

SIMICON Ltd.

**RADAR GUN WITH INTEGRATED VIDEO
“BINAR”**

Binar PC Suite

Data management software

User Manual

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1 Introduction

1.1 Document contents

This Manual is intended for Binar Workstation operators and it contains the information necessary for the installation and operation of Binar PC Suite.

This manual contains the following signal symbols:

WARNING!
This information is important for normal operation of software and hardware.

NOTE.
This is additional information about system properties and features.

The figures and diagrams presented in current manual are intended for demonstration purposes and to make the user more familiar with system operation.

As the manufacturer continuously improves upon and extends the product range, version of the product may slightly differ. These differences will not affect the metrological parameters or system performance.

The Manufacturer reserves the right to make modifications and/or improvements in product design, delivery package and software without notification.

1.2 Terms and abbreviations

- **Binar** — a radar gun with integrated video recording capabilities.
- **Binar data** — encrypted video and/or still picture recordings generated from dual Binar cameras, that may contain speed and location data.
- **Navigation module** — GPS/GLONASS receiver that allows the Binar to obtain the geographical coordinates of a recorded target via Bluetooth technology.
- **SD data card** — a non-volatile memory card to which recorded Binar data is stored. Video data may be transferred from the memory card to the workstation by inserting the card into a card reader.
- **Sequence** — still picture recording that contains pictures from two cameras along with speed data and other information.
- **Workstation** — the data processing PC with Binar PC Suite software installed, typically located in a back office.

1.3 Software functionality

The Binar PC Suite software is intended for processing the Binar data, such as:

- Transfer of video and photo data from Binar to workstation PC using the SD card.
- Review of recorded photo and video data on PC.
- Preparation and printing of selected frames, including the service information.

2 Software Installation and Uninstallation

2.1 System Requirements

Before installing the Binar PC Suite, ensure that the PC meets the following minimum specifications:

- Operation System: Microsoft Windows XP SP3, Windows Vista or Windows 7.
- CD-ROM optical drive.
- SD/SDHC card reader.
- Not less than 2 free USB slots.

2.2 Installation of Binar PC Suite

1. Insert the Binar PC Suite CD-ROM into the optical drive. Launch **autorun.exe** file if installation menu didn't appear.
2. Select the **Install** item in menu to launch the installation wizard.
3. Click **Next** button on the welcome page.

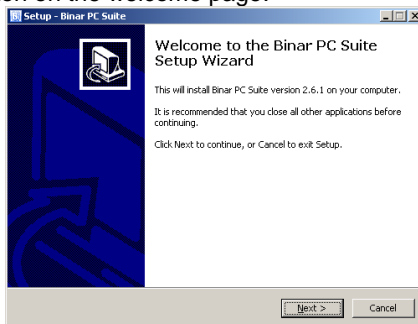


Fig. 1

4. Click **Next** on the destination selection page.

- You may install the software to a different folder using the **Browse** button.

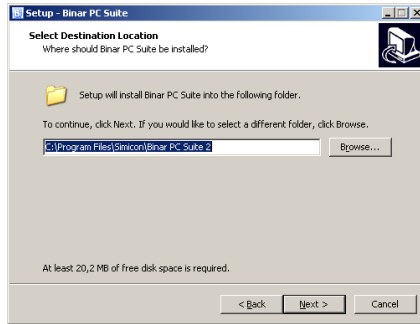


Fig. 2

5. The installation may take a while. Wait for the end of installation process.
6. Click **Finish** when the installation is complete. The Binar PC Suite is ready for operation.

2.3 Uninstallation of Binar PC Suite

1. Go to **Start** → **Control Panel** menu.
2. Go to **Programs and Features** (or **Add or Remove Programs**) menu.
3. Find **Binar PC Suite** in the list and click **Uninstall**.
4. Follow the instructions of uninstallation wizard.

2.4 Updating Binar PC Suite

Perform the following actions to update the Binar PC Suite:

- Process all available video data and close the program.
- Get the new Binar PC Suite installation package from the Technical Support.
- Install the new version above the old one (see chapter 2.2).

- The previously downloaded to PC data is not deleted while updating or uninstalling the program. Delete this data manually, if necessary.

3 Binar PC Suite workflow

3.1 Program interface

Use the menu «Start → Programs → Simicon → Binar PC Suite → Binar PC Suite» or «Binar PC Suite» desktop shortcut to start the program.

