User Guide

AutoCode XProtect

General version:

2.8.10

Module's version:

xp.viewer-1.4.2.15

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1 INTRODUCTION

AutoCode XProtect (VIT) is a group of software modules for **XProtect** video management systems (Milestone Systems). The main purpose of **AutoCode XProtect** is to add video analysis functionality (namely, license plate recognition) to either a projected version of CCTV system or an already existing one.

License plates recognition is carried out using video, provided by video sources of **XProtect** system. Recognition results, along with all associated information, are sent back to **XProtect** system.

Detailed description of recognition sub-system (installation, licensing, configuration, displaying results in **XProtect Smart Client**) may be found in **AutoCode XProtect Administrator's Guide**.

This user guide contains instructions for client section of **AutoCode XProtect** — **Viewer** module. It's designed to add license plate protocol functionality to **XProtect Smart Client** application.

This user guide is designed for **XProtect** users operating client application. It is assumed that users have worked with **XProtect Smart Client**. Therefore, this user guide is limited to instructions for the **Viewer** module and its interface.

Legend:

> Important

> Additional information or example

2 WORKING WITH EVENTS

Event is a message generated after specific actions in the system.

Events are used for:

- exchanging information between **XProtect** components and third-party applications/devices;
- creating system reactions to be triggered as a response to events.

The main criteria for events classification in **XProtect** is source. In its relation to the system, an event may be:

- external (e.g. when motion sensors are triggered or the data is received from external applications);
- internal (e.g. after specific actions from the user).

External events group includes analytics events. Analytics events are messages generated by additional software products integrated into **XProtect** for video processing. **AutoCode XProtect** recognition sub-system is one of such products.

XProtect system often uses alarms as reaction to events.

Alarms may be generated based on:

- external events (including analytics events).
- system (internal) events such as 'Archive failure', 'Running out of disk space', 'Motion detected' or 'Server not responding'.

Reactions to events (including alarms) are set using rules. A rule is a set of system actions to be performed under specific conditions (e.g. start recording from Camera 1 if motion is detected in frame).

Alarm triggers cannot be configured in **XProtect Smart Client**. They are configured by the administrator during surveillance system configuration.

When **Viewer** module is used, based on the configuration, its graphic interface (license plate protocol) may display:

- all analytics events within **XProtect** (except service events) including events sent by LPR sub-system.
- all alarms within **XProtect** (including alarms generated by recognition events).

> More details on working with alarms (investigation, processing, filtering, etc.) may be found in **XProtect Smart Client User Guide**.

2.1 monitoring events

In **XProtect Smart Client**, recognition events are displayed on **Live** and **Playback** tabs. Information about recognized license plates is displayed as a table (Fig. 1), in which each line may correspond to a specific **AutoCode XProtect** event:

1. **Plate detected**

   The best possible recognition result is received.

2. **Car detected**

   The first recognition result registering a vehicle entered the frame is received.

3. **Car lost**

   License plate left the recognition zone.

4. **Plate corrected**

   Recognized license plate was manually edited in **XProtect Smart Client**.

5. **Plate added**

   An event with the following information was created manually in **XProtect Smart Client**:

   - license plate;
   - event source.

6. **PASS**

   Registering a vehicle entering/exiting the parking zone.

7. **DOWNTIME**

   Calculating the time vehicle spent on the parking. Event contains the name of the parking zone, entrance/exit time and time spent in it.

8. **vitml.error.acs.pass_flap**

   Error message. The time spent on parking is *less than* the specified minimum time (a duplicate recognition event is possible).

9. **vitml.error.acs.port_incorrect**

   Error message. Registering a vehicle entering the zone that was not specified in property list settings.

10. **vitml.error.acs.lost_inpass**

    Error message. A vehicle with the license plate that was not registered when entering the parking zone is exiting the parking.

11. **vitml.error.acs.lost_outpass**

    Error message. The maximum allowed time on parking is exceeded (entrance registered, exit not registered).

12. **[List name] result**

    Recognized license plate found in [list name] list.

13. **[List name] no result**

    Recognized license plate not found in [list name] list.

14. **Unlisted license plate**

    Recognized license plate not found in all associated lists.

> Events to be displayed in the license plate protocol of a specific **XProtect Smart Client** depend on surveillance system configuration selected by the administrator.

