Installation- and Operating Manual

Smart Connectivity

SMART abstract item



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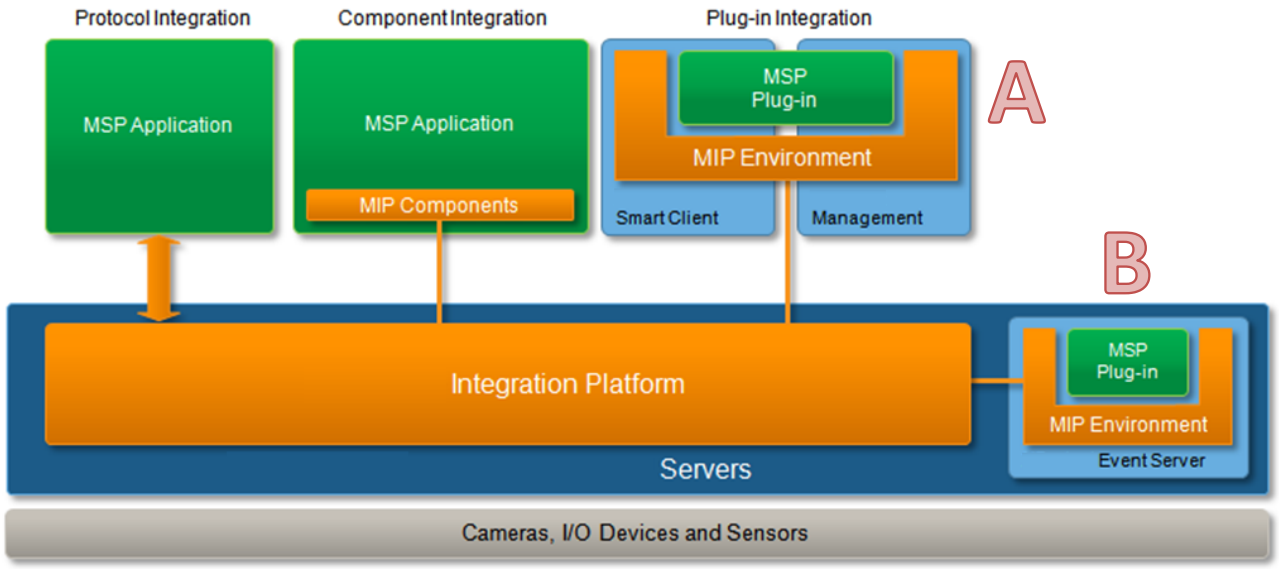
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2 General behavior of this Document

This document is targeting the integrators and users of the Milestone based VMS and describes the installation and configuration of the Environment.

The Smart Software plugins from EET Security are deeply integrated into the VMS Platform and don't need any additional Software. MIP (VMS Integration Platform) Plugins are dynamically loaded from the Milestone Applications and Services, which allows a simple installation and configuration. This document describes how to setup and configure your System to enable the Smart Abstract Item integration in your VMS. Which allows to create Items with statuses and connect them via Web and / or MQTT. The visualization of the Item states is fully compatible with the Milestone Map and the Items can be used for Rules or Alarm definitions.

The Architecture of the MIP Plugin is as follows:



The Smart Abstract Item Integration consists of a Server-side Plugin which is installed on the Server and loaded by the Management Application (A) and by the Event Server (B).

The Setup File includes all necessary Files and installers for both Plugin parts. It installs all components and restarts the Event Server automatically.

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3 Smart Abstract Item MIP Plug-In for the Milestone Server

The following Chapter describes the installation and configuration of the MIP Plugin on the Server.

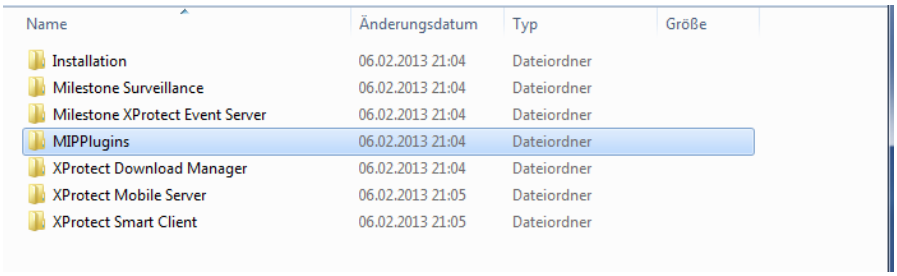
3.1 Installation of the Plugin on the Event Server

The installation of the Plugin is packed into a Setup Wizard, which will setup everything needed in your Environment. Before you start with the installation, make sure that the Management Client Application is closed. The Setup Wizard will do the following job:

- The installer must been run on the Management Client PC and on the Event Server.
- It will Stop and Restart the Event Server Service to activate the Plugin in the Event Server

The installer will copy the Plugin files into the following Directory:

%ProgramFiles%\Milestone\MIPPlugins\ER.EventServer.AbstractItem



The MIP Plugin is dynamically loaded and used by the following Milestone Applications:

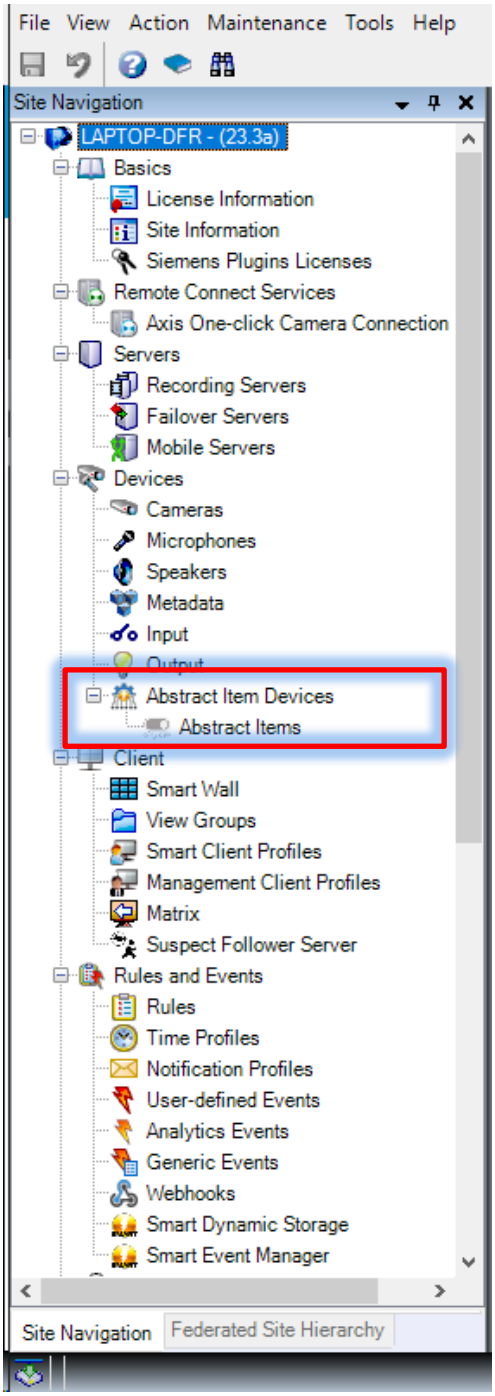
Milestone Application:	Description:	Milestone Version:
Event Server	The Event Server will load the plugin and will execute the whole Logic in relation to the configuration. It connects to a local SQLite DB and stores the actual status of the Abstract Item. It also provides the connector to an MQTT broker and hosts a Webserver for the HTTP API.	All
Management Client	The Management Application loads the Plugin to provide the configuration GUI.	All

