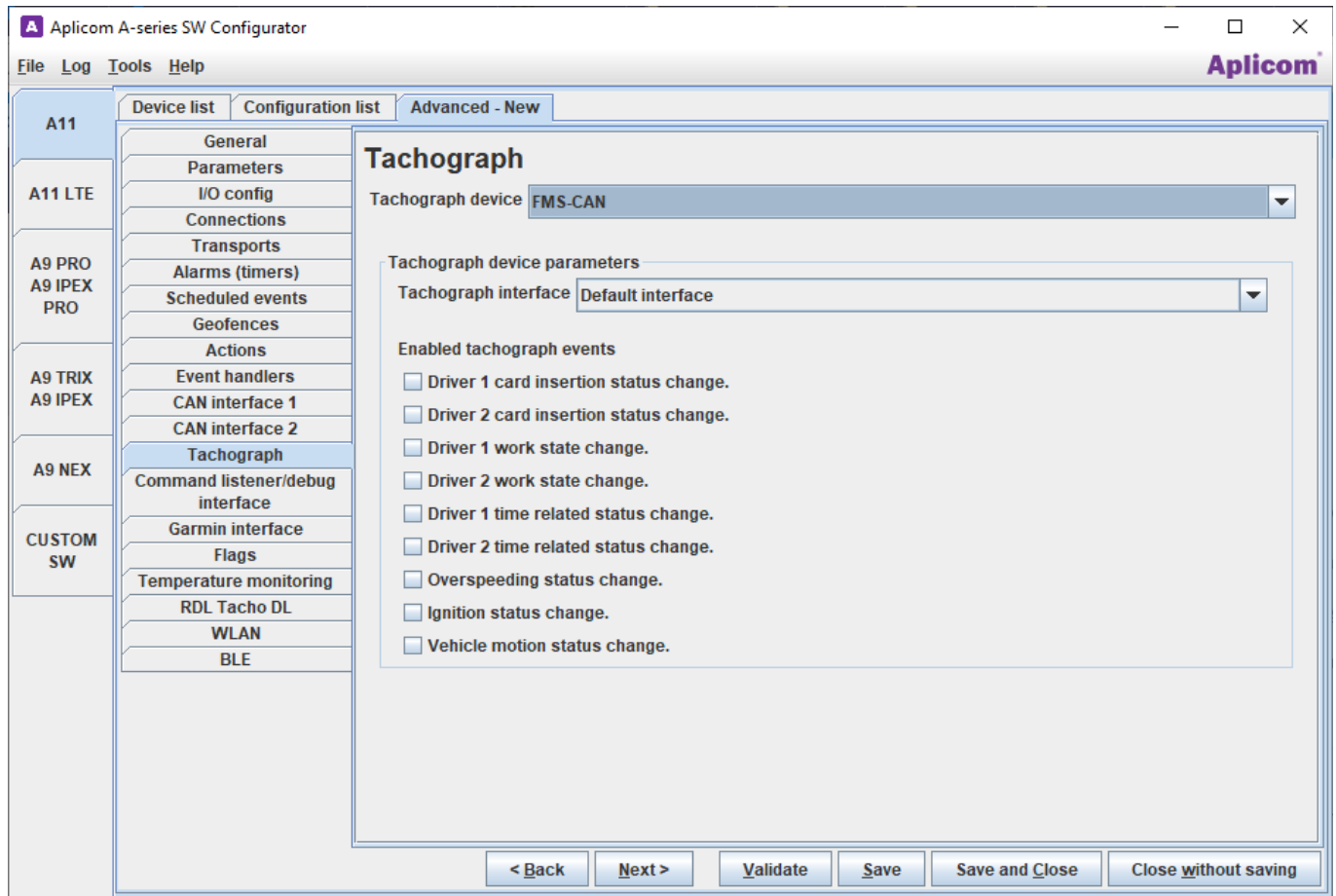
The CAN interface (1 and 2) pages are used to configure parameters for the CAN interface parameters. Both pages are identical apart from the port number.

For A9 devices, the CAN ID Forwarder is configured on it's own page.

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## 7.5.12 Tachograph

The Tachograph page is used to configure the tachograph interface and select which events from tachograph device are enabled.



### 7.5.13 Command listener/debug interface

The Command listener/debug interface page is used to configure the COM1 interface of A-series SW. See *K503052 A-series SW COM1 Interface Command Reference Manual* for more information about the COM1 interface.

**Note!** The port selection is available only for A11 device.

The screenshot shows the 'Aplicom A-series SW Configurator' application window. The 'Configuration list' tab is active, and the 'Advanced - New' sub-tab is selected. On the left, a tree view shows the device configuration hierarchy. The 'A11' device is selected, and the 'Command listener/debug interface' option is highlighted under the 'A11' category. The main panel displays the configuration for the 'Command listener/debug interface'. The 'Operation mode' is set to '0 - Classic command mode, A1+DATA command generates a DATA\_EVENT'. The 'Parameters for command listener/debug interface' section includes the following fields:

- Data packet end mark (mode 2): [Empty text box]
- Port number: COM1 (dropdown menu)
- Port speed: Not configured / backwards compatible (115200 bps) (dropdown menu)
- Data type: Not configured / default (8-N-1) (dropdown menu)

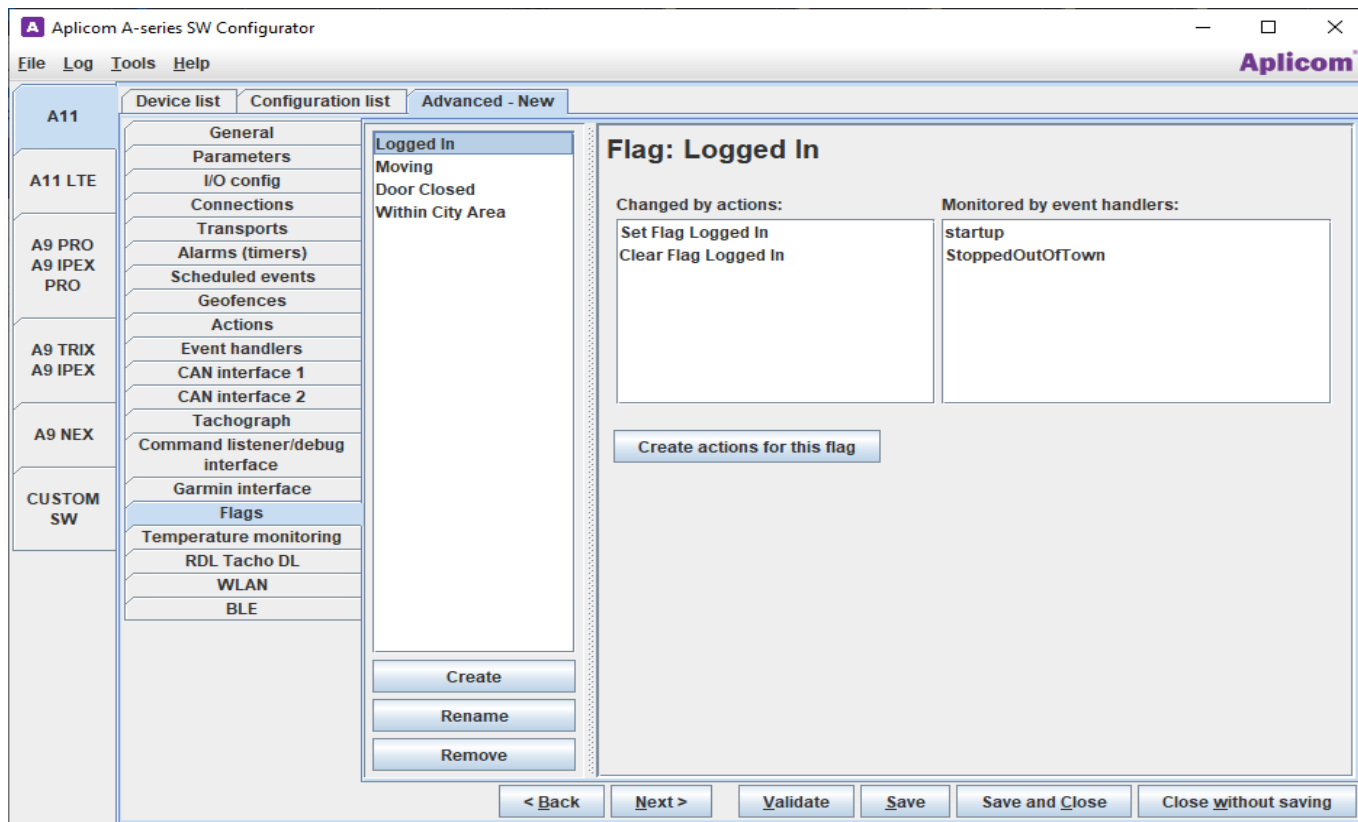
At the bottom of the window, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

## 7.5.14 Flags

The **Flags** page is used to define names for the flags used in the configuration.

The **Changed by actions** list displays all actions that change the state of the currently selected flag. The **Used by event handlers** list displays the event handlers that monitors the state of this flag. These lists are updated automatically.

Click the **Create actions for this flag** button to create new actions for setting and clearing the currently selected flag. Existing actions are not changed or overwritten.



### 7.5.14.1 Automatically set flags

The device SW automatically updates some flags, for example:

- GSM/GPRS jamming detected
- GPS jamming detected
- 3PAD extra LED 1 ON
- 3PAD extra LED 2 ON
- 3PAD button LED 1 ON
- 3PAD button LED 2 ON
- 3PAD button LED 3 ON
- DIN 1 high
- DIN 2 high
- DIN 3 high
- DIN 4 high
- DIN 5 high
- DIN 6 high

The full list for each A-series device can be seen on the **Conditions** part for each event handler in the **Event handlers** page.

The DIN flags must be enabled by setting the **input flag X set time** parameters in the **I/O config** section.

The `DIN X high` flag is set when digital input X has been low for `input flag X set time milliseconds`. The `DIN X high` flag is cleared when digital input X has been low for `input flag X set time milliseconds`.

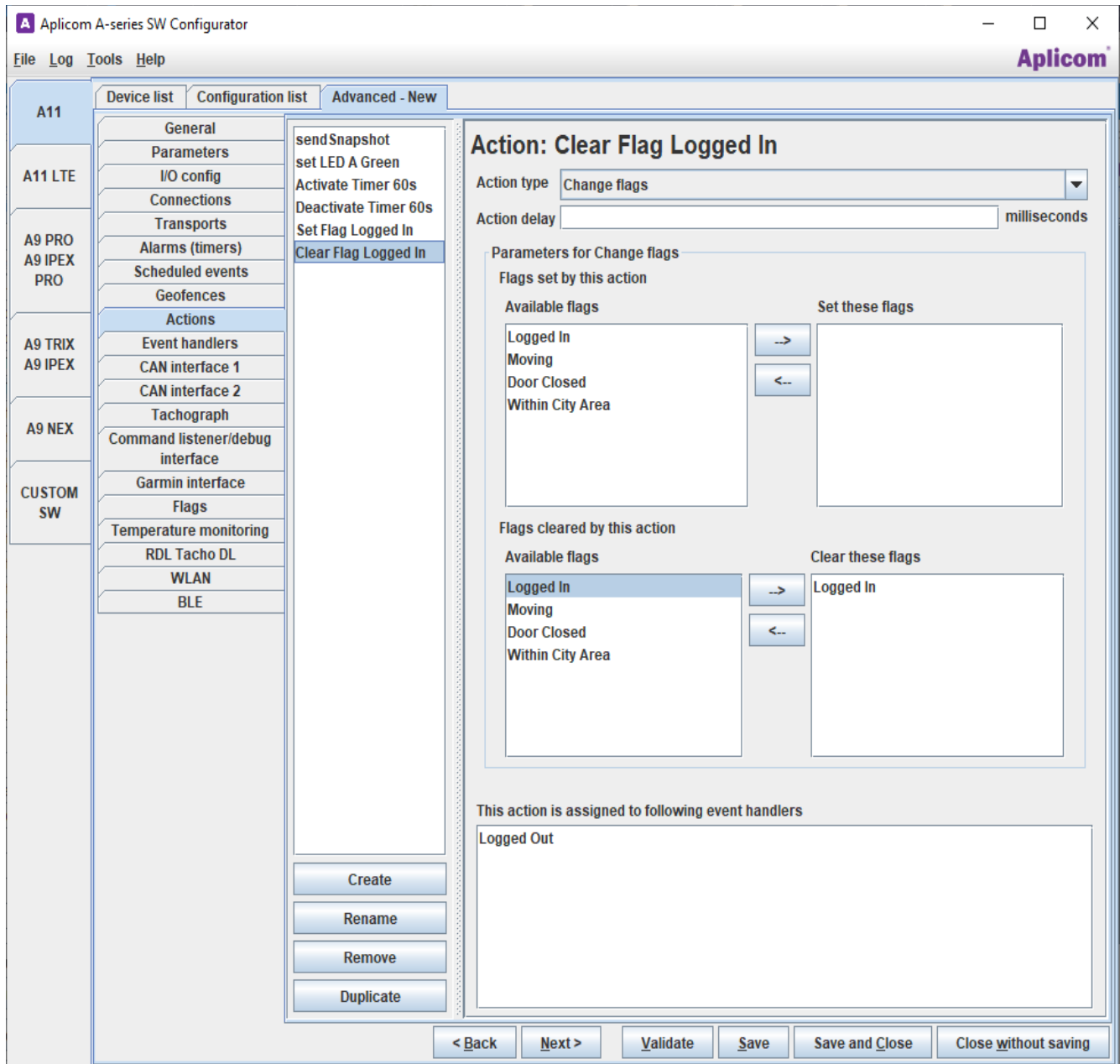
The `AT proxy connected` flag is set when the proxy enters connected mode and cleared when the proxy returns to command mode.

All flags are cleared initially when the A-series SW is started. The flags are updated to correct values after the A-series SW has finished starting up.



### 7.5.14.2 Setting and clearing flags

Flags can be set or cleared with the CHANGE\_FLAGS action. Flags listed in *Set these flags* list are set and flags listed in *Clear these flags* list are cleared when the action is performed. The action in the following picture will clear all flags.



## 7.5.15 RDL Tacho DL

The RDL Tacho DL section is used to configure reading of tachograph connected to the device. Tachograph should be RDL capable for RDL to function.

See the *SW user manual* of the used device for more information about Tacho DL and it's configuration.

The screenshot shows the 'Aplicom A-series SW Configurator' application. The 'Configuration list' tab is active, and the 'Advanced - New' sub-tab is selected. The left sidebar shows a tree view with categories: A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. Under A11, the 'RDL Tacho DL' option is selected. The main window displays the 'RDL Tacho DL SW configuration (optional)' form.