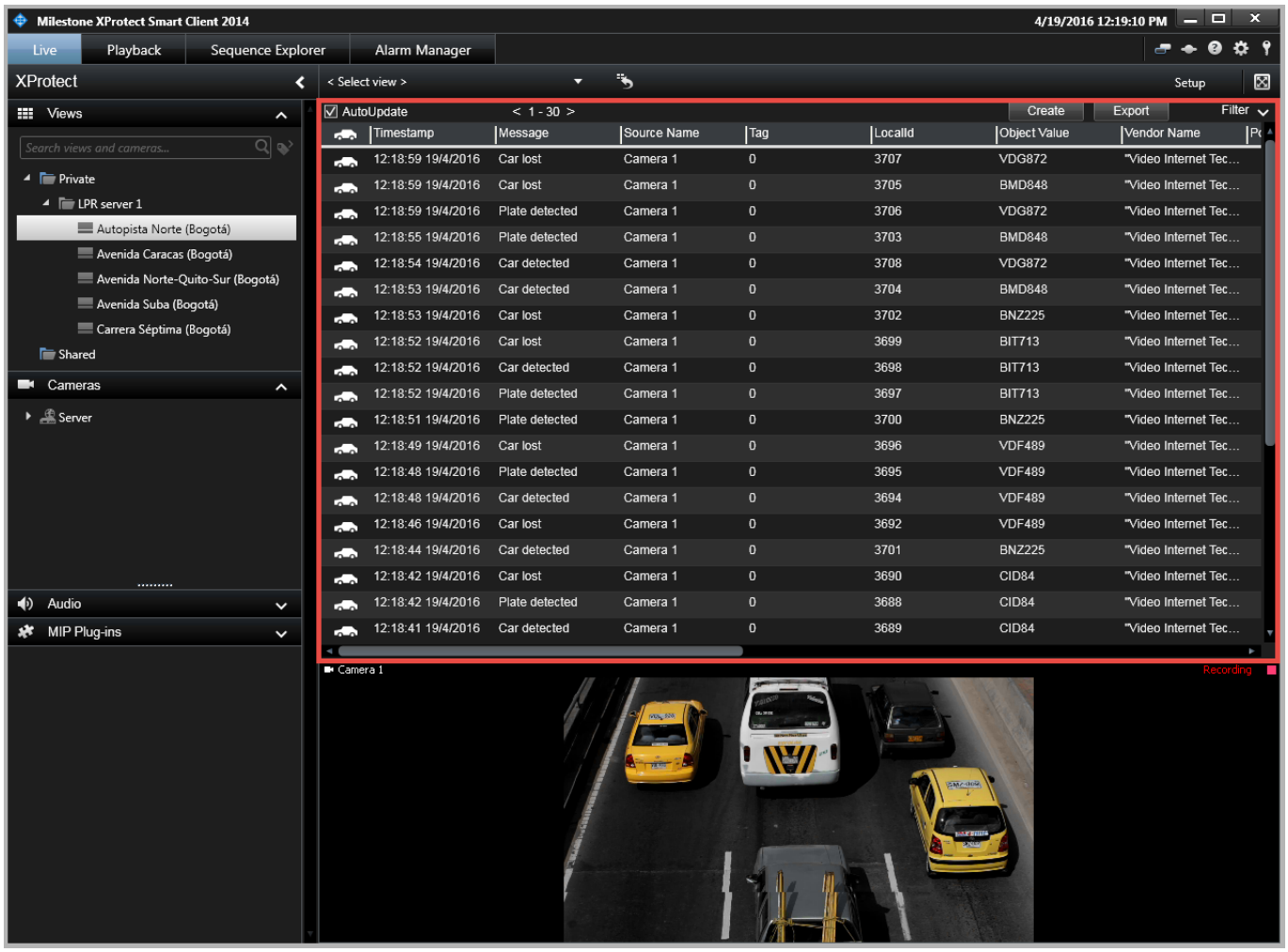

Figure 1: License plate protocol as element of **XProtect Smart Client** interface

Each analytics event has the following parameters:

- **Timestamp** of license plate recognition in HH:MM:SS DD.MM.YYYY format.
- **Message** — name of the recognition event (see list above).

- **Source name** — device (camera/record server) providing the video for processing and analysis. The value matches the name assigned to the device when it was registered in **XProtect** (e.g. Camera 5).
- **Tag** — identification mark used to associate event source (camera) with a specific group of objects. If the camera is not associated to any group, the default value in this parameter is 0. When other user tasks are being solved (e.g. searching for the license plate in external databases), this parameter has other values set by administrator. Displaying tags in **XProtect Smart Client** is an informational feature.
- **Localid** — number of the event among the all **XProtect** events.
- **Object Value** — result of license plate recognition (alphanumeric string containing the recognized license number).
- **Vendor Name** — company that developed the software (LPR sub-system) used for LPR on the video.
- **Post** — ID of the post associated with the event.
- **Speed** of the vehicle passing through the control zone.
- **Rule** used to trigger the alarm.
- **Type** of video analysis applied to frames.
- **Zone** — name of the parking zone the vehicle was in. This parameter is used if the system administrator configured calculating time spent on parking.
- **Entrance time** — time of license plate recognition at the moment of entering the parking zone.
- **Exit time** — time of license plate recognition at the moment of leaving the parking zone.
- **Time on parking** — difference between time of entrance and exit, stating the time spent on parking.
- **Group/List** — list of license plates, in which the recognized number was found (e.g. 'Employee cars', 'Blacklist'). This parameter is used in cases when the administrator configured automatic search in lists or external databases after the recognition.

> **Post** and **Speed** columns would only have values if additional event processing logic is applied in **XProtect**.

With respective rights activated, license plate protocol also allows tracking alarms generated by recognition events. To change the type of events to display (switch from analytics events to alarms and vice versa):

1. Click **Setup** button to activate **XProtect Smart Client** configuration mode. In this mode, the panels of the application would be highlighted yellow (Fig. 2).

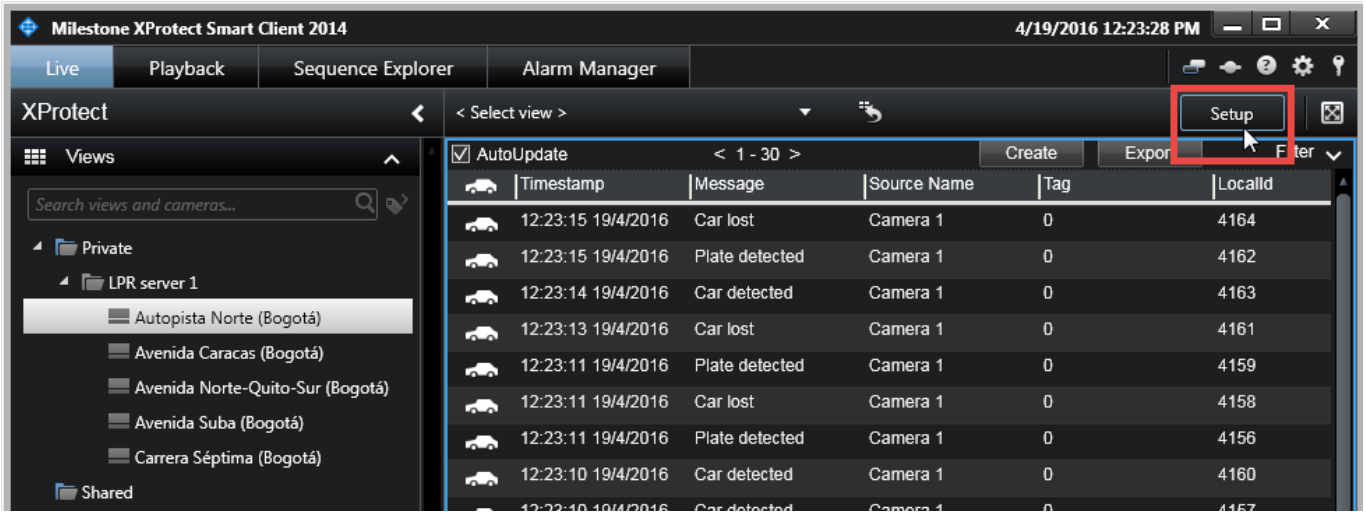

Figure 2: Switching to configuration mode

2. On the **Properties** panel, select **Alarms** option from **Data source** dropdown (Fig. 3).

3. Exit configuration mode by clicking **Setup** button again.

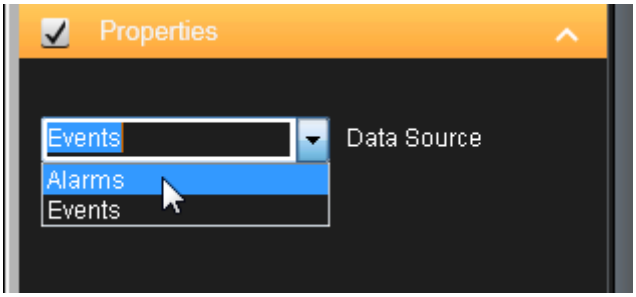

Figure 3: Selecting messages to be displayed in license plate protocol

Additionally, the **Properties** panel contains a **Max number of lines** to specify the maximum number of events to be displayed on one page of license plate protocol. Use the navigation buttons at the top of the recognition view to switch between pages (Fig. 4).

