AxxonSoft, Inc.

Face Intellect

Software Package

User Guide

Version 1.0.2

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ИНТЕЛЛЕКТ. ТЕХНОЛОГИИ. ВИДЕО.

Video Surveillance and Security Solutions

Contents

1 List of terms

Vector is a mathematical representation of face that is created while its recognition in video frame.

Population is a set of faces in the database where there is a search.

2 Introduction

2.1 General information

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2.2 Purpose of the guide

Face Intellect software package: User Guide contains the information that is necessary for setting up and subsequent operation of *Face Intellect* software package.

The document structure allows user to skim the information about *Face Intellect* software package and choose, according to the level of training, interesting topics for detailed study. Chapters in the manual – of information or reference content - have their own internal structure.

The Introduction chapter is for general examination of *Face Intellect* software package functionality.

Requirements for computer on which *Face Intellect* software package is brought about are given in *Hardware-software platform requirements* chapter.

Requirements for personnel that work with *Face Intellect* software package are given in *Personnel skills requirements* chapter.

The structure of *Face Intellect* software package and functionality of its components is given in *General description of Face Intellect software package* chapter.

Description of general hardware-software components *of Face Intellect* software package is given in *General hardware-software components of Face Intellect software package* chapter.

Recommendations that are necessary for user-administrator for installation, repairing and removing of *Face Intellect* software package are given in details in *Installation of Face-Intellect software package components chapter.*

Information on setting of *Face Intellect* software package is given in *Face-Intellect software package configuration and setting its components chapter.*

Description of working with *Face Intellect* software package is given in *Working with Face-Intellect software package chapter.*

2.3 Purpose of *Face Intellect* software package

Face Intellect software package is for recognition of faces in video camera field of vision and search of moments of face appearance in protected zone using face photograph.

Face Intellect software package has the following functionality:

1. man face displaying in the video frame;
2. saving of captured faces into database;
3. search for faces in the database using face photograph.

3 Hardware-software platform requirements

3.1 Requirements for backbone computers

Requirements for backbone computers *of Face Intellect* software package are the same as for *Intellect* software package (see *Intellect software package: Administrator's guide*).

3.2 Requirements for OS

Face Intellect software package is compatible with 32-bits and 64-bits licensed versions of Microsoft Windows OS (Table 3.2-1). File system is NTFS.

Table 3.2-1 Requirements for OS

Windows version	Supported architecture	Supported edition	Note
Windows XP SP2	x64	Windows XP Professional	OS edition that allows to use all performed product functions.
Windows XP SP3	x86	Windows XP Home Edition	There are restrictions that are imposed by OS edition (1 physical processor, 5 connections by SMB) – see http://www.microsoft.com
		Windows XP Professional	OS edition that allows to use all performed product functions.
		Windows XP Tablet PC Edition	OS edition that allows to use all performed product functions.
		Windows XP Media Center Edition	OS edition that allows to use all performed product functions.
Windows Server 2003 R2 SP2	x86, x64	Standard Edition	OS edition that allows to use all performed product functions.
		Enterprise Edition	OS edition that allows to use all performed product functions.
		Datacenter Edition	OS edition that allows to use all performed product functions.
		Web Edition (no x64 edition)	There are restrictions that are imposed by OS edition (2 Gb of RAM, 2 physical processors) – see http://www.microsoft.com
Windows Vista SP2	x86, x64	Home Basic	There are restrictions that are imposed by OS edition (1 physical processor, 5 connections by SMB) – see http://www.microsoft.com
		Home Premium	There are restrictions that are imposed by OS edition (1 physical processor) – see http://www.microsoft.com
		Business	OS edition that allows to use all performed product functions.
		Enterprise	OS edition that allows to use all performed product functions.
		Ultimate	OS edition that allows to use all performed product functions.

Windows version	Supported architecture	Supported edition	Note	
Windows Server 2008 SP2	x86, x64	Enterprise	OS edition that allows to use all performed product functions.	Full Installation is supported.
		Datacenter	OS edition that allows to use all performed product functions.	Server Core Installation is not supported.
		Standard	OS edition that allows to use all performed product functions.	
		Web	OS edition that allows to use all performed product functions.	
		HPC	OS edition that allows to use all performed product functions.	
Windows Server 2008 R2 SP1	x86, x64	Enterprise	OS edition that allows to use all performed product functions.	Full Installation is supported.
		Datacenter	OS edition that allows to use all performed product functions.	Server Core Installation is not supported.
		Standard	OS edition that allows to use all performed product functions.	
		Web	OS edition that allows to use all performed product functions.	
		HPC	OS edition that allows to use all performed product functions.	
Windows 7 SP1	x86, x64	Starter (no x64 edition)	There are restrictions that are imposed by OS edition (2Gb of RAM, 1 physical processor, 1 monitor) – see http://www.microsoft.com.	
		Home Basic	There are restrictions that are imposed by OS edition (1 physical processor) - see http://www.microsoft.com.	
		Home Premium	There are restrictions that are imposed by OS edition (1 physical processor) - see http://www.microsoft.com.	
		Professional	OS edition that allows to use all performed product functions.	
		Enterprise	OS edition that allows to use all performed product functions.	
		Ultimate	OS edition that allows to use all performed product functions.	

Attention! To ensure correct and stable operation of Face Intellect software package it's necessary to turn on a swap file in the operating system (size at system option).

3.3 Requirements for video cameras

To ensure correct operation of *Face Intellect* software package it's necessary to use video cameras of high resolution. Video cameras that are used for operation of Face Intellect software package should meet the following conditions:

1. video camera resolution is more than 480 TV lines;

2. surveillance camera must support coloured video.

The rest of requirements for video cameras of *Face Intellect* software package are the same as for *Intellect* software package (see *Intellect software package: Administrator's guide*).

3.4 Requirements for Web interface realization in *Face Intellect* software package

3.4.1 «Report System»

For working with *Face Intellect* software package it's necessary to install *Report System* in в Web interface.

The following components provide *Report System* realization:

1. Web-server – computer that is supposed to be used for location of subsystem site.
2. Clients – computers on which subsystem Web interface is supposed to be displayed.

It's necessary to make sure that the following program products are installed on computer before *Report System* installation:

1. Microsoft.NET Framework 3.5 SP1 platform;
2. Microsoft Internet Information Services (IIS) set of servers.

If these components are not installed it's necessary to install them.

Note. Microsoft.NET Framework 3.5 SP1 platform is accessible for downloading on http://www.microsoft.com/. IIS set of servers is distributed with Windows operation systems, being their optional component.

If Clients' connection to Web server is supposed to be through network it's necessary to make sure that Web server has static IP address. More over it should be accessible in the Internet if it's meant in security system project.

3.4.2 Client of Face Intellect software package

3.4.2.1 General requirements

For proper displaying on Web interface Client of *Face Intellect* software package the following conditions are necessary:

1. *Internet Explorer* browser of 8.0 version and later.
2. If it is supposed to view video archive of event from the report:
   2.1. Permission to use ActiveX components in browser.
   2.2. ActiveX *CamMonitor set component*.

Note. CamMonitor component is installed automatically with Intellect software package. If Intellect software package is not installed on the Client it's necessary to install this component separately.

3.4.2.2 Setting security parameters in Internet Explorer browser

On default the use of ActiveX components is forbidden in *Internet Explorer*, that is why it's necessary to set extra security parameters.

To do this do the following:

1. Execute **Tools** –> **Internet options** command in main menu of *Internet Explorer* browser (Figure 3.4-1).

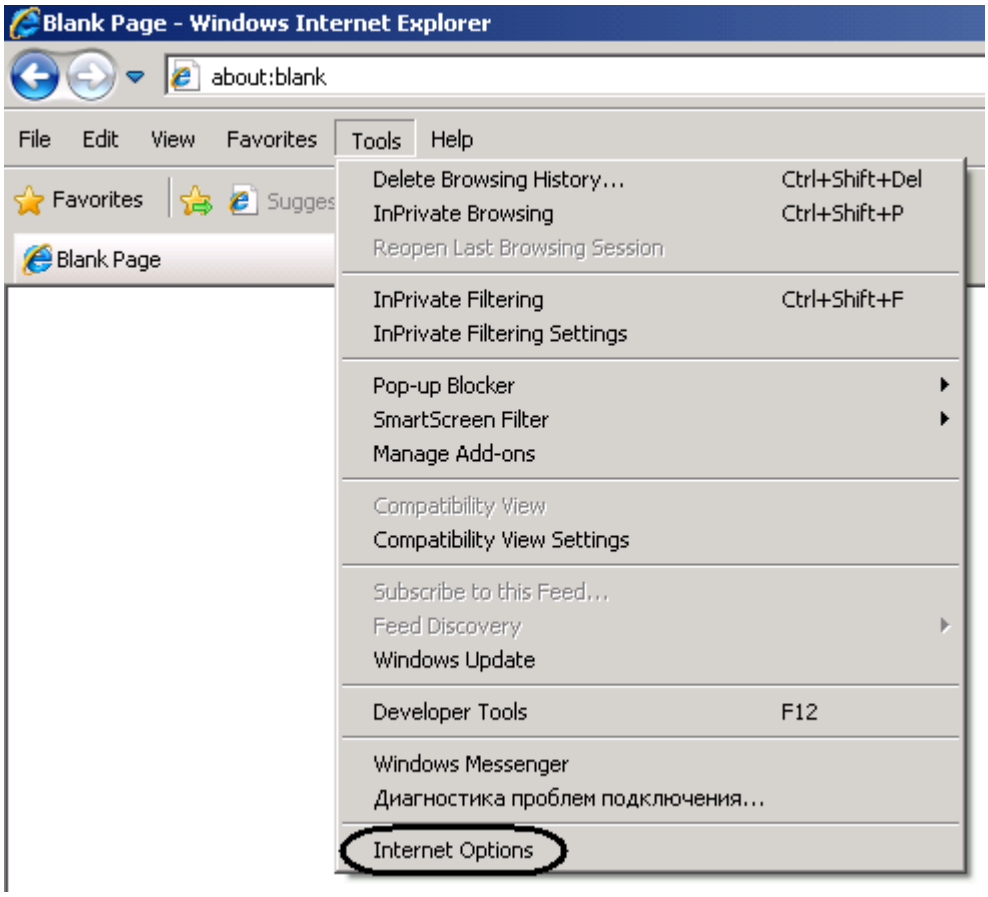

Figure 3.4-1 Internet options

2. In **Internet options** dialog box go to **Security** tab (Figure 3.4-2).

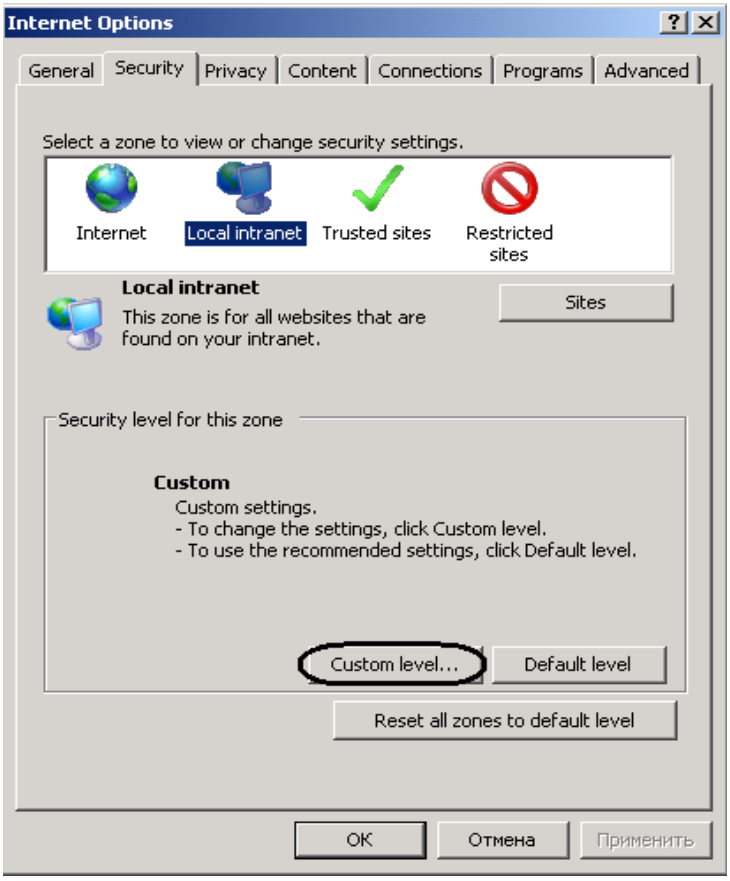

Figure 3.4-2 Selecting the area to change the security settings

3. In selected zone of dialog box (selected on default) click **Custom level** (Figure 3.4-2).
4. In **Security settings** dialog box execute the following settings (Figure 3.4-3):
    4.1. Set **Script ActiveX controls marked safe for scripting** checkbox in **ON** position**.**
    4.2. Set **Initialize and script ActiveX controls not marked as safe** checkbox in **ON** position.