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3.2 Preparing the System / General Functionality

Install the Abstract Item Plugin. Optionally prepare the Icon Sets you want to use later.
(ref. 3.3.7 Setup Map Icon library)

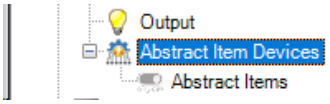
3.3 Configuration of the Plugin in the Management Application



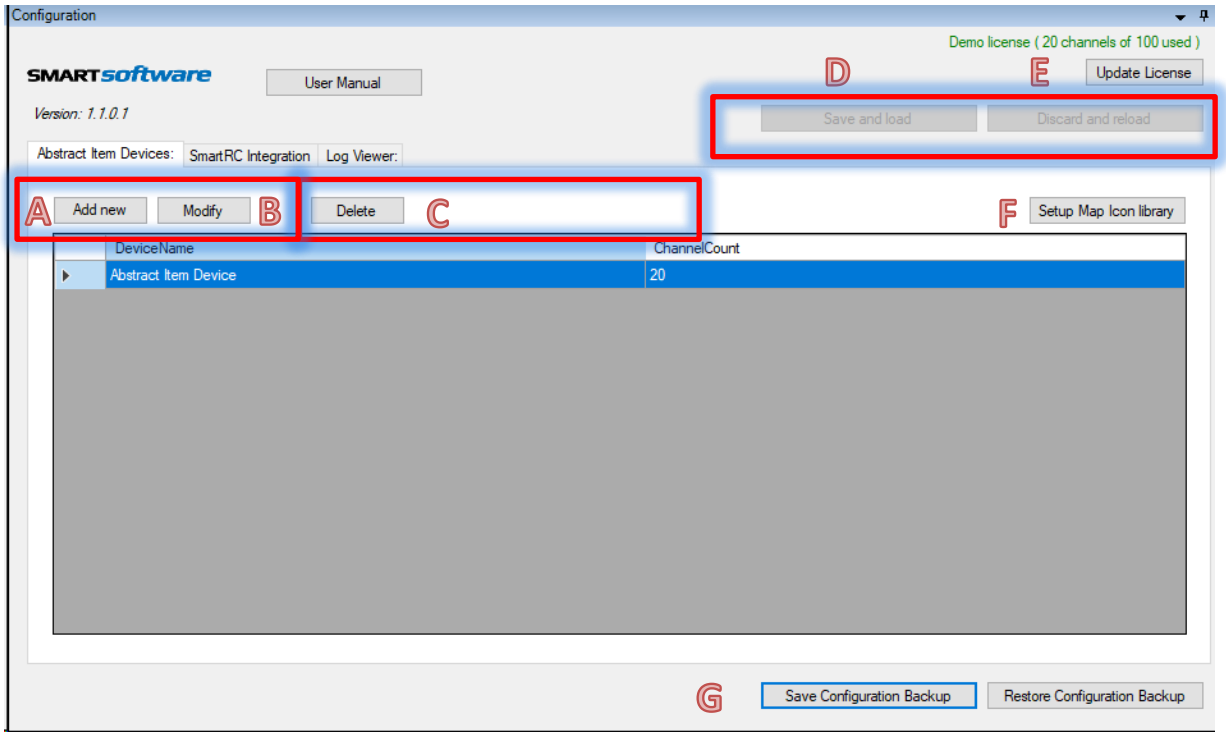
After a successful installation, the Management Application can be started. The Configuration Interface of the
Smart Abstract Item appears on the left side under the Devices entry.

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3.3.1 Creating a new or modify an existing Abstract Item Device



Choose the Entry Abstract Item Device, to switch to the Device Configuration tab:



➔ Add new (A): Opens the configuration Window to create and configure a new Abstract Item Device

➔ Modify (B): Opens the configuration Window of the selected Abstract Item

➔ Delete (C): Delete the selected Abstract Item. Attention all items used in Rules and Alarm definitions are no longer available!

➔ Save and reload (D /E): Save the configuration and send it to the System or reload the previous configuration loaded. (License information and update)

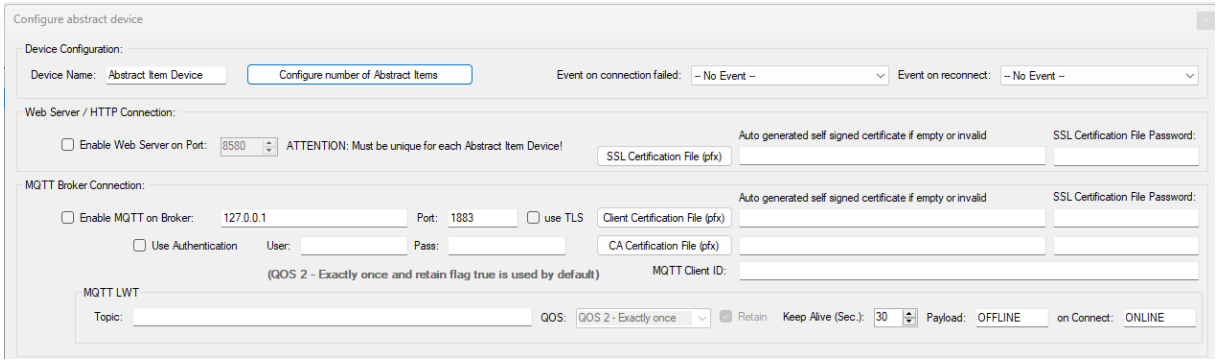
➔ Setup Map Icon library (F): Open the configuration Window to create or modify the Icon library which later can be used for each Abstract Item on the Smart Client Map.