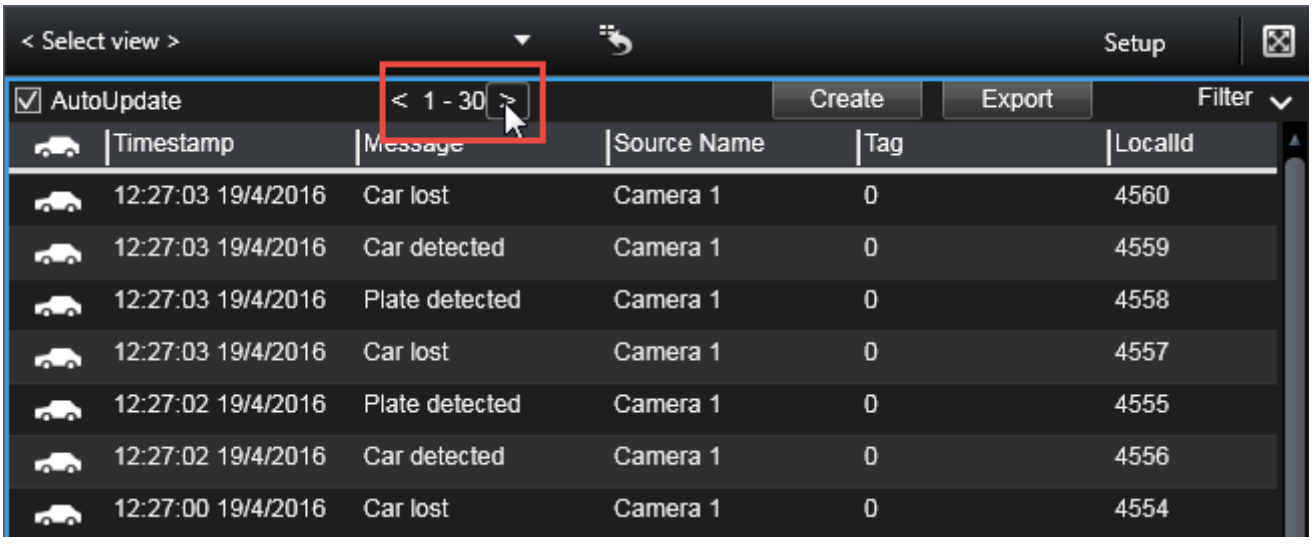

Figure 4: License plate protocol navigation buttons

2.2 viewing event details

To match event data with the segment of the video the license plate was registered on:

1. Open **Live** or **Playback** tabs.
2. Double-click the event in the license plate protocol (Fig. 5). Filtering and searching for events is described further in this user guide.

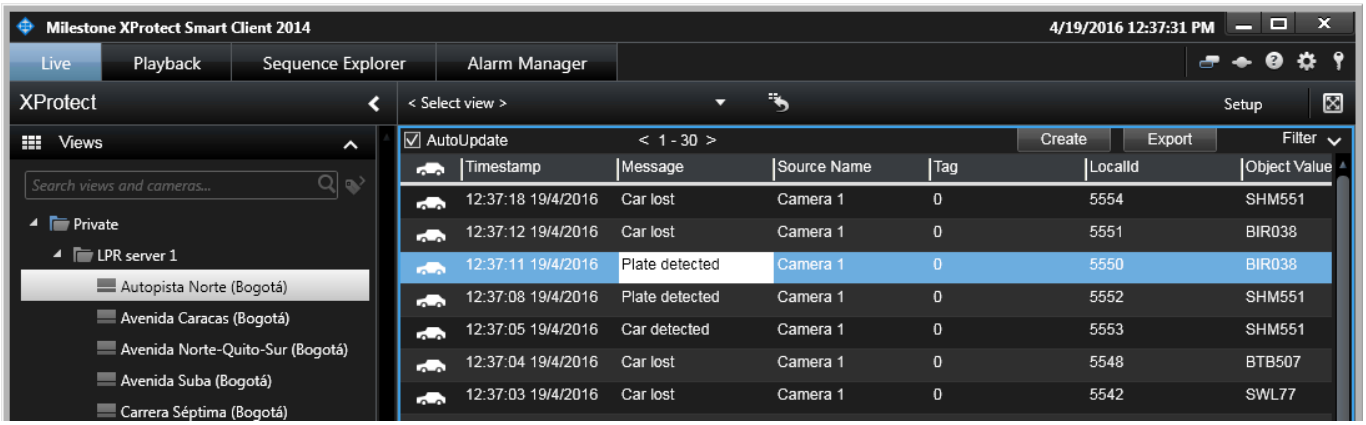

Figure 5: Selecting an event in license plate protocol

As a result, an event card will appear with the name in 'ID/Name/Event source' format — e.g. '275251 Plate detected Camera 5' (Fig. 6). This window contains the following elements:

- Live broadcast of the video fed to LPR sub-system by **XProtect** system video source (if the window is opened using **Live** tab) or the frame on which the license plate was registered (if the window is opened using **Playback** tab).
- The frame, on which the license plate was detected and recognized causing the event to trigger.
- Control of video (forward/backword playback from the moment of license plate detection).
- Video stream selection. If another video source is selected from the dropdown (e.g. switching from Camera 5 to Camera 3), video from newly selected source will be broadcasted live.
- Button to display the frame at the moment of detecting viewed event (may be used to instantly return to the frame after navigating through the video).

Additionally, event card may contain information from external lists and databases.

It is possible to view the frame in more details by clicking the playback area and using scroll wheel to zoom in/out (Fig. 6, 2 and Fig. 7).