**RDL Tacho DL SW configuration (optional)**

Tacho DL method: **Online download**

**Tacho DL settings**

Server address and port:

Download timeout:  seconds

Maximum retry count:

Compression method: **0 - Do not compress data files**

Download interface: **[default] (Download via CAN interface)**

Mark a driver card as unread after:  seconds

**GPRS parameters for Tacho DL SW**

Access point name:

Username:

Password:

DNS address:

Connection timeout:  seconds

**Downloaded files (leave fields empty to use defaults)**

Tachograph data file:

Driver card 1 data file:

Driver card 2 data file:

Error data file:

Custom data file:

Navigation buttons: < Back, Next >, Validate, Save, Save and Close, Close without saving

## 7.6 CAN ID Forwarder option (with SW option only)

The CAN ID Forwarder option is configured in the `CAN interface 1` or `2` section of the advanced configuration editor. It can be enabled at the same time with the other interface selected, for example FMS.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The left sidebar lists device categories: A11, A11 LTE, A9 PRO, A9 IPEX PRO, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. The 'A11' category is selected, and the 'Configuration list' tab is active. The 'CAN interface 1' configuration page is displayed, showing the following settings:

- CAN interface:** None (default)
- CAN bus 1 speed:** [default] (250 kbps)
- ☒ **Enable CIF**
- CAN ID configuration:**
  - CIF read interval:** 5 seconds
  - ☐ Mailbox 0 message IDs
  - ☐ Mailbox 1 message IDs
  - ☐ Mailbox 2 message IDs
  - ☐ Mailbox 3 message IDs
  - ☐ Mailbox 4 message IDs
  - ☐ Mailbox 5 message IDs
  - ☐ Mailbox 6 message IDs
  - ☒ Mailbox 7 message IDs
  - ☐ Extended IDs
  - ☒ Clear buffer on init
  - ☐ Use PGN mask for IDs
- Include optional fields in mailbox data:**
  - ☒ Message IDs
  - ☒ Mailbox data timestamp
  - ☒ Updated data indicators

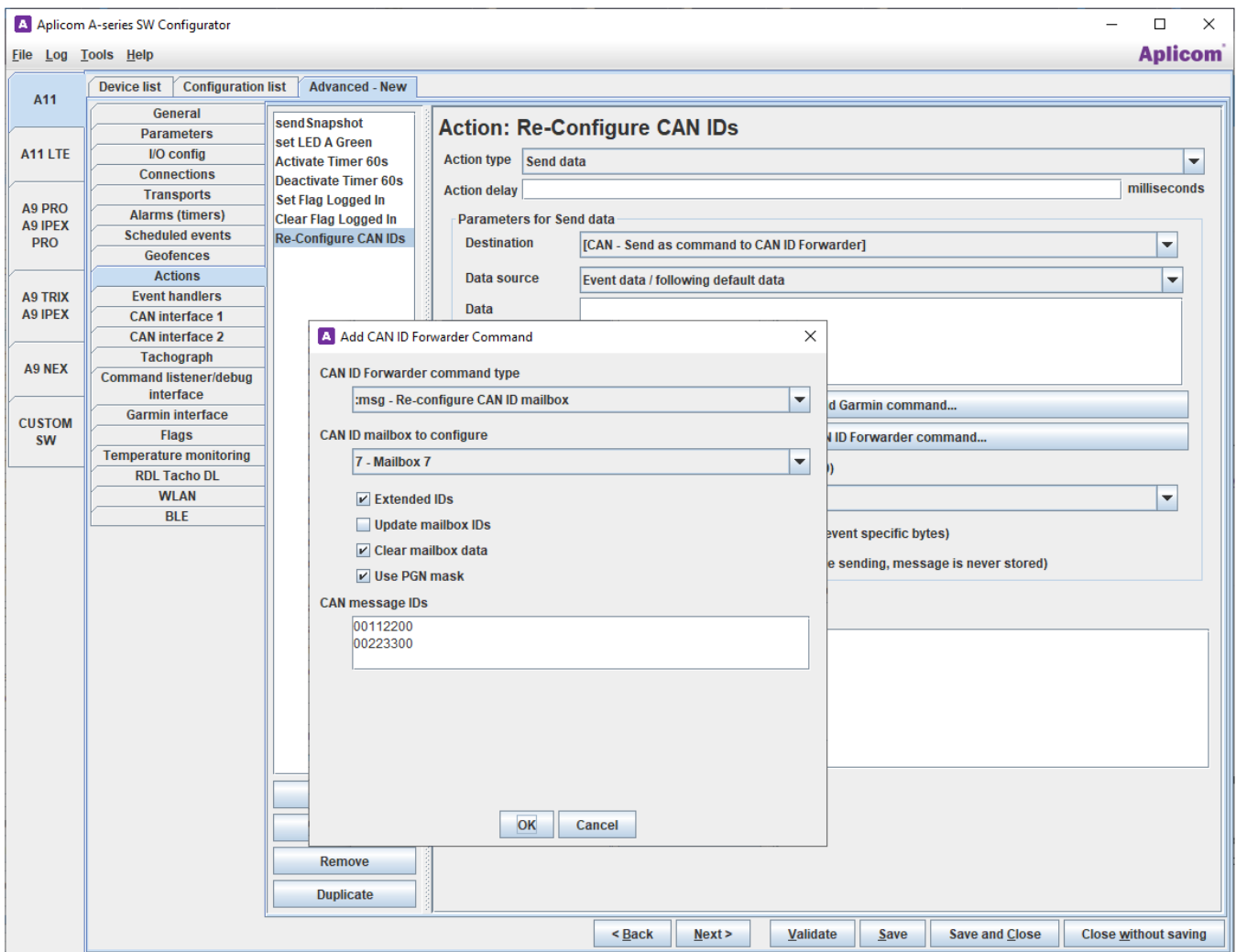
At the bottom of the configuration page, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

Select the `Enable CIF` check box to enable the CAN ID Forwarder option. Select one or more `Mailbox X message IDs` check boxes to enable configuration of individual mailbox parameters.

For A9 devices, the CAN ID Forwarder is configured on it's own page.

## 7.6.1 CAN ID Forwarder commands

SEND\_DATA action can be used to send commands to the CAN ID Forwarder option. Create a SEND\_DATA action and click the Set CAN ID Forwarder command button to open a new command window.



Select the command type and other parameters and click OK to set the new command to Data parameter of SEND\_DATA action.

## 7.7 Garmin interface configuration

This chapter describes the Garmin interface specific features of the advanced configuration editor. See *S100320 Aplicom Garmin interface protocol* for more information about the Garmin interface.

Garmin interface available as an option for A-series devices.

### 7.7.1 Handling events from Garmin interface

Event handle type Garmin event can be used to handle events from the Garmin interface. The following example handles `CONNECT` events where the connected device supports interface version 2 and runs `Setup Garmin` action whenever the event occurs.

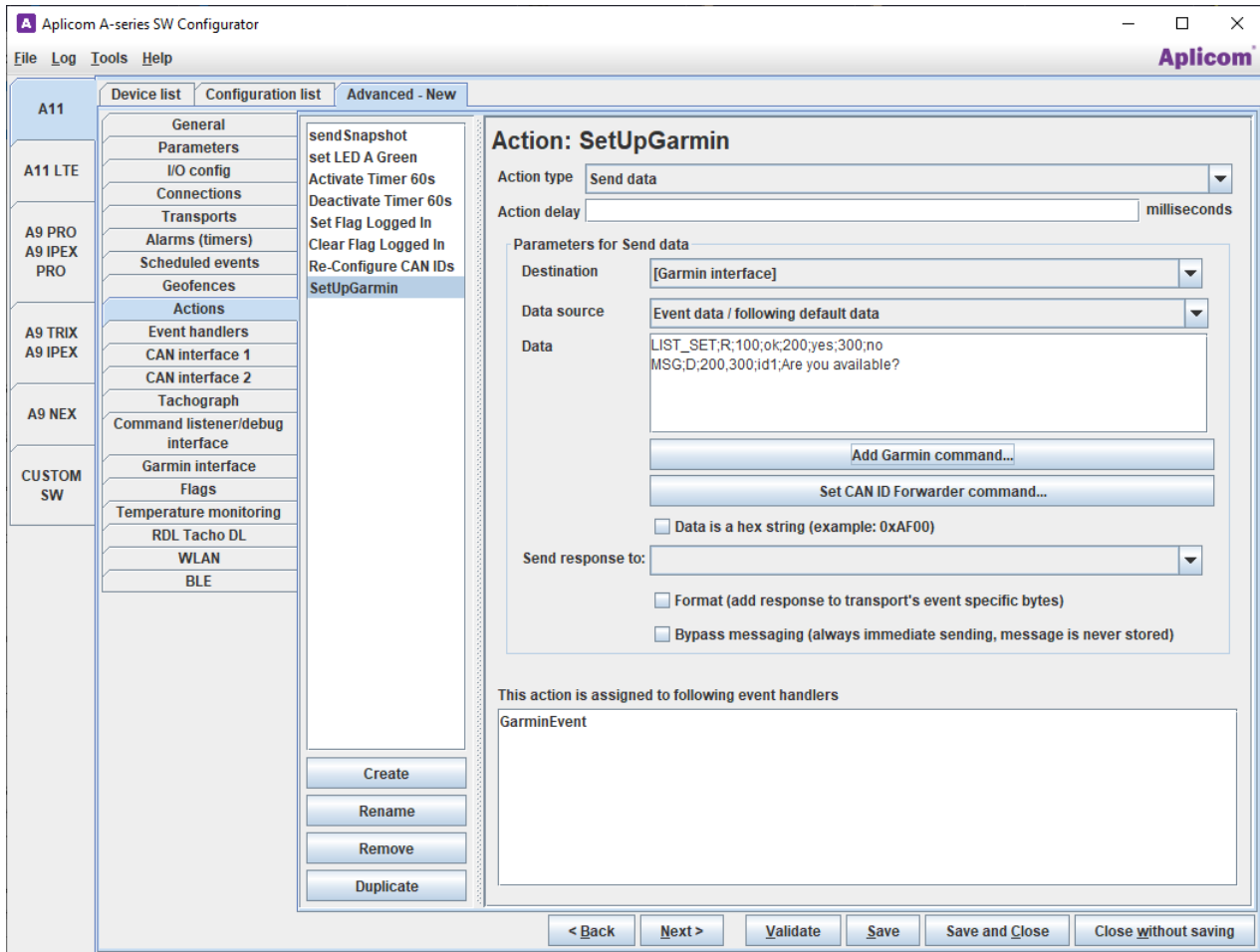
The `Garmin event type` parameter specifies the type of Garmin event handled by the event handler.

For each `Garmin event type` there is a different set of parameter filters available. Parameter filters can be used to define event handlers that only handle specific type of Garmin events with specific parameters. Wild card characters `*` and `?` can be used in all parameter filters. Asterisk (`*`) matches any number of characters and question mark (`?`) matches exactly one character.

The screenshot shows the 'Aplicom A-series SW Configurator' application window. The 'Advanced - New' tab is selected, displaying a list of configuration categories on the left. The 'GarminEvent' category is highlighted. The main area shows the 'Event handler: GarminEvent' configuration. The 'Event type' is set to 'Garmin event'. The 'Parameters for Garmin event' section shows 'Garmin event type' set to 'CONNECT'. The 'Parameter filters for Garmin event CONNECT' section includes fields for 'Garmin product ID', 'Garmin SW version', 'Supported interface version' (set to 2), and 'Garmin unit ID'. The 'Actions' section shows 'Available actions' and 'Assigned actions'. The 'Assigned actions' list contains 'SetUpGarmin'. The 'Conditions' section shows 'Match mode' set to 'Unconditional'. At the bottom, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

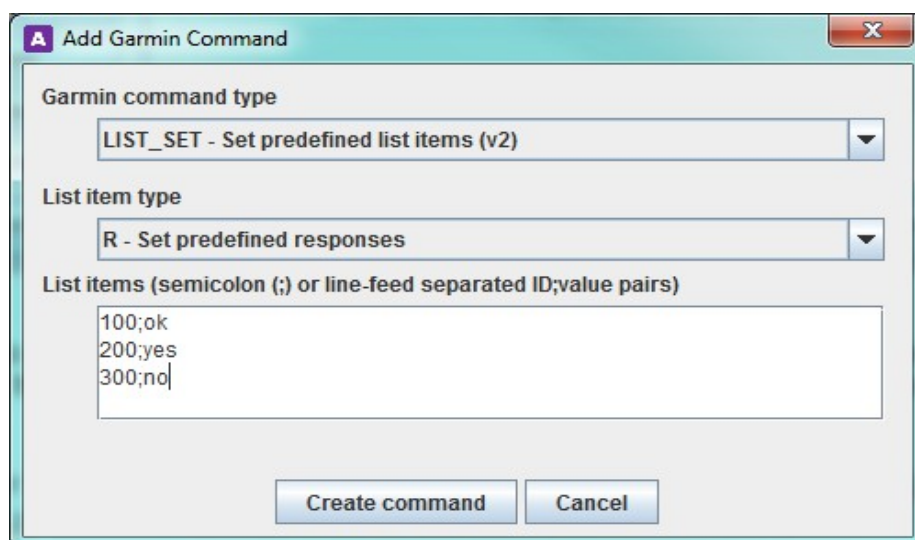
## 7.7.2 Sending commands to Garmin interface

The SEND\_DATA action can be used to send commands to Garmin interface. Following example action sends two commands to Garmin interface. One to set three predefined responses to connected Garmin navigator and another to ask if the driver is available.



It is possible to add several commands to a single SEND\_DATA action. The number of commands in one action is limited by the command queue size of the Garmin interface. See chapter 7.7.3 for more information about the command queue size.

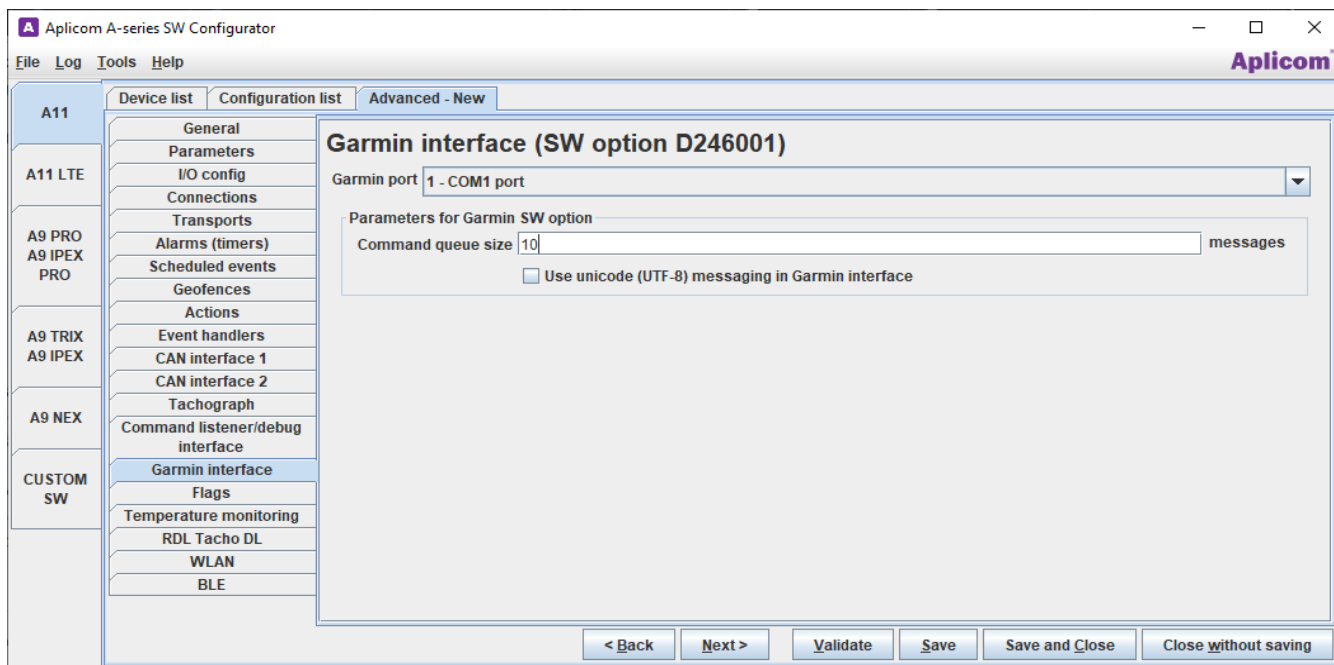
The Configurator offers a graphical user interface for building Garmin interface commands. Click Add Garmin command button to open the Add Garmin Command window.



Select `Garmin` command type and set the parameter values. Click `OK` to append the command to the `Data` parameter of the `Send data` action.

### 7.7.3 Garmin interface parameters

Parameters for Garmin interface can be configured in the `Garmin interface` section of the advanced configuration editor.



The `Command queue size` parameter defines the size of incoming command buffer of the Garmin interface. The command buffer is used in situations where the command can not be processed immediately, for example:

- Connection to Garmin has not been established yet or Garmin has been disconnected.
- Multiple commands are sent to Garmin interface at once.

When the command buffer is full and new command is received, the oldest stored command is discarded to make room for the new command.

When the `Use unicode (UTF-8) messaging in Garmin interface` checkbox is selected, all Garmin events are presented as UTF-8 instead of ASCII. The server should also encode all Garmin commands as UTF-8.

## 7.8 Temperature monitoring

“Temperature monitoring” tab has the parameters for configuring the different ways to monitor temperature with an A-series device.

### 7.8.1 Cold Chain Temperature SW option

Temperature limits can be set for max. 6 sensors. The limits are given in tenths of a degree (Celsius), for example value 185 equals 18.5 degrees Celsius.

