MOSCOW FORENSICS DAY '25



SERGEY EREMIN

"USING VR-EXPERT TO EXAMINE DVRS. A COMPARISON WITH FOREIGN COUNTERPARTS"

LAN PROJECT LLC

MFD

Using VR-EXPERT to examine DVRs. A comparison with foreign counterparts



25 НАМ ЛЕТ
2000-2025

ЛАН ПРОЕКТ

Lead expert, Forensic Equipment and Special Software Systems Department

Sergey Eremin

VR-EXPERT

Special-purpose software

Record No. 27327 of 21.03.2025 in the register of Russian software for electronic computers and databases

ЛАН ПРОЕКТ

VR-EXPERT



РОССИЙСКАЯ ФЕДЕРАЦИЯ

СВИДЕТЕЛЬСТВО

о государственной регистрации программы для ЭВМ

№ 2024667599

VR-Expert

Правообладатель: *Общество с ограниченной ответственностью «ЛАН-ПРОЕКТ» (RU)*

Автор(ы): *Соха Екатерина Юрьевна (RU)*

Заявка № 2024666622

Дата поступления 18 июля 2024 г.

Дата государственной регистрации в Реестре программ для ЭВМ *26 июля 2024 г.*

Руководитель Федеральной службы по интеллектуальной собственности

Ю.С. Зубов

VR-EXPERT

Special-purpose software

ЛАН ПРОЕКТ

Fixed surveillance systems





Car dash cams

VR-EXPERT

Support for video recording devices

ЛАН ПРОЕКТ

Automatically detected file systems

DOZOR
DHPT
Huayi264
Zeno 264
Zlav
WFS
WFS2
WFS3

WFS5
DHFS_41
HIK
Blue DC
H2MB_dc
NVR_dc
QVFS



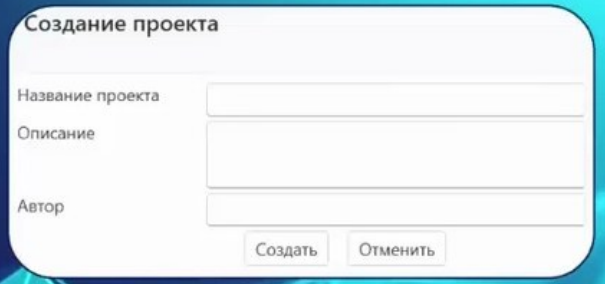
Supported DVRs most common in Russia

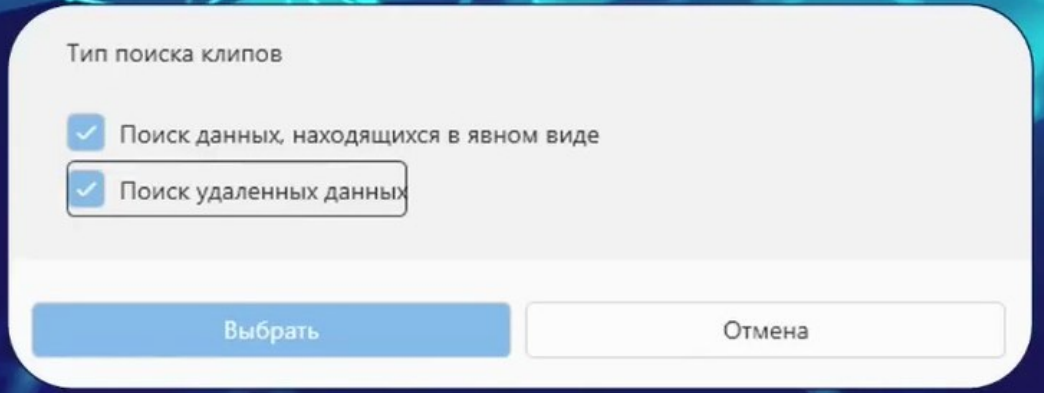
HIKVISION
HiWatch
alhua TECHNOLOGY

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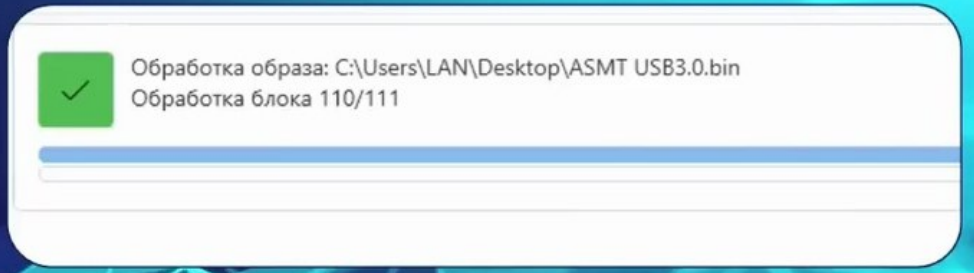