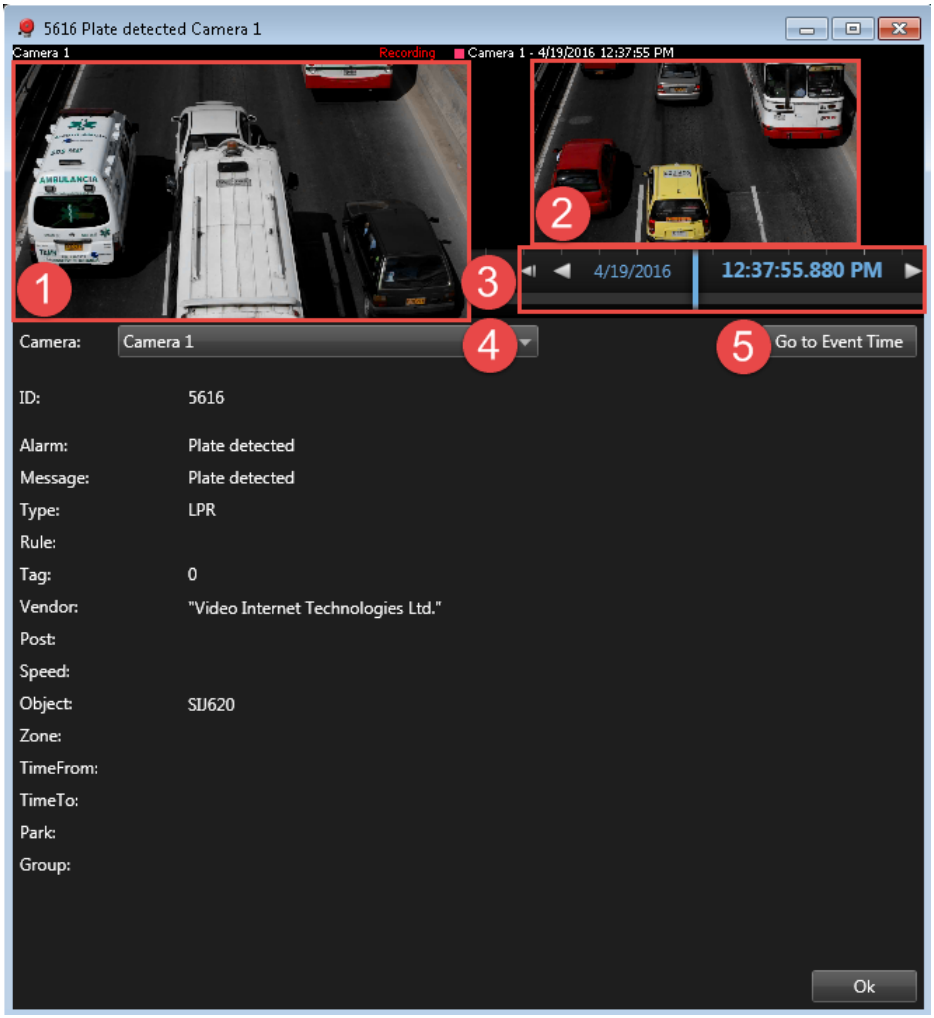

Figure 6: Event card

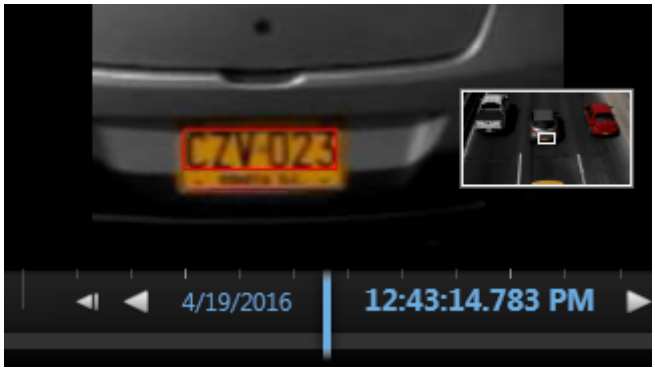

Figure 7: Displaying video in the event

2.3 creating/editing events

To edit a license plate string within the event, select the event in license plate protocol and click the value in **Object Value** column — it would become editable (Fig. 8).

Events of license plates being edited manually are named **Plate corrected**.

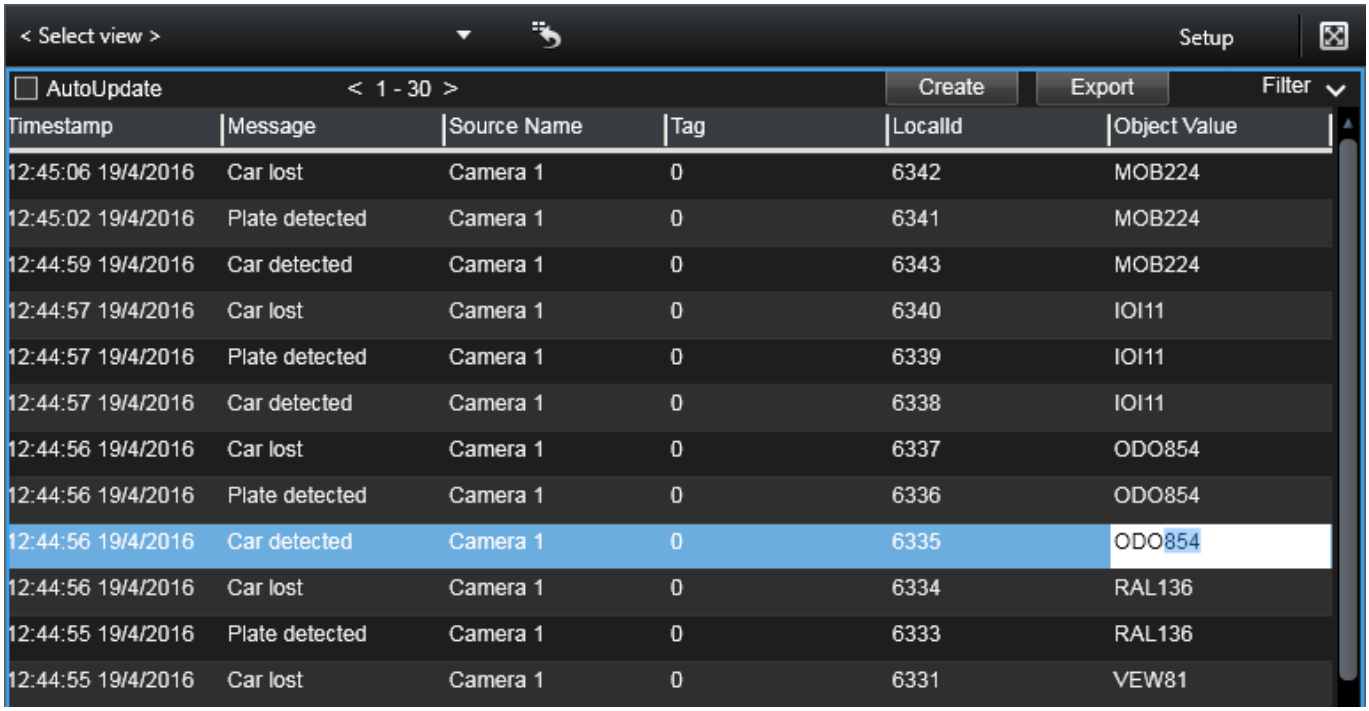

Figure 8: Editing recognition results

It is also possible to add license plates to the protocol manually (in real time):