Time threshold to trigger alarm represents the time that the temperature has to be over or below a limit before a configuration based alarm is generated.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The 'Configuration list' tab is active, and the 'Temperature monitoring' option is selected in the left sidebar. The main window displays the 'Temperature monitoring' configuration page. At the top, 'Cold Chain Temperature monitoring (SW option D246014)' is set to 'Enabled (overrides Command listener/debug interface settings)'. Below this, the 'Parameters for Cold Chain Temperature option' section includes a 'Time threshold to trigger alarm' set to 180 seconds. A table lists limits for six sensors, with values in tenths of a degree. A note states: 'Note! Alarm limits are set in tenths of a degree. For example 185 equals 18.5 degrees. Alarm limits can be also set from server in which case the limits in the configuration are overwritten.' A button 'Create alarms, actions and event handlers for Cold Chain Temp. option' is present. At the bottom, '1-Wire temperature sensor monitoring' is set to 'Disabled'. Navigation buttons at the bottom include '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

	Low limit	High limit	
Sensor 1 limits	-55	-50	tenths of degree
Sensor 2 limits	-65	-60	tenths of degree
Sensor 3 limits	190	220	tenths of degree
Sensor 4 limits	190	220	tenths of degree
Sensor 5 limits			tenths of degree
Sensor 6 limits			tenths of degree

Cold Chain Temperature SW option needs also some alarms, actions and event handlers to work. They can all be created by clicking the button “Create alarms, actions and event handler for Cold Chain Temp. option”. After clicking the button, the Configurator shows a list of created items.

After creating all the needed items with the button, it is still recommended to check that the parameters for each alarm, action and event handler are correct and for example the address for sending the temperature information is correct.

**Note!** When Cold Chain Temperature SW option is used, other features using the command listener port cannot be used, for example the Garmin interface. The Cold Chain Temperature SW option overrides the Command listener/debug interface settings and uses the port set in Command listener/debug interface page.

For further information about the Cold Chain Temperature SW option, see the application note *K505034 Cold Chain Temperature SW Option*.



## 7.9 WLAN (only A11W device)

The WLAN tab has the parameters for configuring the WLAN feature. Limited access point mode parameters are shown in the picture below.

The screenshot shows the 'WLAN' configuration window in the 'Aplicom A-series SW Configurator'. The window is titled 'WLAN' and has a subtitle 'WLAN mode: Limited access point mode (A11 creates a limited WLAN access point)'. The configuration is for a 'Limited access point mode'.

**WLAN mode:** Limited access point mode (A11 creates a limited WLAN access point)

**Limited access point mode parameters:**

- Name:** TestAccessPoint
- Password:** password123
- Encryption:** WPA2-AES-TKIP
- Channel:** 2

☒ Allow Internet access

If a GPRS connection is defined in connections tab, hotspot uses the connection's APN settings by default

☒ Use WLAN hotspot specific SIM APN parameters

- SIM card APN:** apn
  - ☐ Read from variable %
- SIM card APN username:** username
  - ☐ Read from variable %
- SIM card APN password:** pwd123
  - ☐ Read from variable %

☒ Override default network parameters

- Custom IP address:** 192.168.100.10
- Custom subnet mask:** 255.255.255.0
- DNS address for Internet access:** 123.123.123.123

☒ Override default HTTP server parameters

- Custom HTTP server user name:** admin
- Custom HTTP server password:** adminPwd
- HTTP API content type:** JSON (default)
- Custom HTTP API address:** /customer/api/

Using access point IP address and HTTP API address:  
When IP address is for example '192.168.100.100' and HTTP API address is 'aplicom/api', the URL for current telematics data is '192.168.100.100/aplicom/api/telematics/currentData'

Buttons at the bottom: < Back, Next >, Validate, Save, Save and Close, Close without saving

See the *K530100 A11 SW User Manual* for more information about configuring the WLAN feature.

## 7.10 BLE (only A11 devices with BLE HW)

The BLE tab has the parameters for configuring the BLE feature. Beacon scan mode parameters are shown in the picture below.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The left sidebar lists device models: A11, A11 LTE, A9 TRIX, A9 IPEX, A9 NEX, and CUSTOM SW. The 'A11' model is selected, and the 'BLE' tab is active in the configuration list. The main panel is titled 'Bluetooth Low Energy (BLE)' and shows the 'BLE mode' set to 'Beacon scan'. Under 'Beacon scan settings', the 'Scanned beacons read interval' is set to 5 seconds. The 'Min. allowed beacon RSSI level' is set to dB. There are three checkboxes for whitelists: 'Enable beacon adv. address whitelist', 'Enable name whitelist', and 'Enable company ID whitelist', all of which are currently unchecked. The 'Event policy' is set to 'Send event only for new beacons' and the 'Event data content' is set to 'Only beacon beacon adv. addresses'. At the bottom, there are buttons for '< Back', 'Next >', 'Validate', 'Save', 'Save and Close', and 'Close without saving'.

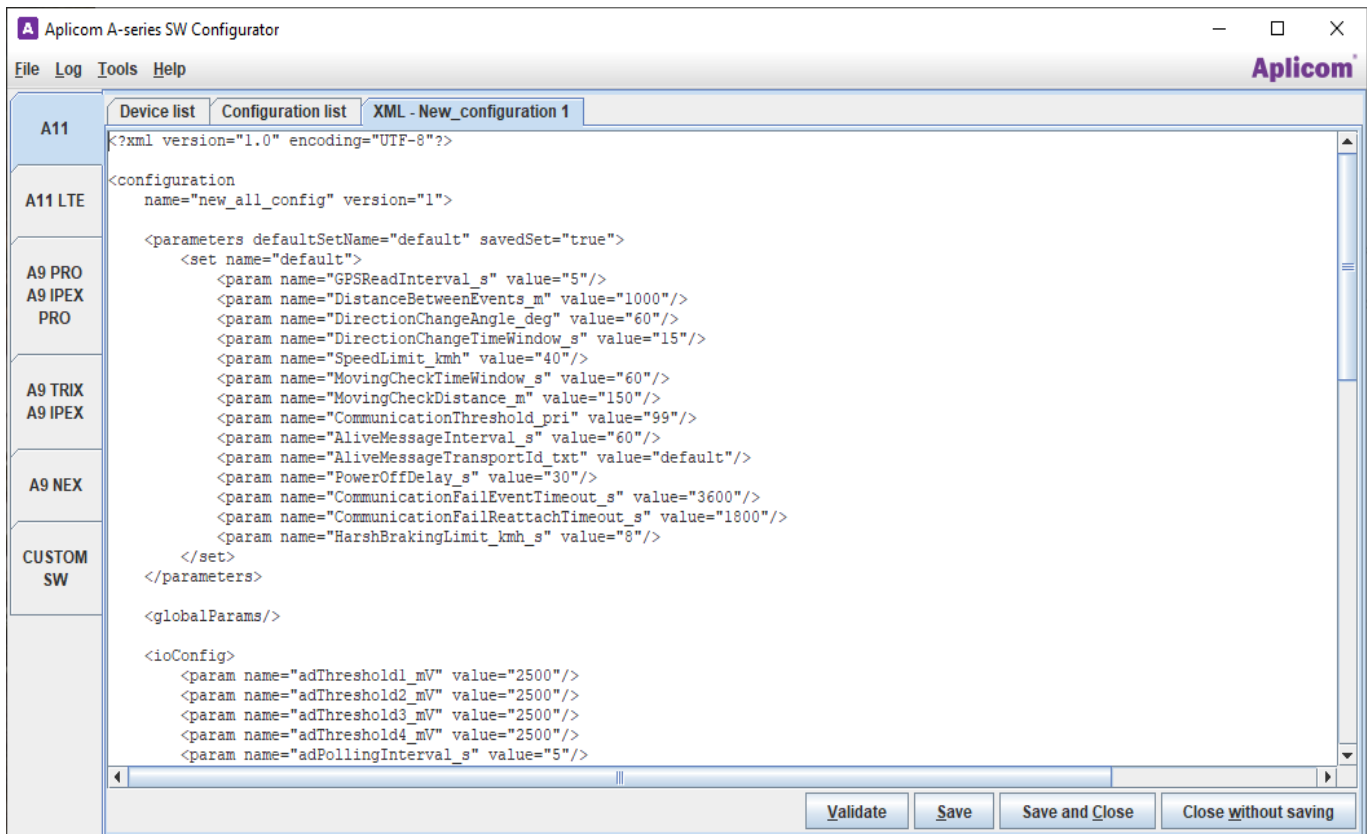
See the documents *K530100 A11 SW User Manual* and *K505047 A11 BLE use application note* for more information about configuring the BLE feature.

## 8 XML EDITOR

Select **File -> New <A-series device> configuration (XML)** or **File -> New <A-series device> configuration (XML)** to start building a new configuration using the XML editor. The XML editor can be opened also using the **Create (XML)** and **Edit selected (XML)** buttons on the **Configuration list** tab.

When the XML editor is opened for a new configuration, the Configurator opens a template configuration that has default values for all the required settings. The template is provided as a convenience to help creating new configurations using XML editor.

The XML editor allows editing of the raw A-series SW XML configuration file and it's targeted at the more experienced users of A-series SW. See corresponding A-series device's *SW User Manual* for more information about A-series SW configuration.



In the Configurator, each configuration is identified by its name and version number. The name and version of a configuration are stored in the root tag of the XML configuration file. Change the name and/or version attributes of the configuration's root tag (configuration) and save the configuration to create a new configuration and leave the old configuration intact.

**Tip!** The XML editor has undo/redo functionality. Keyboard shortcuts are Ctrl+Z (undo) and Ctrl+Y (redo).

### 8.1.1 Buttons

#### Validate

Validates the configuration and displays the validation result. See chapter 9 for more information about validation.

#### Save

Saves the configuration. The configuration is validated before saving.

**Save and Close**

Saves the configuration and closes the XML editor. The configuration is validated before saving.

**Close without saving**

Closes the XML editor without saving the configuration.

## 9 CONFIGURATION VALIDATOR

The Configurator validates all configurations while saving the configuration and before starting an update. First, the validator checks that the configuration file is a well-formed XML document. Then the validator checks that

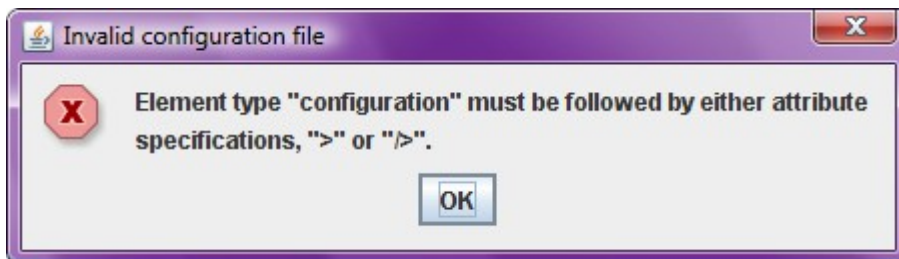
- the configuration contains all required elements.
- the configuration does not contain any unsupported elements.
- the values are valid and within range.

If the validation fails, the Configurator displays the found errors and warnings. The Configurator classifies the found problems into three categories, fatal errors, errors and warnings. An error or fatal error indicates that the configuration contains serious problems, which will prevent the device from using it. A warning indicates that the configuration is usable, but the configuration may not work as intended.

**Note!** Even though the Configurator validates the configurations, it is possible to create a configuration, which passes the validation but causes performance and out-of-memory problems. It is therefore the responsibility of configuration designers to make sure the configuration works as intended. Always test configuration very carefully before deployment. The configuration should be tested under highest expected load to ensure correct functionality in all circumstances.

### 9.1 Fatal error

A fatal error means that the configuration file is not a well-formed XML document. The error report contains a line number and description of the error. The Configurator does not allow continuing the operation if a fatal error is found. If the error was found while saving the configuration, the Configurator does not save the configuration and returns to the editor. If the error was found during update, the update is cancelled.



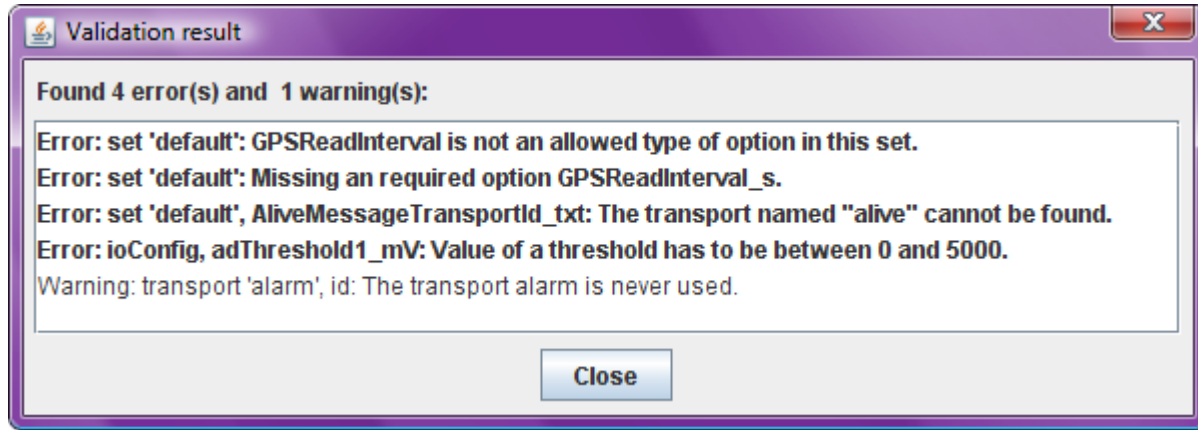
### 9.2 Errors, warnings and notes

An error means that the configuration file is missing important elements, contains unsupported elements, or has invalid values. In other words, the configuration file is not a valid A-series SW configuration.

A warning means that the configuration file is a valid A-series SW configuration, but it has some potential problems. The configuration may not work as intended.

If any error or warnings were found, the Configurator displays a list of found errors and warnings.

If an error or a warning is found while validating the configuration from XML editor, double-clicking a message in the list will highlight the source of that problem in the editor.



If an error or a warning is found while saving the configuration, the Configurator will ask for confirmation before saving the configuration.



## 10 DEVICE MANAGEMENT

The **Device list** tab contains a list of available devices and provides functionality to add, edit and remove devices. When the Configurator is started for the first time the device list will contain one example device.

The screenshot shows the 'Aplicom A-series SW Configurator' window. The 'Device list' tab is active. The table below shows the device list:

Sel	Name	IMEI	Phone number	Configuration in u...	Latest update	SW version	Status	Description
<input checked="" type="checkbox"/>	[Search by Name]	[Search by IM]	[Search by Phone num]	[Search by Configura]	[Search by Latest updt]	[Search by SW versio]	[Search by Status]	[Search by Descriptio]
<input type="checkbox"/>	Example			-			New	Example device.
<input type="checkbox"/>	New device	12345678...		-			New	
<input type="checkbox"/>	New device	12345678...		-			New	
<input type="checkbox"/>	New device	12345678...		-			New	
<input type="checkbox"/>	New device	12345678...		-			New	
<input type="checkbox"/>	New device	12345678...		-			New	

Below the table, there are three sections:

- Local Update:** Includes a dropdown menu with 'AplicomA11-ExampleCon...' and an 'Update Local' button.
- OTAP Update:** Includes a dropdown menu with 'AplicomA11-ExampleCon...', an 'Update selected OTAP' button, and a 'Copy to OTAP server' button.
- Device management:** Includes an 'Add New Device' button and a 'Remove Selected Devices' button.

### 10.1 Device list

All known devices are displayed in the device list. The following information is stored about each device.

Field	Description
Name	Name or alias for the device. This could be, for example, the license plate number of the vehicle where this device is installed.
IMEI	IMEI code of the device. Configurator uses the IMEI code to recognise the devices. Two devices are not allowed to have the same IMEI.
Phone number	Phone number of the SIM card in this device. This phone number is used to send SMS messages to the device. The phone number must be in international format, starting with a plus sign (+), for example +358012345678. The international format beginning with '00' is not accepted.
Configuration in use	The configuration that was last updated to the device using the Configurator. The Configurator assumes that the device is currently using this configuration. This field is updated automatically on successful update.
Latest update	Latest update. Date and time of the latest successful update. This field is updated automatically on successful update.
SW version	SW version. Version number of the SW that is currently used by the device. This field is updated automatically.
Status	Status of the device. This field is updated automatically.
Description	Description of the device. This field can be used to further describe the device or it's installation location.

## 10.2 Adding a new device

Click the `Add New Device` button to add a new device to the list. A new template device will be added to the list. The new device will become selected and it can be edited just like any other device in the list.

## 10.3 Editing a device

To edit a device, select it from the list and double click on a field to change its value.

## 10.4 Removing devices

Select the devices to remove by checking the checkbox at the beginning of the device line. Click the `Remove Selected Devices` button to remove the selected devices from the device list.