➔ Save / Restore Backup (G): Backup the configuration. This can be used to restore the configuration. For a clean restore and recreation of the Items in the System, you can delete all Abstract Items before restoring. This will ensure to keep GUID's of the Items in the System (Map, Rules etc.) This might be useful to recreate Security Actions in the Role settings, in case there are some issues.

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3.3.2 Device and Connection API Settings / WEB / MQTT

After opening the Create new Device Window, you need to create new Items and specify the Device Connections. Window is divided into two sections. On the upper part you can configure the Device settings where on the lower part you can configure each Item individually:



First you need to set a name for the new device, which is used as a readable identifier within the VMS System.
You can set Events for connection failed and reconnect which are triggered when something went wrong with the access to the SQlite Database.

The connector settings are optional and not needed, when the Abstract Device Item is used VMS internally. This can be the case, when you just want to have status on different behaviors.

Example for the use without an external connector:
You have an Alarm definition with a start and stop criteria (User defined Events). You can now use an Abstract Item to show the Status of the Alarm definition by creating a rule, which is activating / deactivating this Abstract Item. Now you can show the Status of the Alarm on the Map by putting the Abstract Item on the Milestone Map.

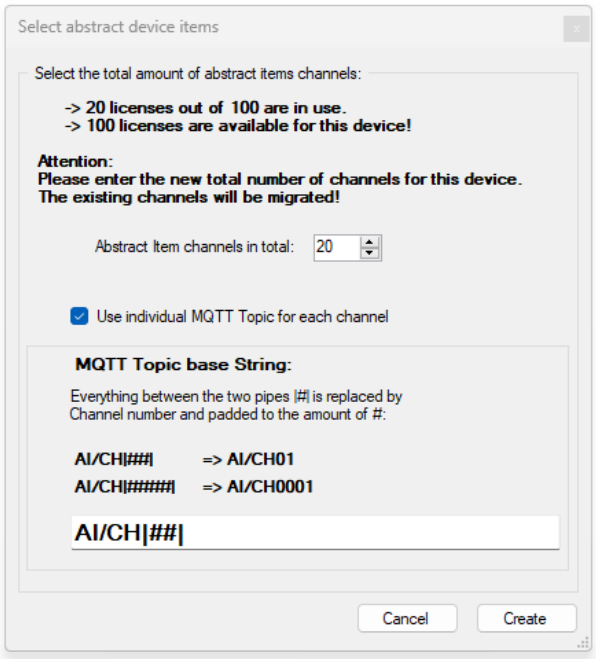
Web Server / HTTPs Connection settings are used to Enable / Disable the Webserver for the Device. The default Port used is 8580 but can be changed to your needs. The connection is always through a secured https as we need to login and pass credentials of the VMS an unsecured connection is not allowed. You can set your individual Certificate as a *.pfx file. If no certificate is configured, the Abstract Item Device Webserver will create a self-signed certificate.
The Webserver itself is accessible through the configured port and offers different options for integration or the use. It also includes a long polling ajax method which is for instance used by the Node-Red Node Connector.

MQTT Broker Connection are used to Enable / Disable the communication with a MQTT Broker. You need to set the Address and Port of the Broker and select if the connection should be encrypted by TLS and set the Certificates for authentication which should be used.
MQTT connector is based on Version 5.0. By default, the system uses QOS 2 – at least once with the retention flag set to true.
Last Will and Testament Settings can be activated by setting the LWT Topic and its parameters.

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3.3.3 Generating the abstract items

After you specified the device settings you can create the abstract Items for this device by opening the “Create abstract Items” Window:



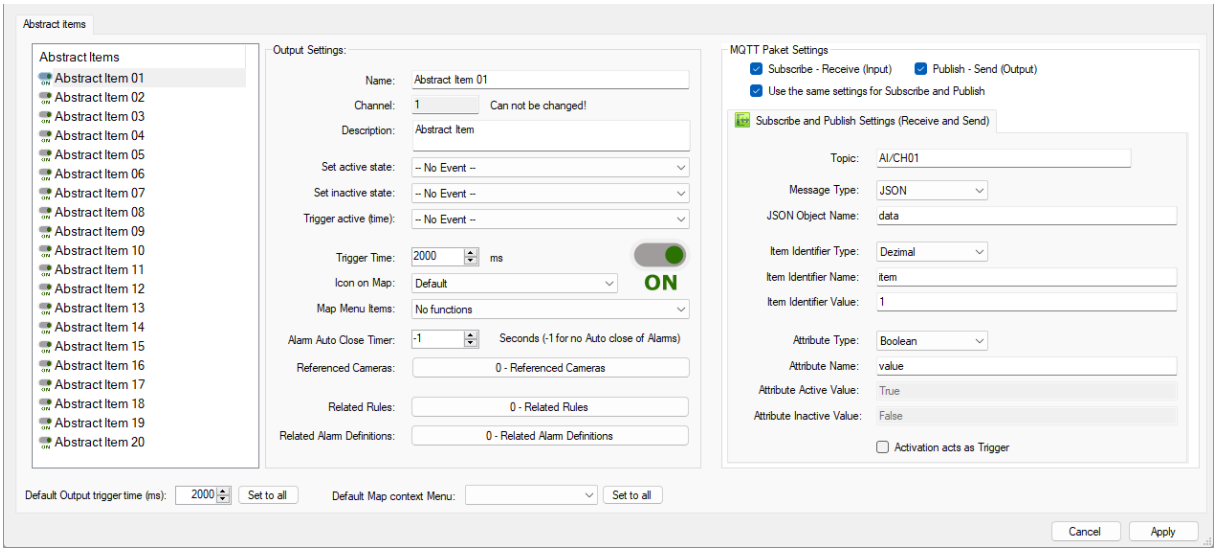
Set the number of Abstract Items you will use for this device.

Set if you want to have an individual MQTT topic for each item or if it should generate a generic topic for this device.

Set the MQTT topic filter to generate the individual topic if the option is selected.