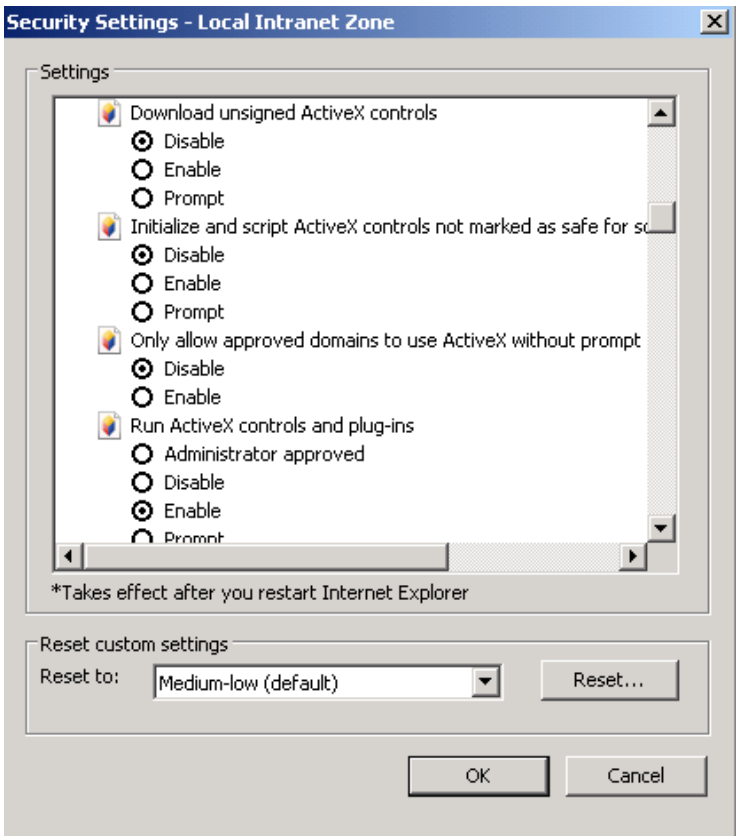

Figure 3.4-3 Security settings of browser

5. Click **OK** in **Security settings**, and then in **Internet options.**
6. Restart browser.

Setting security parameters in Internet Explorer browser is completed.

3.4.2.3 Adding IP addresses of face search servers into trusted zone of Internet Explorer browser

To add IP addresses of face search servers into trusted zone of browser do the following:

1. Execute **Tools** –> **Internet options** command in main menu of *Internet Explorer* browser (Figure 3.4-4).

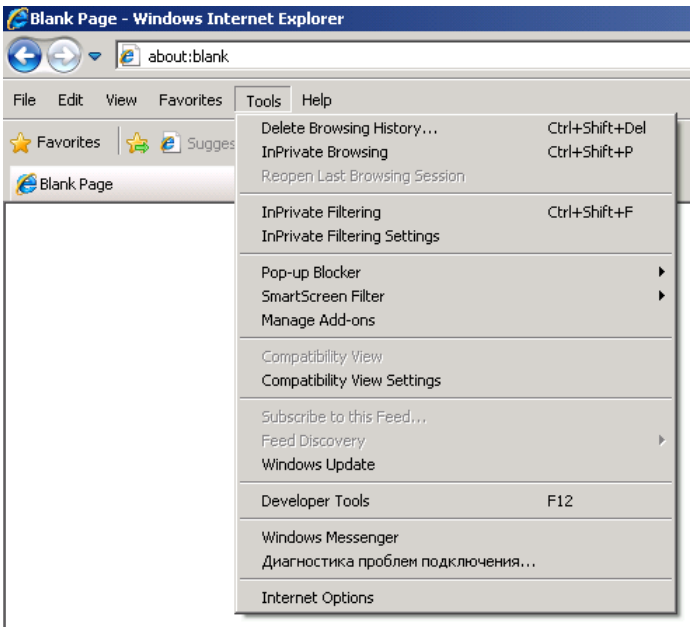

Figure 3.4-4 Internet options

2. In **Internet options** dialog box go to **Security** tab (Figure 3.4-5).

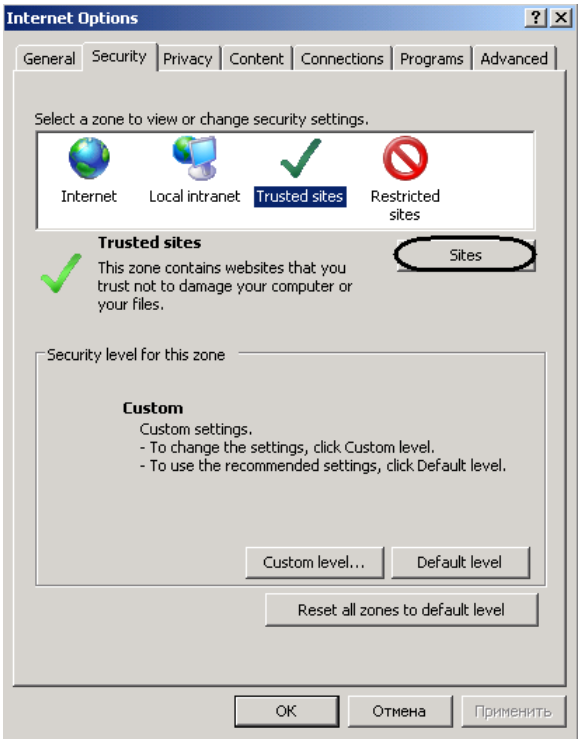

Figure 3.4-5 Trusted sites

3. Select **Trusted sites** zone and click **Sites** (Figure 3.4-6)

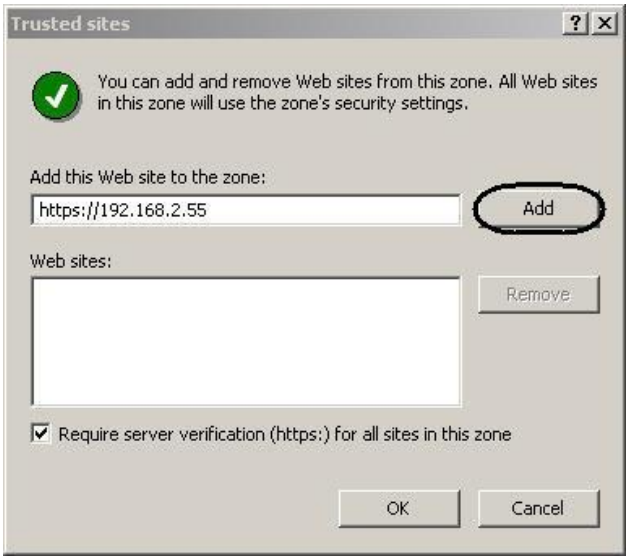

Figure 3.4-6 Adding IP addresses of face search servers into trusted zone

4. Write IP address of face search server in stated format and click **Add** (Figure 3.4-6).
5. Click **OK** in **Trusted sites** window and then in **Internet options** window.
6. Restart browser.

Adding IP addresses of face search servers into trusted zone of browser is completed.

4 Personnel skills requirements

The following roles are determined for *Face Intellect* software package operation:

1. software package administrator;
2. software package operator.

In particular case one man can execute functions of both of them. The main functions of administrator are:

1. modernization, setting and control over hardware capacity to work;
2. installation, modernization, setting and control over system and basic software capacity to work;
3. installation, setting and control over application software.

Administrator should have a high level of proficiency and skills to install, set and control software and hardware that are used in software package. Software package structure allows to control all accessible functional to one administrator and it allows to part administrator responsibility among several users. The main functions of operator are:

1. working with graphical interface of software package;
2. optimization of PC operation for solving assigned task with the use of functional that is performed in software package;

System operator should be experienced in operating PC based on Microsoft Windows OS at the level of expert user and easily do the basic operations.

5 General description of Face Intellect software package

5.1 Structure of Face Intellect software package

Face Intellect software package consists of the following components:

1. Base version of *Intellect* software package.
2. Face recognition module.
3. *Report System* report subsystem.

Base version of *Intellect* software package is a program platform for face recognition module installation. The functions of face recognition module are:

1. **Face capture camera** functional module activation (installed with base version of *Intellect* software package);
2. Face recognition.

Report System Web-reports subsystem is a site located in the local area network or Internet depending on requirements to security system that is realized in *Face Intellect* software package.

5.2 Interaction of Face Intellect software package components

Operation of Face recognition module is provided by the following interaction of *Face Intellect* software package components:

1. **Face capture camera** system object;
2. **Face search server** system object;
3. **Web access to face recognition** system object;
4. **Search by picture** interface program module.

Interaction of *Face Intellect* software package components is for realization of two main functions: face detection in the video frame and search for faces in the video archive using face photograph.

For face detection in the video frame **Face capture camera** module is used. It is installed together with *Intellect* software package components. Every captured face gets into protocol that is kept in the internal database of *Face Intellect* software package – **Face Recongition**.

Face search server records captured faces into the database and gives the opportunity to search for faces using the photo.

The access to face recognition modules through the Web interface of *Face Intellect* software package is provided with the help of **Web access to face recognition** object.

Search by picture program module allows to search faces by photo in the video archive in the Web interface of *Face Intellect* software package.

5.3 Generalized structure of video surveillance system on basis of *Face Intellect* software package

Generalized schemes of digital video surveillance system on basis of *Face Intellect* software package are given on Figure 5.3-1, Figure 5.3-2.