The program interface consists of two pages, which may be accessed via the upper menu:

- «Photo» — this page (Fig. 3) allows to load, review, adjust and print the frames that were made in the Binar's Work or Photo modes. (Work mode will produce violation clips.)
- «Video» — this page allows to load and review the video clips, as well as to print the selected frames.
- «Recovery» — this page allows to perform the data recovery on SD card in case of any problems.

At the center of each page you see the frames from both Binar cameras: the wide-angle color camera to the left, and long-focus black & white (B/W) to the right. The upper part of each frame contains date and time of capture, direction and measured speed (not available in Video mode), that correlates to the fastest target in the field of view.

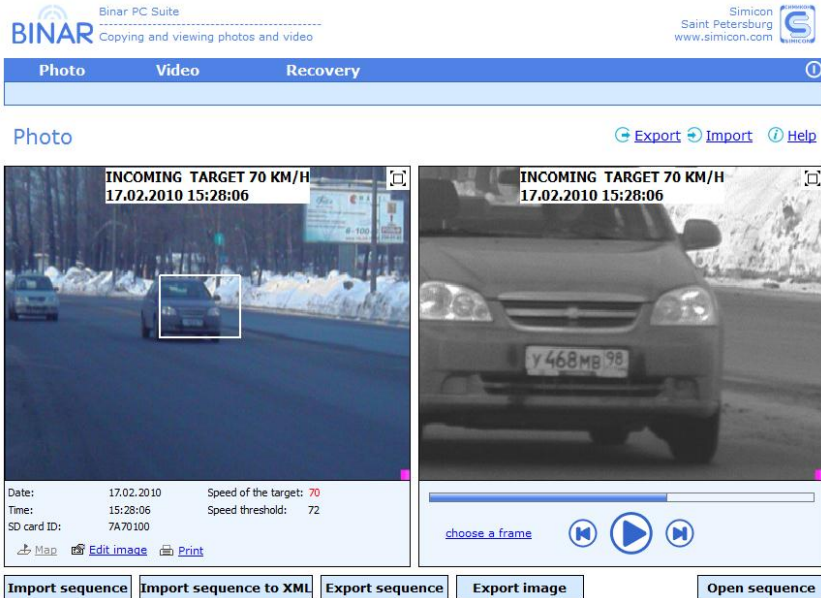


Fig. 3

The following information is available below the left frame:

- date and time of capture,
- speed of the fastest target in the field of view («Photo» only),
- the current speed threshold on Binar («Photo» only),
- SD card ID number,
- Binar firmware checksum,

- speed of patrol vehicle («Photo» only, if image was generated in Binar «Work» mode),
- length of video record («Video» only).


The control buttons execute the following operations on the displayed frames:

- **Map** — opens the default web browser and generates a Google map with location of recording.

The button is available only if GPS/GLONASS functionality was enabled at the time the images were taken. Otherwise, there are no coordinates embedded with the image, and the **Map** button is disabled.


- **Edit Image** («Photo» only) — open the image adjustment menu.



The button is not available unless the data is saved to workstation memory (see chapter 3.2.2).

- **Print** — print the selected frames and the service data.
-  — the button in upper right corner of each frame allows to magnify the picture.

The following playback control buttons are located below the right frame:

- **Choose a frame** («Photo» only) — quick frame selection menu.

-   — playback and pause.

-   — frame-by-frame review.

- The white-blue scrollbar shows the current playback position.

Drag the scrollbar pointer for quick rewind of the clip.

In the bottom part of window there are several data management buttons:

- **Import sequence (Import video)** — load data from SD card to workstation memory.
- **Open sequence (Open video)** — select and open the data file for further processing.

The following buttons are available in «Photo» mode only:

- **Export sequence** and **Export image** — export the entire sequence or just the current frame to XML data file (see Appendix for details) for further processing using third-party software.
- **Import sequence to XML** — convert the recorded data from SD Card to XML file directly. Select the SD Card and destination folder, then click **OK** to perform the conversion.

- **Export** (in the upper part of window) — save the current sequence for transfer to another PC.
- **Import** — load the previously saved sequence from the disc.

3.2 Still frames processing

3.2.1 Open and review of sequence

In order to begin working with still frames, it's necessary to open a sequence stored on SD card or the workstation memory. Click **Open sequence** and tick the desired option:

- **Download a new sequence** — load the sequence directly from SD card, without saving to workstation memory. Click **Select**, specify the SD card location in “My Computer” menu and click **OK**.
- **Open an existing sequence** — open the sequence that was previously saved in workstation memory (see chapter 3.2.2).