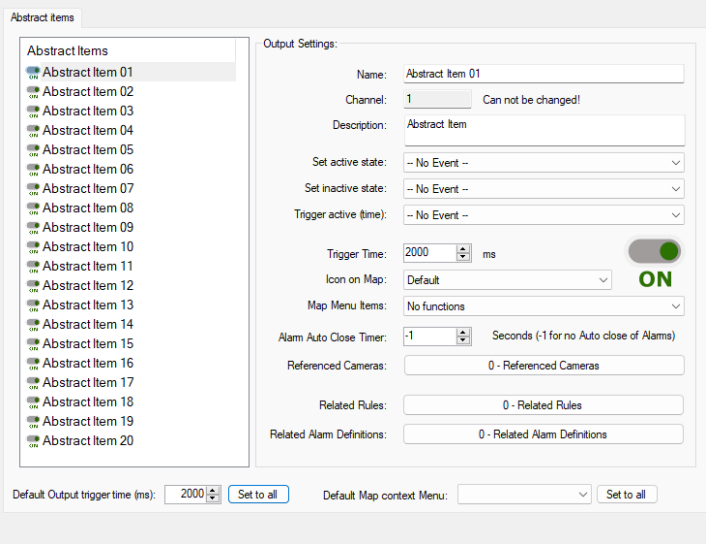
Please note: MQTT settings can be changed later for each individual item int the configuration but these settings may give you a good starting point.

After the creation, the items are available for the individual configuration:



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3.3.4 Abstract Item individual Item settings



Select the Item in the tree you want to change.

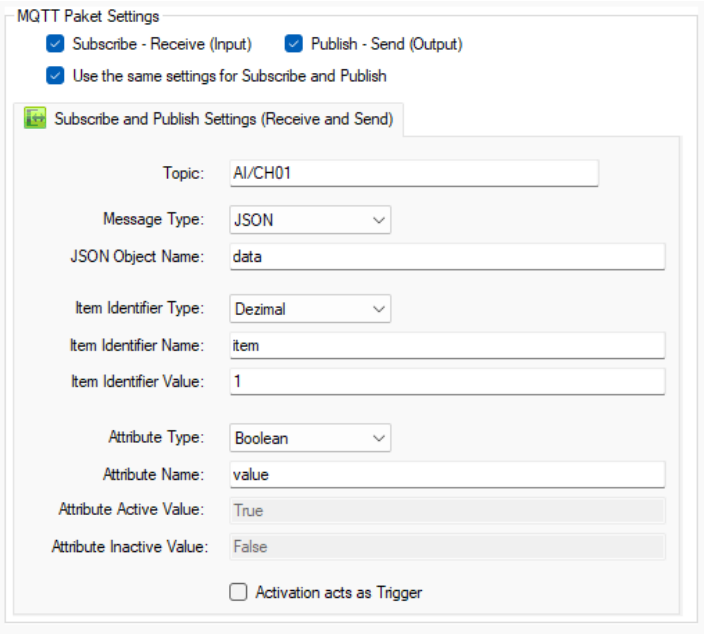
There are two configuration parts available. First you need to configure the System behavior which consists of the Name, Description and possibility to set User defined events which are directly changing the status. You can select the Icon from the configured Icon Set and the available functions on the Map Context Menu. Referenced Cameras are used for Alarms and Events, where the referenced Cameras are sent as part of the Metadata in the Event. (Like the related Cameras in an alarm definition.)
It is also possible to select Rules and/or Alarm Definitions which will follow the status of the Abstract Item.

NOTE: There are some restrictions to read and set Rules by the System which depends on the Rule content. For example, it is not possible to read rules that contains "Is from window" on XProtect Versions before 2023R2. All affected rules are not shown in the rule selection window and cannot be selected.
It is also important to know, that the rule or alarm definition follows the status of the Abstract Item in one direction. Make sure to have the right status after the initial configuration.

All these items are available in the rule system as well as in the alarm definition part of the Management Client. In the rule system this abstract items can be used either as input action or as output action, where the input action can be set to activated or deactivated. The output action can also be configured as “trigger for defined time”.
Status changes are immediately provided to the system as well as to the Smart Client Map components.

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3.3.5 Abstract Item MQTT settings



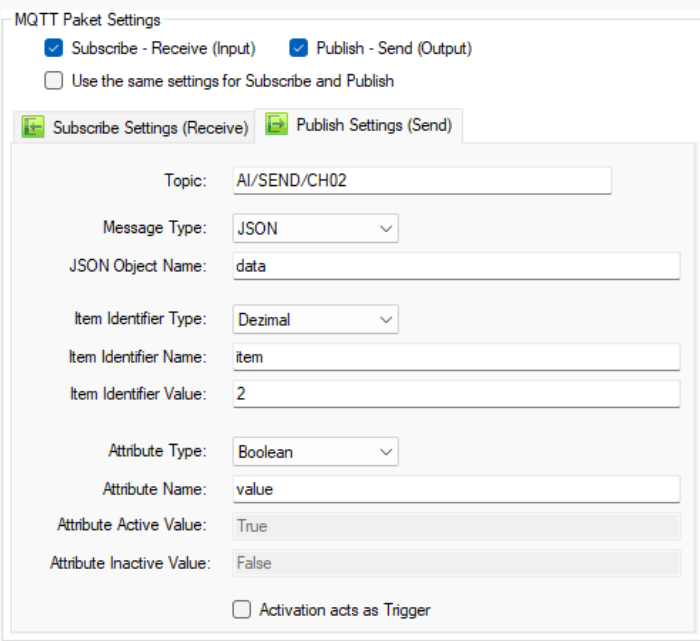
If an MQTT Broker is enabled, you can configure the MQTT settings for each item. There is an option to select the Message Type (JSON, payloadMsg). Depending on this selection, there are different possibilities to set the Message content.

Generally, we tried to have it as flexible as possible. This includes an Item Identifier Type and Value field, which can be used if the topic is generic, and the receiver needs to identify the Source.

The Attribute type and name can be set individually depending on the receiver's requirement.