1. Click **Create** button at the top of recognition view (Fig. 9).

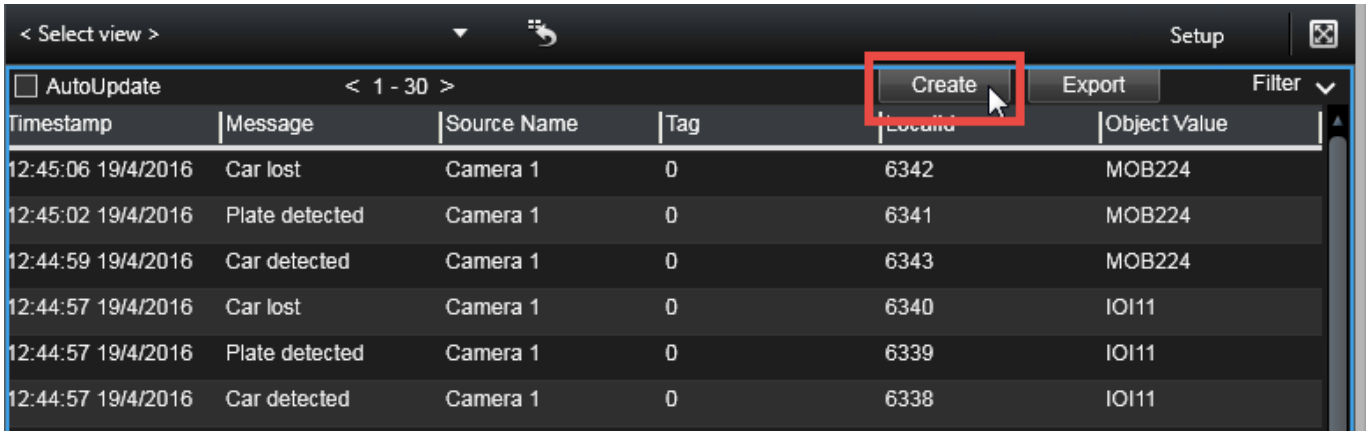

Figure 9: Opening the window to add a license plate

2. In the window that appears (Fig. 10), use the dropdown to select a device to be associated with the event (e.g. Camera 5).
3. Insert the license plate number into the field under the dropdown.
4. Click **OK** to apply changes (or **Cancel** to close the window without adding the number).

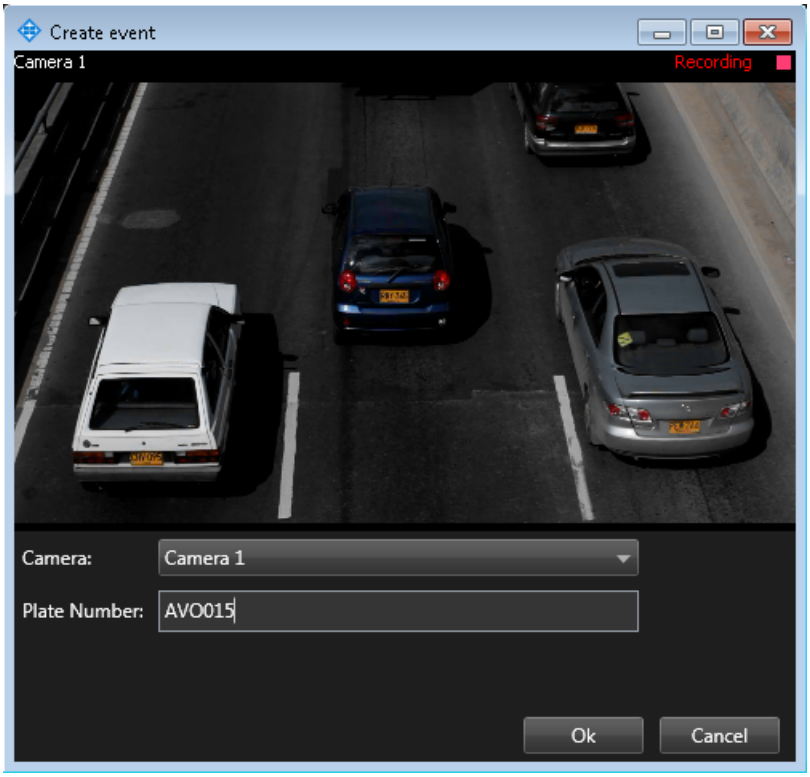

Figure 10: Create event window

Events of license plates being added manually are named **Plate added**.

2.4 filtering events

Event searching and filtering operations are used to make processing large amounts of data easier. There are small differences between these operations. While search is used to find a specific event in the list, filtering is used to receive a specific list of events. In both cases, the selection may be created with one or more parameters and values for these parameters set on **Filter** panel. The panel is opened/closed by clicking on its name on the top section of recognition view (Fig. 11 and 12).