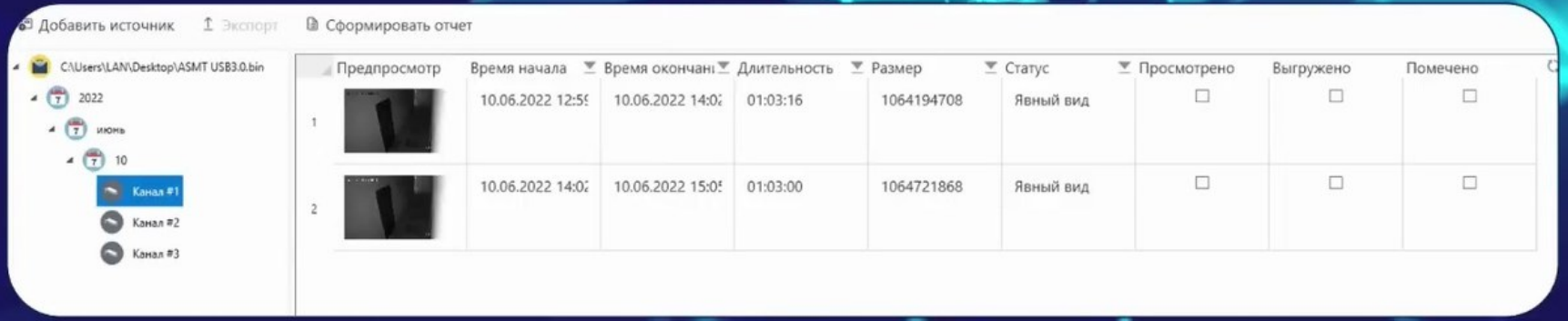


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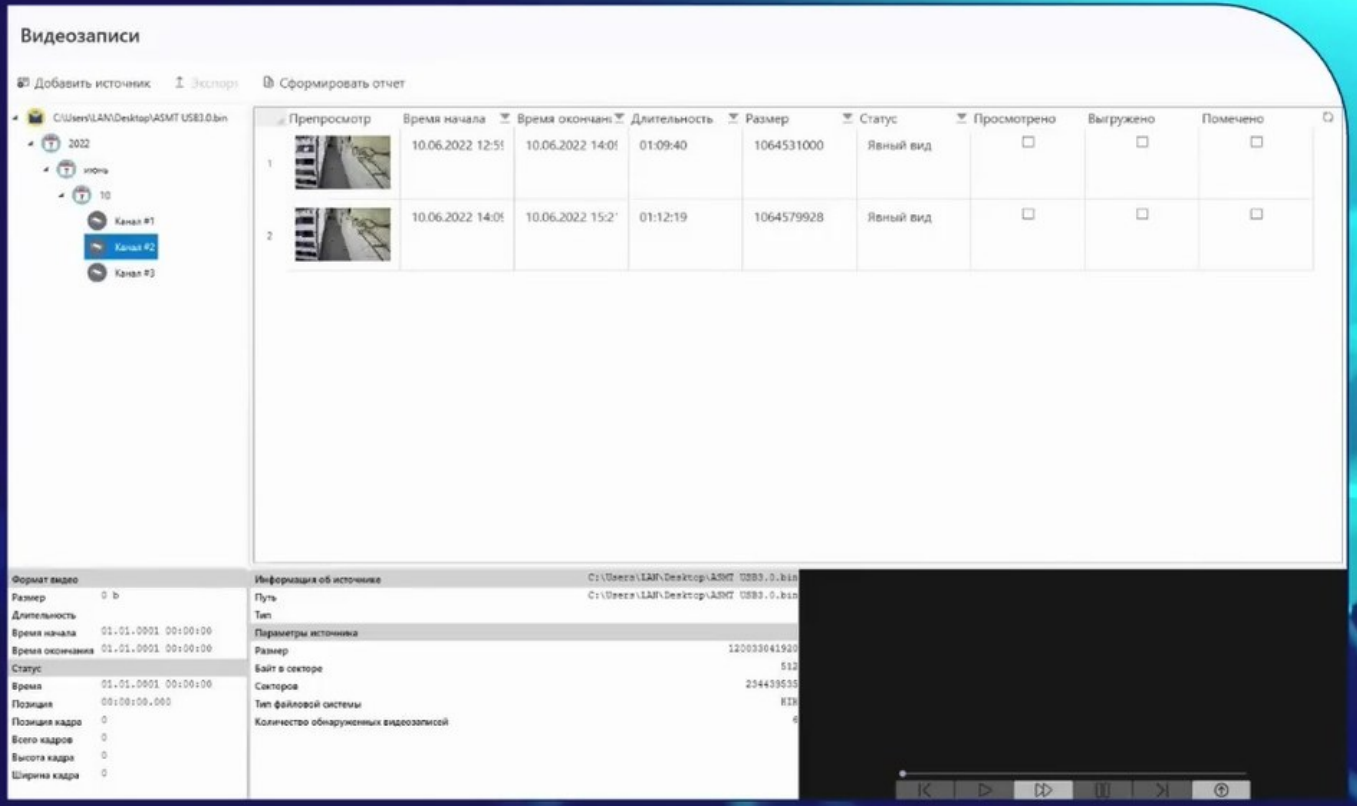
Информация об источнике	C:\Users\LAN\Desktop\ASMT USB3.0.bi
Путь	C:\Users\LAN\Desktop\ASMT USB3.0.bin
Тип	
Параметры источника	
Размер	120033041920
Байт в секторе	512
Секторов	234439535
Тип файловой системы	HIK
Количество обнаруженных видеозаписей	