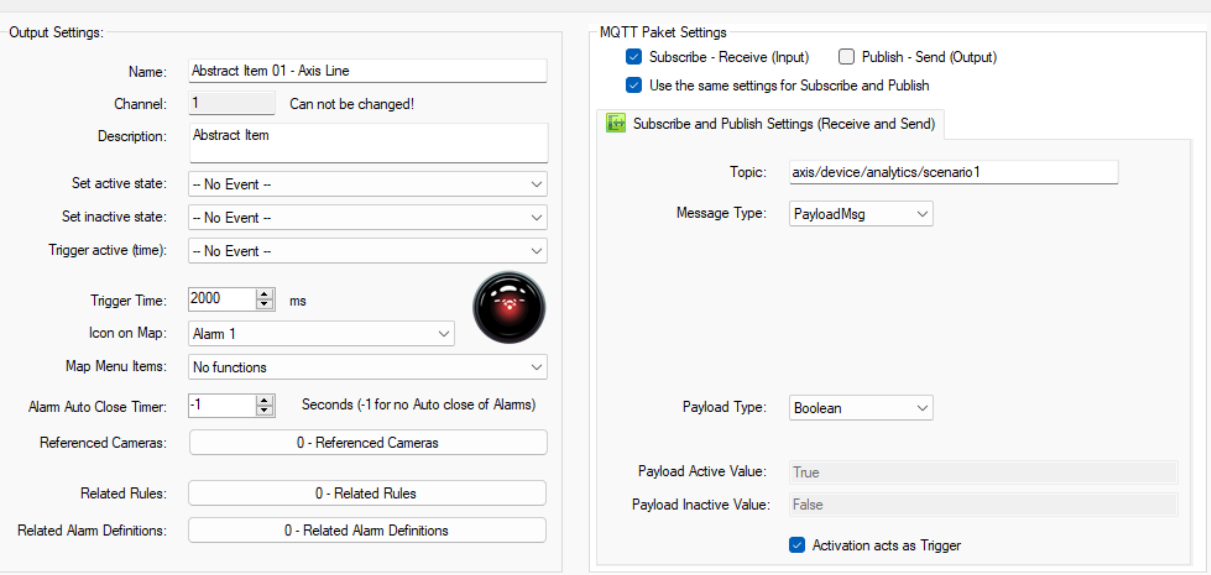
If you have a stateless event from the source, you can also specify, that the activation acts as timed trigger and will then activate the Abstract item for the predefined time.

Since Version 2.0 it is possible to have different Paket Settings for Subscribe and Publish.
If you uncheck
"Use the same settings for Subscribe and Publish"
the Panel will offer two-tab pages to Setup Subscribe and Publish Paket Settings independently.



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The following sample shows a subscription for an Axis MQTT Event triggered by a cross line detection:



As you can see, the sender is not sending a JSON object but a Payload Message containing true or false directly as the Payload Active Value. This configuration looks like the Source is stateless and just sending the True Event. To handle this, we use the Activation acts as Trigger option. To ensure, that the Abstract Item is going back to deactivated after 2 Seconds.

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3.3.6 Extended Value Configuration (from Version 2.12.0.1)

Starting with version 2.12.0.1, you can define multiple values for activating or deactivating items. This syntax applies to both JSON attributes and payload values.

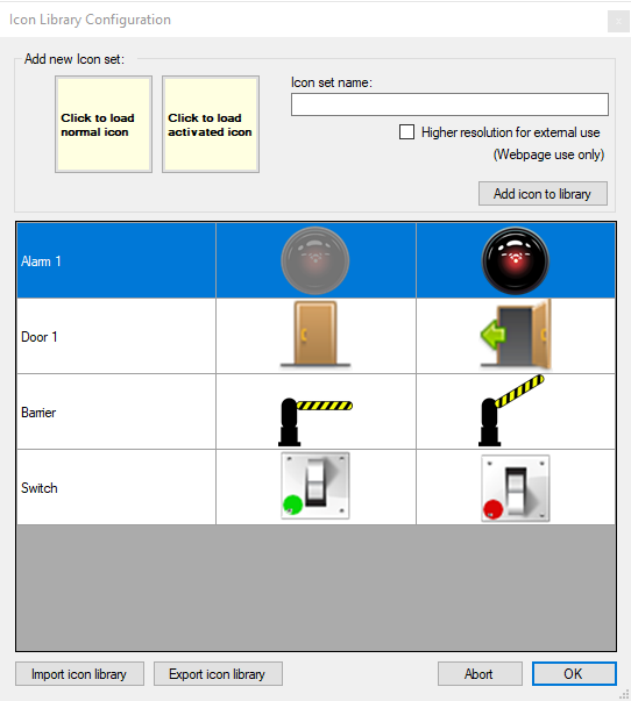
- String Type:
  - Single value:
    - ON
  - Multiple values:
    - ON, EIN (comma or semicolon separated)
    - [“ON”, “EIN”] (JSON Array – use this form if the text contains commas, Semicolons or spaces)
- Decimal Type:
  - Single value:
    - 1
  - Multiple values:
    - 1,2,3 (comma or semicolon separated)

- Decimal Operators:
  You can also define logical conditions using operators:
  - >5 & <10 & !=7, 20
    - & means AND
    - , means OR
    - So, this expression means:
      The value must be greater than 5 and less than 10 and not equal to 7, or it can be 20.
      - 6 → ✔ matches (between 5 and 10, not 7)
      - 7 → ❌ fails (equal to 7)
      - 20 → ✔ matches (explicit OR condition)

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3.3.7 Setup Map Icon library

By clicking on the Button (F) “Setup Map Icon Library”, the following configuration Window is shown:



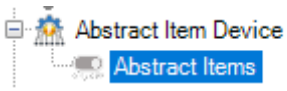
Each Icon set consists of an Image for the normal state (deactivated), an Image for the activated state and a name.
This Icon sets are later available for each Abstract Item on the Device configuration.

You can also Import / Export icon libraries which allows you to transport these settings from one installation to another.

In order to make the Icons available on the Map, it is necessary to restart the Event Server Service manually as the icons are loaded during the early startup phase of the Event Server.