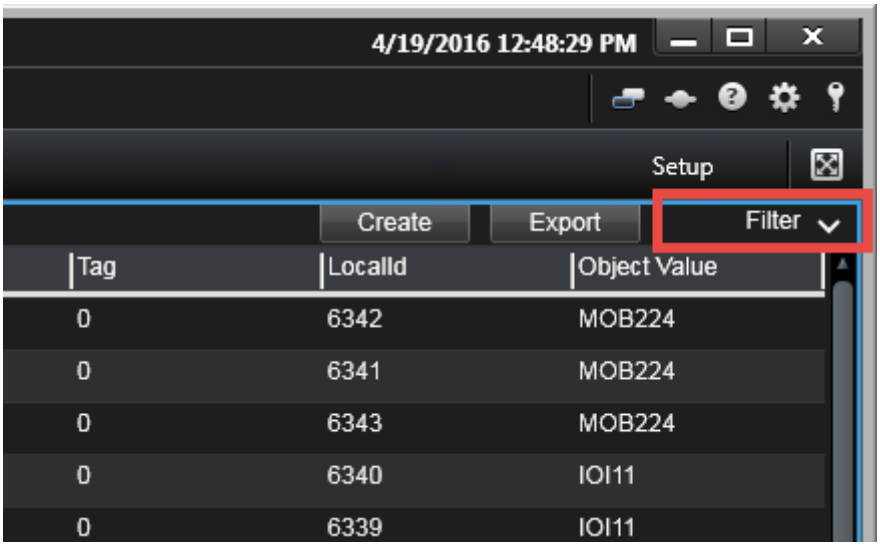

Figure 11: Opening event filtering panel

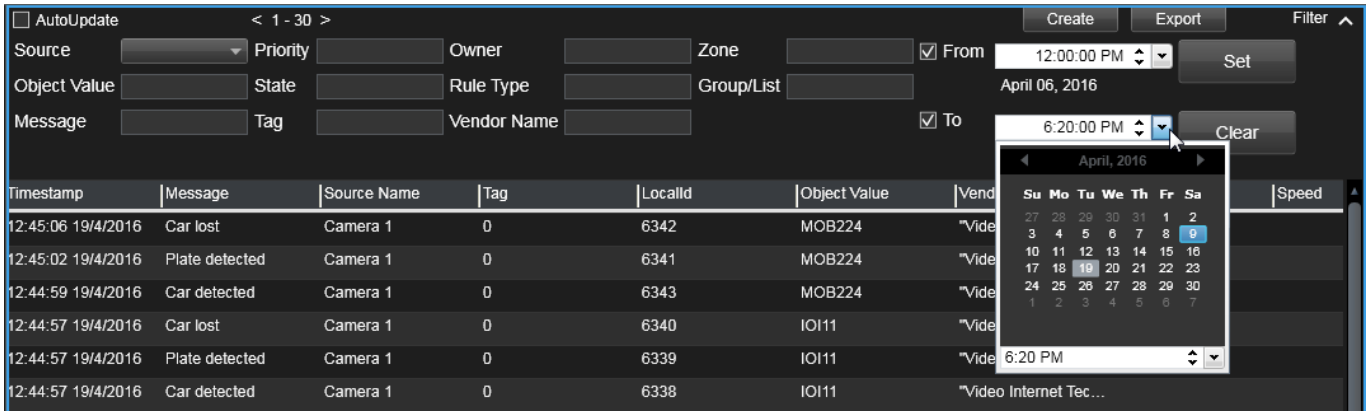

Figure 12: Event filtering panel

The panel contains the following elements:

- **Apply** button that confirms applying filters. After this button is clicked, only the events that meet specified conditions will be displayed.
- **Clear** button that cancels filtering with specified parameters.
- Filtering parameters:
  - Recognition event parameters such as **Message**, **Source Name**, **Object Value** (see Monitoring events).
  - **From** — searching for events received *after* specific date.
  - **To** — searching for events received *before* specific date.
  - **Priority**, **State**, **Owner**, **Group/List** — parameters of an alarm triggered when a specific recognition event is generated. These parameters (with an exception of **Rule** parameter) may not be used in filtering if the view only includes events.

Separate views for alarms may be set on **Alarm Manager** tab. Whether or not **Alarm Manager** tab is available in your application is determined by your CCTV system settings.

By default, **From** and **To** parameters are inactive with their values set to the same dates. To set the time period for filtering, activate the parameters by checking respective checkboxes. The date is set by clicking an icon next to the date field (Fig. 13).

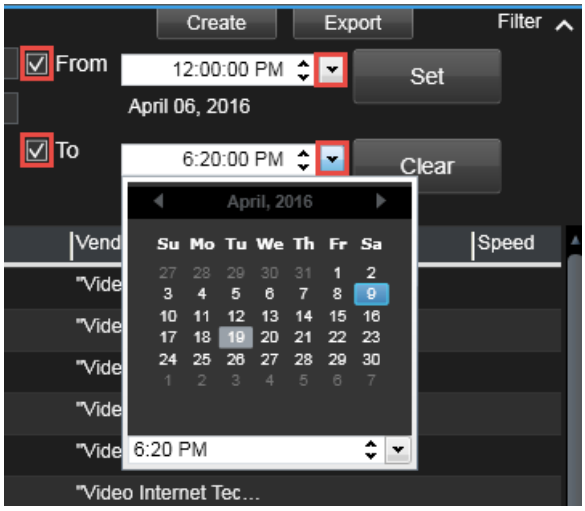

Figure 13: Setting time period for filtering

2.5 exporting events

Export button opens a window to save current list of events as CSV, PDF or XML file (Fig. 14). It is possible to export:

- a list of all events.
- a list of events, created with filtering.

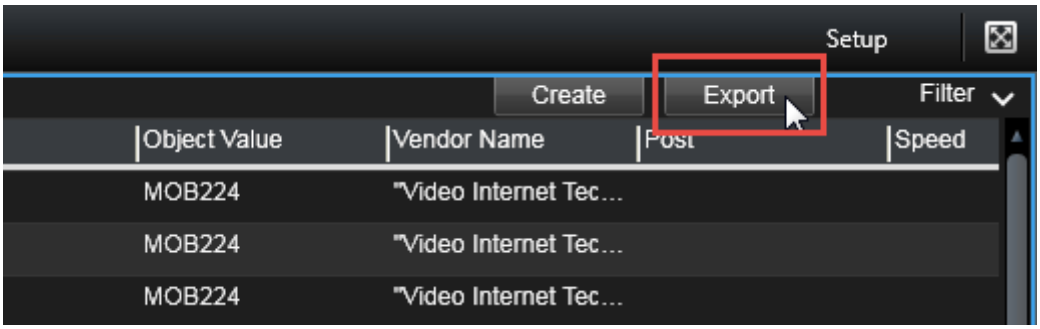

Figure 14: Opening export window

Export window contains:

- **Common export** tab (Fig. 15) to select the parameters to be included into export for each event.
- **Special export** tab (Fig. 16) to select a parking zone where the events were registered within a specific period of time.