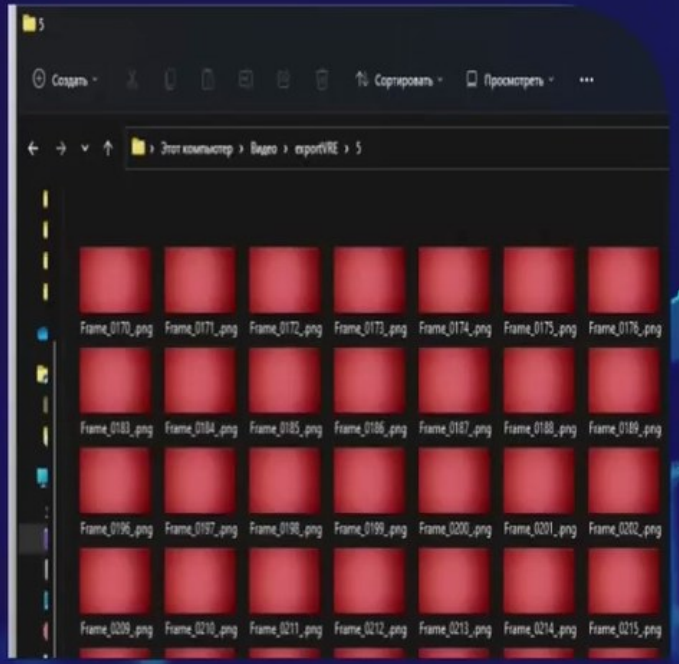
VR-EXPERT

Special-purpose software



VR-EXPERT

Special-purpose software



VRExpert

Информация об извлечении

Версия VRExpert:

1.3.2.0

Время создания отчета:

14.02.2025 15:48

Общая информация

Эксперт:

Информация о деле

Номер дела:

test

Источники:

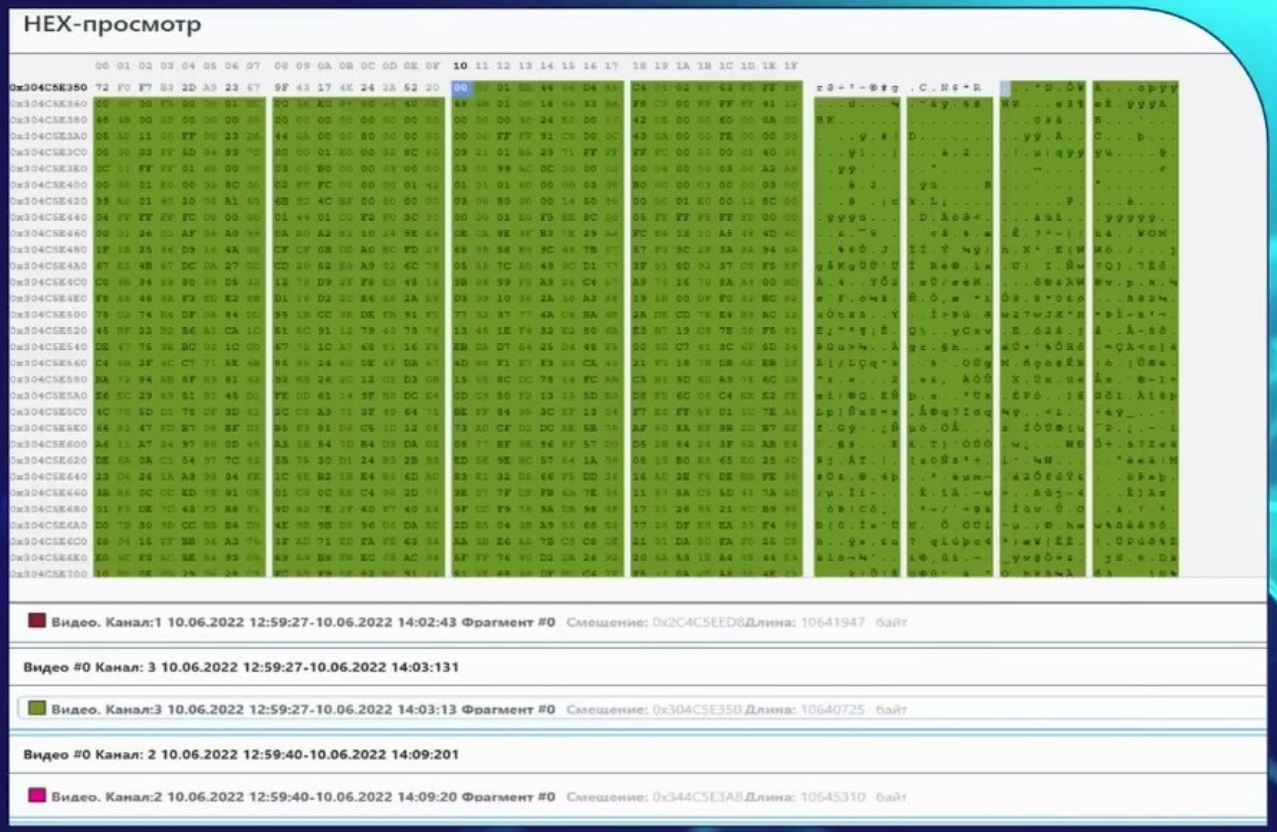
Путь: C:\Users\LAN\Desktop\ASMT USB3.0.bin
Кол-во видеозаписей: 6
В явном виде: 6
Восстановленные: 0

Источник: C:\Users\LAN\Desktop\ASMT USB3.0.bin
Тип файловой системы: HIK
Размер: 120033041920 байт

#	Канал	Статус	Время начала	Время окончания	Длительность	Сектор	Смещение	Размер
1	1	-	10.06.2022 12:59:27	10.06.2022 14:02:43	01:03:16	23225079	216	1064194708 Байт
2	1	-	10.06.2022 14:02:43	10.06.2022 15:05:43	01:03:00	29516535	468	1064721868 Байт
3	2	-	10.06.2022 12:59:40	10.06.2022 14:09:20	01:09:40	27419377	424	1064531000 Байт
4	2	-	10.06.2022 14:09:20	10.06.2022 15:21:39	01:12:19	33710832	332	1064579928 Байт
5	3	-	10.06.2022 12:59:27	10.06.2022 14:03:13	01:03:46	25322225	336	1064072524 Байт
6	3	-	10.06.2022 14:03:13	10.06.2022 15:06:53	01:03:40	31613687	300	1064405448 Байт

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Special-purpose software



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Special-purpose software

What has been done:

- ✓ User interface reworked following the wishes of users who pilot-tested VR-EXPERT.
- ✓ Logging and task execution tools added.
- ✓ Algorithm for auto-detecting the file system type on the object examined optimized.

What has been done:

- ✓ Manual selection of the file system type added.
- ✓ Support for e01 images added.
- ✓ Analysis algorithms for fs-like file systems optimized.
- ✓ Video data analysis module developed using artificial intelligence algorithms.