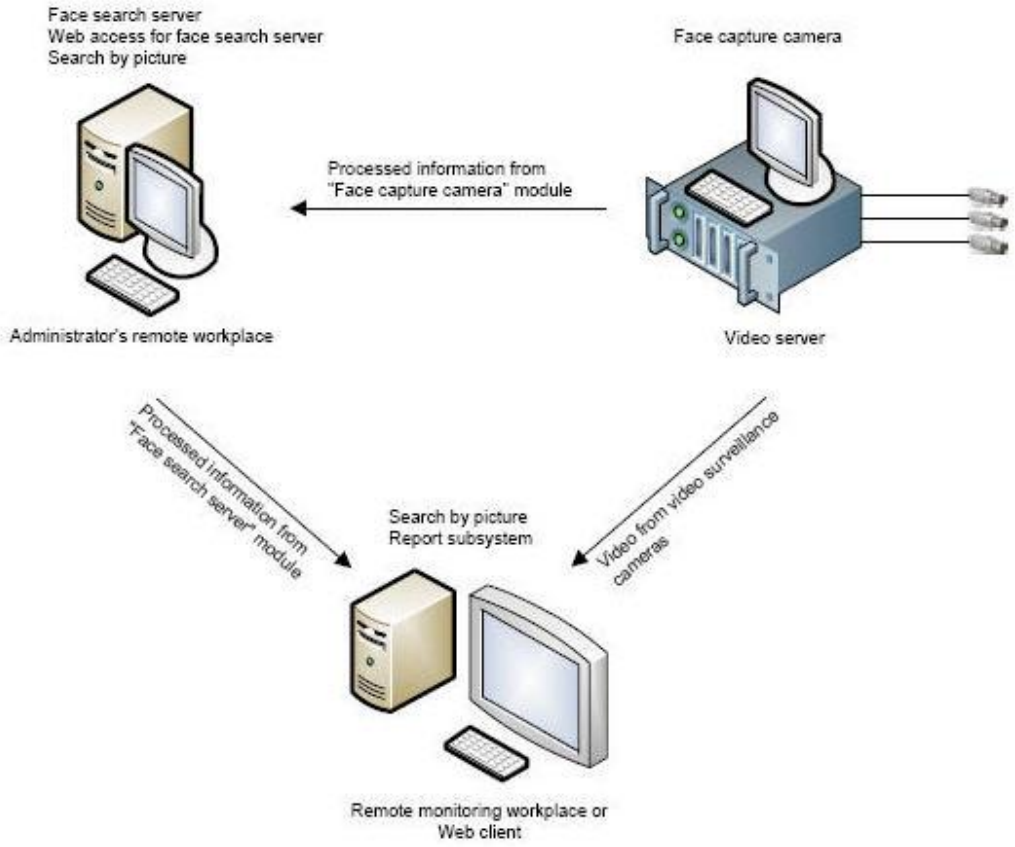

Figure 5.3-1 Default configuration of Face Intellect software package in distributed network

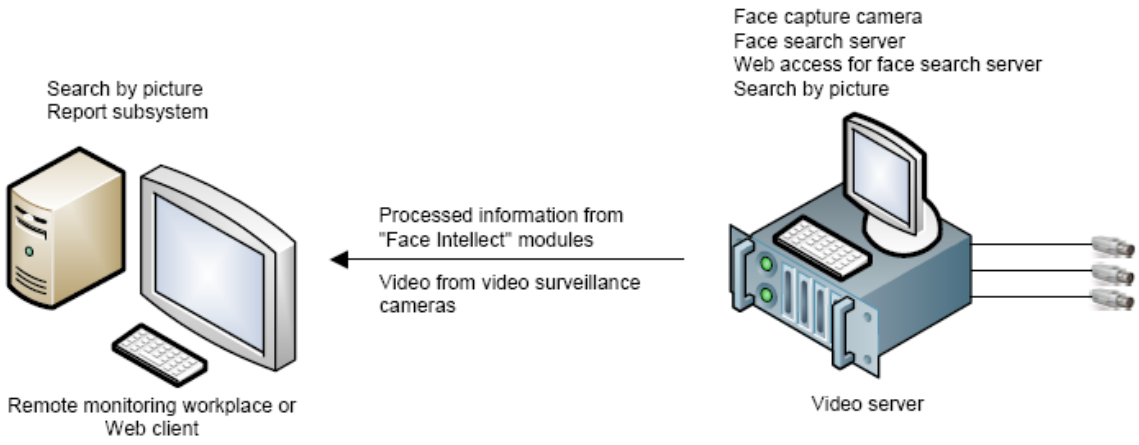

Figure 5.3-2 Default configuration of Face Intellect software package in distributed network

5.4 Face search modules

3 exterior face search modules are integrated into *Face Intellect* software package:

1. Cognitec 5.0 (vendor - Cognitec).
2. Cognitec 8.4 (vendor - Cognitec).
3. VeriLook (vendor - Neurotechnology).

In *Face Intellect* software package there is an Emulator module that is meant for emulation of face recognition process.

5.5 "Search by picture" program module functionality

Search by picture program module allows to search faces by photo in the video archive in the Web interface of *Face Intellect* software package.

The following variants of face search in the video archive by photo are available:

1. Search by photo captured from video camera.
2. Search by photo downloaded from the file.

Search by picture program module allows to export search results to report file in **pdf** format.

5.6 "Face capture camera" program module functionality

For face detection in the video frame **Face capture camera** program module is used.

5.7 "Face search server" program module functionality

The functions of **Face search server** program module are:

1. Indexation of captured faces;
2. Storage of captured faces in database;
3. Ability to search faces in database.

5.8 "Web access to face search" program module functionality

is provided with the help of **Web access to face search** program module is for giving the access to face search modules through the Web interface of *Face Intellect* software package.

6 General hardware-software components of Face Intellect software package

6.1 Software

6.1.1 Operation system

Face Intellect software package operates under Microsoft Windows operation systems (see *Requirements for OS*).

6.1.2 Software cores

Face Intellect software package is used in the following realizations (installation variants):

1. On the basis of full-featured *Intellect* software core (executable **intellect.exe** program module corresponds to this realization). Full-featured software core provides Server and Client functioning.
2. Using software core with minimized functional that provides Client functioning (executable **slave.exe** program module corresponds to this realization).

Client software does not provide for activities of system administration functions (creation, removal, setting up the objects in system, users' registration, administration of their rights and authority) as well as local database support (remote database that belongs to Server and is operated by **intellect.exe** core is used on Client).

Central software component of the system is a full-featured software core - executable **intellect.exe** module. Functional software modules (that are the software base of functional subsystems) interact with system core.

The integration of distributed digital video surveillance system is provided through information exchange between software cores.

6.1.3 Functional software modules

Functional software modules realize direct interaction with hardware and are a source of information about condition of objects under control. Software system core processes information that comes from different software modules and it provides their integration.

List of available functional software modules depends on configuration of software supply. Executive files that correspond to functional subsystems are started automatically by the core according to system configuration. For example, in case when **Face detector server** object is created the **face_recognition_proxy.run** executive file is run automatically after confirmation of giving corresponding settings.

6.1.4 Internal Server database

Internal Server database contains the following information:

1. System settings (about objects created in the system, their properties, users and authority, another supplemental information);
2. About events registered in system for given period (event protocols).

Internal Server database is in MS SQL format. List of MS SQL Server versions that are supported by *Face Intellect* software package is given in Table 6.1-1.

Table 6.1-1 MS SQL Server versions

MS SQL Server version	Supported edition
MS SQL Server 2008 R2 - see http://www.microsoft.com	Enterprise Edition (There are restrictions – maximal processor quantity and storage capacity supported by OS)
	Developer Edition (There are restrictions – maximal processor quantity and storage capacity supported by OS)
	Standard Edition (There are restrictions – 4 supported processors; maximal storage capacity supported by OS)
	Express Edition (There are restrictions – 1 supported processor, maximal database size– 10 Gb)
	Web Edition (There are restrictions – 4 supported processors; maximal storage capacity supported by OS)
	Workgroup Edition (There are restrictions – 2 supported processors; maximal storage capacity supported by OS (32-bit version), или объем памяти – 4 Gb (64-bit version))

Note 1. On default a free MS SQL Server 2008 R2 Express version is installed in Intellect software package. To get information about features and restrictions of free version see http://www.microsoft.com.

*Note 2. If there is a mistake while Microsoft SQL Server 2008 R2 Express installation it's necessary to create the **Repair.bat** file following instructions that are given on «http://support.microsoft.com/kb/958043».*

Attention! Stable operation of Intellect software package is not guaranteed if there is an exceeding of maximal database storage capacity (using MS SQL Server editions with storage capacity restriction).

Information about objects and setting parameters of digital video surveillance system, event protocols can be copied from Server database to databases of other system Servers. The connection between full-featured software cores of *Intellect* is performed through TCP/IP communications (in case if data exchange is foreseen among software cores defined while system).

Information about system objects and their settings is stored in the database of Server to which given objects belong to. Replication is done automatically with every data changing, core starting and connection restoring.

Replication is used for creation common event space in distributed digital video surveillance system Replication process is hidden for user.

6.1.5 Internal database of Face Intellect software package

Internal database of *Face Intellect* software package (**FaceRecongition**) contains the following information:

1. Information about faces captured by cameras;
2. History of search by photo queries.

6.1.6 Software support of workplaces

Digital video surveillance system that is created on the basis of *Face Intellect* software package can consist of workstations that are created on the basis of *Intellect* software package:

1. Operator's remote workplace (RW);

2. Administrator's remote workplace (ARM);
3. Video server performing the functional of Operator's and Administrator's workplaces.

6.1.7 Face recognition modules activation in Face Intellect software package

Activation of face recognition modules functionality is performed by using a key file.

Substitution of present key file for a new one initializes the renewal of software functional in following starting of the system.

6.1.7.1 «Cognitec 5.0» face recognition module activation

To activate Cognitec 5.0 module do the following:

1. Create a query file:
    1.1 For Windows XP, Windows Vista and Windows 7 (**User Account Control** component is switched off in Windows Vista and Windows 7) it's necessary to start **hwkey.bat** file located in *<Face Intellect installation folder >\Modules\FaceRecognition\Cognitec5\bin* folder.
    1.2 For Windows Vista and Windows 7 (**User Account Control** component is switched on) it's necessary to start a command line with administrator rights, go to *<Face Intellect installation folder>\Modules\FaceRecognition\Cognitec5\bin* folder and accomplish **hwkey.bat**.

    Cognitec5lic.txt file, that contains configuration data of this computer, will be generated.

Attention! hwkey.bat file should be started on computer on which face recognition module will be used.

2. Send **Cognitec5lic.txt** file to module producer.
3. Get **activationkey.cfg** file from module producer.
4. Copy **activationkey.cfg** file to *< Face Intellect installation folder>\Modules\FaceRecognition\Cognitec5\bin* folder.
5. Rename **activationkey.cfg** file to **Cognitec5License.cfg** file.
6. Run **CognitecLicenseUtil.exe** file located in *< Face Intellect installation folder>\Modules\FaceRecognition* folder.

Cognitec 5.0 face recognition module activation is completed.

6.1.7.2 «Cognitec 8.4» face recognition module activation

To activate Cognitec 8.4 face recognition module do the following:

1. Create a query file:
    1.1 For Windows XP, Windows Vista and Windows 7 (**User Account Control** component is switched off in Windows Vista and Windows 7) it's necessary to start **hwkey.bat** file located in *< Face Intellect installation folder >\Modules\FaceRecognition\Cognitec8\bin* folder.
    1.2 For Windows Vista and Windows 7 (**User Account Control** component is switched on) it's necessary to start a command line with administrator rights, go to *<Face Intellect installation folder>\Modules\FaceRecognition\Cognitec8\bin* folder and accomplish **hwkey.bat**.

Cognitec8lic.txt file, that contains configuration data of this computer, will be generated.

Attention! hwkey.bat file should be started on computer on which face recognition module will be used.

2. Send **Cognitec8lic.txt** file to module producer.
3. Get **activationkey.cfg** file from module producer.
4. Copy **activationkey.cfg** file to *<Face Intellect installation folder>\Modules\FaceRecognition\Cognitec8\bin* folder.
5. Rename **activationkey.cfg** file to **Cognitec8License.cfg** file.
6. Run **CognitecLicenseUtil.exe** file located in *< Face Intellect installation folder>\Modules\FaceRecognition* folder.

Cognitec 8.4 face recognition module activation is completed.

6.1.7.3 «VeriLook» face recognition module activation

To activate VeriLook face recognition module do the following:

1. Run **ActivationWizardDotNet.exe** file located in *<Face Intellect installation folder>\Modules\FaceRecognition\FacePlugins\VeriLook4.0\Activation* folder.

   VeriLook face recognition module activation utility is open (Figure 6.1-1).