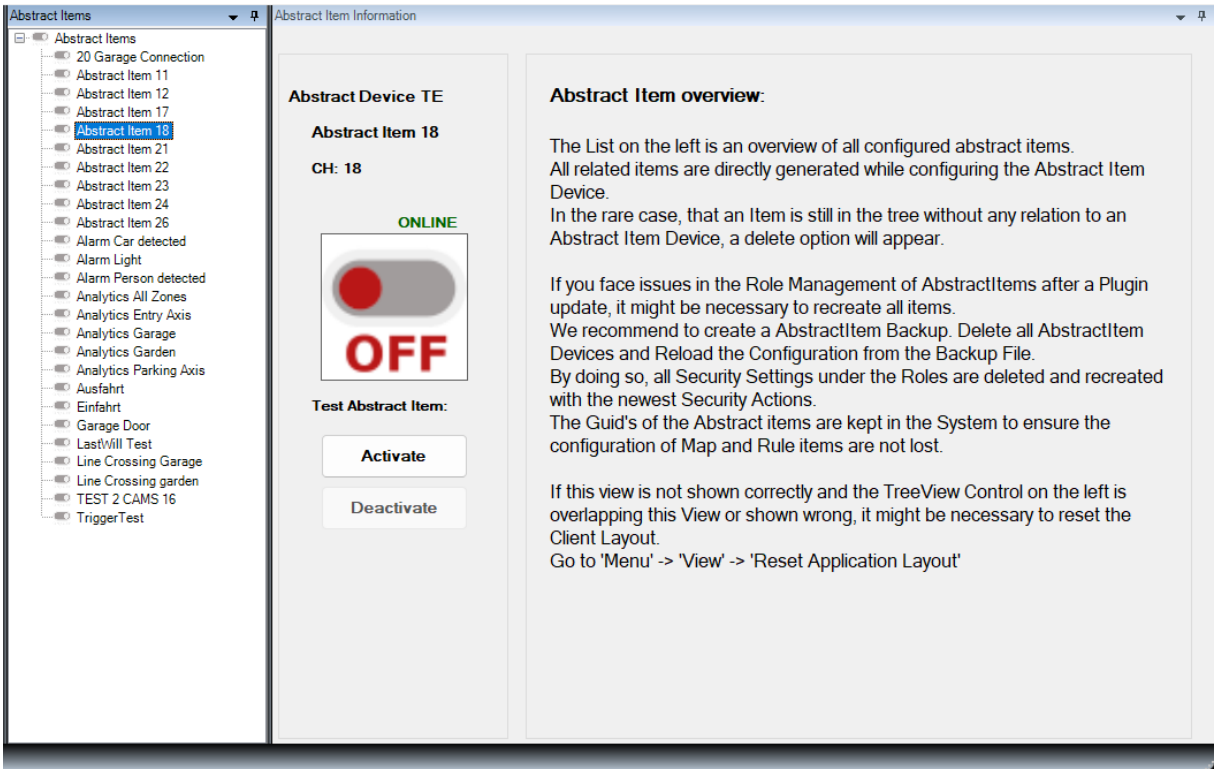
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3.3.8 Abstract Item Overview – Status and Test (from Version 2.12.0.1)



To get an overview of the configured Abstract items, you can select the Abstract items entry under the Abstract Item Device.

You can test each configured Abstract item if it is marked as **ONLINE**.
In case the Abstract Items are **OFFLINE**, the Event Server might be stopped or the configuration is not deployed with “Save and Load” as the information is coming from a real-time connection made to the EventServer:



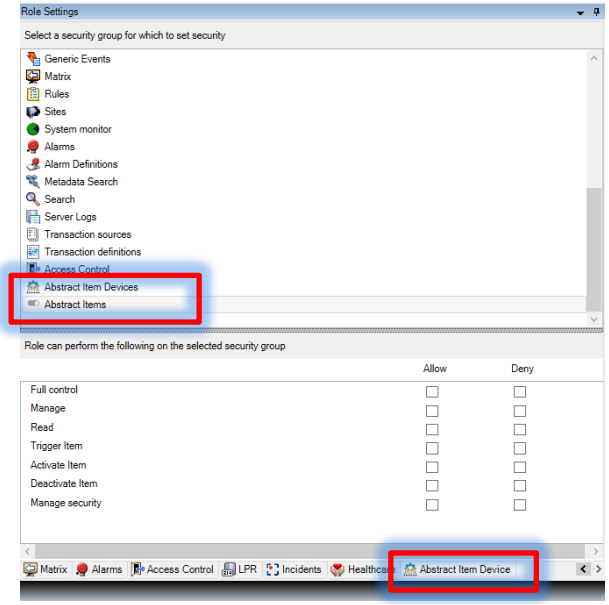
Additional instructions are shown in the Window. They may change depending on the running Version. If this Window is not shown like the picture below, it might be necessary to ‘Reset Application Layout’ of the Management Client. You can find this function under the Management Client Menu -> View -> Reset Application Layout

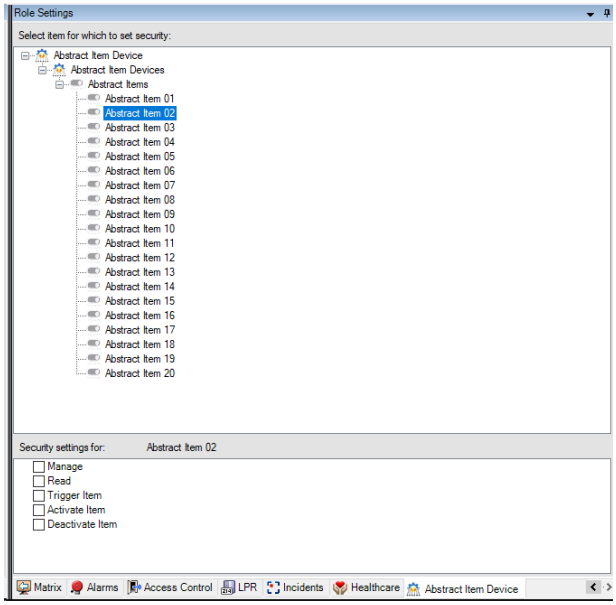
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3.3.9 Abstract Item – Security Actions and permissions

It might be necessary to change security permissions for specific roles to ensure the proper user rights for the Abstract Items. The Role settings follow the general Milestone security rules. Abstract Item has two different Kind of rule settings. The Abstract Item Devices in the Overall Security and the Abstract Item Devices in Overall Security and in the Abstract Item Devices Tab.

As usual, you can manage the permissions in Overall Security or individually:





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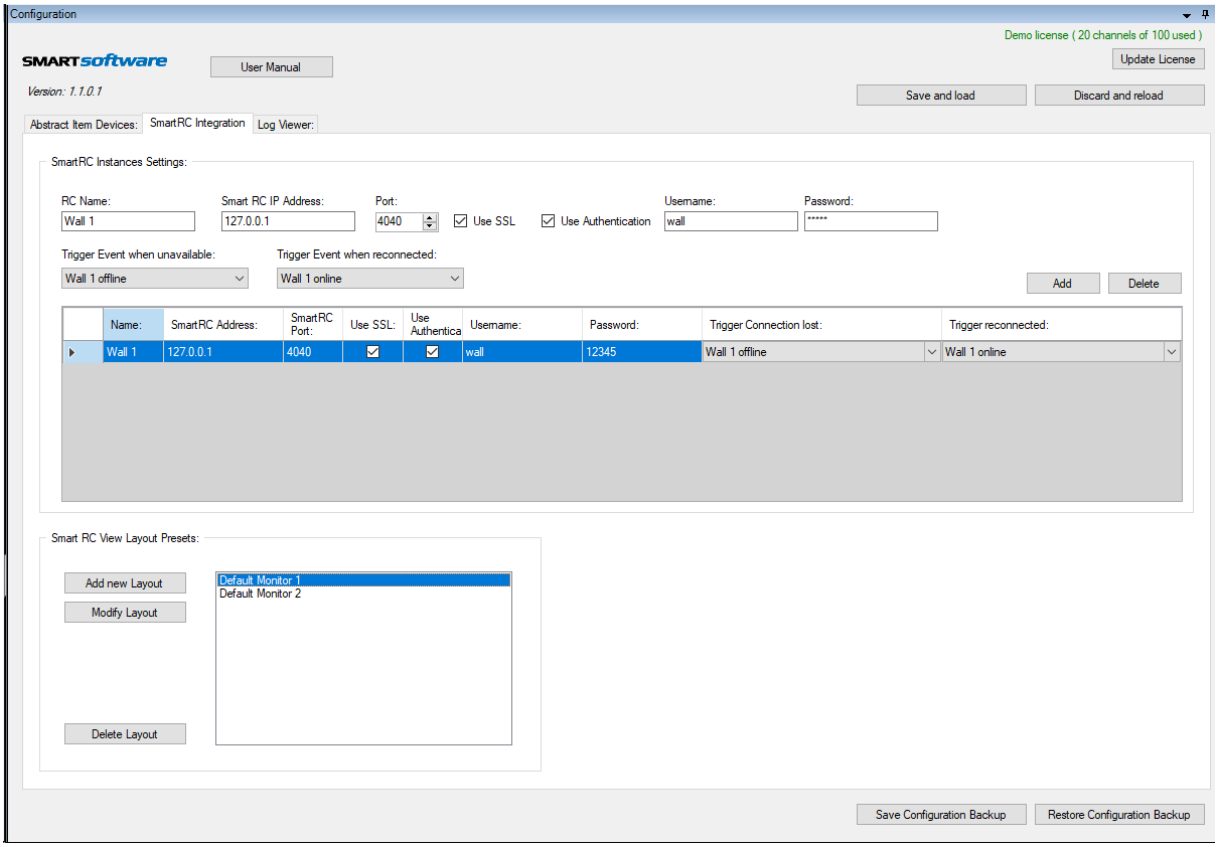
4 Additional Information

4.1 Configure SmartRC Integration for AbstractItems (Optional)

This option is only available if a valid SmartRC License is installed on the System. SmartRC is a Remote Client Plugin for the SmartClient which can be used to directly change Camera or Views in case an AbstractItem is activated.

4.1.1 Configure available SmartRC Instances

If a SmartRC License is found, the following Tab will be shown, which is used for a generic base configuration of all SmartRC Instances and the Layout Presets:



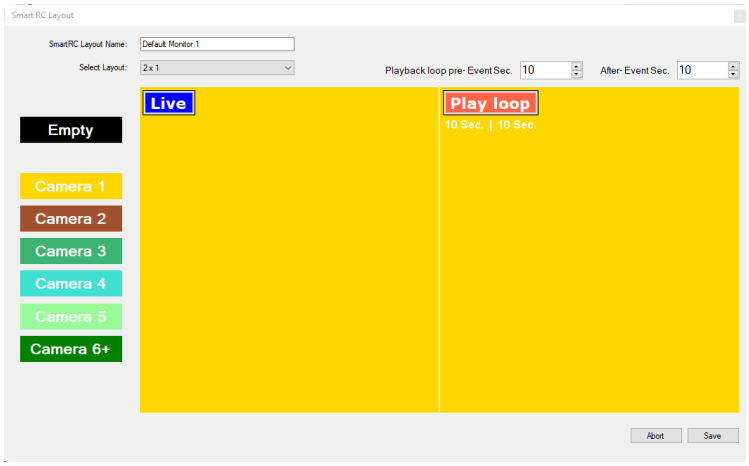
On the upper side all SmartRC instances can be configured. They can be selected later for each AbstractItem. You need to create at least two User defined Events to trigger the instance is online or offline. The parameters are depending on your SmartRC configuration. Make sure they match with your settings on the related SmartRC plugin.

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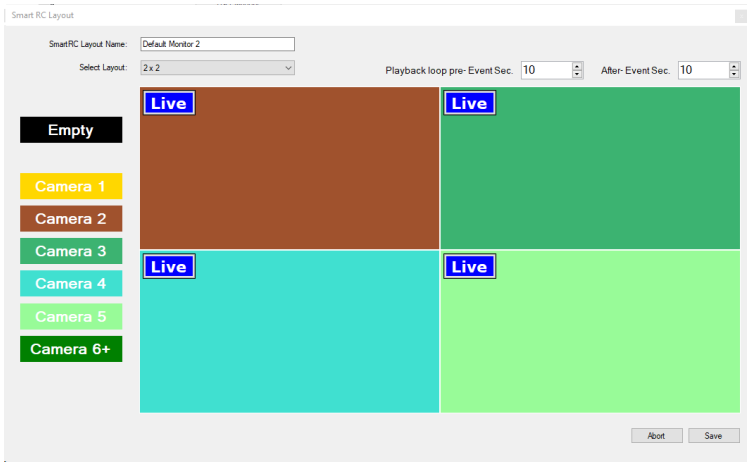
4.1.2 Configure Layout Presets for SmartRC

It is possible to prearrange the layouts which should be sent to the SmartRC instance when an AbstractItem is activated. Depending on the Related Cameras you configured under the AbstractItem settings, the Layout is filled out and sent to the SmartRC instance Monitor you have configured. It is possible to send multiple Layouts to multiple Monitors.

You can drag n drop the Items on the left to your selected layout tile on the right. By clicking on the “Live” or “Play loop” button, you can select the mode this Camera is shown in the layout.



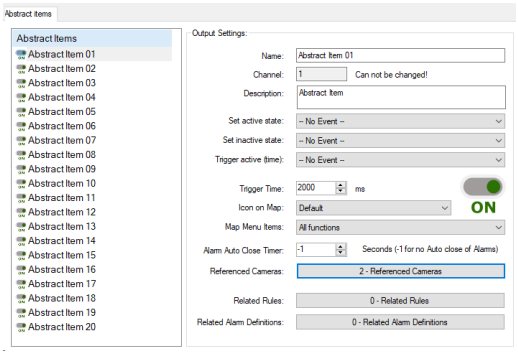
This sample shows a layout where Camera 1 is shown in a 2x1 Layout in “Live” mode and in a “Playback loop” which starts playback 10 seconds before, till 10 seconds after the Event.