VR-EXPERT «AI»

Special-purpose software

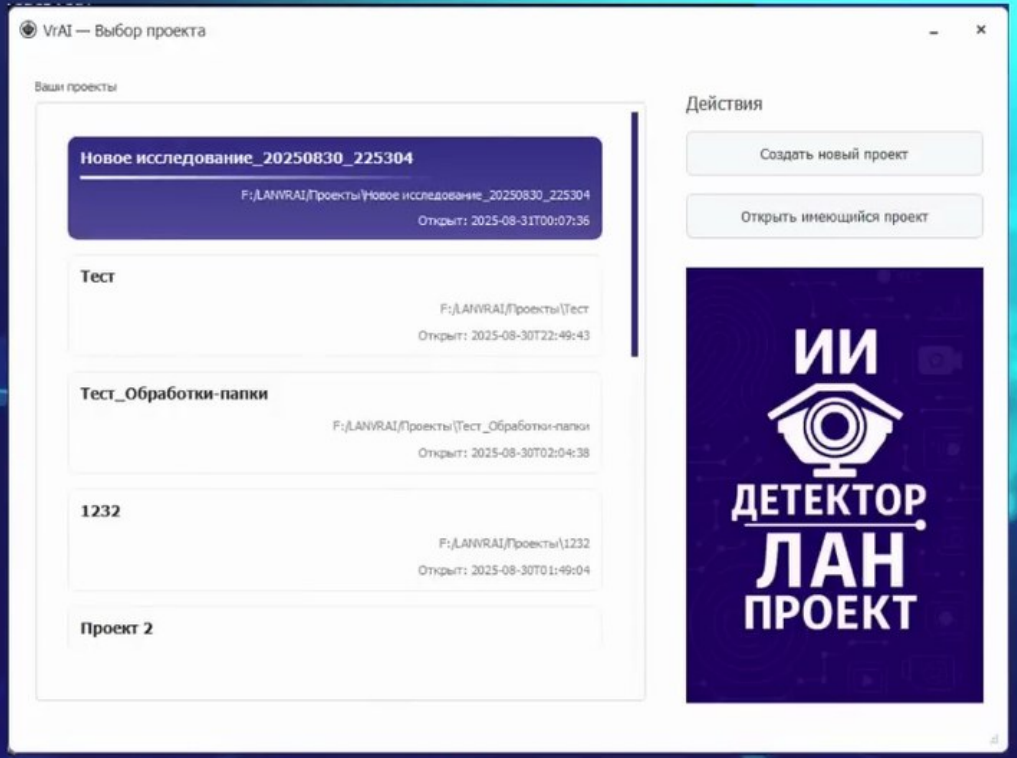
Features:

- ✓ **Project-based system. Never lose examination progress**
- ✓ **Modern design**

High performance

Can be used both inside the "VR-EXPERT" software and on its own to analyze your media files (including extractions made with "MKO-Expert")

- ✓ **SQLite data storage system**

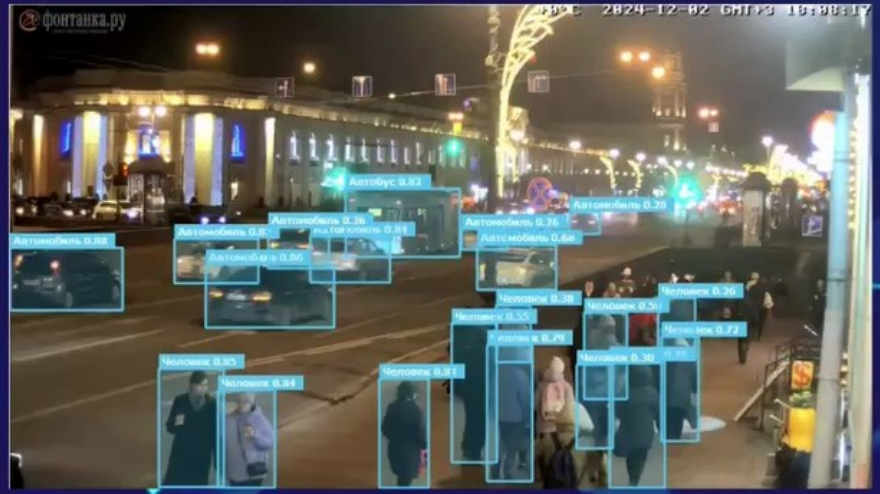


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VR-EXPERT «AI»

Special-purpose software

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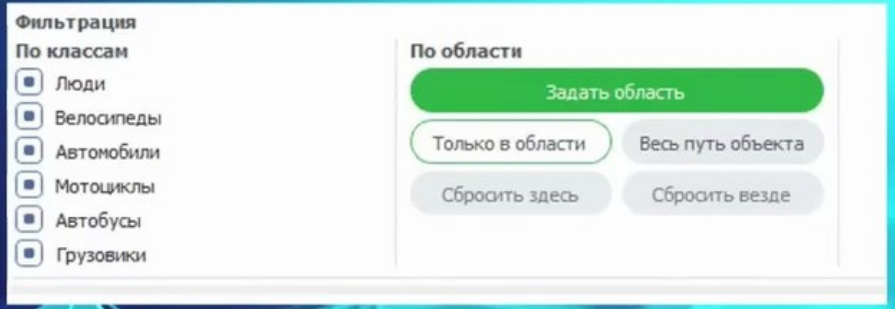