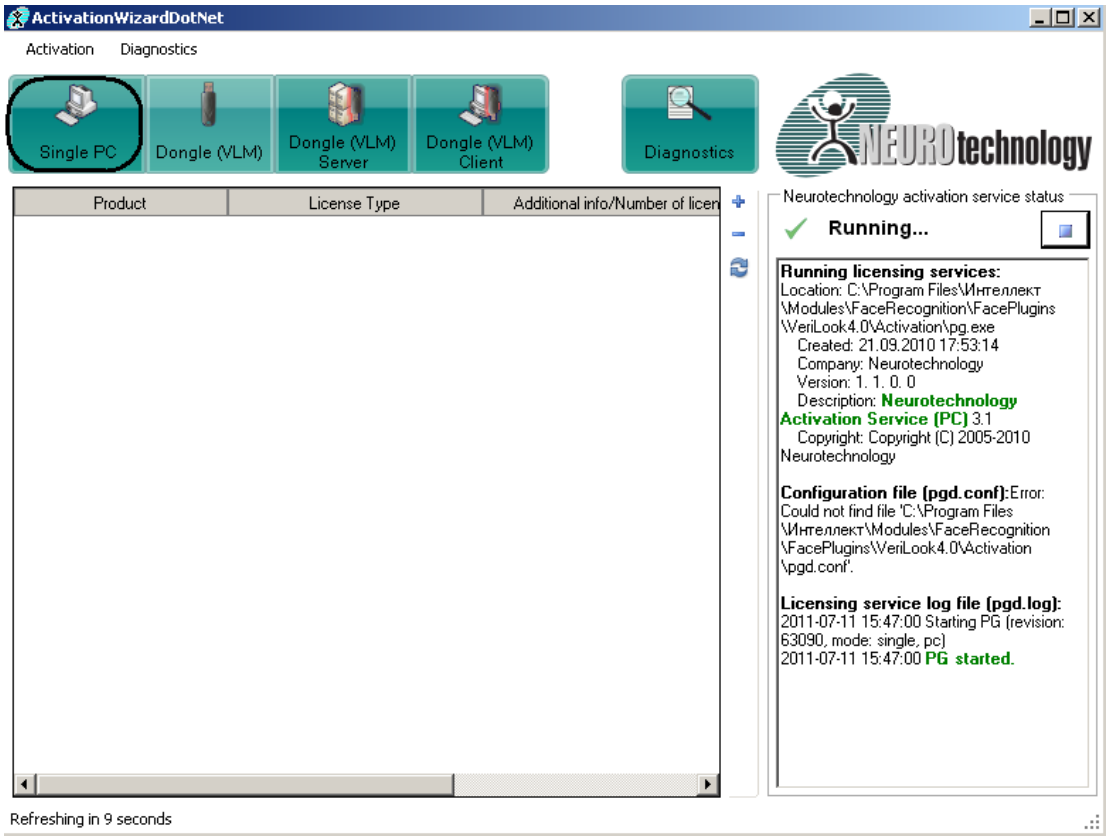

Figure 6.1-1 VeriLook face recognition module activation utility

2. Go to **Single PC** tab (Figure 6.1-1).
   Single PC license activation utility is run (Figure 6.1-2).

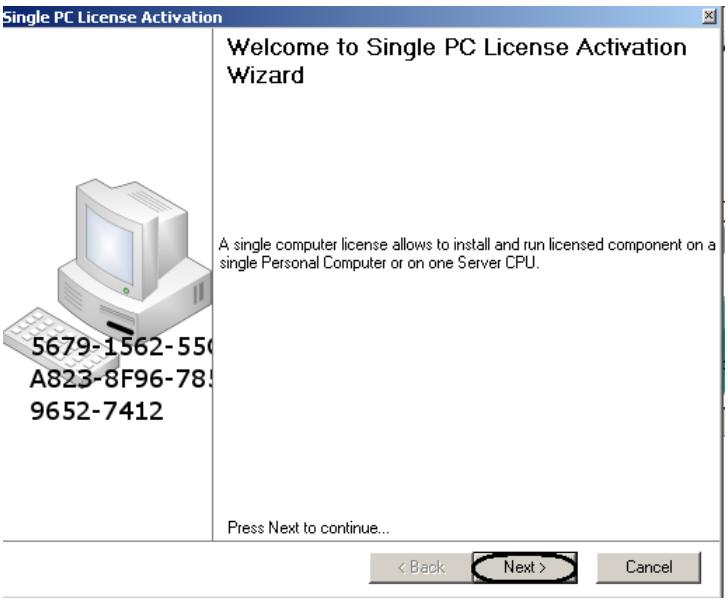

Figure 6.1-2 Single PC license activation utility

3. Click **Next** (Figure 6.1-2).
   Single PC license activation window is open (Figure 6.1-3).

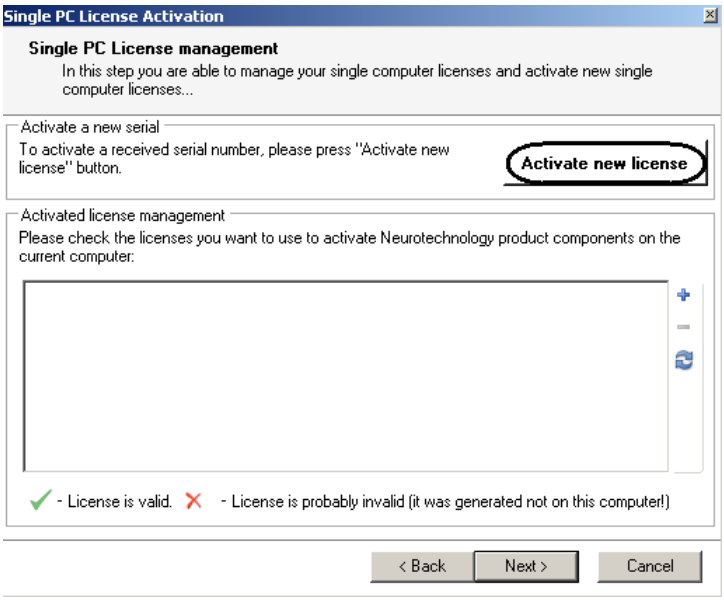

Figure 6.1-3 Single PC license activation window

4. Click **Activate new license** (Figure 6.1-3).
   Activate a new license window is open (Figure 6.1-4).

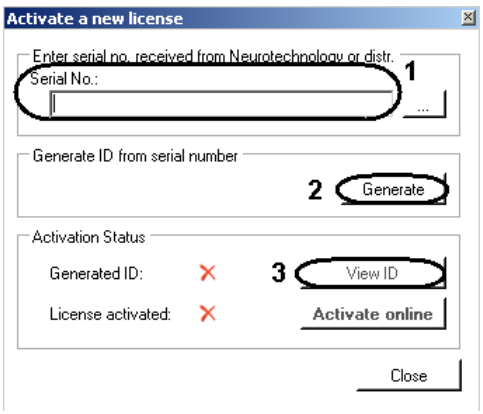

Figure 6.1-4 Activate a new license window

5. In **Serial No** field set the serial number received from the producer (Figure 6.1-4, **1**).
6. Generate HID-code by clicking **Generate** (Figure 6.1-4, **2**).
7. Click **View ID** (Figure 6.1-4, **2**).

Generated hardware ID window is open (Figure 6.1-5).

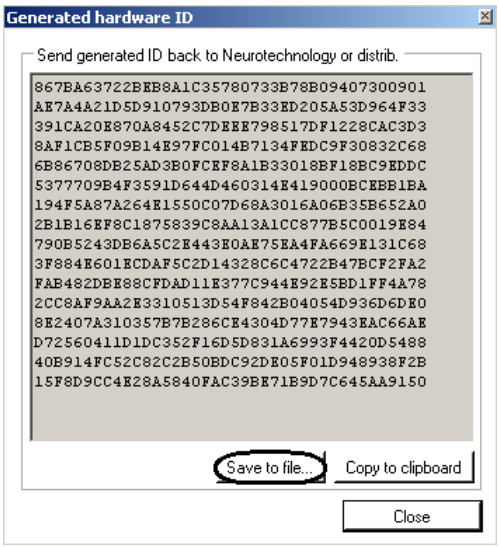

Figure 6.1-5 Generated hardware ID window

8. Click **Save to file** and set the file for saving the configuration data (Figure 6.1-5).
9. Go to producer's site on http://www.neurotechnology.com/cgi-bin/nla.cgi (Figure 6.1-6).

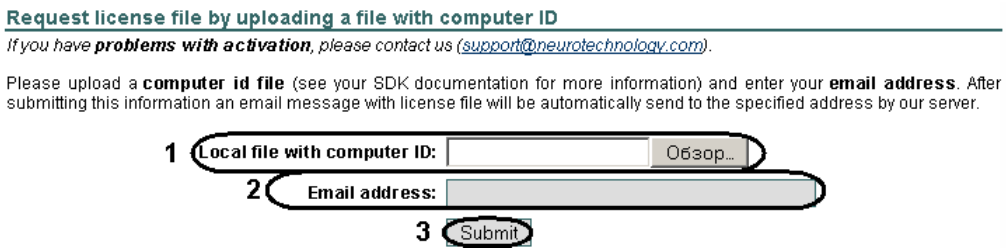

Figure 6.1-6 Producer's site

10. It's necessary to set the path to the file with configuration data in **Local file with computer ID** field (Figure 6.1-6, **1**).
11. Set your email address where the key file will come to in **Email address** field (Figure 6.1-6, **2**).

12. Click **Submit** (Figure 6.1-6, **3**).
13. In the window of new license activation click + and select the key file that has come to email (Figure 6.1-7).

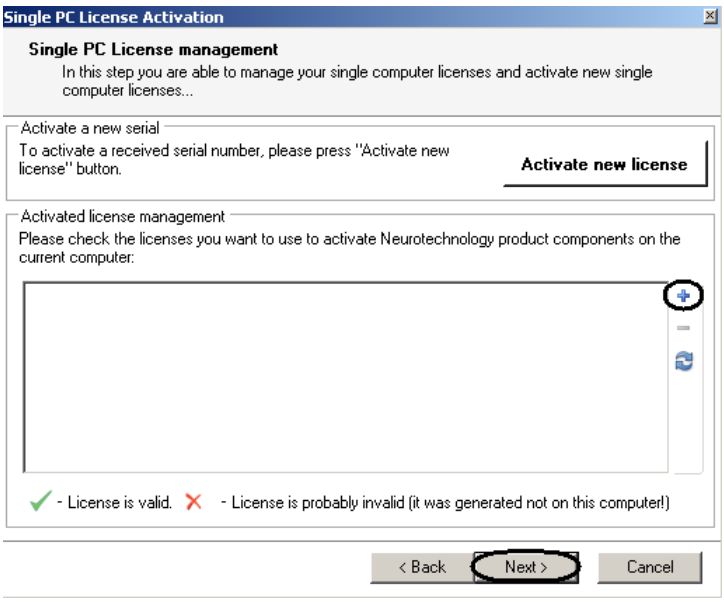

Figure 6.1-7 Adding the activation file

Attention! Producer sends two key files - VLExtractor and VLMatcher – to your email. It's necessary to activate each file.

14. Click **Next** (Figure 6.1-7).
    Preparedness for activation window is open (Figure 6.1-8).

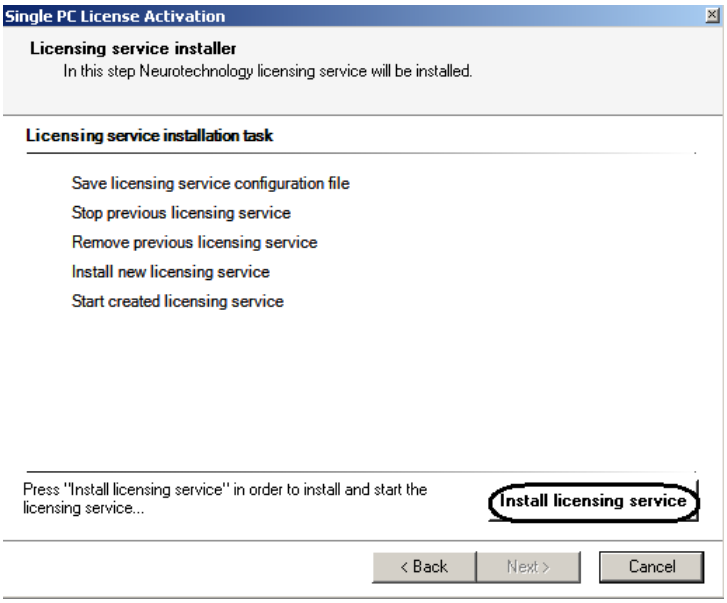

Figure 6.1-8 Preparedness for activation window

15. Click **Install licensing service** to start the license activation (Figure 6.1-8).
16. After finishing the activation process click **Finish** (Figure 6.1-9).