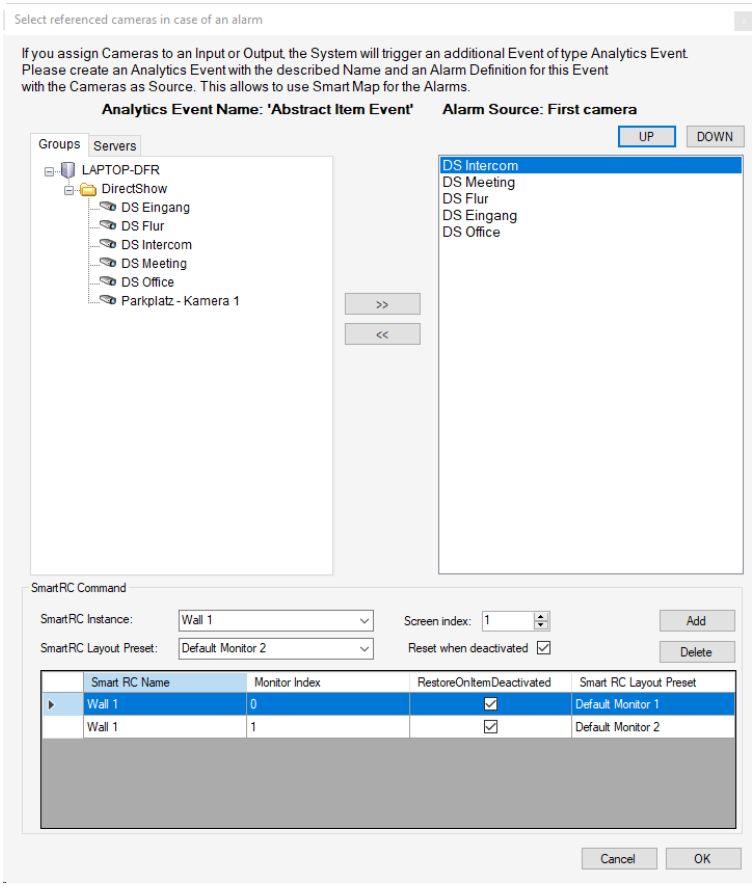
The second sample shows a 2x2 Layout with Camera 2 to 5 in Live mode.

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4.1.3 Setup the AbstractItem to send Layout Presets to SmartRC



When the SmartRC Instances and the Preset Layouts are configured, you can setup this to any individual AbstractItem. To do this, you can open the AbstracItem configuration and open the Referenced Cameras Window:



- ➔ Reorder the Cameras Camera 1 – Camera n from top to down
  If you create an Alarmdefintion the first camera will be the source.

- ➔ Select the SmartRC instance and the Screen Index Monitor 1 is index 0.
- ➔ Select the SmartRC Layout Preset.
- ➔ Check the “Reset when deactivated” if this Monitor should be reset when AbstractItem is deactivated.

This sample will result in sending the “Default Monitor 1 Layout” with Camera 1 (DS Intercom) in Live and Playloop to Monitor 1 and the “Default Monitor 2” Layout with Camera 2 – Camera 5 in Live to Monitor 2 when the AbstractItem is activated.

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4.2 Log-Files

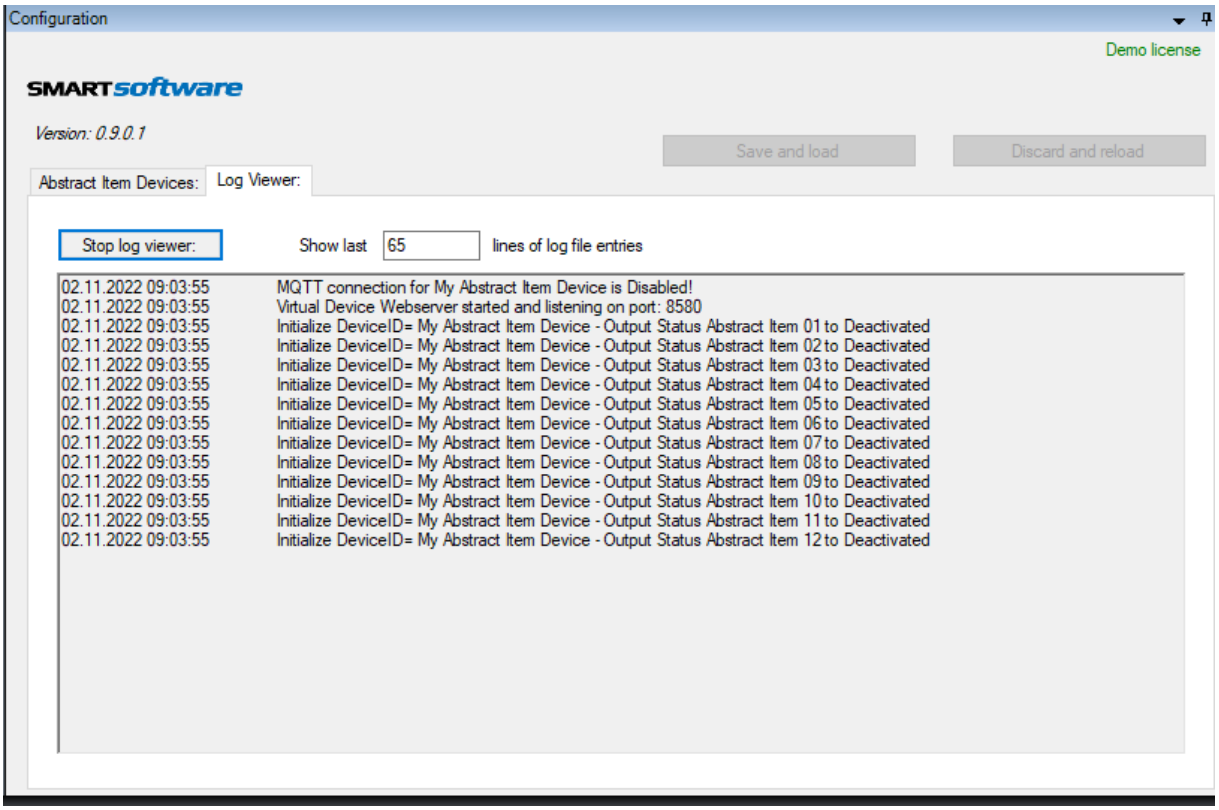
The System is writing log-files which are stored over 5 days by default. They are used for verification during the roll out and are useful for troubleshooting.

The log-files contains all relevant information about the device connections and values of the device. Also all triggers are logged.

The log-files are stored for each day and are in the following ***hidden*** folder:
C:\ProgramData\ER.EventServer.AbstractItem\DebugLogs

The SQLite Databases are stored in
C:\ProgramData\ER.EventServer.AbstractItem\AbstractDevice\my device name.sqlite

For a quick overview on what is going on, there is an integrated Log-Viewer which shows the last loglines in real-time:



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