## 10.5 Searching devices

The device list has a search bar that can be used to search for devices by one or more field. Type search terms in the fields of the search bar and press Enter to search devices. The device list display will be limited to devices that match the entered search terms. Click the `x` button in top-left corner of the device list to clear all search terms and reset the device list display to all available devices.



## 11 LOCAL UPDATE

To update a device configuration locally, the device must be powered on and connected to the computer using a serial data cable for A-series device or standard micro USB cable when using an A-series device with USB. A correct PC serial port must be selected in Configurator Options.

When using USB, select one of the following USB interface's virtual COM ports:

With 3G devices (A11, A9 TRIX):

Nameless Cinterion EhxUSB Modem port or one of Cinterion Ehx USB Com Ports 3 – 5. **Note!** Ports 1 and 2 cannot be used.

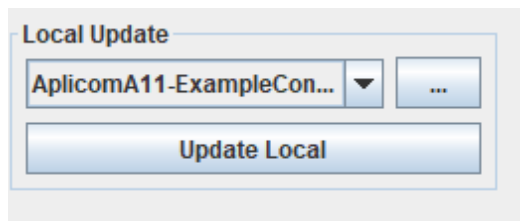
With 4G devices (A11 LTE, A9 PRO):

Nameless Cinterion ELSx USB Modem port or one of Cinterion ELSx USB Com Port 2. **Note!** Ports 1 and 3 cannot be used.

See chapter 14 for more information about Configurator Options.

### 11.1 Installing configuration to A-series

Select a configuration from the drop-down box in the `Local Update` section.



Click the `Update Local` button to start the update. During the installation procedure the Configurator

- Creates a new SW archive (`JAR` file), and copies the selected configuration into the new archive.
- Connects to A-series device and installs the created SW archive.
- Resets the A-series device to activate the installed software and configuration.

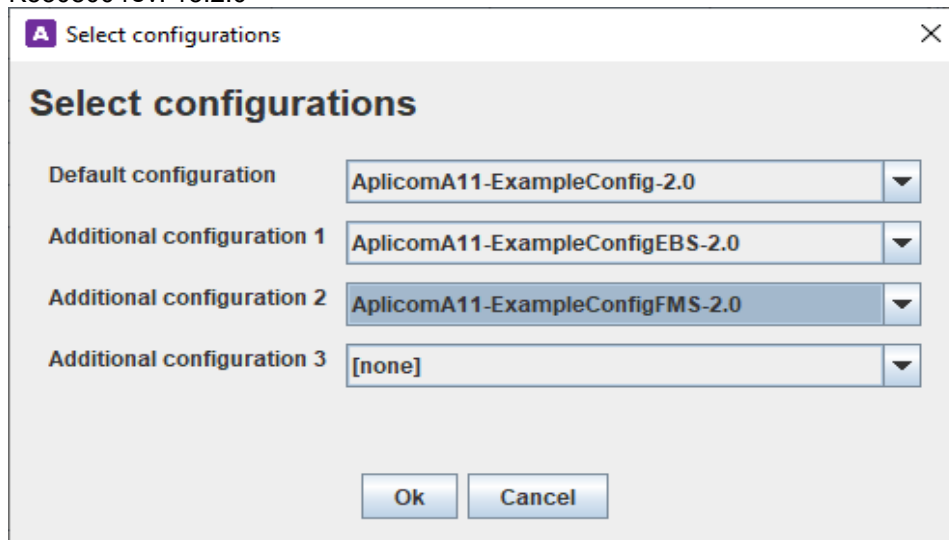
After the update is completed, the Configurator updates the device list to reflect the updated device status. If the updated device is not found in the device list, the Configurator asks if the updated device should be added to the device list.

**Note!** The Configurator automatically sets the correct auto-start application during the update. However, the Java application auto-start is not turned on during the update if it was turned off before.

**Note!** Any old configurations and their backups are deleted from the device during the local update.

### 11.2 Installing multiple configuration at once

Multiple configurations can be selected by clicking the `(...)` button in the `Local Update` section. The `Select configurations` window will be displayed.



A default configuration and zero or more additional configuration can be selected. The default configuration is installed as described in chapter 11.1. The additional configurations are also included in the installed SW archive as separate files.

The additional configurations are stored with file names that follow the scheme:

```
<name>-<version><extension>
```

For example, configuration file containing `ApicomDrivingBasix` version 1.0 would be stored in the SW archive as `ApicomDrivingBasix-1.0.xml`. The `<extension>` is always `.xml`.

### 11.3 Updating A-series SW when COM1 is in use

If the USB interface is not used, the Configurator communicates with A-series SW via the COM1 port of the device.

If the COM1 interface is reserved for other use (such as Garmin interface), the Configurator is unable to communicate with it. The COM1 interface is, however, always available for few seconds after a reset or power on.

Reset the device while the Configurator is making connection to the device, that is, click `Local Update` and reset A-series device within 5 seconds. Use the reset switch to reset the device. With A9 devices, the reset button is under the cover. The button is located next to the SIM card holder on the PCB.

**Note!** Please make sure that proper ESD protection is used before opening the cover of the device.

**Note!** With A11 and A9 PRO, prefer using USB port for SW updating.

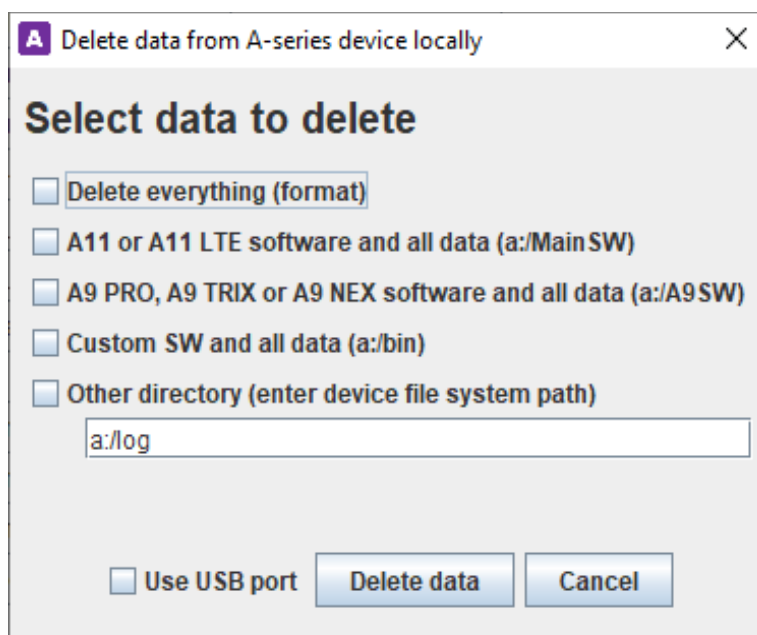
### 11.4 Deleting data from A-series device

Software, configurations and all data (logs, stored messages, etc.) can be deleted from A-series device locally. Select `Tools -> Delete data from <A-series device>...` to open the `Delete data from <A-series device>` window.

Select directories to delete by checking the check boxes and click `Delete data` to connect to A-series device and delete the selected directories from A-series device flash file system.

If the `Delete everything (format)` check box is selected, then the Configurator will format the A-series device flash file system, erasing all files and directories.

Check the `Use USB` check box when using a device with USB cable.



## 11.5 Troubleshooting

If the Configurator fails to establish a connection to the device during local update:

- Check that the A-series device is powered on and operating normally. During normal operation A-series LED A or LED E or F is lit.
  - Check cables. A data cable (D337055 for A9 NEX/TRIX devices and Micro-USB for A11 and A9 PRO devices) must be used.
  - Check ports. The cable must be connected to COM1 on A-series device. A correct PC serial port must be selected in Configurator Options. See chapter 14 for more information about Configurator Options.
  - Close any other applications that might be using the selected COM port, such as a terminal program.
  - Reset the device while the Configurator is making connection to the device, that is, click **Local Update** and reset A-series device within 5 seconds. Use the reset switch to reset the device. With A9 devices, the reset button is under the cover. The button is located next to the SIM card holder on the PCB.
- Note!** Please make sure that proper ESD protection is used before opening the cover of the device.
- Some USB-RS232 adapters are known to not work with Module Exchange Suite (MES), which is used by the Configurator for local updates. The following USB-RS232 adapters are known to be compatible with MES:
    - FTDI US232R-100
    - FTDI UC232R-10

## 12 OTAP UPDATE

The Configurator supports updating A-series SW and its configuration using Over-The-Air Provisioning (OTAP). Using OTAP updates requires a GSM modem for sending OTAP SMS messages and an OTAP server to host files and receive OTAP update notifications from A-series devices. See appendix A for information about using A-series device as a modem. See appendix B for information about the OTAP server.

### 12.1 Setting up the Configurator for OTAP

Some options must be configured before OTAP update features of the Configurator can be used. Open the **Options** window by selecting **Tools -> Options** from the main menu to set required options for using OTAP updates.

Normally it is enough to enter an OTAP server configuration URL on the **OTAP Server tab**. If OTAP server configuration URL is set, the Configurator downloads OTAP server configuration file from the server. The settings downloaded from the server can be overridden locally by setting them in the **Configurator Options**. See chapter 14 for more information about the **Configurator Options** window.

If the OTAP server does not provide an OTAP configuration file or it's missing some options, the missing options must be set locally in **Configurator Options**.

The options that are required for different tasks are listed in Table 1. All of these options can be specified in the OTAP server configuration file unless noted otherwise.

Task	Required options
Automatically synchronize device list with OTAP server.	<b>OTAP Server tab</b> OTAP status URL
Enable OTAP for A-series devices with OTAP SMS password.	<b>OTAP SMS tab</b> Password for OTAP authentication
Enable A-series devices to report OTAP status.	<b>OTAP Server tab</b> OTAP server HTTP authentication (must be set locally if the server requires HTTP authentication) <ul style="list-style-type: none"> <li>• User name</li> <li>• Password</li> </ul> OTAP notification URLs <ul style="list-style-type: none"> <li>• Install</li> <li>• Delete</li> </ul> <b>OTAP SMS tab</b> GPRS Access Point Name (APN) GPRS network authentication <ul style="list-style-type: none"> <li>• User name</li> <li>• Password</li> </ul>
Enable A-series devices to download files from OTAP server.	<b>OTAP Server tab</b> OTAP server HTTP authentication (must be set locally if the server requires HTTP authentication) <ul style="list-style-type: none"> <li>• User name</li> <li>• Password</li> </ul> Server data download URL  <b>OTAP SMS tab</b> GPRS Access Point Name (APN) GPRS network authentication <ul style="list-style-type: none"> <li>• User name</li> <li>• Password</li> </ul>

To transfer files to OTAP server via HTTP using the Configurator.	<b>File Transfer tab</b> OTAP server HTTP authentication (must be set locally if the server requires HTTP authentication) <ul style="list-style-type: none"> <li>• User name</li> <li>• Password</li> </ul> HTTP file transfer settings <ul style="list-style-type: none"> <li>• HTTP upload URL</li> <li>• Password for HTTP uploads (must be set locally if the server requires HTTP upload password)</li> </ul>
To transfer files to OTAP server via SFTP using the Configurator.	<b>File Transfer tab</b> SFTP file transfer settings <ul style="list-style-type: none"> <li>• Address</li> <li>• Port (optional, default is 22)</li> <li>• Data directory</li> </ul>

Table 1. Required options for different tasks.

## 12.2 Updating A-series device using OTAP

- Select the devices for update by marking their check boxes in the device list. Each selected device should have an IMEI and a phone number set, otherwise the device can't be updated using OTAP.
- Select a configuration from the drop-down box in the **OTAP Update** section.
- Click the **Update selected OTAP** button to begin the OTAP update procedure.

The Configurator builds a custom version of A-series SW that contains the selected configuration, and uploads it to the OTAP server. Next, the Configurator creates and sends OTAP update SMS messages to each selected device. The messages contain GPRS network settings and information about where the updated A-series SW can be downloaded. The parameters are distributed over several SMS messages if they do not fit into one message. Typically two messages are required to start OTAP update.

**Note!** OTAP update does not delete stored messages or any old XML configuration files that have been installed manually without the Configurator or using the OTA configuration. See *K503051 A-series Telematics SW Config OTA Update Manual* for more information about OTA configuration feature. If such XML configuration file exists on the device, the existing configuration will be used instead of the configuration updated using OTAP. In this case, delete the A-series SW and all configurations from the device before starting OTAP update. The A-series SW, its XML configuration files and stored messages can be deleted using OTAP. See chapter 12.3 for more information about the OTAP delete functionality.

After A-series device receives the OTAP update SMS messages, it stops the normal operation and enters OTAP mode. See corresponding A-series device's *SW User Manual* for more information about the OTAP mode. In OTAP mode, A-series reads the received OTAP update SMS messages and starts to download the updates from the OTAP server using a GPRS connection and HTTP. After the device completes the download, it sends a notification message to the OTAP server and resets itself. The device starts normal operation using the updated configuration after the reset.

The Configurator monitors the OTAP server log and detects notifications about successfully completed OTAP procedures. The Configurator updates the status of a device to "Updated" in the device list as soon as a notification is detected.

**Note!** Due to nature of the GSM network and SMS delivery, it cannot be guaranteed that the A-series device receives the sent SMS messages. If the target device is not registered to GSM network, the SMS delivery can take a very long time. The Configurator sets the validity period of all sent SMS messages to 24 hours. This means that the SMS message is discarded if it cannot be delivered within 24 hours.

**Note!** Length of an SMS is limited to 140 characters when using 8-bit character encoding. Therefore length of the JAD download URL sent to A-series device when starting OTAP update can be at most 121 characters. This should be considered when selecting a name for configurations. If OTAP password is used, the maximum length is further reduced because the OTAP password must be included in each OTAP SMS.

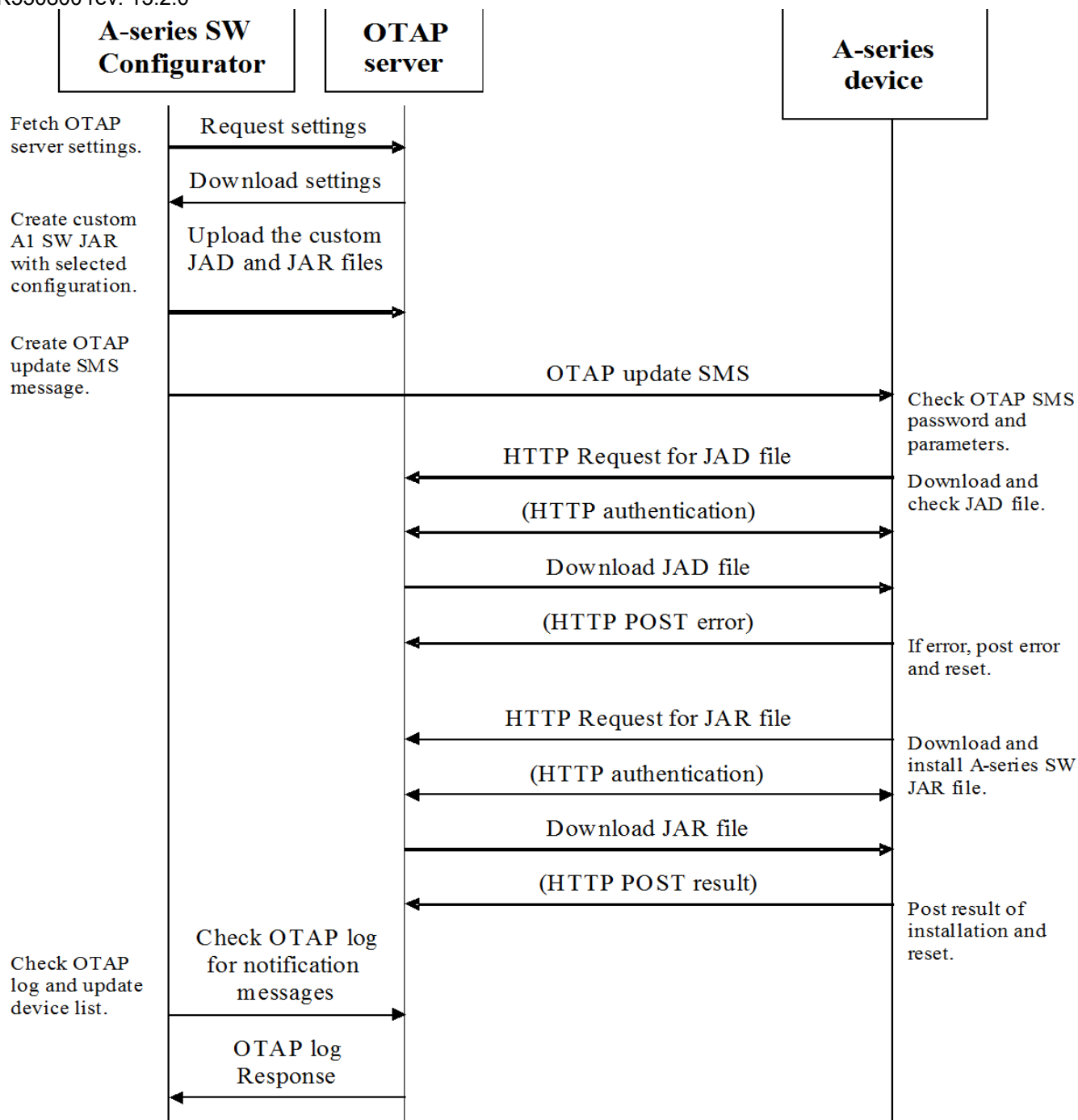


Figure 2. OTAP update procedure.