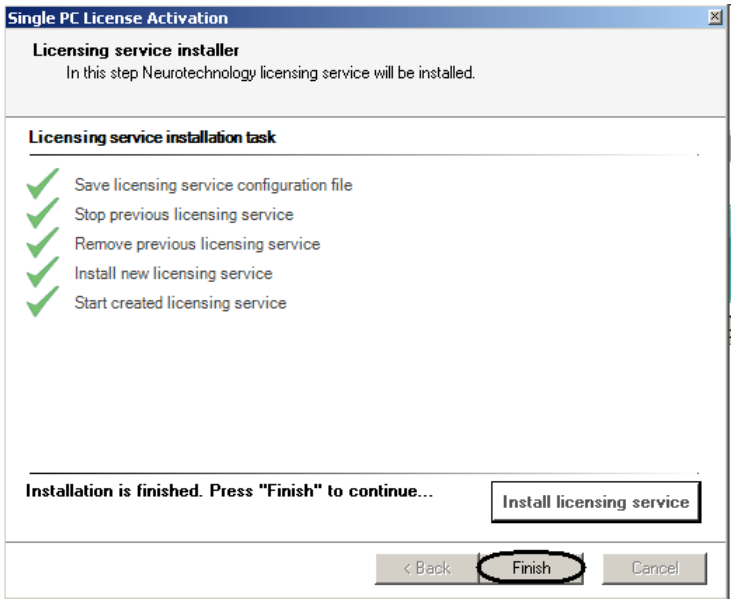

Figure 6.1-9 Finishing the activation process

VeriLook face recognition module activation is completed.

6.2 Hardware

The following components can be used as main software-hardware components for making a distributed video surveillance system on the basis of *Face Intellect* software package:

1. Remote monitoring workplaces (RMW) or Administrator's remote workplace (ARM) that additionally realize functions of Operator's workplace created on the basis of personal computers (IBM PC).
2. Video servers on the basis of personal computers (IBM PC) with installed special equipment (video and audio capture cards) that additionally realize functions of system Operator's and Administrator's workplaces.
3. Administrator's workstations (Administrator's remote workplace) with ability to realize video server functionality using network IP devices of audio and video input.
4. Network video concentrators (*WaveHub*, Linux-hub and others).
5. Network video servers (*Matrix* and others).
6. Analog and network video cameras.
7. TCP/IP communications.

6.3 Communication media

Communication tools of *Face-Intellect* software package allow to create automated systems of environment control on extensive and multipronged objects. System components interact automatically and make a common security system on these objects.

Data exchange and communication between system components is made by using local area network (LAN), wide area network (WAN), telephone lines (Dial-Up) or dedicated communication channels using TCP/IP protocol.

7 Installation *of Face-Intellect* software package components

7.1 General information about *Face-Intellect* software package installation

To install *Face-Intellect* software package do the following:

1. Install *Intellect* software package (see *Intellect* software package. *Administrator's guide*).
2. Install *Face-Intellect* software package (see *Face-Intellect* software package installation).
3. Install report subsystem (see *Report System Web-reports subsystem. User guide*).

7.2 *Face-Intellect* software package installation

7.2.1 Description of *Face-Intellect* software package distribution

Face-Intellect software package distribution is supplied on CD (Figure 7.2-1).

Figure 7.2-1 CD with *Face-Intellect* distribution

Distribution contains installation program and necessary program components for *Face-Intellect* software package installation on backbone computer.

To install *Face-Intellect* software package you should have administrator rights.

7.2.2 Installation

To install *Face-Intellect* software package do the following:

1. Insert installation CD with *Face-Intellect* software package to CD/DVD drive. CD contents is displayed in dialog window (Figure 7.2-2)

Figure 7.2-2 Installation CD contents

2. Run executable **Setup.exe** file that is for starting *Face-Intellect* installation program.

As a result the dialog window of welcome to software installation with the **Welcome to the Face Intellect v.5.0.0 Setup Wizard** message (Figure 7.2-3).

Figure 7.2-3 Start dialog window of installation program

3. Click **Next** (Figure 7.2-3).

The dialog window with license agreement is displayed (Figure 7.2-4).

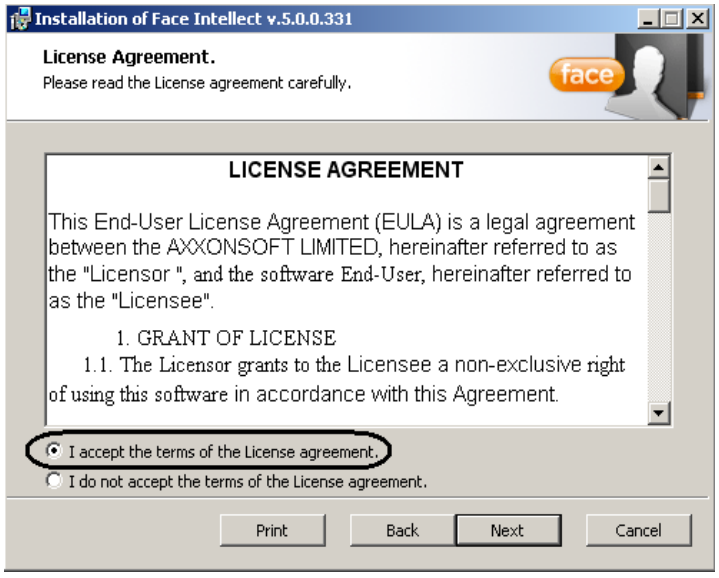

Figure 7.2-4 The dialog window with license agreement

4. Confirm that you agree with conditions of license agreement by setting **I accept the terms of the license agreement** checkbox after reading conditions of license agreement otherwise the software installation will be stopped (Figure 7.2-4).
5. Click **Next** (Figure 7.2-4).

The window in which you should select MS SQL Server and set authorization parameters when you connect to it (Figure 7.2-5).

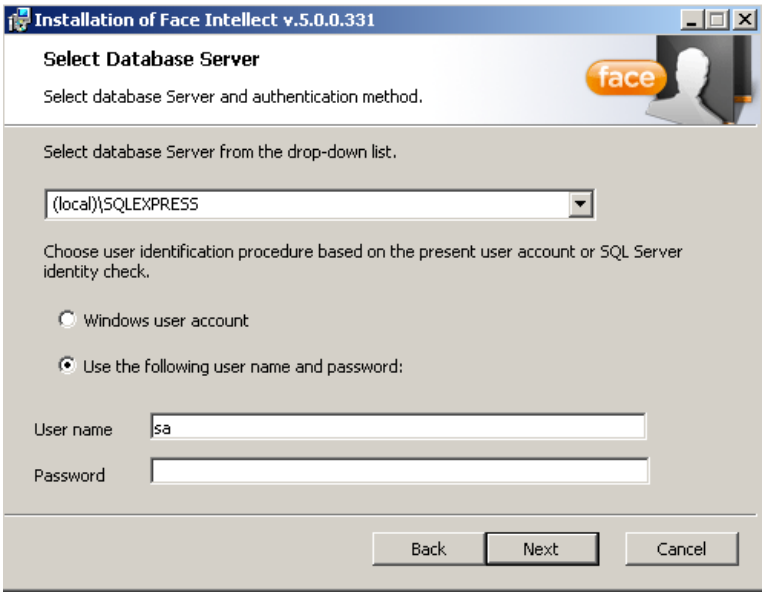

Figure 7.2-5 Dialog window of selecting Microsoft SQL Server

6. Select SQL-server using **Database server** dropdown list (Figure 7.2-5).

Note. If it's necessary to use SQL-server that is installed on this (local) computer you should select ***(local)\SQLEXPRESS*** *point (set on default).*

7. Set authorization parameters that will be used by *Face-Intellect* software package when you connect to SQL-server.

There are the ways of authorization that are realized in dialog window (Figure 7.2-5, Table 7.2-1)

Table 7.2-1 Ways of authorization

Ways of authentication	Registration data Windows	SQL-server verification while using the following user name and password (Recommended)
Usage cases	SQL-server from *Intellect* software package distribution (or distribution of third-party producer) and *Face-Intellect* are installed on one computer.	SQL-server from *Intellect* and *Face-Intellect* distribution is installed on one computer. At the same time the connection to SQL-server with given user name (login) and password can be done from any remote computer that is in the same domain of TCP/IP network, as the computer on which you install SQL-server.
	SQL-server and *Intellect* software package are installed on different computers that are connected by TCP/IP network and are located on one network domain. At the same time in Windows OS on computer with installed MS SQL-server the user account should be created for the user authorized in Windows OS on computer where *Face-Intellect* is installed.	SQL-server from *Intellect* and *Face-Intellect* distribution is installed on different computers that are connected by TCP/IP network and located on one domain. At the same time given user name (login) and password should be the same as user name and password that are used to gain access to SQL-server.

Ways of authentication	Registration data Windows	SQL-server verification while using the following user name and password (Recommended)
	Full-scale SQL-server (installed additionally) and *Intellect* are installed on different computers that are connected by TCP/IP network and are located on one network domain. At the same time on remote SQL-server the user account should be created for the user authorized in Windows OS on computer where *Face-Intellect* is installed.	Full-scale SQL-server (installed additionally) and *Intellect* are installed on one or different computers that are connected by TCP/IP network and are located on one network domain. At the same time given user name (login) and password should be the same as user name and password that are used to gain access to SQL-server.

*Note. Using distributed architecture of video surveillance system in order to connect to remote SQL-server it's recommended to set login and password by selecting **Use following user name and password (recommended for network configuration)**. Selection of this way of authentication provides stable operation of Face-Intellect software package with remote resources.*

Description of Intellect software package configuration while using distributed architecture of digital video surveillance system is given in Intellect software package. Administrator's guide.

8. To continue the installation process click **Next** (Figure 7.2-5).

Ready to install dialog box is displayed (Figure 7.2-6).