VR-EXPERT «AI»

Special-purpose software

Filtering features:

- ✓ Filtering objects by the required types only
- ✓ Filtering objects in a specified frame area
- ✓ Can show either the frames that fall into the zone of interest or all frames of objects crossing the specified area





VR-EXPERT «AI»

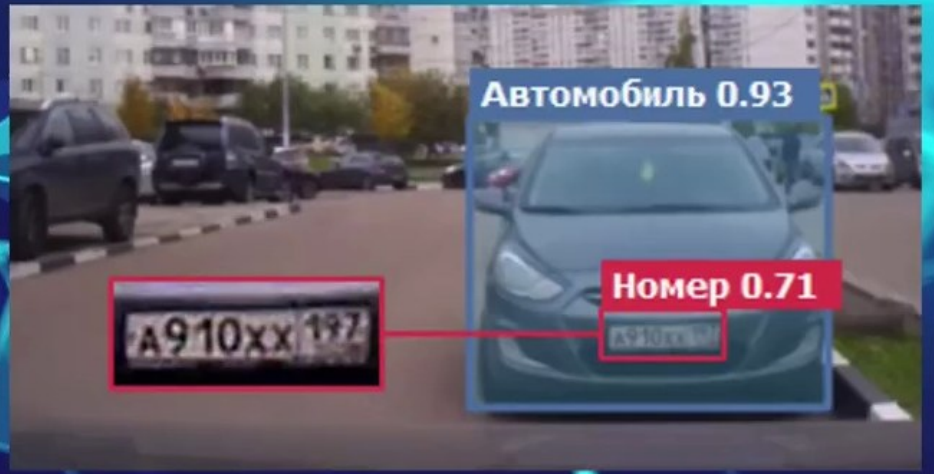
Special-purpose software

License plate handling features:

An extra zoom window for detected Russian license plates can be enabled

- ✓ **Various image parameters of the license plate can be adjusted**



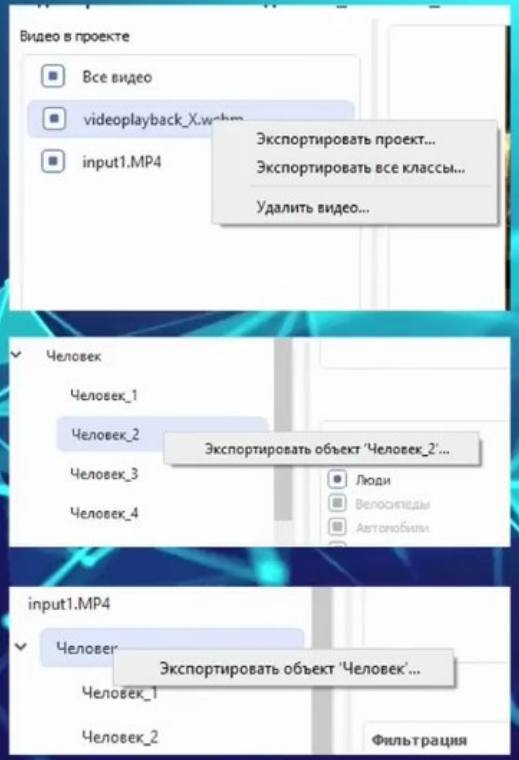


VR-EXPERT «AI»

Special-purpose software

Export features:

- ✓ **Export of detected classes (saving the required object types)**
- ✓ **Export of filtered objects (saving the objects selected by filtering)**
- ✓ **Export of key frames (the required frames can be saved separately)**



VR-EXPERT «AI»