## 12.3 Deleting A-series SW and its configuration from A-series device using OTAP

- Select the devices by marking their check boxes in the device list. Each selected device should have an IMEI and a phone number set, otherwise OTAP delete can't be used with the device.
- Select Tools -> Delete <select A-series device> SW (OTAP) from the main menu to begin the OTAP delete procedure.

The Configurator creates and sends OTAP delete SMS messages to each selected device. The message contains instructions to delete the A-series SW and its configuration from the A-series device. The messages also contain GPRS network settings, which enables the A-series device to send a status report to the OTAP server. The parameters are distributed over several SMS messages if they do not fit into one message. The parameters required to start OTAP delete typically fit in one SMS message.

Once an A-series device receives the OTAP delete SMS message, it stops the normal operation and deletes the A-series SW and its configuration that are stored in the device's flash file system. After the device has deleted the A-series SW and its configuration, it sends a notification message to the OTAP server and resets itself. The device will remain powered on after the reset. Because the A-series SW was deleted, the device will not do anything useful until the next successful update.

The OTAP delete needs also the JAD URL parameter for the SW to be deleted. To find that out, the procedure includes an additional SMS sent to the device and a response SMS from the device. See the diagram below.

If the target device can not send the response SMS, for example if the SIM card is not allowed to send text messages, the JAD URL needed for the delete can be set in the OTAP SMS tab in the A-series SW Configurator's Options.

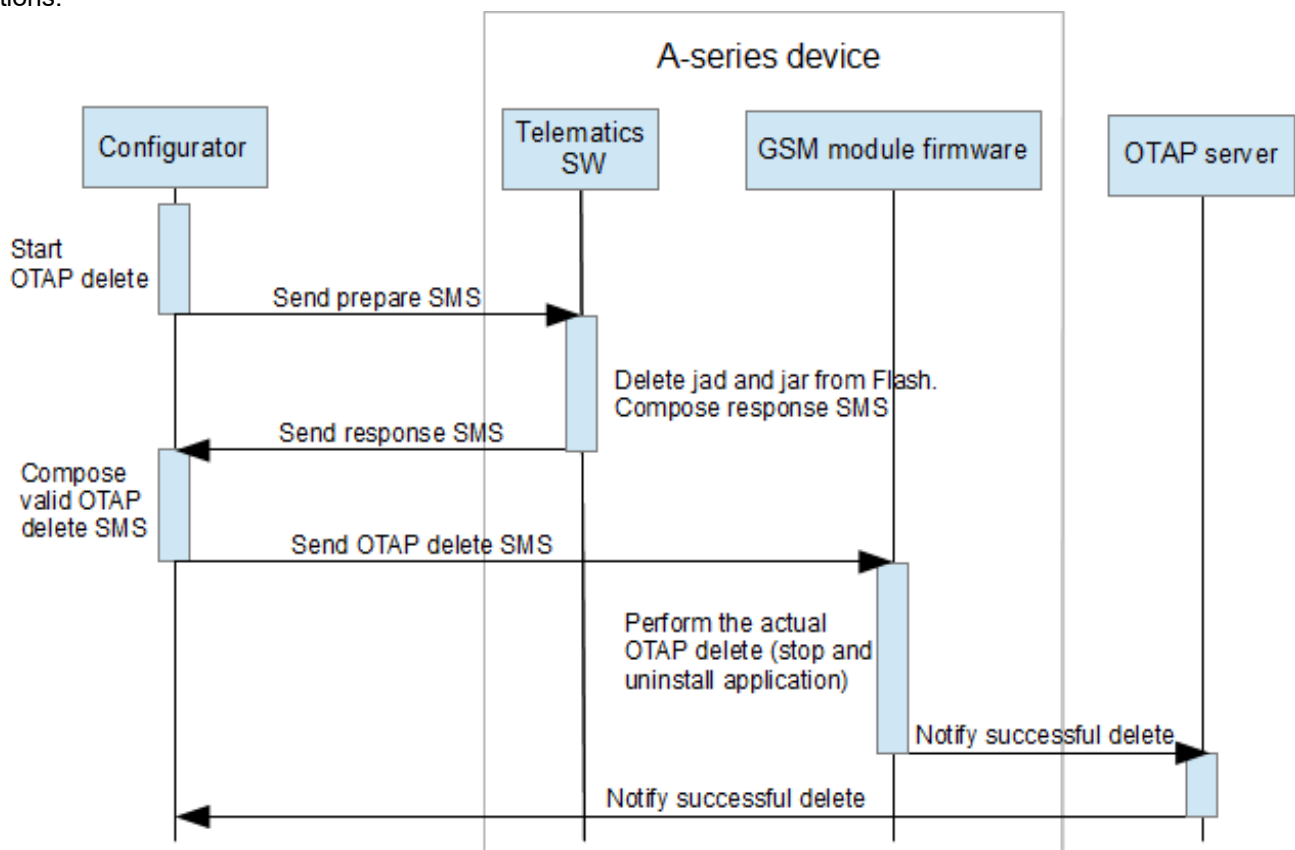


Figure 3. OTAP delete procedure.

## 12.4 Copying configuration and software to OTAP server

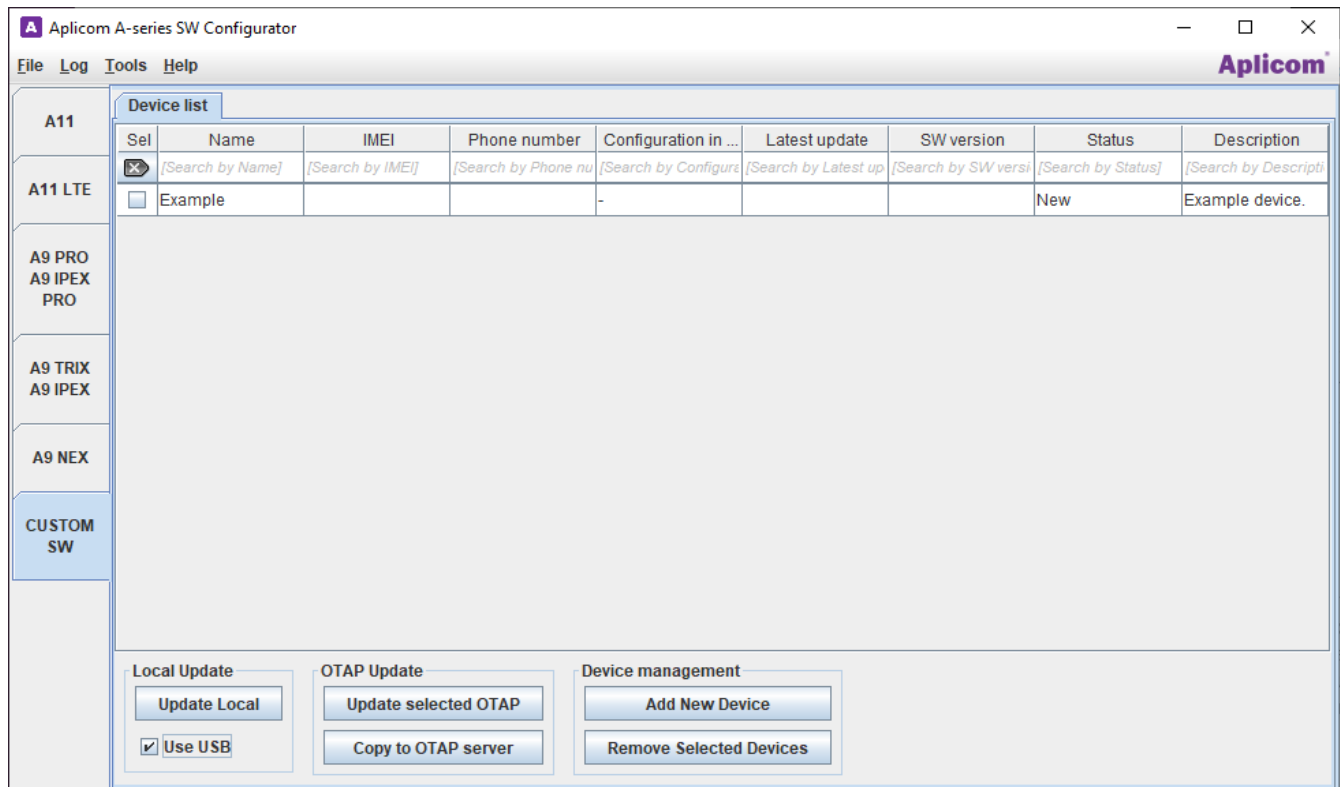
Select a configuration from the drop-down box in the OTAP Update section of the main Configurator screen. Click the Copy to OTAP Server button to start copying files to OTAP server.

The Configurator builds a custom version of A-series SW that contains the selected configuration and uploads it to the OTAP server.

## 13 USING CONFIGURATOR WITH CUSTOM SOFTWARE

The Configurator supports management of A-series devices with custom software (other than A-series SW). The `Device list` tab is used for custom device management. See chapter 10 for more information about device management.

The Configurator installs custom software to `a:/bin` directory of A-series device flash file system by default. The custom SW installation directory can be changed by editing or adding property `Storage.Custom.AppDir` in the `properties.xml` file. See chapter 3.1 for more information about the data and configuration files of the Configurator.



### 13.1 Local Update

Click the `Update Local` button to update a locally connected device. The Configurator will update the device with the custom SW that was previously selected using `Tools -> Select custom SW for updates`. The Configurator will display the `Select custom SW` window, if custom SW has not been selected already. See chapter 3.2.3 for more information about selecting custom SW for updates.

**Note!** Check the `Use USB` check box when using the device with USB.

The Configurator installs the selected custom SW to the device just like it would do with A-series SW. See chapter 11 for more information about the local update.

### 13.2 OTAP Update

Select the devices for update by marking their check boxes in the device list. Each selected device should have an IMEI and a phone number set, otherwise the device can't be updated using OTAP. Click the `Update selected OTAP` button to update selected devices using OTAP.

The Configurator will update the device with the custom SW that was previously selected using `Tools -> Select custom SW for updates`. The Configurator will display the `Select custom SW` window, if custom SW has not been selected already. See chapter 3.2.3 for more information about selecting custom SW for updates.

The Configurator updates the selected devices just like it would do with A-series SW. See chapter 12 for more information about the OTAP update.



**Note!** OTAP update changes the Java application autostart settings to start the installed application. If Java application auto-start is disabled on the target device, it is not enabled by OTAP.

### 13.3 OTAP Delete

Only one device at a time can be selected for Custom SW OTAP delete. Select the device by marking it's check box in the device list. The selected device should have an IMEI and a phone number set. Select **Tools -> Delete Custom SW (OTAP)** from the Configurator main menu to delete a custom SW from the A-series device.

The Configurator creates and sends OTAP delete SMS messages to the selected device. The message contains instructions to delete the SW and its installation directory from the A-series device. The messages also contain GPRS network settings, which enables the A-series device to send a status report to the OTAP server. The parameters are distributed over several SMS messages if they do not fit into one message. The parameters required to start OTAP delete typically fit in one SMS message.

**Note!** The OTAP delete procedure needs also the JAD URL parameter to be performed. The URL should be the exact path to the directory where the application is installed from. For example, if the application is installed by locally uploading it to the module, the path points to the modules Flash drive and could look like this:

a:/bin/D111111-CUSTOM-SW.jad

If the application is installed from a server via OTAP the path points to the OTAP server. For example:

http://111.11.11.111:1234/A1OtapServer/download?file=/1104586719/D111111-CUSTOM-SW.jad

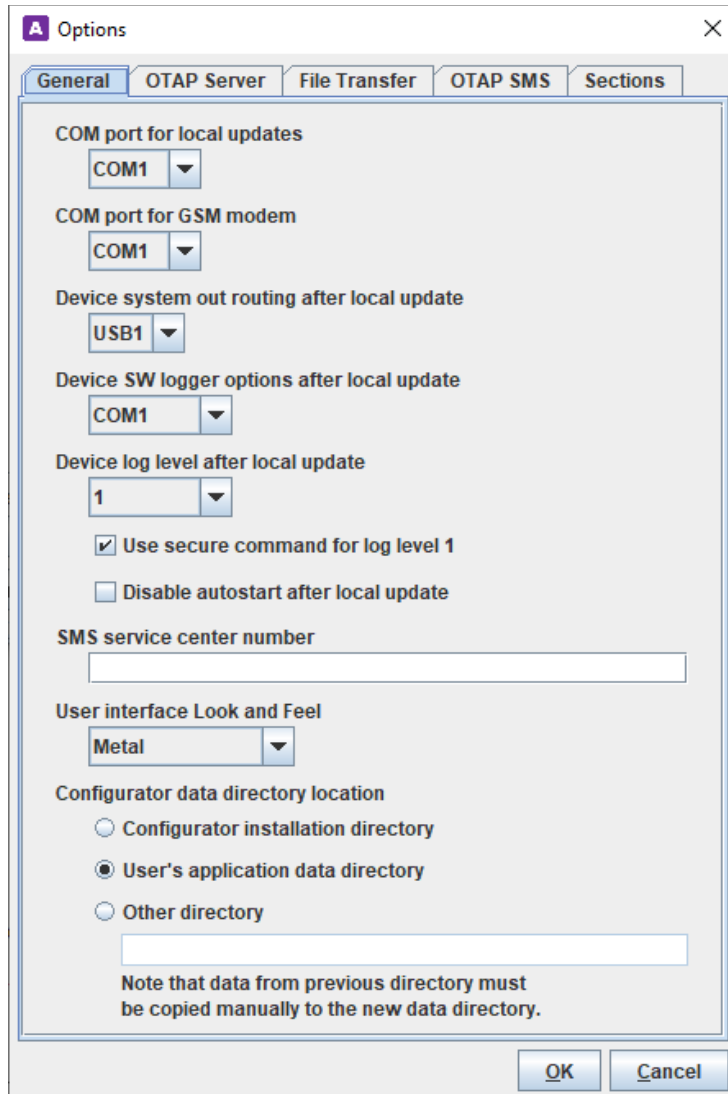
See chapter 12.3 for more information about the OTAP delete functionality.

## 14 CONFIGURATOR OPTIONS

Select **Tools -> Options** from the Configurator main menu to open the **Options** window.

### 14.1 General

The **General** tab is used to configure communications ports and modems used by the Configurator.



The screenshot shows the 'Options' dialog box with the 'General' tab selected. The dialog has a title bar with a close button (X). Below the title bar are five tabs: 'General', 'OTAP Server', 'File Transfer', 'OTAP SMS', and 'Sections'. The 'General' tab is active and contains the following settings:

- COM port for local updates:** A dropdown menu showing 'COM1'.
- COM port for GSM modem:** A dropdown menu showing 'COM1'.
- Device system out routing after local update:** A dropdown menu showing 'USB1'.
- Device SW logger options after local update:** A dropdown menu showing 'COM1'.
- Device log level after local update:** A dropdown menu showing '1'.
- ☒ **Use secure command for log level 1**
- ☐ **Disable autostart after local update**
- SMS service center number:** An empty text input field.
- User interface Look and Feel:** A dropdown menu showing 'Metal'.
- Configurator data directory location:** Three radio buttons: 'Configurator installation directory' (unselected), 'User's application data directory' (selected), and 'Other directory' (unselected). Below the radio buttons is an empty text input field.
- Note that data from previous directory must be copied manually to the new data directory.**

At the bottom right of the dialog are two buttons: 'OK' and 'Cancel'.