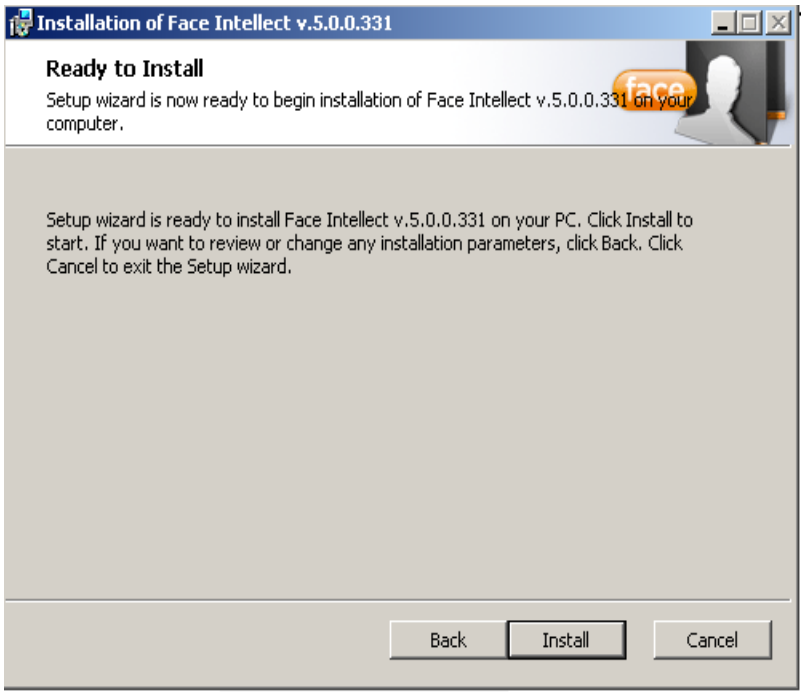

Figure 7.2-6 Ready to install dialog box

9. Click **Install** (Figure 7.2-6).

As a result the dialog window of *Face-Intellect* software package installation process is displayed (Figure 7.2-7)

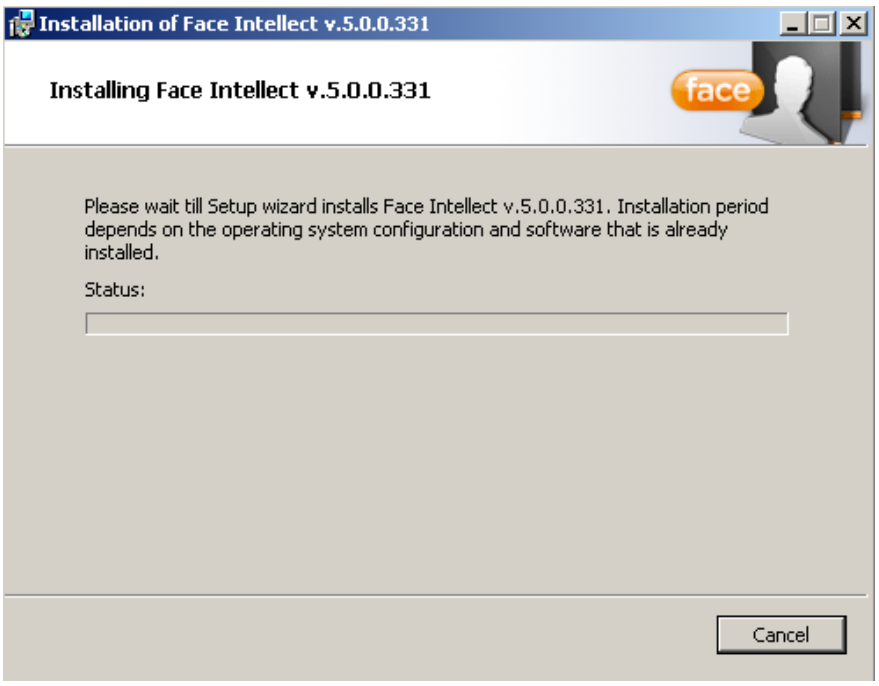

Figure 7.2-7 Dialog window of *Face-Intellect* software package installation process

After installation of all *Face-Intellect* software package components the dialog window of installation process completion (Figure 7.2-8)

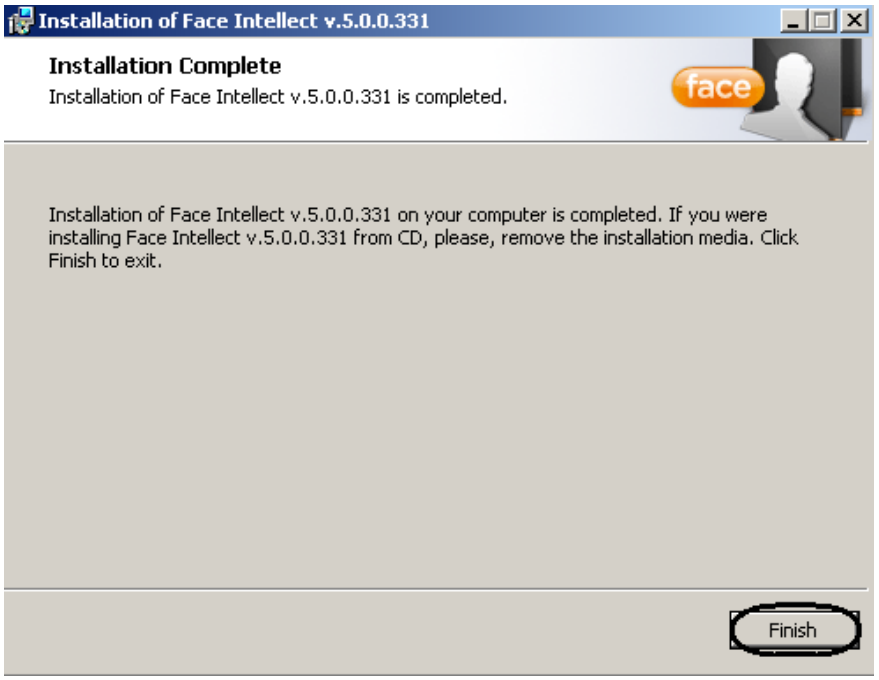

Figure 7.2-8 Dialog window of installation process completion

10. Click **Finnish** (Figure 7.2-8).

Face-Intellect software package installation is completed.

7.2.3 Repairing

To repair *Face-Intellect* software package do the following:

1. Insert installation CD with *Face-Intellect* software package to CD/DVD drive. CD contents is displayed in dialog window (Figure 7.2-9)

Figure 7.2-9 Installation CD contents

2. Run executable **Setup.exe** file that is for starting *Face-Intellect* installation program.

As a result the dialog window of selecting action type is displayed (Figure 7.2-10).

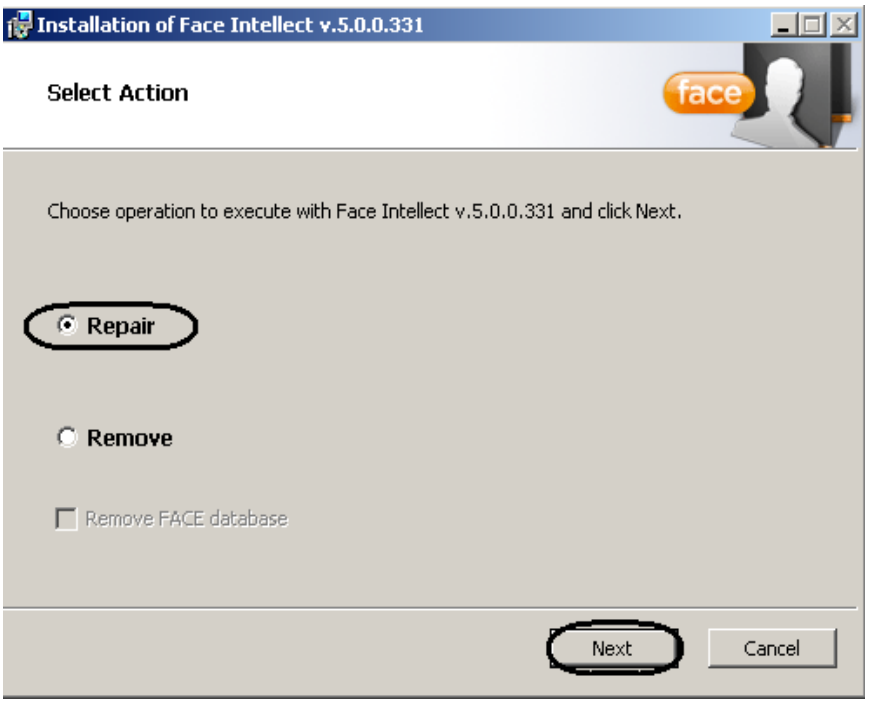

Figure 7.2-10 Dialog window of selecting action type

3. Select **Repair** operation type (Figure 7.2-10).
4. Click **Next** (Figure 7.2-10).

The dialog window of *Face-Intellect* software package restoring process is displayed (Figure 7.2-11).

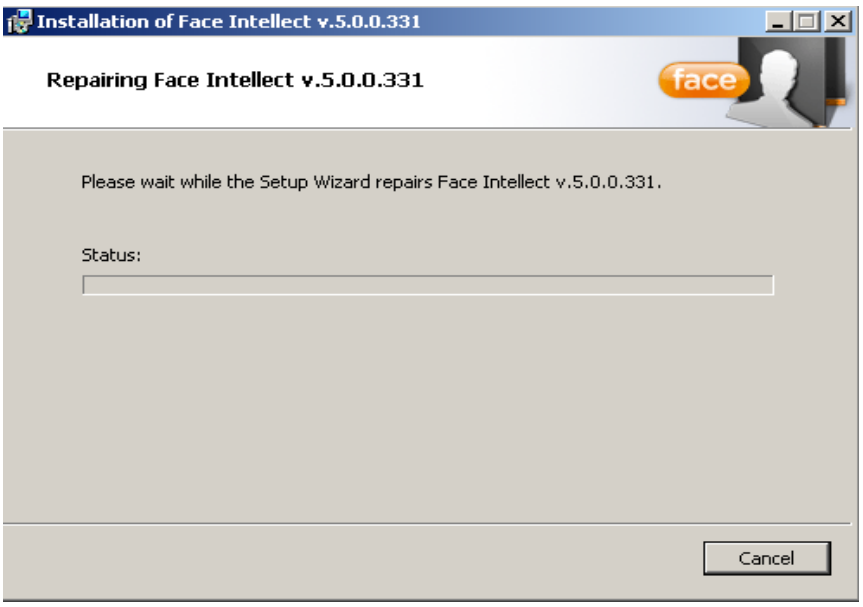

Figure 7.2-11 Rpairing dialog window

After installation of all components of *Face-Intellect* software package the dialog window of finishing the repairing process will be displayed (Figure 7.2-12).

Figure 7.2-12 Finishing the repairing process dialog window

5. Click **Finish** (Figure 7.2-12).

Repairing of *Face-Intellect* software package is completed.

7.2.4 Removing

To remove *Face-Intellect* software package do the following:

1. Insert installation CD with *Face-Intellect* software package to CD/DVD drive. CD contents is displayed in dialog window (Figure 7.2-13).

Figure 7.2-13 Installation CD contents

2. Run executable **Setup.exe** file that is for starting *Face-Intellect* installation program.

As a result the dialog window of selecting action type is displayed (Figure 7.2-14).

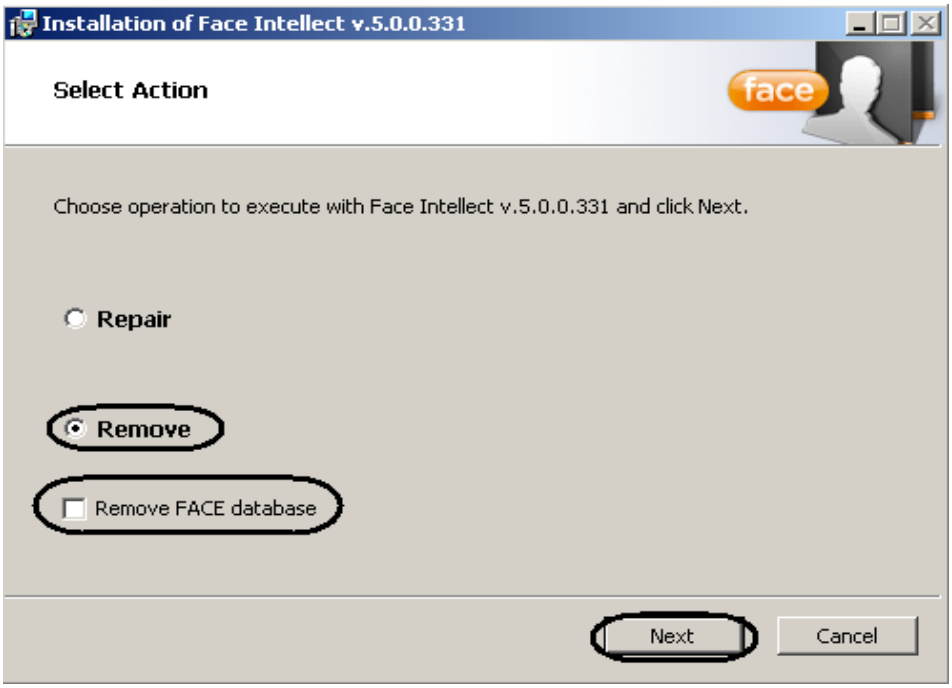

Figure 7.2-14 Dialog window of selecting action type

3. Select **Remove** operation type (Figure 7.2-14).
4. Set the **Remove face database** checkbox if it's necessary to remove face database (Figure 7.2-14).
5. Click **Next** (Figure 7.2-14).