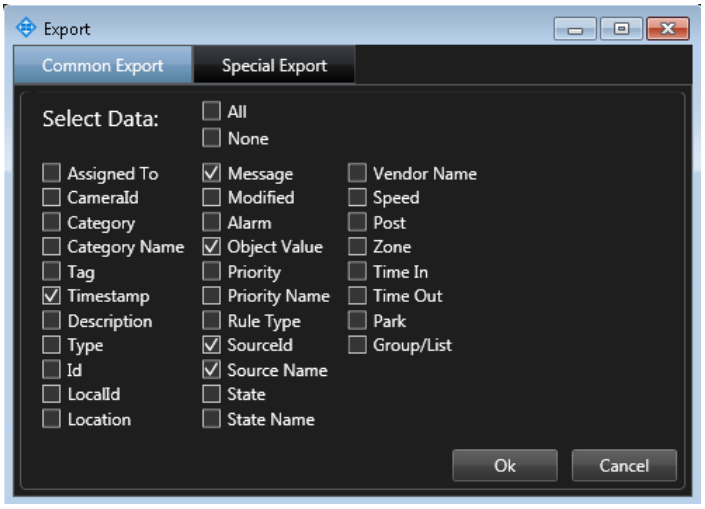

Figure 15

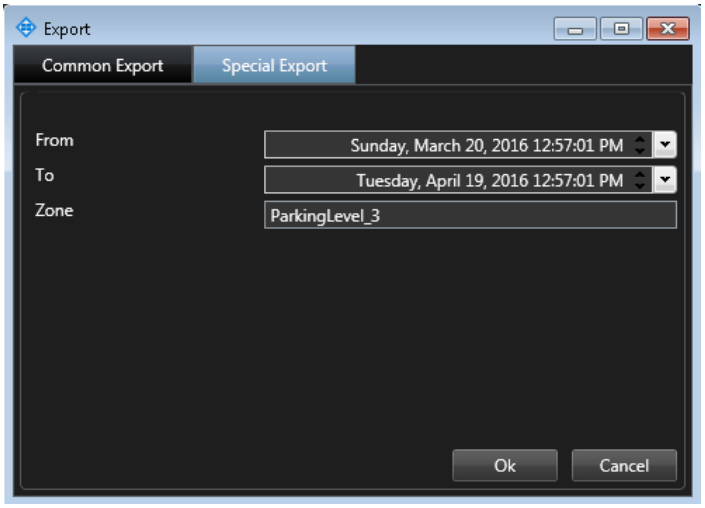

Figure 16

When all parameters are set, save the file (Fig. 17).

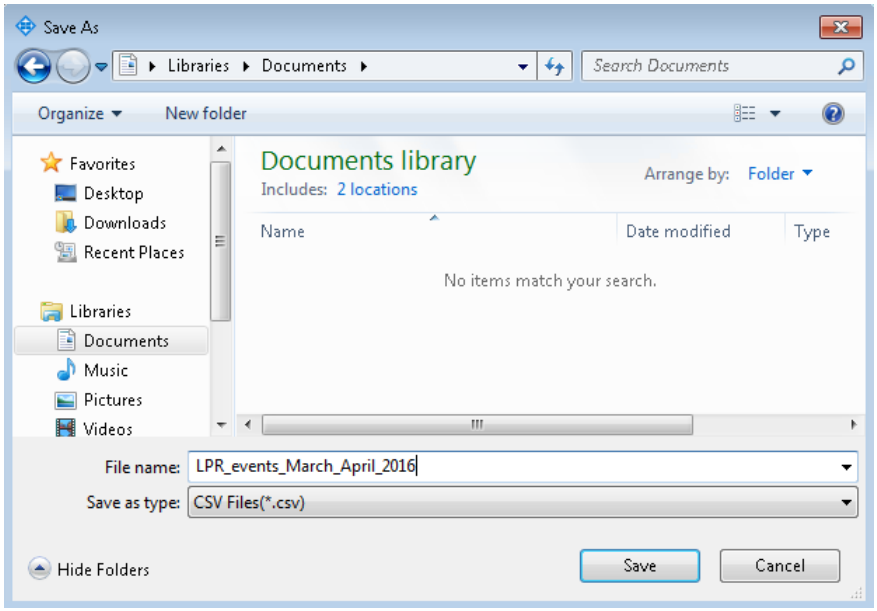

Figure 17

3 EDITING PROTOCOL INTERFACE

For convenience of the user, it is possible to:

- hide event parameter columns that are not in use.
- change column width.
- change column placement.

> When **XProtect SmartClient** is restarted, all changes to **Viewer** module interface are saved.

To hide columns, right-click the column header area. A context menu appears with all displayed columns checked with a checkmark (Fig. 18). Left-click the parameter to uncheck it.