#### COM port for local updates

Name of the COM port used for local updates.

#### COM port for GSM modem

Name of the COM port used by the GSM modem.

#### Device system out routing after local update

Selects which interface is used to output device's system out prints. Applies only with local update.

#### Device log level after local update

Selects which log level is used for device's logging. Applies only with local update.

#### Use secure command for log level 1

Selects if a secure command is to be used when setting log level to most verbose (1, trace). Only some old SW

versions do not support this. Applies only with local update.

**Disable autostart after local update**

Selects if the automatic starting of the application is disabled after local update. Normally the autostart should be enabled.

**SMS service center number**

This number is used as SMS service center when sending SMS messages. If SMS service center number is not set the service center number stored on SIM card is used.

**User interface Look and Feel**

Selects the Look and Feel of the Configurator's user interface. The list of available Look and Feels depends on system configuration. Default Look and Feel is Metal.

**Configurator data directory location**

Selects where the Configurator stores its data files. Starting with Configurator version 5.0.0, the default data directory location is in user's application data directory for all new installations. Upgrade from previous version keeps the data directory location intact.

**Note!** Configurator does not automatically move or copy files from old data directory to new data directory when changing the data directory location. To transfer the old data to new location, close the configurator and copy data manually.

## 14.2 OTAP Server

The `OTAP Server` tab defines the URLs required by the Configurator for communicating with the OTAP Server.

Typically, only the `OTAP server configuration URL` is required. Configurator will fetch all other settings from the this URL.

The screenshot shows the 'Options' dialog box with the 'OTAP Server' tab selected. The dialog contains the following fields and controls:

- OTAP server HTTP authentication**
  - User name:
  - Password:
- OTAP server configuration URL**
  -
- OTAP status URL**
  -
- OTAP server log URL**
  -
- OTAP server data download URL**
  -
- OTAP notification URLs**
  - Install:
  - Delete:
- Type of file path for OTAP**
  - Default (dropdown menu)

At the bottom right are 'OK' and 'Cancel' buttons.

### OTAP server HTTP authentication

The user name and password for HTTP authentication required for communicating the OTAP server. These parameters must be set, if the OTAP server is configured to use HTTP authentication.

### OTAP server configuration URL

If `OTAP server configuration URL` is set, the Configurator downloads OTAP settings from the server using this URL.

**Note!** If the `OTAP server configuration URL` is defined and OTAP settings are available on the server, the remaining URLs on this page can be left empty. The values set on this page override the values downloaded from the server.

### OTAP status URL

URL to OTAP server's device status page. The Configurator uses the OTAP status URL to synchronise the device list with OTAP server's device status data.

### OTAP server log URL

URL to OTAP server's log page.

## OTAP server data download URL

The Configurator uses Data download URL to build URLs for downloading data files from the OTAP server. The Configurator appends a forward slash ('/') and a file name to data download URL. The built data download URLs are used in OTAP SMS messages to tell A-series device where to download the updated A-series SW.

## OTAP notification URLs

Install and delete notification URLs for OTAP. The A-series device will report successful OTAP configuration updates and deletes to these URLs.

## Type of file path for OTAP

Selects which file path type the Configurator uses for OTAP. Old type uses configuration name and version as the directory name and the default type uses the hash code of the configuration name and version as the directory name.

For example, the old type: *http://81.61.111.111:1111/otap/download?file=/A9%20Starterkit%20Config-1.0/D205101-A9-NEX-SW.jad* and the default type: *http://81.61.111.111:1111/otap/download?file=-1333040117/D205101-A9-NEX-SW.jad*.

A-series SW Configurator version 10.32.0 and newer and Aplicom OTAP server version 5.1.3 and newer use the new default type of the file path.

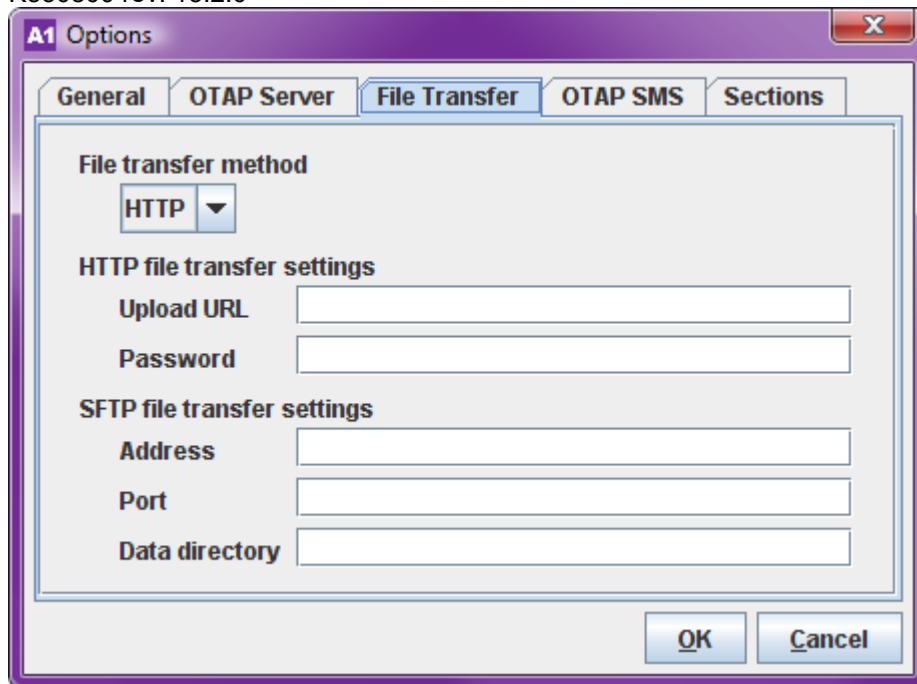
The A-series SW Configurator and Aplicom OTAP server are compatible as follows:

- A-series SW Configurator versions older than 10.32.0 are fully compatible with old and new Aplicom OTAP Server.
- A-series SW Configurator version 10.32.0 is fully compatible with the Aplicom OTAP Server version 5.1.3 and newer. With Aplicom OTAP Server older than version 5.1.3 the OTAP update works normally but the configuration file names are not showed correctly in Update Query configuration.
- A-series SW Configurator version 10.32.2 and newer is fully compatible with the Aplicom OTAP Server version 5.1.3 and newer. Full compatibility with Aplicom OTAP Server older than version 5.1.3 is achieved when type of file path is selected to be "Old type". If the selected path type is "Default" the OTAP update works normally but the configuration file names are not showed correctly in Update Query configuration.

## 14.3 File Transfer

The `File Transfer` tab is used to define how the Configurator copies the files to the OTAP server.

**Note!** If `OTAP server configuration URL` is set on the `OTAP Server` tab, the Configurator downloads OTAP settings from the server. If the OTAP settings are available on the server, all options (except the password for HTTP file transfers) on this page can be left empty. The values set on this page override the values downloaded from the server.



### File transfer method

Defines the method that the Configurator uses to transfer files to OTAP server while preparing to start an OTAP update operation. Currently supported file transfer methods are HTTP and SFTP (Secure File Transfer Protocol). The default is HTTP. The OTAP server supports HTTP file transfers. SFTP requires additional software on the server to work correctly.

### HTTP file transfer settings

`Upload URL` is the URL to OTAP server's upload page. The Configurator sends file transfer requests to this URL when preparing for OTAP update.

`Password` is the password used for authenticating HTTP file transfers. The option must be set, if the OTAP server is configured to require a password for HTTP uploads. Leave this field empty, if the server does not require a password for HTTP file transfers.

### SFTP file transfer settings

`Address` is the IP address or host name of the OTAP server.

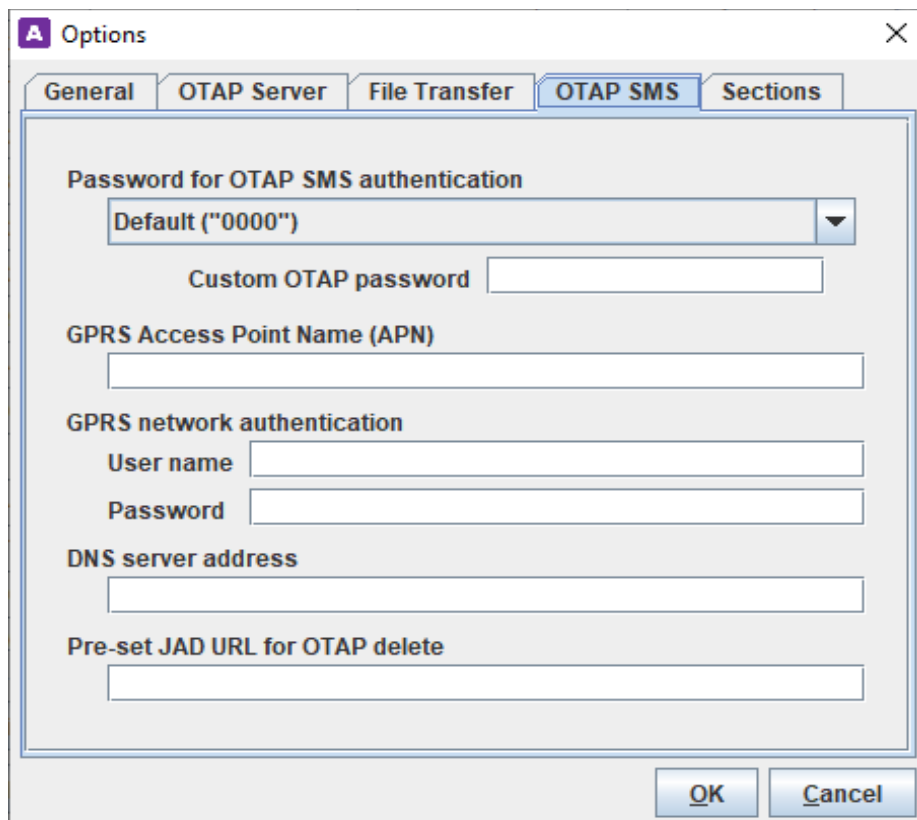
`Port` is the port number used by the SFTP service on the OTAP server.

`Data directory` is full path to configuration data directory on the web server. The configuration files used for OTAP will be copied to this directory. Example: `/var/www/a1otap/data`.

## 14.4 OTAP SMS

The options on `OTAP SMS` tab define the settings sent to A-series devices in the OTAP update and delete SMS messages.

**Note!** If `OTAP server configuration URL` is set on the `OTAP Server` tab, the Configurator downloads OTAP settings from the server. If the OTAP settings are available on the server, options on this page can be left empty. The values set on this page override the values downloaded from the server.

**Password for OTAP SMS authentication**

Password for authenticating OTAP SMS messages.

**Custom OTAP password**

If custom password is selected in the "Password for OTAP SMS authentication" selection, the password is set here.

**GPRS Access Point Name (APN)**

GPRS Access Point Name (APN) for connecting to internet during OTAP.

**GPRS network authentication**

User name and password for authenticating with the network.

**DNS server address**

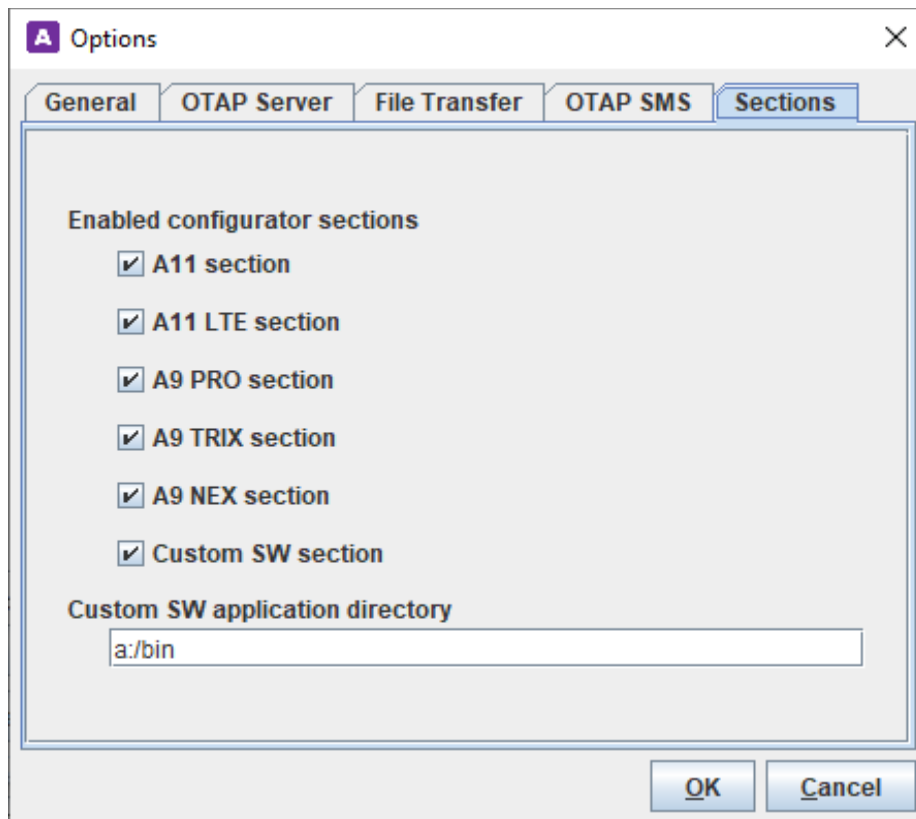
Domain Name Server's IP address used by A-series device to query hostnames during OTAP.

**Pre-set JAD URL for OTAP delete**

If the target device cannot send SMS messages so that the JAD URL of the SW could be found out, the JAD URL can be set here. See chapter 12.3 for more information about the OTAP delete functionality.

## 14.5 Sections

The `Sections` tab is used to define which Configurator sections are displayed.



Selected sections are displayed in the tab bar at the left side of the Configurator window.

### Custom SW application directory

Selects the directory at device flash for the custom SW. The default is `a:/bin`

**Note!** All changes on the Section page take effect after the Configurator is restarted.



## 15 A-SERIES SOFTWARE MANAGER

Select **Tools -> Manage device SW...** from the Configurator main menu to open the A-series software manager window. This window is used to manage the applications on the A-series device.

The A-series software manager window uses the serial port specified in the Options window as COM port for local updates. See chapter 14.1 for more information about selecting the PC serial port.

**A-series software manager**

**Manage A-series device software**

**Input**

**Output**

**Set Sysout**

**Sysout**

ASC0

**Set Sysout**

Read installed	Read running	Stop selected	Stop all
Uninstall selec...	Uninstall all	Install selected	Start selected
Autostart on	Autostart off		

**Close**

### Input

The value set in the field is used when making the following actions:

- stop selected
- uninstall selected
- install selected
- start selected

The value is expected to be a valid JAD URL.

### Output

The value is the output of the following actions:

- read installed
- read running

The value or parts of the value can be used as input to the other actions.

### Set sysout

Selects the interface which is used to output the device's system out prints.

### Read installed

Reads the installed applications on the device. The result is printed to the output field.

**Read running**

Reads the running applications on the device. The result is printed to the output field.

**Stop selected**

Stops the selected application. The application is selected by inserting the JAD URL of the application to the input field.

**Stop all**

Stops all applications (except the built-in JRC and SLAE applications) from the device.

**Uninstall selected**

Uninstalls the selected application. The application is selected by inserting the JAD URL of the application to the input field.

**Uninstall all**

Uninstalls all applications (except the built-in JRC and SLAE applications) from the device.

**Install selected**

Installs the selected application. The application is selected by inserting the JAD URL of the application to the input field.

**Start selected**

Starts the selected application. The application is selected by inserting the JAD URL of the application to the input field.

**Autostart on**

Sets the automatic starting of the applications enabled. The change is effective at next startup.

**Autostart off**

Sets the automatic starting of the applications disabled. The change is effective at next startup.

**Close**

Closes the window.

## 16 APPENDIX A: USING A-SERIES DEVICE AS A GSM MODEM

To use A-series device as a GSM modem for sending SMS messages:

- Insert a SIM card to A-series device.
- Connect GSM/GPRS antenna to GPRS connector of the device (A9 devices have internal GSM/GPRS antenna).
- Connect a data cable (Micro-USB for A11 and A9 PRO and D337055 for A9 TRIX/NEX) between PC and port COM1 or USB of the A-series device.
- Power on the A-series device.
- Set the autostart setting of the device off.