The dialog window of *Face-Intellect* software package removal process is displayed (Figure 7.2-15).

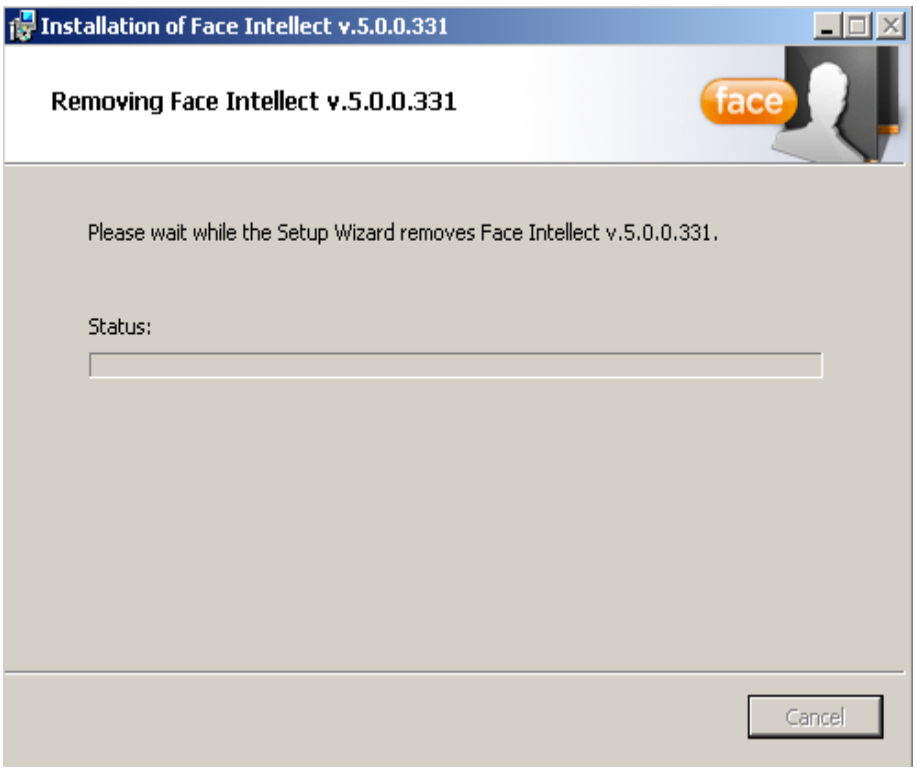

Figure 7.2-15 Removing dialog window

Note. To cancel removing process of Face-Intellect software package click ***Cancel*** *(Figure 7.2-15).*

As a result after removing all files there will be a message about finishing the removal process of *Face-Intellect* software package (Figure 7.2-16).

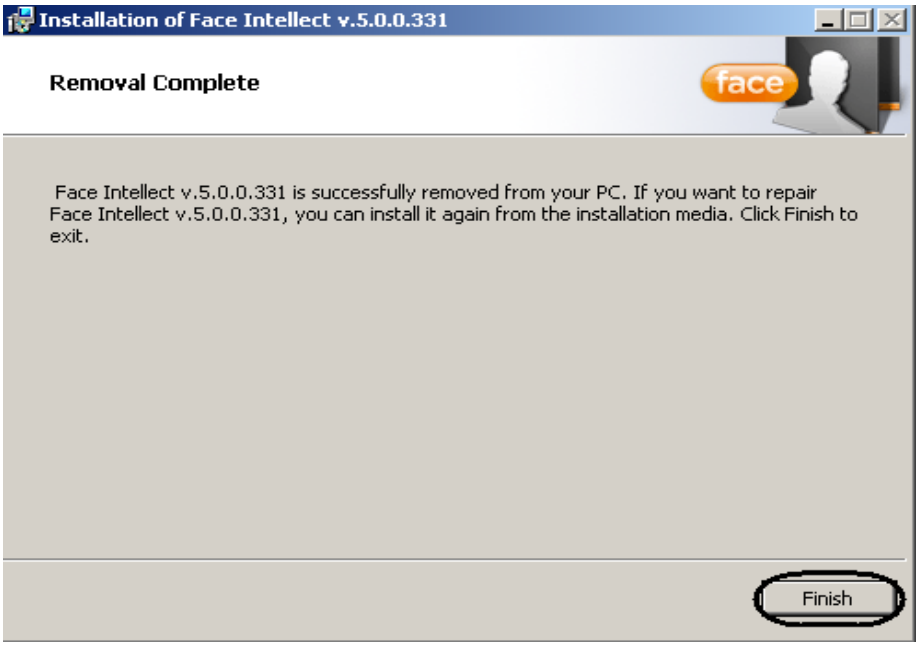

Figure 7.2-16 Finishing the removal process of Face-Intellect software package

6. Click **Finish** (Figure 7.2-16).

Removing of *Face-Intellect* software package is completed.

8 *Face-Intellect* software package configuration and setting its components

8.1 *Face-Intellect* software package configuration and setting procedure

To configure *Face-Intellect* software package do the following:

1. Create and set up the **Face capture camera** system objects for video cameras that are used for face detection;
2. Create and set up the **Search for faces server** system object;
3. Create and set up the **Web-access to face recognition** system object;
4. Create and set up the **Viewing web-interfaces module** interface object;

8.2 Setting "Face capture camera" system object

Face capture camera detects the presence of man's faces in controlled zone.

The **Face capture camera** object is created on the basis of the **Camera** object in the **Hardware** tab of **System setting** dialog window (Figure 8.2-1).

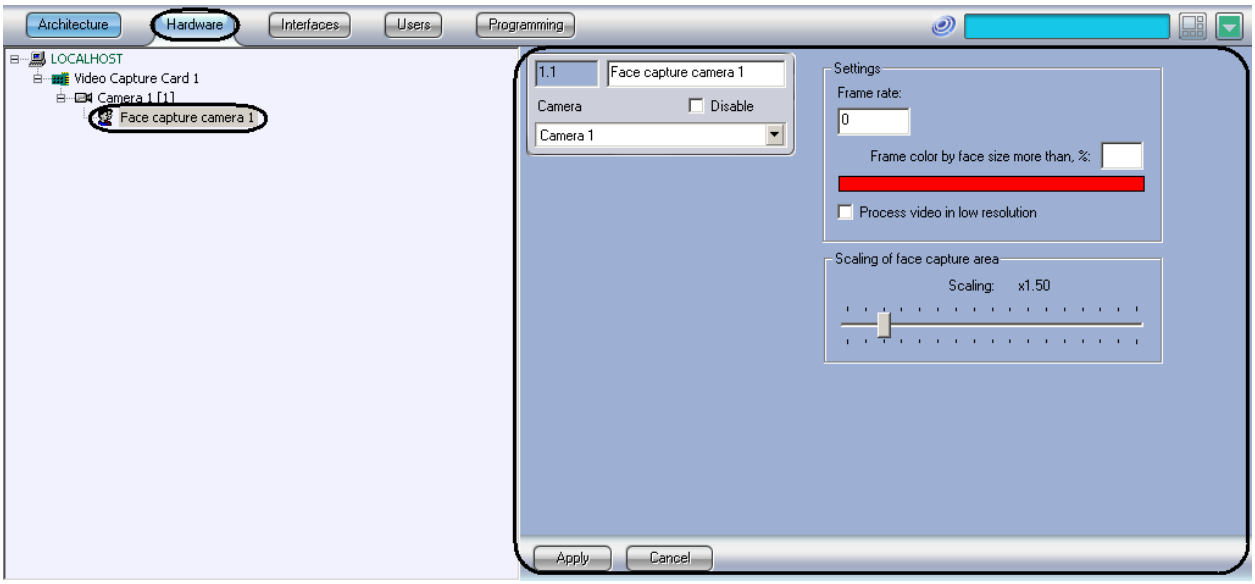

Figure 8.2-1 Face capture camera creation

To set up **Face capture camera** do the following:

1. Go to setting panel of the **Face capture camera** object (Figure 8.2-2).

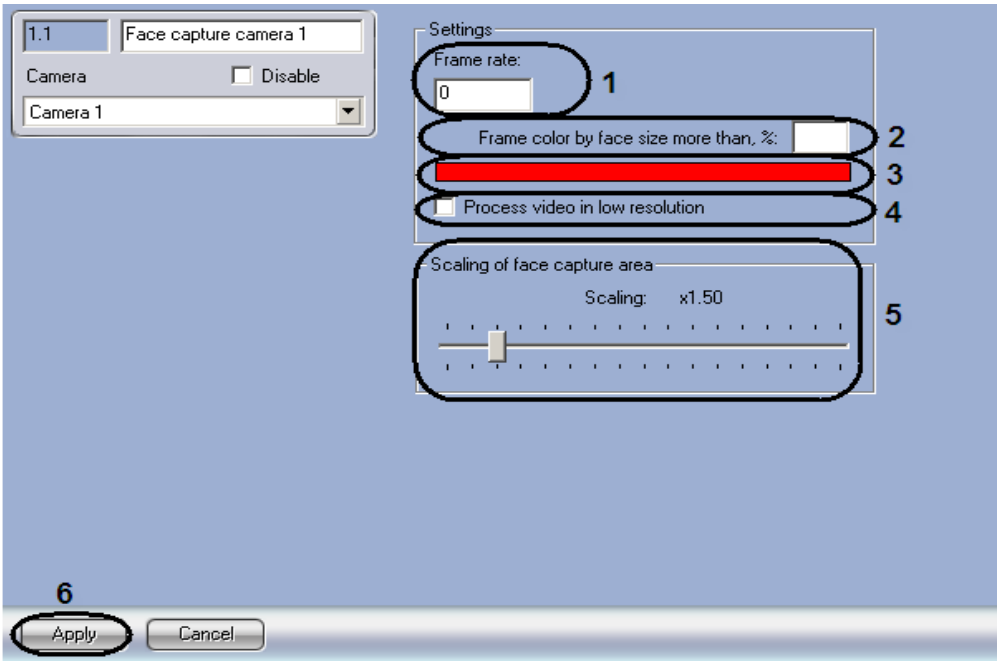

Figure 8.2-2 Face capture camera setting panel

2. Set how many frames per second are processed by face detector program module in the video stream. This parameter is necessary for load shedding on Server (Figure 8.2-2, **1**).
3. Set the rate of face to size of video surveillance window it's necessary to select the face with dynamic frame (Figure 8.2-2, **2**).
4. If you need to change the colour of dynamic frame click left mouse button in the **Colour** field (Figure 8.2-2, **3**). In standard Windows **Colour** dialog window select necessary colour and click **OK**.
5. On default face capture camera processes video at resolution that is set for parent **Camera** object. To process video at 320x240 resolution set **Process video in low resolution** checkbox (Figure 8.2-2, **4**).

Note. This function allows load shedding on Server but probability to recognize faces is reducing.

Attention! Process video in low resolution parameter is not relevant when high resolution is set for parent Camera object.

6. Set **Scaling of face capture area** slider in position that corresponds to required scale of face image for recording (Figure 8.2-2, **5**). Current scale value is displayed in the field over the slider and varies from 1 (only face image is recorded) to 5 (frame is recorded in full).
7. To save changes click **Apply** (Figure 8.2-2, **6**).

Setting Face detector is completed.

8.3 Setting "Face search server" system object

8.3.1 "Face search server" system object setting procedure

Face search server object is created on the basis of the **Camera** object in the **Hardware** tab of **System setting** dialog window (Figure 8.3-1).