Pick the necessary sequences from the table in the right part of window. You may sort the records by date, time or street name by clicking on the corresponding column header (see Fig. 4). Click **OK** when you are ready and wait for the pictures from cameras to appear in the main program window (see Fig. 3).

- ✓ This may take several seconds, possibly even a minute or longer, depending on the quantity of images selected.

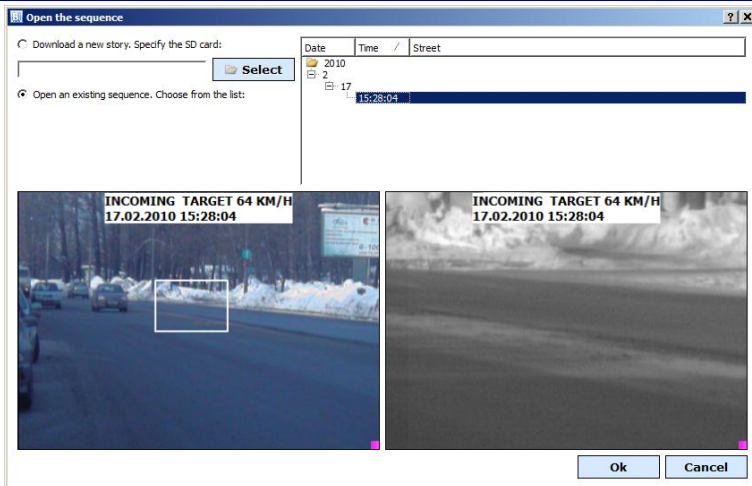


Fig. 4

Use the playback control buttons to find the most appropriate pair of pictures.

- ✓ The displayed speed of target always corresponds to the fastest visible vehicle.

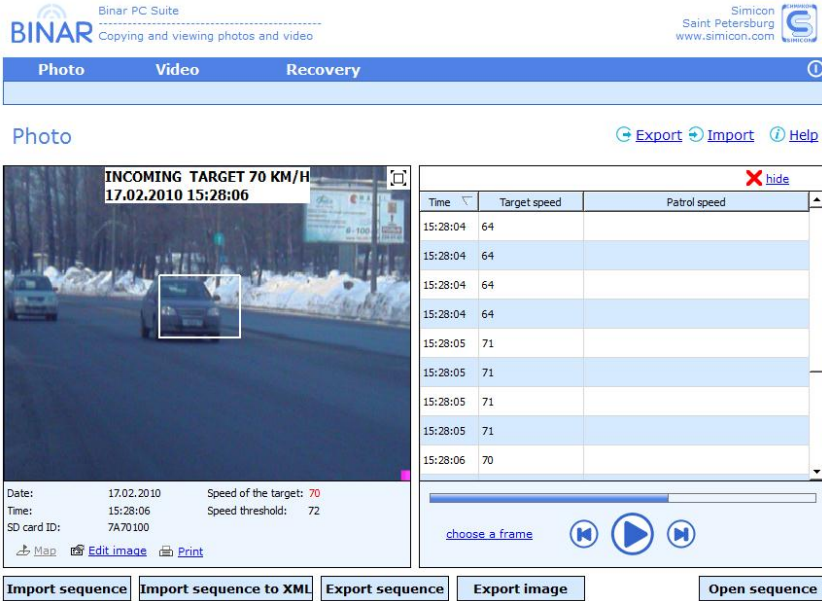


Fig. 5

Click **Choose a frame** for quick search of appropriate frame. Then the frame list and the corresponding wide-angle picture will appear (see Fig. 5). You may sort the frames by target or patrol speed, clicking on the header. When the appropriate frame is selected, double click on it in the table or click **Hide** button.