For setting the autostart setting off, the A-series software manager can be used (see chapter [15. A-series software manager](#)) or use the instructions below:

Open a serial connection to A-series device using a terminal program (connection settings: 115200bps, 8N1, no flow control). Enter the following AT command to disable auto-start feature of A-series device. A-series device can't be used as a modem while a Java application is running on the A-series device.

```
AT^SCFG="Userware/Autostart","", "0"
```

Restart the A-series device to activate the autostart setting.

```
AT^SMSO
```

The A-series device will restart and print the following:

```
^SYSSTART
```

Enter the following AT command to check that the AT interface is active (response should be "OK"):

```
AT
```

Disconnect the terminal program's connection to the port.

### 16.1 Restoring normal operation mode

Enter the following AT command to enable the autostart again:

```
AT^SCFG="Userware/Autostart","", "1"
```

Restart the A-series device to activate the autostart setting. Disconnect the terminal program's connection to the port.

## 17 APPENDIX B: SETTING UP AN OTAP SERVER

The A1 OTAP server web application provided with SW Package for A-series or it is loadable from Aplicom extranet ([www.aplicom.com/en/extranet](http://www.aplicom.com/en/extranet)) consist of a set of Java Servlets that can be used with Apache Tomcat 8.

### 17.1 Server requirements

A1 OTAP server web application requires a server that meets the following requirements:

- Java SE Runtime Environment version 1.8 or newer
- Apache Tomcat version 8.0.

See Java and Apache Tomcat Documentation for installation instructions for Java SE Runtime Environment and Apache Tomcat.

### 17.2 Installing the A1 OTAP server

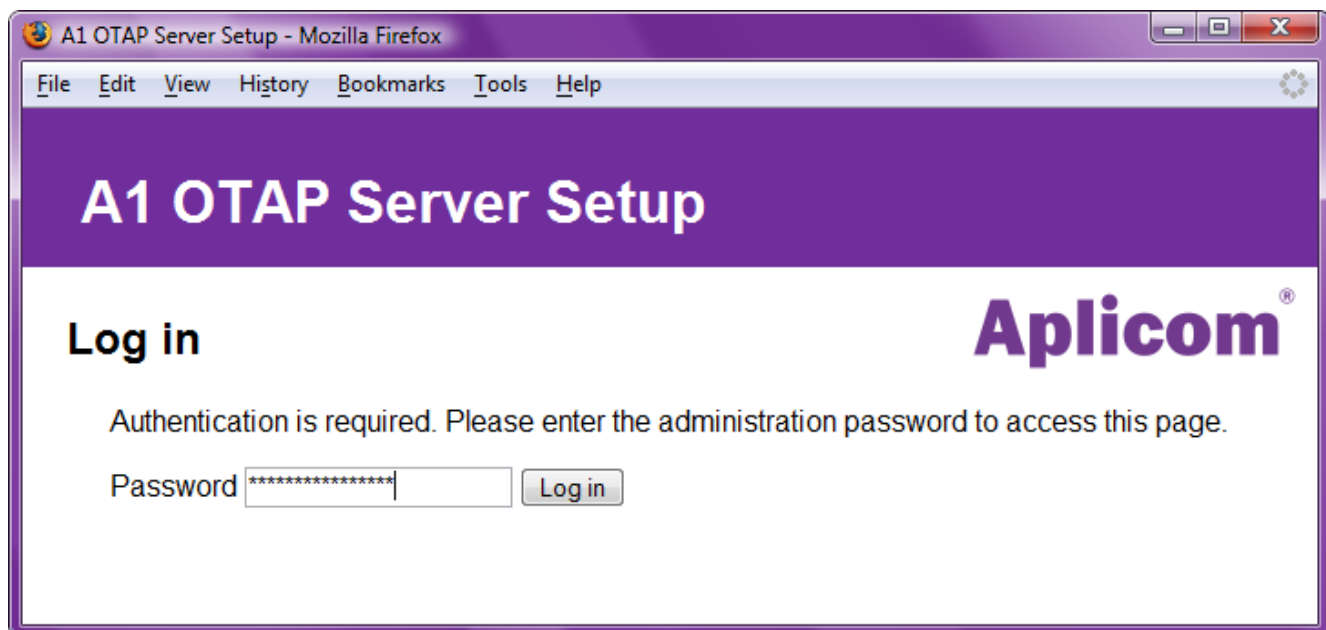
Please see the installation instructions from the OTAP server's *Quick Start - read me.txt* file.

### 17.3 A1 OTAP server configuration

The current A1 OTAP server configuration can be viewed and modified using A1 OTAP server's setup page. URL to the setup page is formed by appending `/setup` to A1 OTAP server's base URL, for example:

```
http://localhost:8080/A1OtapServer/setup
```

Open the A1 OTAP server `setup` page in a web browser and log in. The default password in a new A1 OTAP server installation is `A1SwConfigurator`.



Once logged in, the configuration page is displayed. It is recommended to change the passwords immediately.

A1 OTAP Server Setup - Mozilla Firefox

File Edit View History Bookmarks Tools Help

# A1 OTAP Server Setup

☒ OTAP Server

☐ Update Query

☐ Log out

Aplicom®

## Configuration parameters

The following parameters are used to configure the A1 OTAP Server. All parameters are optional. A1 OTAP server will automatically detect values for parameters marked with A.

OTAP server log URL	<input type="text"/>	A
OTAP server data download URL	<input type="text"/>	A
OTAP server configuration URL	<input type="text"/>	A
OTAP server status URL	<input type="text"/>	A
OTAP install notification URL	<input type="text"/>	A
OTAP delete notification URL	<input type="text"/>	A
OTAP server update query URL	<input type="text"/>	A
Method for file transfers	<input type="text"/>	A
OTAP server HTTP upload URL	<input type="text"/>	A
SFTP server address	<input type="text"/>	
SFTP port number	<input type="text"/>	
SFTP server data directory	<input type="text"/>	
OTAP SMS password	<input type="text"/>	
GPRS Access Point Name (APN)	<input type="text"/>	
User name for GPRS authentication	<input type="text"/>	
Password for GPRS authentication	<input type="text"/>	
DNS server address (OTAP)	<input type="text"/>	

Save configuration

Save & Exit

Exit without saving

## OTAP server passwords

To change a password, enter the new password, mark the checkbox and click Change passwords.

☐ Change Password for HTTP file upload

☐ Change OTAP server administration password

Change passwords

## Current configuration

The configuration file shown below is the configuration available at <http://localhost:8080/A1OtapServer/config>. This file contains automatically detected values (where possible) for parameters that are not present in the on-disk configuration file.

### 17.3.1 Configuration parameters

The available configuration parameters are described below. The A1 OTAP server detects and sets some settings automatically. The parameter values specified on the `setup` page override the automatically detected values. The current configuration, with automatically detected parameters, is displayed at the bottom of the `setup` page.

#### OTAP server log URL (Comm.OTAP.LogURL)

URL to the log page on the OTAP server. A1 OTAP server sets this property automatically.

#### OTAP server data download URL (Comm.OTAP.DataURL)

URL to where configuration and software updates can be downloaded. The Configurator appends the file name's hash to this URL. A1 OTAP server sets this property automatically.

#### OTAP server configuration URL (Comm.OTAP.ConfigURL)

URL to OTAP server configuration file. The Configurator reads the server configuration file from this URL. A1 OTAP server sets this property automatically.

#### OTAP server status URL (Comm.OTAP.StatusURL)

URL to OTAP server status page. The status page contains status information, such as status of OTAP operation for each known device. A1 OTAP server sets this property automatically.

#### OTAP install notification URL (Comm.OTAP.InstallNotify)

URL of page that handles the OTAP install notification messages. The A-series devices post status information during OTAP install operation to this URL. A1 OTAP server sets this property automatically.

#### OTAP delete notification URL (Comm.OTAP.DeleteNotify)

URL of page that handles the OTAP delete notification messages. The A-series devices post status information during OTAP delete operation to this URL. A1 OTAP server sets this property automatically.

#### Method for file transfers (Comm.FileTransfer.Method)

Defines the method that the Configurator uses to transfer files to OTAP server while preparing to start an OTAP update operation. Currently supported file transfer methods are HTTP and SFTP (Secure File Transfer Protocol). The A1 OTAP server supports HTTP file transfers. SFTP requires additional software on the server to work correctly. If this property is not set, A1 OTAP server sets this property automatically to HTTP.

#### OTAP server HTTP upload URL (Comm.OTAP.UploadURL)

URL to OTAP server upload page. The upload page handles HTTP file uploads. The Configurator sends file upload requests to this address while preparing to start an OTAP update operation. A1 OTAP server sets this property automatically.

#### SFTP server address (Comm.SFTP.Address)

Address of the SFTP server, which should be connected by the Configurator to transfer data files.

#### SFTP server port number (Comm.SFTP.Port)

Port number of the SFTP server, which should be connected by the Configurator to transfer data files.

#### SFTP server data directory (Comm.SFTP.DataDir)

Path to data directory on the SFTP server. This is where the Configurator uploads files that are used for updating configuration and software of A-series devices.

#### OTAP SMS password (Comm.OTAP.Password)

Password for authenticating OTAP messages on A-series device. If OTAP password is enabled on the target A-series device, each OTAP SMS short message must contain the selected password. A-series device will ignore all OTAP messages that do not contain a valid password.

**Note!** It's not recommended to store the OTAP SMS password on the server because it is stored as plain text and is readable to anyone who has access to the `config` or `setup` page of the A1 OTAP server.

#### **GPRS Access Point Name (Comm.OTAP.APN)**

GPRS Access Point Name (APN) for OTAP. A-series devices use access point when opening network connections during OTAP.

#### **User name for GPRS authentication (Comm.OTAP.NetworkUser)**

User name to use for GPRS network authentication. A-series devices use this user name when opening network connections during OTAP.

#### **Password for GPRS authentication (Comm.OTAP.NetworkPassword)**

Password to use for GPRS network authentication. A-series devices use this password when opening network connections during OTAP.

#### **DNS server address (Comm.OTAP.DNS)**

Address of DNS server for OTAP. A-series devices use this server to resolve domain names when downloading files during OTAP.

### **17.3.2 OTAP server passwords**

The A1 OTAP server has two different passwords; one for server administration and one for HTTP uploads.

**Note!** Only a SHA-512 hash of these passwords is stored in the OTAP server configuration file. This means that it is very difficult to recover a lost password. To reset a lost password, edit the OTAP server configuration file by hand and remove the `Server.Admin.Password` property. Then log on to the `setup` page with an empty password and set a new OTAP server administration password.

#### **Password for HTTP file upload (Comm.OTAP.UploadPassword)**

Password used to authenticate HTTP file upload requests on the OTAP server. The default password in a new A1 OTAP server installation is `AlSwConfigurator`.

#### **OTAP server administration password (Server.Admin.Password)**

Administration password for the A1 OTAP server. This password is required when accessing the `setup` page of A1 OTAP server. The default password in a new A1 OTAP server installation is `AlSwConfigurator`.

## 17.4 OTA Config update support in A1 OTAP server

A1 OTAP Server supports OTA Config update (or update query) mechanism since version 4.0.0. See the document *K503051 A-series Telematics SW Config OTA Update Manual* and UPDATE\_QUERY action in the device's SW User Manual for more information about the OTA Config update.

The OTA config update support in A1 OTAP server is based on the concept of matching an incoming update query against a set of pre-define update rules. An update query contains A-series device IMEI and information about currently active software and configuration. An update rule consists of a filter for each update query parameter and a name of output configuration.

When an update query is received, A1 OTAP Server attempts to match the update query to each defined update rule. An update rule matches the update query if all update query parameters pass the filters of an update rule. If a matching rule is found, the OTAP Server responds to the update query by sending the output configuration of that rule. If none of the rules match the update query, the OTAP server sends a 'update not available' response.

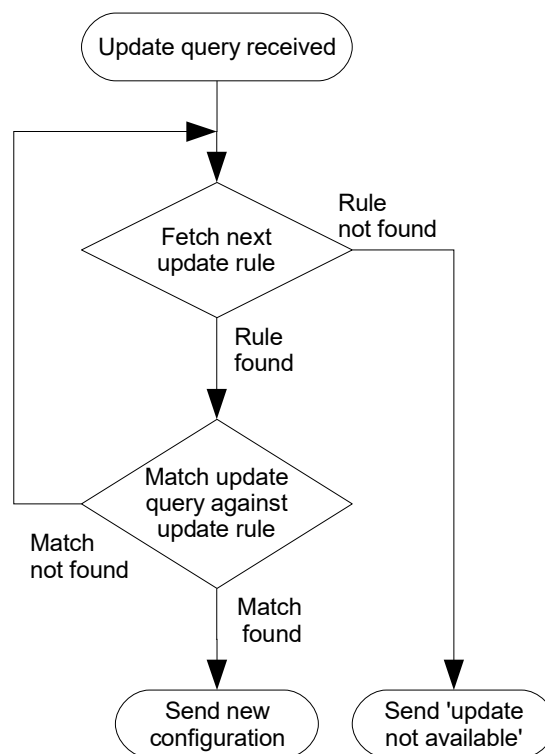


Figure 4. Determining update query response.



### 17.4.1 Update query setup page

The update rules are configured using the A1 OTAP Server's update query setup page. URL to the update query setup page is formed by appending `/setup/updatequery` to A1 OTAP server's base URL, for example:

```
http://localhost:8080/A1OtapiServer/setup/updatequery
```

**A1 OTAP Server Setup**

☐ [OTAP Server](#)
☒ [Update Query](#)
☐ [Log out](#)

**Aplicom®**

### Update rules for update query

Update rules are used to determine which configuration should be sent out when an update query is received from A1. An update rule consists of a filter for each update query parameter and a name of output configuration. Update rule filters are case sensitive and they accept an asterisk (\*) as a wild card character. A wild card matches a sequence of zero or more any characters. For example, update rule filter Example\*Config will match any update query parameter that starts with Example and ends with Config. If asterisk character is not used in update rule filter, exact match is required.

When an update query is received, A1 OTAP Server attempts to match the update query to each defined update rule. An update rule matches the update query if all update query parameters pass the filters of an update rule. If a matching rule is found, the OTAP Server responds to the update query by sending the output configuration of that rule. If none of the rules match the update query, the OTAP server sends a 'update not available' response.

New configuration	Apply to devices	Update from configuration
<a href="#">AplicomDefaultTrax-3.0</a> Install as [default]	IMEI: [any] SW version: [any]	Name: AplicomDefaultTrax Version: 2.*

### Upload configuration

This section can be used to upload new configurations to A1 OTAP Server. Click the 'Browse...' button to select a configuration file from your computer and then click the 'Upload XML configuration button' to upload the selected configuration. The uploaded configuration will become available as a new configuration for update rules.

XML configuration file to upload:

### Test update rules

This section can be used to simulate an update query. Enter the parameters and click Simulate update query button to send a simulated update query request. All parameters are required. A1 OTAP Server will process the simulated update query and display what it would do if it were an actual update query.

Update query parameters:


Device ID (IMEI)   
 Configuration name   
 Configuration version   
 Software version

## 17.4.2 Update rules for update query

Update rules are used to determine which configuration should be sent out when an update query is received from A-series device. An update query contains A-series device IMEI and information about currently active software and configuration. An update rule consists of a filter for each update query parameter and a name of output configuration.





Update rule filters are case sensitive and they accept an asterisk (\*) as a wild card character. A wild card matches a sequence of zero or more any characters. For example, update rule filter Example\*Config will match any update query parameter that starts with Example and ends with Config. If asterisk character is not used in update rule filter, exact match is required.

The update rule list displays all defined update rules and tools for creating new rules and modifying existing rules.

New configuration	Apply to devices	Update from configuration
<a href="#">AplicomDefaultTrax-3.0</a> <i>Install as [default]</i>	<i>IMEI: [any]</i> <i>SW version: [any]</i>	<i>Name: AplicomDefaultTrax</i> <i>Version: 2.*</i>
Configuration: <input type="text" value="AplicomDefaultTrax-3.0"/>	IMEI: <input type="text"/>	Name: <input type="text"/>
Install file name: <input type="text"/>	SW version: <input type="text"/>	Version: <input type="text"/>
<div style="text-align: right;"> <input type="button" value="Save"/> <input type="button" value="Discard"/> </div>		
<div>  <a href="#">Create new rule</a> </div>		

Click [Create new rule](#) to add a new rule. Enter parameters for the update rule and click [Save](#). Click [Discard](#) to close the update rule editor without creating a new rule.