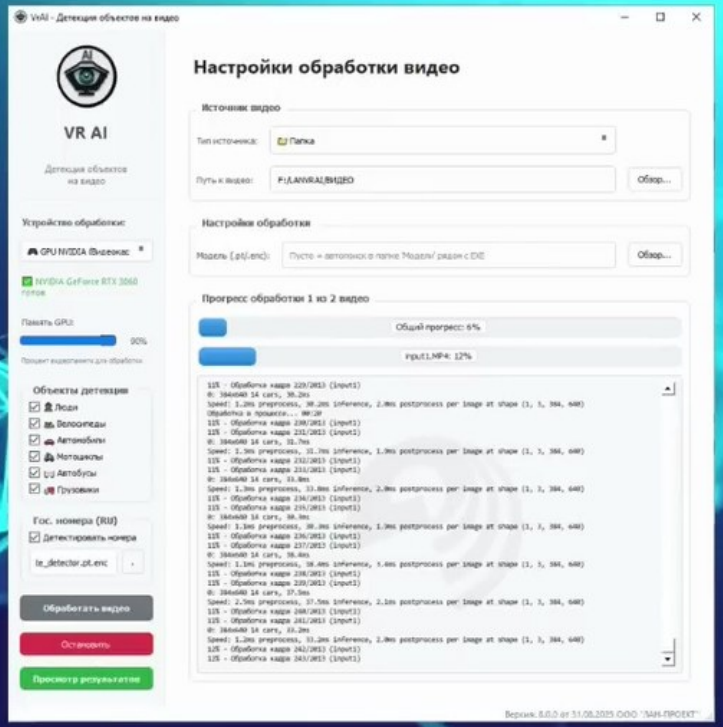
Special-purpose software

Features:

- ✓ Video processing with any modern PyTorch models

Your own recognition models can be used

- ✓ GPU support up to NVIDIA RTX 5th gen
- ✓ Batch video processing
- ✓ The object classes of interest can be selected
- ✓ Russian license plates can be detected



VR-EXPERT «AI»

Special-purpose software

Further development plans:

- ✓ **Training our own models to detect new classes (electric vehicles, weapons, etc.)**
- ✓ **Adding detection of extra object features (car colors, people's clothing, etc.)**
- ✓ **Face search in the project**
- ✓ **And much more!**



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Special-purpose software

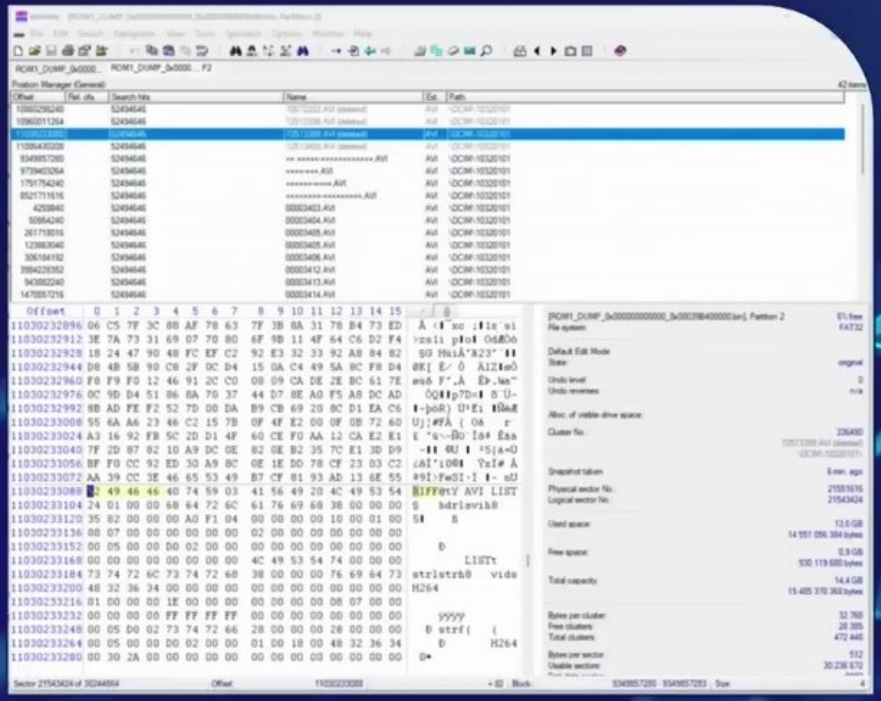
Planned in the near future:

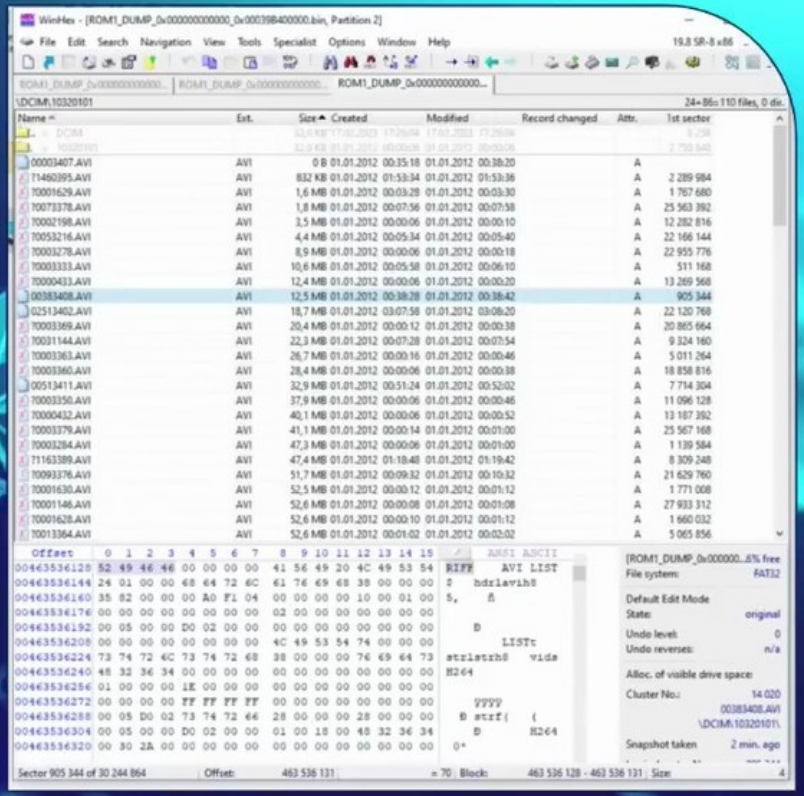
Porting the VR engine and interfaces to a cross-platform system and building full-featured distributions for various Linux-like operating systems, including those certified by FSTEC and the FSB of Russia

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Recovering the last recorded fragment from a DVR

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Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Target focus	Recovery of video and data directly from DVRs	Recovery and deep video analysis from different DVRs with AI support	Recovery and deep video analysis from different DVRs with AI support
Support for extraction from various data sources	Yes	Yes	Yes

VR-EXPERT

Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Support for various video file systems	Yes	Yes	Yes
DVR password bypass	Yes	No	**Yes**
Support for analyzing proprietary formats	Yes	No explicit support for proprietary DVR formats	Yes

VR-EXPERT

Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Advanced AI features (object recognition, object categorization,)	No	Yes	Yes
Recovery of deleted video files	Yes	Yes	Yes

VR-EXPERT

Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Recovery and reconstruction of deleted frames	Yes	Yes	Yes
Recovery of time from the metadata file	Yes	Yes	Yes

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Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Video storyboarding	No	No	Yes
HEX viewer	No	No	**Yes**
Multi-DVR support and simultaneous work with multiple disks	Yes	In development	In development

VR-EXPERT

Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Detailed report generation	Yes	Yes	Yes
Russian-language interface and support	No	No	Yes

VR-EXPERT

Comparison with foreign counterparts

Name	DVR Examiner	MD-Video	VR-EXPERT
Listed in the Russian software registry	No	No	Yes
System requirements	High: powerful processor, GPU, lots of RAM	High: powerful processor, GPU, lots of RAM	High: powerful processor, GPU, lots of RAM

Hardware-software kit for extracting and analyzing data from video recorders

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Hardware:

- ✓ High-performance workstation based on a desktop PC or a laptop
- ✓ A set of disk imagers and write blockers
- ✓ A set of adapters, converters and data cables
- ✓ A universal forensic card reader with write protection
- ✓ A set of storage media: HDD, SSD, network storage

USB drive, SD card

- ✓ A toolkit for disassembling video recorders

Software:

- ✓ VR-Expert software (made by LAN PROJECT)

PC-3000 Portable + SSD + RAID and PC-3000 Flash (optional)

Can also be installed:

- ✓ Foreign forensic software:
- ✓ SalvationData VIP or MD-Video (Hancom - GMD Soft)



Training courses for working with the kit

- **Staff of the forensic equipment and special software department, with real professional experience in computer forensic examinations and trained by the equipment manufacturers and software developers, are ready to run a free introductory and advanced training on the kits supplied**
- **The training format depends on the customer's operational duties: individual (1-3 people) or group (up to 8 people).**
- **Training is held at the lab in the LAN PROJECT office: Moscow, Marshala Zhukova Ave. 74, bldg. 1.**

On-site training at the customer's premises is possible if needed.



THANK YOU FOR YOUR ATTENTION!

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For questions and advice on the software you can contact the bot

VR-EXPERT

We also invite you to the LAN PROJECT chat (advice, technical support and the latest news on the software products, etc.)

The LAN PROJECT catalogue shows the products supplied and lets you contact the specialists directly (contact details are on the last page of the catalogue)