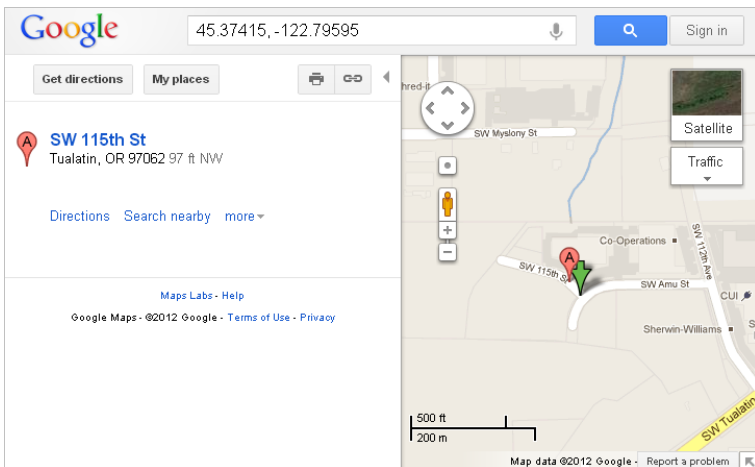


Fig. 6

If there exists the location data from external GPS/GLONASS module, clicking on **Map** button will open the default browser to generate a Google map of recorded location (see Fig. 6). It's necessary to have Internet connection for this feature to function.

- The Google map function may not work in old browsers, such as Internet Explorer version 7 and older. Upgrade your browser to the latest version if you have any problems.

3.2.2 Sequence import

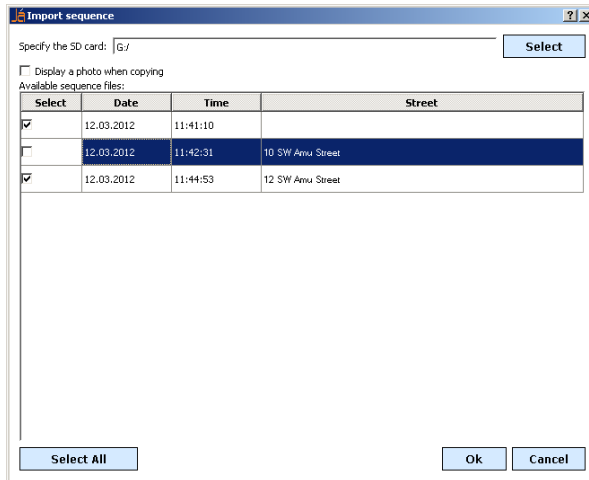


Fig. 7

It's necessary to perform the import in order to save the recorded data in the workstation memory. Insert the SD card to the reader before the import.

Click **Import sequence** button on the "Photo" page to import the still frames. When the import window (see Fig. 7) appears, click **Select**, specify the SD card location in "My Computer" menu and click **OK**.

- Specify only the letter corresponding to card reader drive (F:\, G:\ etc.). Do not specify a sub-directory.

The sequences present on the SD card will be displayed in the table along with date, time and address (if it was entered by the patrol officer). Tick the necessary items or click **Select All**, then click **OK** to begin the import.

- If you want to see the frames being copied during the import, tick **Display a photo when copying** item.

Data processing may take a while. Click **Cancel** to stop the process.

- WARNING:**
Do not remove the SD card during the data transfer.

3.2.3 Pre-print image adjustment

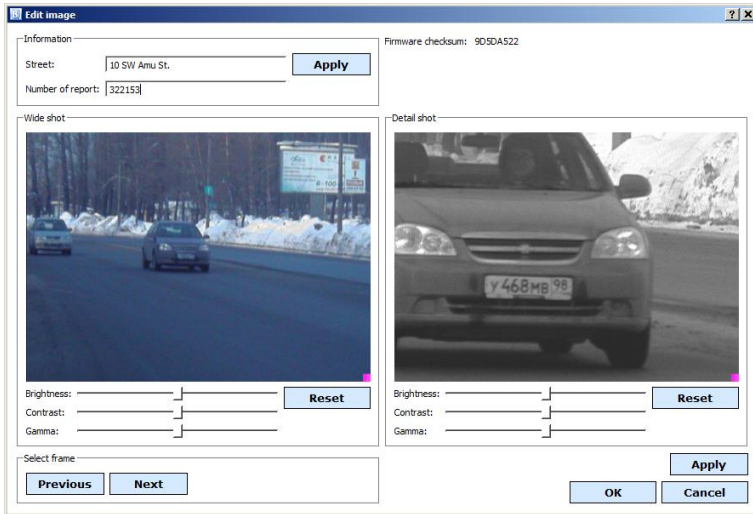


Fig. 8

Select the appropriate frame and click **Edit** to proceed to image adjustment page (see Fig. 8). The **Edit** button is disabled, if the data wasn't imported to memory of workstation (see chapter 3.2.2).

If the patrol officer manually entered the street and report number data directly into the Binar before saving to archive, the block "Information" will be filled with this data. Otherwise, enter this data manually.