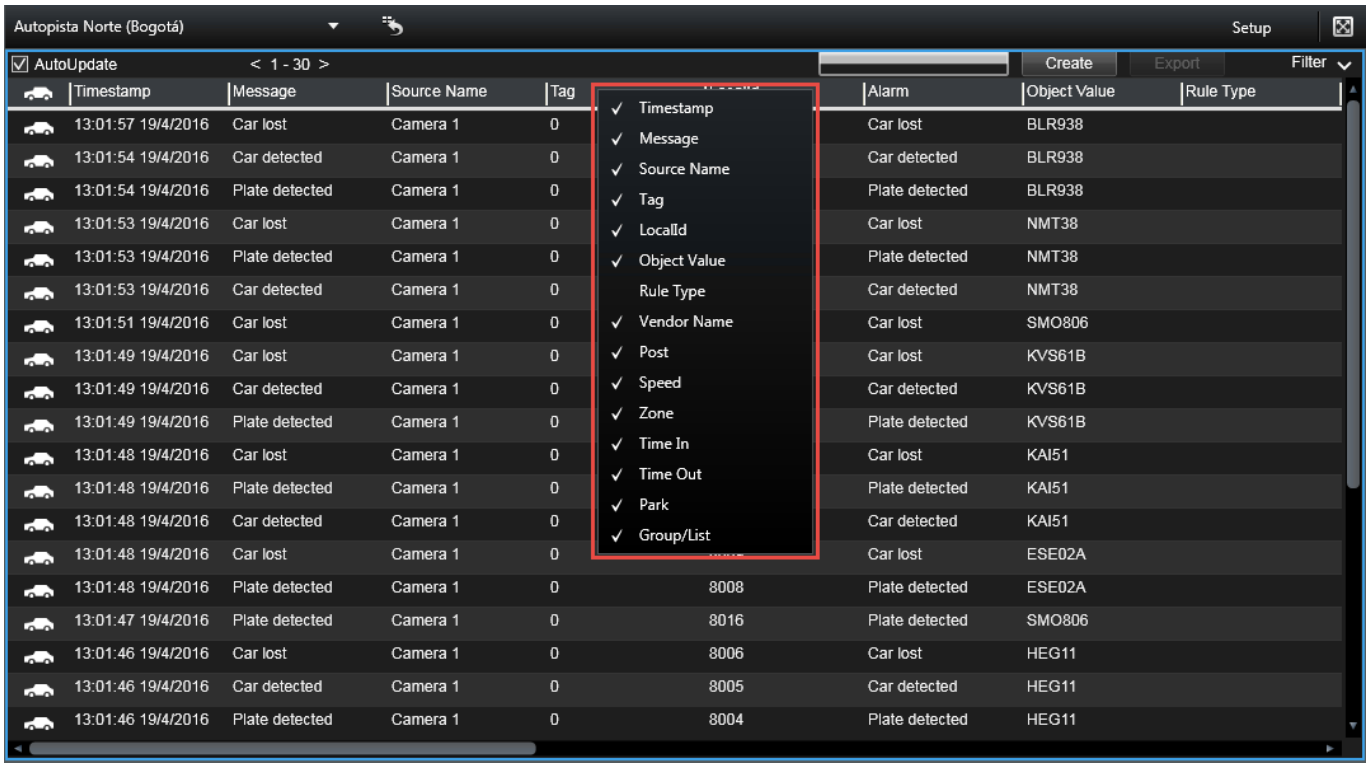

Figure 18

> For example, only **Timestamp**, **Message**, **Source Name**, **LocalId**, **Object Value** and **Vendor** columns are selected. These are the columns to be displayed in the protocol (Fig. 19).

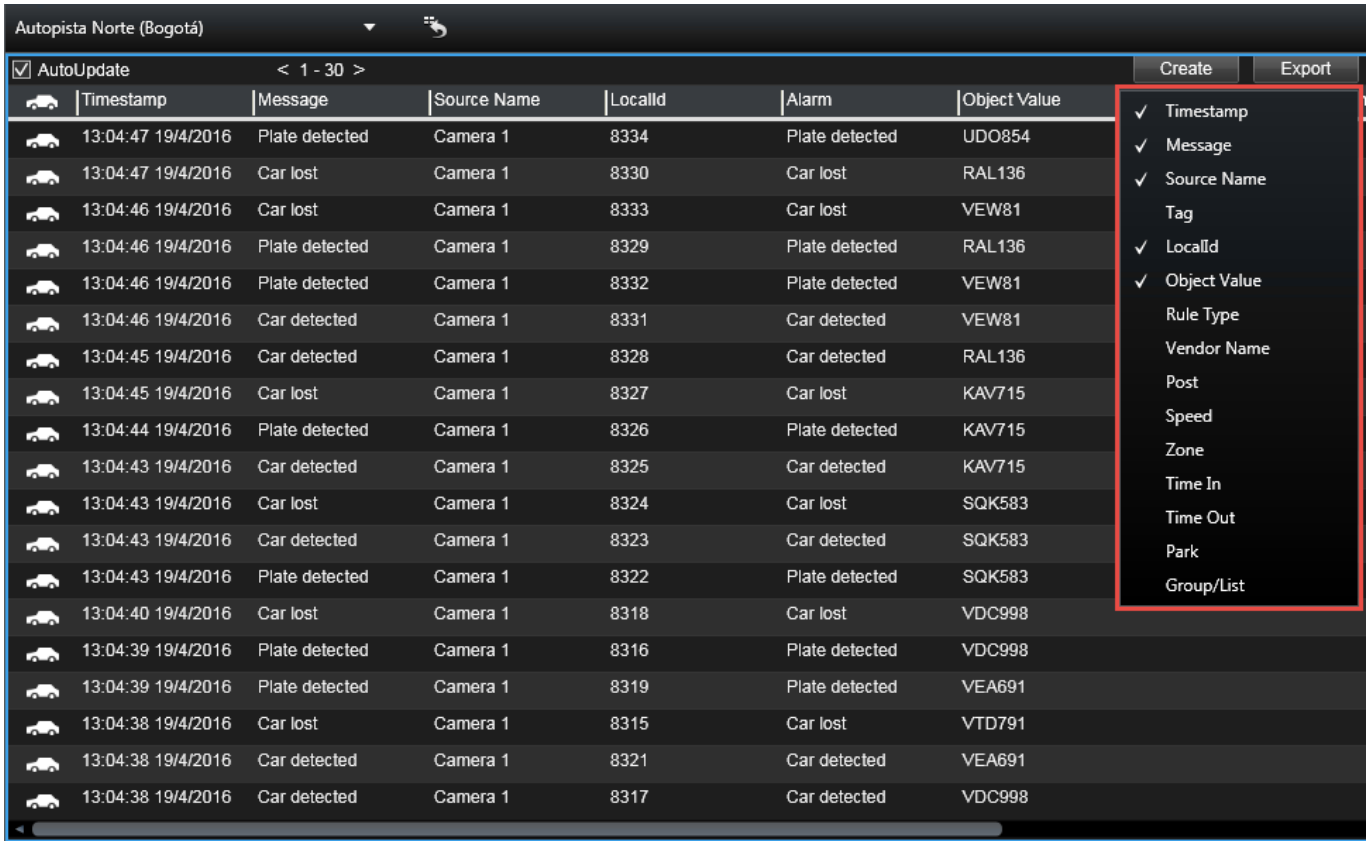

Figure 19

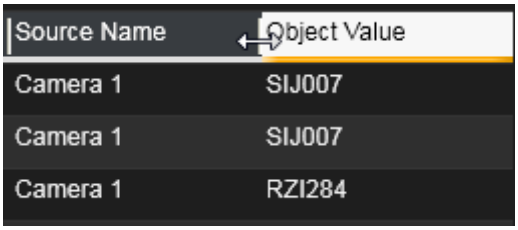

Figure 20: Changing column width

To change the position of a column, left-click it (the header of selected column becomes highlighted white) and drag it to the new position (Fig. 21).

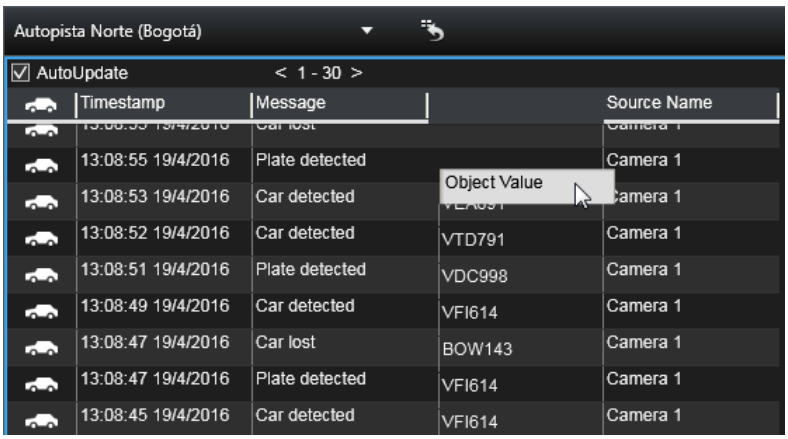

Figure 21