There is a row of buttons at the end of each row of the update rule list. The buttons are explained below:

-  Edit an existing update rule. The update rule will be switched to editor mode. Modify parameters and click [Save](#) to accept changes. Click [Discard](#) to close the update rule editor without saving the changes.
-  Move an update rule up in the list.
-  Move an update rule down in the list.
-  Delete an update rule from the list.

## 17.4.3 Upload configuration

The [Upload configuration](#) section can be used to upload new configurations to A1 OTAP Server. Click the [Browse...](#) button to select a configuration file from your computer and then click the [Upload XML configuration](#) button to upload the selected configuration to A1 OTAP Server. The uploaded configuration will become available in the new configuration drop-down box in update rules list.

#### 17.4.4 Test update rules

The Test update rules section can be used to simulate an update query. Enter the parameters and click Simulate update query button to send a simulated update query request.

Device ID (IMEI)	<input type="text" value="358244012345678"/>
Configuration name	<input type="text" value="AplicomDefaultTrax"/>
Configuration version	<input type="text" value="2.0"/>
Software version	<input type="text" value="4.0.0"/>
<input type="button" value="Send update query"/>	

A1 OTAP Server will process the simulated update query and display what it would do if it were an actual update query.



## 17.5 Example: setting up OTA configuration update

Preparing configuration for update query

1. Create a new configuration or open an existing configuration and add a `Send update query` action to it. Enter URL of the A1 OTAP server's `update` page (for example `http://www.example.com/a1/update`) in the `Update URL` field. Set the required GPRS access parameters provided by your operator.

**Action: Send update query**

Action type: Send update query

Action delay:  milliseconds

**Parameters for Send update query**

Update URL:

**GPRS parameters for sending update query**

Access point:

Username:

Password:

DNS address:

Timeout in seconds:

Priority:

2. Assign the `Send update query` action to an event handler to enable the A-series device to query for updates. Any event handler can be used depending on when the update query should be performed. For example, `Software start` event handler can be used to check for configuration update each time the A-series device starts up.

**Event handler: Software start**

Event type: Software start

**Parameters for Software start**

No additional parameters

**Actions**

Available actions		Assigned actions	
sendSnapshot	-->	Send update query	Up
Send update query			Down
	<--		

3. Install the configuration to A-series device using either local update or OTAP update.

At this point the configuration is normally in use for a period of time, until a need to modify or replace the configuration arises.

4. Create a new version of the configuration made in step 1 or create a completely new configuration to replace the old configuration.
5. Upload the new configuration to A1 OTAP server by clicking `Copy configuration to server` button in `OTAP Update` section of the Configurator's main screen. Alternatively, the configuration can be uploaded using using A1 OTAP server's update query setup page.
6. Open the update query setup page of A1 OTAP Server and click `Create new rule` in the `Update rules for update query` section to add a new update rule. The following example rule will match an update query sent by any device with `UpdateQueryExample-1.0` as current configuration. A device that sends a matching update query will receive a new configuration `UpdateQueryExample-2.0`.

New configuration	Apply to devices	Update from configuration
Configuration: <input type="text" value="UpdateQueryExample-2.0"/>	IMEI: <input type="text"/>	Name: <input type="text" value="UpdateQueryExample-1.0"/>
Install file name: <input type="text"/>	SW version: <input type="text"/>	Version: <input type="text"/>
<div> <a href="#">Create new rule</a></div>		

The A1 OTAP server is now set up to send the updated configuration when it receives an update query. If A-series device is configured as described in steps 1 and 2, the configuration will be updated on next start up.

## 18 APPENDIX C: OTAP SMS FORMAT

An OTAP SMS must use a Submit PDU with 8-bit encoding, Class 1 and PID \$7D. As a fallback for unusual network infrastructures the SMS can also be of Class 0 and/or PID \$00 with 8-bit encoding.

**Note!** Most mobile phones send SMS messages using 7-bit encoding to fit more characters in to one message (160, as opposed to 140 with 8-bit encoding).

### 18.1 OTAP SMS Content

The content of an OTAP SMS consists of a set of keywords and parameter values all encoded in ASCII format. The OTAP SMS must contain one parameter per line. Each line (including the last one) must be terminated with a single line feed (LF) character (0Ah). The parameters can be distributed over several SMS messages. If a parameter is repeated in several SMS messages, the last sent value is used.

Each OTAP SMS must start with `OTAP_IMPNG` line. Otherwise it is not recognised as an OTAP SMS message and will be ignored by the A-series device. If OTAP SMS password is used, it must be included in every OTAP SMS message.

Last line of the last OTAP SMS message must contain a special `START` parameter with value of `install` or `delete`. The `START` parameter initiates the OTAP procedure. Any parameters after the `START` parameter are ignored.

The following parameters can be set in an OTAP SMS.

Parameter	Description	Max. length	Install operation	Delete operation
JADURL	JAD file URL	100	Mandatory	Unused
APPDIR	Application directory (on flash)	50	Mandatory	Mandatory
HTTPUSER	User name for HTTP authentication	32	Optional	Unused
HTTPPWD	Password for HTTP authentication	32	Optional	Unused
BEARER	Communication bearer	-	Mandatory	Optional / POST
APNORNUM	Access Point Name or number	65	Mandatory (GPRS)	Optional / POST
NETUSER	Network user name	32	Optional	Optional / POST
NETPWD	Network password	32	Optional	Optional / POST
DNS	Domain Name Server	-	Optional	Optional / POST
NOTIFYURL	Notify URL	100	Optional	Optional / POST
PWD	OTAP SMS password	32	Optional	Optional
START	Start OTAP procedure	-	Must be <code>install</code>	Must be <code>delete</code>

Table 2. OTAP SMS parameters.

### 18.2 Example Install OTAP SMS

In this example the parameters do not fit within one SMS and are therefore sent in two messages.

#### First SMS

```
OTAP_IMPNG
PWD:password
JADURL:http://www.example.com/app.jad
APPDIR:a:/work/appdir
HTTPUSER:httpuser
HTTPPWD:httppassword
```

#### Second SMS

```
OTAP_IMPNG
PWD:password
BEARER:gprs
APNORNUM:apn
NETUSER:netuser
NETPWD:netpass
DNS:192.168.1.2
START:install
```

### 18.3 Example Delete OTAP SMS

In this example the parameters fit in one SMS. The GPRS parameters are required to enable the A-series device to send notification messages to server.

```
OTAP_IMPNG
PWD:password
APPDIR:a:/work/appdir
BEARER:gprs
APNORNUM:apn
NETUSER:nuser
NETPWD:netpass
DNS:192.168.1.2
START:delete
```

**A9 NEX/TRIX/IPEX and A11** example delete OTAP SMS messages. In this example the parameters don't fit in one SMS and therefore two messages are needed. In both messages keyword OTAP\_IMPNG and parameter PWD are needed. Note! With A11 the SMS is similar but the application directory is not A9Sw/ but MainSw/.

Message 1:

```
OTAP_IMPNG
PWD:0000
APPDIR:a:/A9Sw
JADURL:a:/A9Sw/D205101-A9-NEX-SW.jad
BEARER:gprs
APNORNUM:apn
NETUSER:nuser
NETPWD:netpass
```

Message 2:

```
OTAP_IMPNG
PWD:0000
DNS:192.168.1.2
NOTIFYURL:http://123.45.67.89:1234/A10tapServer/notify
START:delete
```

## REFERENCES

The following documents are found in Documents directory of SW Package for A-series or from Aplicom Extranet (<http://www.aplicom.com/en/extranet>).

*K503051 A-series Telematics SW Config OTA Update Manual*  
*K503052 A-series SW COM1 Interface Command Reference Manual*  
*K505038 1-Wire Temperature monitoring*  
*K505034 Cold Chain Temperature SW Option*  
*K505047 A11 BLE use*

The following documents are found in Documents\Protocols directory of SW Packages for A-series devices.

*S100300 Aplicom D Protocol Specification*  
*S100304 Aplicom G Protocol Specification*  
*S100301 Aplicom T Protocol Specification*  
*S100340 Aplicom Reliable connection protocol Specification*  
*S100320 Aplicom Garmin interface protocol*  
*S100302 Aplicom F Protocol Specification*  
*S100303 Aplicom E Protocol Specification*  
*K505030 Fuel Alert SW Option*



## ABBREVIATIONS AND DEFINITIONS

3PAD	<b>3PAD</b> is an A-series accessory with three buttons and LEDs. Pressing a button causes a state change in the box. This information can be used for example to detect private / work driving.
AD	<b>Analog-to-Digital</b> converter. An electronic circuit that converts continuous signals to discrete digital numbers.
AP	An GPRS <b>Access Point</b> (AP) is: An IP network to which a mobile device can be connected A set of settings which are used for that connection A particular option in a set of settings in a mobile phone When a GPRS mobile phone sets up a <b>PDP context</b> , the access point is selected. At this point an <b>access point name</b> (APN) is determined. Access point name could be, for example, Bigcompany.mnc012.mcc345.gprs. internet mywap. This access point is then used in a DNS query to a private DNS network. This process (called APN resolution) finally gives the IP address of the GGSN which should serve the access point. At this point a <b>PDP context</b> can be activated.
API	<b>Application Programming Interface</b>
APN	<b>Access Point Name</b> , see "Access Point"
AT	<b>AT</b> tention command language, part of Hayes Command Set. Most dialup modems follow the Hayes Command Set to a large extent, originally developed for the Hayes Smartmodem 2400. The modem initialization string consists of a series of commands. It prepares the modem for communications, setting such features as dialing mode (tone or pulse), waits, detection of the busy signal and many other settings. Newer modem communications programs reset the initialization string for you according to which menu options selected or which features are enabled. The Hayes Command Set can be divided into four groups: Basic Command Set - A capital character followed by a digit. For example, M1. Extended Command Set - An "&" (ampersand) and a capital character followed by a digit. This is an extension of the basic command set. For example, &M1. Note that M1 is different from &M1. Proprietary Command Set - Usually started by either a backslash ("\"), or a percent sign ("%"), these commands vary widely among modem manufacturers. Register Commands - Sr=n where r is the number of the register to be changed, and n is the new value that is assigned.
A-GPS	<b>Assisted GPS</b> is a system that often significantly improves startup performance (time-to-first-fix) of a GPS satellite-based positioning system.
BLE	<b>Bluetooth Low Energy</b> is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group.
CAN	<b>Control Area Network</b> is a serial bus system, which was originally developed for automotive applications in the early 1980's. The CAN protocol was internationally standardized in 1993 as ISO 11898-1 and comprises the data link layer of the seven layer ISO/OSI reference model.
COM	Common serial port interface in PC-computers.
DIN	<b>Digital input.</b>
DLKP	<b>Driver Log Keypad</b> is an A-series accessory with three buttons and LEDs. DLKP has been replaced by 3PAD.
DNS	<b>Domain Name System (DNS)</b> is a system that stores information about host names and domain names in a kind of distributed database on networks, such as the Internet. Most importantly, it provides an IP address for each host name, and lists the mail exchange servers accepting e-mail for each domain. DNS can also be used to look up the host name for an IP address. This procedure is called 'reverse DNS look-up'.
EBS	<b>Electronic Braking System</b> is the ability to control heavy duty commercial vehicle's brakes through electrical means.
FMS	<b>Fleet Management System (FMS)</b> is standard for accessing truck data required by fleet

	management systems using a manufacturer independent protocol. The FMS-interface is an optional interface of different truck manufacturers. Supported information is dependent upon vehicle equipment.
GPRS	<b>General Packet Radio Service (GPRS)</b> is a radio technology for GSM networks that allows a mobile device (phone, PDA, etc) to connect to a network.  GPRS is packet-switched which means that multiple users share the same transmission channel, only transmitting when they have data to send. This means that the total available bandwidth can be immediately dedicated to those users who are actually sending at any given moment, providing higher utilization where users only send or receive data intermittently. Web browsing, receiving e-mails as they arrive and instant messaging are examples of uses that require intermittent data transfers, which benefit from sharing the available bandwidth.
GPS	<b>Global Positioning System.</b> Utilizing a constellation of at least 24 medium Earth orbit satellites that transmit precise radio signals, the system enables a GPS receiver to determine its location, speed and direction.
GSM	<b>Global System for Mobile Communication</b> , a standard for mobile phones and networks.
HTTP	<b>HyperText Transfer Protocol (HTTP)</b> is the underlying protocol used by the World Wide Web. HTTP defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands.
HTTPS	<b>Secure HTTP (HTTPS)</b> is the encrypted version of HTTP. It utilizes SSL technology to encrypt the connections.
I/O	<b>Input/Output</b>
IMEI	The <b>International Mobile Equipment Identity</b> is a number unique to every GSM and UMTS mobile phone.
IMlet suite	An <b>IMlet suite</b> consists of two files, Java Application Descriptor (JAD) and Java ARchive (JAR). The JAD file contains information about the application, such as its name and version. The JAR file contains the Java application (one or more IMlets) and its resources.
IP	<b>Internet Protocol (IP)</b> is a data-oriented protocol used by source and destination hosts for communicating data across a packet-switched internetwork. It is defined in RFC 791.
IP address	<b>Internet Protocol address</b> is a unique address that certain electronic devices use in order to identify and communicate with each other on a computer network utilizing the Internet Protocol standard (IP) — in simpler terms, a computer address. Any participating network device — including routers, computers, time-servers, printers, Internet fax machines, and some telephones — can have their own unique address.
MES	<b>Module Exchange Suite</b> is a tool for copying files between PC and Cinterion TC65i GSM module used in Aplicom A1 and Cinterion EGS5 GSM module used in Aplicom A9.
Modem	<b>Modulator/demodulator (modem)</b> is a device that modulates an analog carrier signal (sound), to encode digital information, and that also demodulates such a carrier signal to decode the transmitted information. The goal is to produce a signal that can be transmitted easily and decoded to reproduce the original digital data. Primarily used to communicate via telephone lines, modems can be used over any means of transmitting analog signals, from driven diodes to radio.
OTAP	<b>Over-the-Air Provisioning</b> is a method for installing and deleting Java application from mobile devices. OTAP is documented in IMP-NG 1.0 specification (JSR 228).
RAT	<b>Radio Access Technology</b> is the underlying physical connection method for radio based network. For example 2G and 3G.
Servlet	A Java program that runs on web server within a servlet container (such as Apache Tomcat) and provides additional features to the server.
SFTP	<b>SSH File Transfer Protocol or SFTP</b> is a network protocol that provides file transfer and manipulation functionality over any reliable data stream. It is typically used with the SSH-2 protocol to provide secure file transfer, but is intended to be usable with other protocols as well.
SSH	<b>Secure Shell or SSH</b> is a network protocol that allows data to be exchanged over a secure channel between two computers. Encryption provides confidentiality and integrity of data. SSH uses public-key cryptography to authenticate the remote computer and allow the remote computer to authenticate the user, if necessary.
SMS	<b>Short Message Service (SMS)</b> is a service of the GSM network allowing text messages of up to 160 characters to be sent and received via the network operator's message center to a mobile phone, or from the Internet, using a so-called "SMS gateway".
SW	<b>SoftWare</b>
TCP	<b>Transmission Control Protocol (TCP)</b> is a connection-oriented, reliable delivery byte-stream transport layer communication protocol, currently documented in IETF RFC 793. It does the task

	of the transport layer in the simplified OSI model of computer networks.
TCP/IP	<b>Transmission Control Protocol / Internet Protocol</b> , TCP-over-IP. See TCP.
UDP	<b>User Datagram Protocol (UDP)</b> is a minimal message-oriented transport layer protocol that is currently documented in IETF RFC 768.
URL	<b>Uniform Resource Locator</b> . A string of characters that represents the location or address of a resource on the Internet and how that resource should be accessed. World Wide Web pages are assigned a unique URL
UTC	<b>Coordinated Universal Time</b> . The primary time standard by which the world regulates clocks and time.
well-formed XML	A <b>well-formed XML document</b> conforms to all of XML's syntax rules. For example, if an element has an opening tag with no closing tag and is not self-closing, it is not well-formed. A document that is not well-formed is not considered to be XML; a conforming parser is not allowed to process it.
wizard	A <b>wizard</b> is a user interface element where the user is led through a sequence of dialogs. Unlike most modern user interface paradigms, the user is forced to perform the task in a specific sequence in order to ease the performance of the task.
WLAN	<b>Wireless Local Area Network</b>
XML	Short for <b>eXtensible Markup Language</b> , a specification developed by the W3C. XML is a pared-down version of SGML, designed especially for Web documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation, and interpretation of data between applications and between organizations.