In the bottom part of the window there are several sliders that allow adjusting both images for better license plate readability. Click **Reset** to reset all sliders to neutral positions.

- The adjustments are applied to the selected pair of frames only. It's impossible to change speed, date and time information.

When you have completed adjusting the images, click **OK** to save changes and return to main window.

3.2.4 Photo printing

Video camera Binar 0123, Simicon. Speed threshold: 72 km/h.
Protocol: 322153. SD card ID: 7A70100. Street: 10 SW Amu St.
Firmware checksum: 9D5DA522.



Fig. 9

If you want to print the current pair of photos, click **Print**, then select printer and click **OK**.

See Fig. 9 for an example of a printed page. The document contains the following elements:

- A color picture showing the wide angle (“environmental”) view and a black and white close-up view of vehicle.
- Up to five smaller pictures that shows the flow of traffic situation before and after the violation frame.
- Service information:
 - date and time of capture,
 - name and serial number of the Binar,
 - current speed threshold,
 - speed of target,
 - SD card serial number,
 - street name (if available),
 - document number (if available),
 - geographic coordinates (if available).

3.3 Video processing

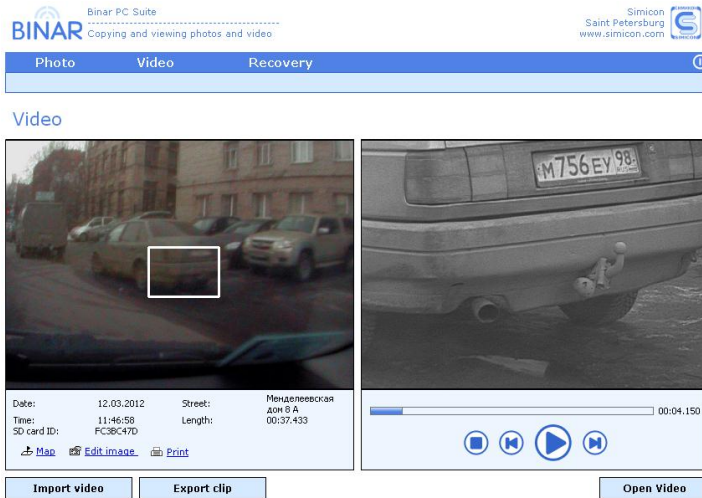


Fig. 10

Binar PC Suite allows watching and performing several operations with video clips that were recorded by Binar in "Video" mode.

3.3.1 Video import

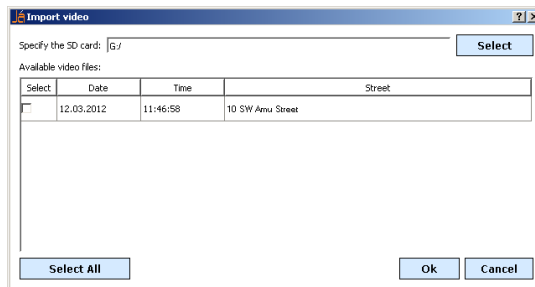


Fig. 11

It's necessary to perform the import of video files in order to save the recorded data in the workstation memory. Insert the SD card to the reader before the import. Click **Import video** on "Video" page, and then act as described in chapter 3.2.2.

3.3.2 Opening and watching the video clips

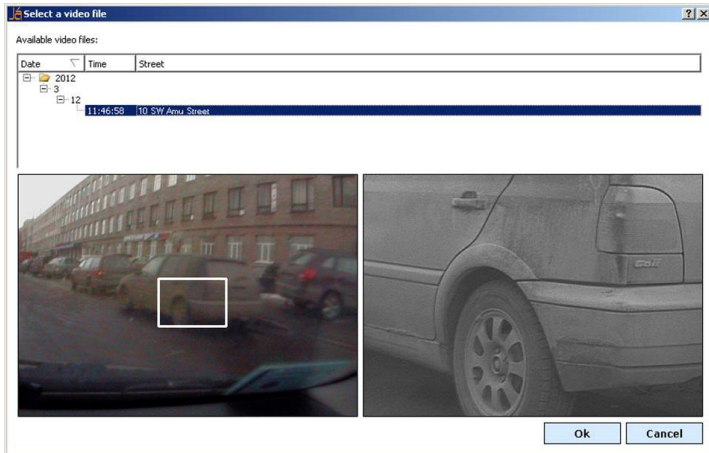


Fig. 12

Click **Open video** to select the necessary video file to open. Choose the necessary file from the table in the top part of window. You may sort the records by date, time or street name by clicking on the corresponding column header. In the bottom of window there are the first frames of selected video.

Click **OK** when you are ready and wait for the pictures from the cameras to appear in the main program window.

- This may take several seconds, possibly even a minute or longer, depending on the quantity of images selected.

Use the playback control buttons to view the video and to find the most appropriate pair of pictures.

If location data has been captured from an external GPS/GLONASS module, clicking on the **Map** button will open the default browser and generate a Google map of recorded location (see Fig. 6). It's necessary to have Internet connection for this feature.

You may print the desired video frames using **Print** button — see chapter 3.2.4 for details.

3.4 Data recovery

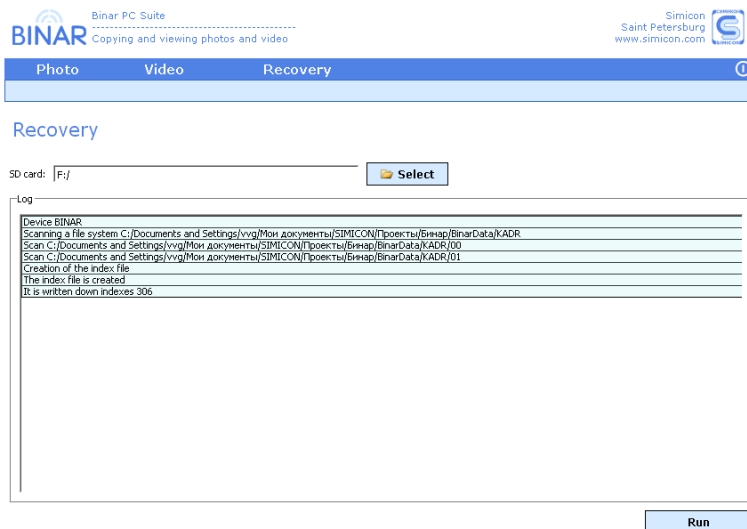


Fig. 13

If you see any error messages while copying data from SD-Card, it's necessary to restore the data structure on SD Card.

Open the **Recovery** tab, click **Select** and specify the Binar data card location. Then click **Run**, the program will correct the data structure, the corresponding message will appear.

4 Manufacturer

SIMICON Ltd.

8 Mendeleyevskaya Str., Saint Petersburg, Russia, 194044

Tel. +7(812)295-0009, 295-0633; Fax +7(812)324-6151

E-mail: contact@simicon.com

<http://www.simicon.com>

This manual conforms to software version 2.7.4.

5 Appendix

5.1 Export data format

5.1.1 Structure

During the data export, the software creates an XML file that contains all pictures from both cameras along with service information.

The structure of XML file is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<StoryList>
  <Story>
    <StoryInfo>
      ...
    </StoryInfo>
    <ImageList>
      <Image>
        <ImageInfo>
          ...
        </ImageInfo>
        <Navigation>
          ...
        </Navigation>
        <Direction>
          ...
        </Direction>
        <Data>...</Data>
      </Image>
      ...
    </ImageList>
  </Story>
</StoryList>
```


5.1.2 Sequence data

The general information about sequence is stored in **<StoryInfo>** item:

- **SessionId** — unique work session ID.
- **Date** — date in «YYYY MM DD» format.
- **Time** — time of beginning of sequence in «HH:MM:SS» format.
- **Street** — street name.

5.1.3 Image data

Inside each **<Image>** item there is information about this image in **<ImageInfo>**, **<Navigation>**, **<Direction>**, **<Data>** items.

The general image information is stored in **<ImageInfo>** item:

- **Type** — type of used camera («Wide angle» or «Long focus»).
- **Speed** — the measured speed of target in km/h.
- **Threshold** — current speed threshold in km/h.
- **Date** — date in «YYYY MM DD» format.
- **Time** — time of recording of this picture in «HH:MM:SS» format.
- **Flash** — SD card serial number.
- **FwHash** — firmware checksum (if available).
- **Protocol** — document number (if available).

The data from navigation module (if available) is stored in **<Navigation>** item:

- **Latitude** — latitude in «DD.dddd» format. North — positive values, South — negative.
- **Longitude** — longitude in «DD.dddd» format. East — positive values, West — negative.
- **Speed** — speed of radar gun movement in km/h.
- **Course** — course of radar gun movement, in degrees from the north, clockwise.

The data on current Binar working mode is stored in **<Direction>** item:

- **Direction** — direction of targets movement («INCOMING» or «OUTGOING»).
- **Pos** — direction of Binar field of view, relative to patrol car chassis («FRONT» or «REAR»).

The **<Data>** item contains the valid JPEG picture from single camera, Base64-encoded.

5.1.4 Example of data file

```
<?xml version="1.0" encoding="UTF-8"?>
<StoryList>
  <Story>
    <StoryInfo>
```

```
<SessionId>1699804660</SessionId>
<Date>2012 03 12</Date>
<Time>11:42:31</Time>
<Street>12 W. Amu Street</Street>
</StoryInfo>
<ImageList>
  <Image>
    <ImageInfo>
      <Type>Wide angle</Type>
      <Speed>31</Speed>
      <Threshold>20</Threshold>
      <Date>2012 03 12</Date>
      <Time>11:42:31</Time>
      <Flash>FC3BC47D</Flash>
      <FwHash>2190804531</FwHash>
      <Protocol>98-765432</Protocol>
    </ImageInfo>
    <Navigation>
      <Latitude>59.9776</Latitude>
      <Longitude>30.3646</Longitude>
      <Speed>0.14</Speed>
      <Course>354</Course>
    </Navigation>
    <Direction>
      <Direction>INCOMING</Direction>
      <Pos>FRONT</Pos>
    </Direction>
    <Data><!--Picture is omitted--></Data>
  </Image>
  <Image>
    <ImageInfo>
      <Type>Long focus</Type>
      <Speed>31</Speed>
      <Threshold>20</Threshold>
      <Date>2012 03 12</Date>
      <Time>11:42:31</Time>
      <Flash>FC3BC47D</Flash>
      <FwHash>2190804531</FwHash>
      <Protocol>98-765432</Protocol>
    </ImageInfo>
    <Navigation>
      <Latitude>59.9776</Latitude>
      <Longitude>30.3646</Longitude>
```

```
<Speed>0.14</Speed>
<Course>354</Course>
</Navigation>
<Direction>
  <Direction>INCOMING</Direction>
  <Pos>FRONT</Pos>
</Direction>
<Data><!--Picture is omitted--></Data>
</Image>
</ImageList>
</Story>
</StoryList>
```

5.2 Log viewer utility

During the Binar operations, the log file is being recorded to the SD card. This file is encrypted and it contains the records on each patrol officer's enforcement operations. It's possible to view this file using the dedicated Log viewer utility.

Use the menu «Start → Programs → Simicon → Binar PC Suite → LogView» to start the program (see Fig. 14).

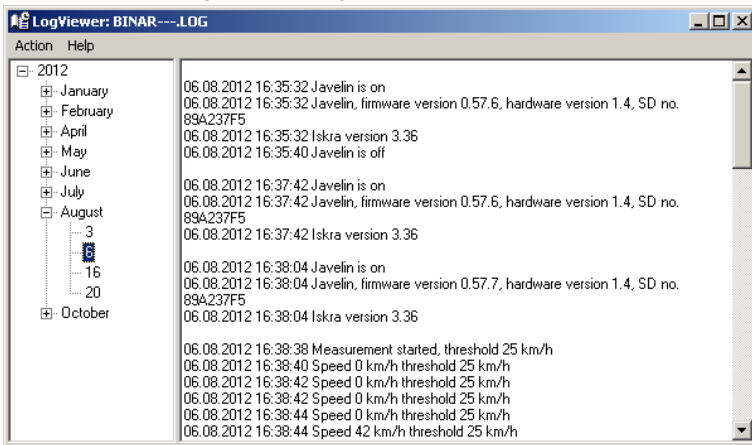


Fig. 14

Use the menu “Action → Open Log” to open the log file **BINAR---.LOG** in the root folder of SD card.

When the file is loaded, in the left part of the window appears a tree list of dates, when the Binar has been turned on. Select the necessary date, and you'll see a complete list of events in chronological order. You may perform a search within the event list using the “Action → Search” menu.

If the navigation module has been used with Binar, it's possible to export the recorded track to KML file¹. Go to menu "Action → Export Track", then specify the file name and click **Save**.

¹ Use the Google Earth software (<http://www.google.com/earth>) or equivalent to view a KML track. Permanent Internet connection may be necessary.