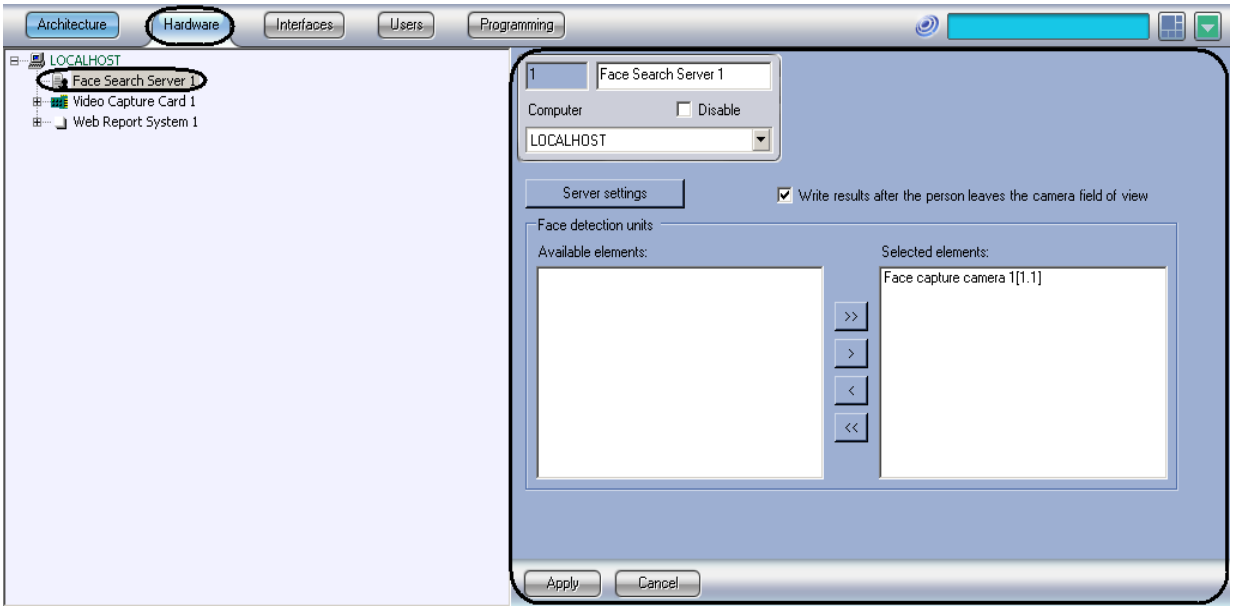

Figure 8.3-1 Face serach server object

To set up **Face search server** do the following:

1. Set parameters of face recognizer module;
2. Set database parameters;
3. Select **Face capture camera** objects that correspond to required video cameras for face recognition.

Attention! Only one Face search server can be created on one Server.

8.3.2 Setting parameters of face search module

To set parameters of face recognizer module do the following:

1. Go to setting panel of the **Face search server** object (Figure 8.3-2).

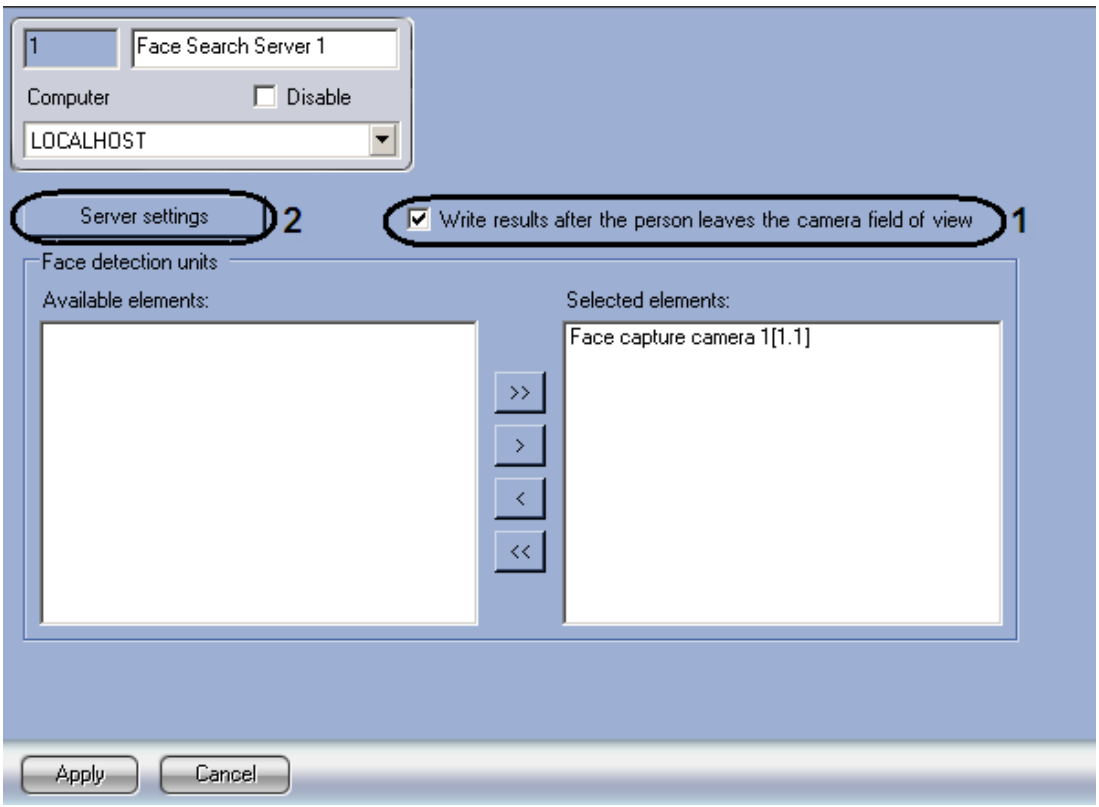

Figure 8.3-2 Face search server object setting panel

2. Set the **Write results after the person leaves the camera field of view** checkbox if it's necessary to generate vector only once – when face disappears from the frame (Figure 8.3-2, **1**).

*Note. When Cognitec recognizer is used **Write results after the person leaves the camera field of view** parameter activation allows load shedding on Server. Negative effect of this parameter activation is that face will be searched when the person is not in frame.*

3. Click **Server settings** (Figure 8.3-2, **2**).
   Recognition server configuration window is displayed (Figure 8.3-3).

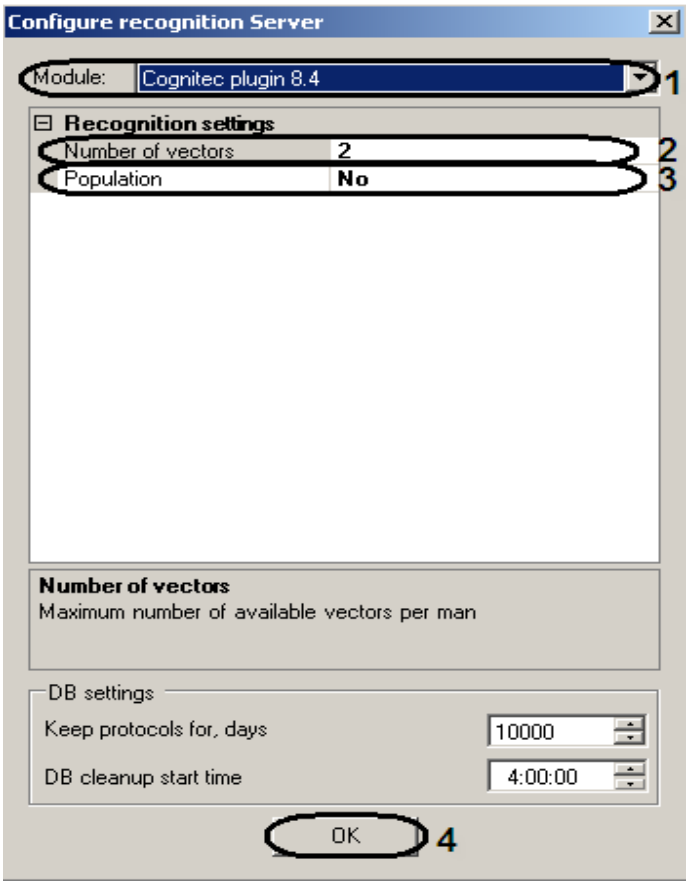

Figure 8.3-3 Configure recognition server

4. Select required face recognizer module from **Module** dropdown list (Figure 8.3-3, **1**).
5. Set maximum allowed quantity of vectors for a man that are calculated while face search in the corresponding field (Figure 8.3-3, **2**).

Note. The more vectors are drawn while face search the better quality of search is, but there is error probability – faces of different people can be identified by recognizer as the face of one man and vectors will be drawn by these faces, one of which is incorrect. Increasing the quantity of vectors you increase Server load.

6. In the **Population** field set **Yes** value if it's necessary to use identification mechanism with population creation (Figure 8.3-3, **3**).

Note. In case when mechanism with population creation is used, face search is performed by created sets of faces in the database. In another case, while face search, a specified frame and faces in the database are compared in turn. Search by database with population creation is faster than one without population creation.

7. Click **OK** (Figure 8.3-3, **4**).
8. To save changes click **Apply** on setting panel of the **Face search server** object.

Setting parameters of face recognizer module is completed.

8.3.3 Setting parameters of database

To set parameters of database do the following:

1. Go to setting panel of the **Face recognition Server** object (Figure 8.3-4).

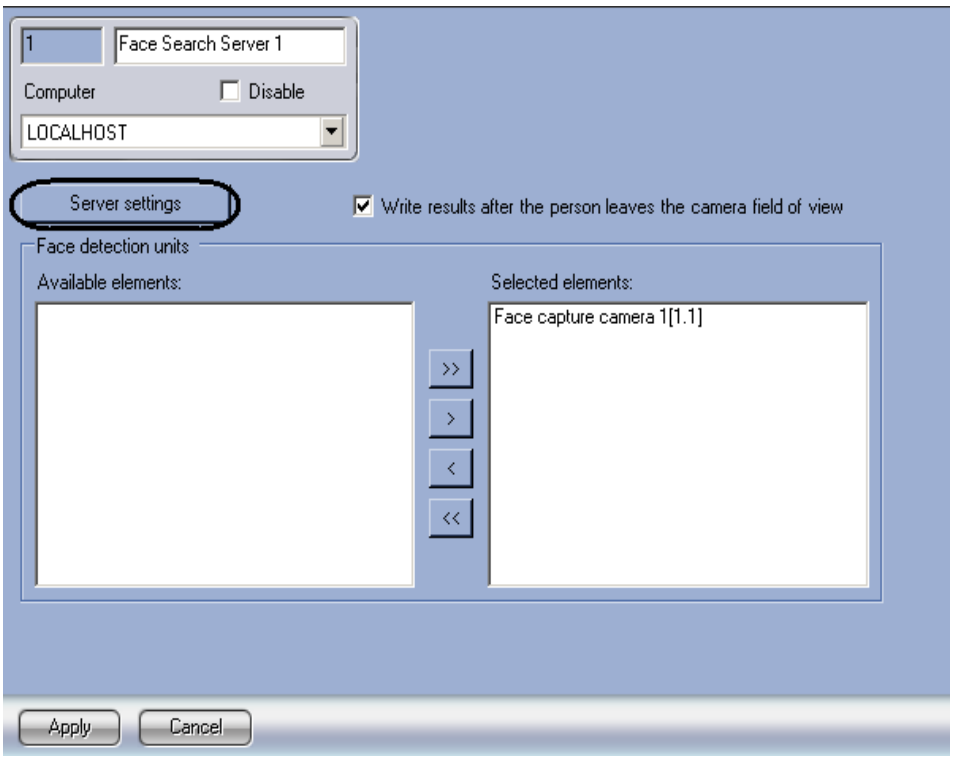

Figure 8.3-4 Face search server object setting panel

2. Click **Server settings** (Figure 8.3-4).
   Recognition server configuration window is displayed (Figure 8.3-5).

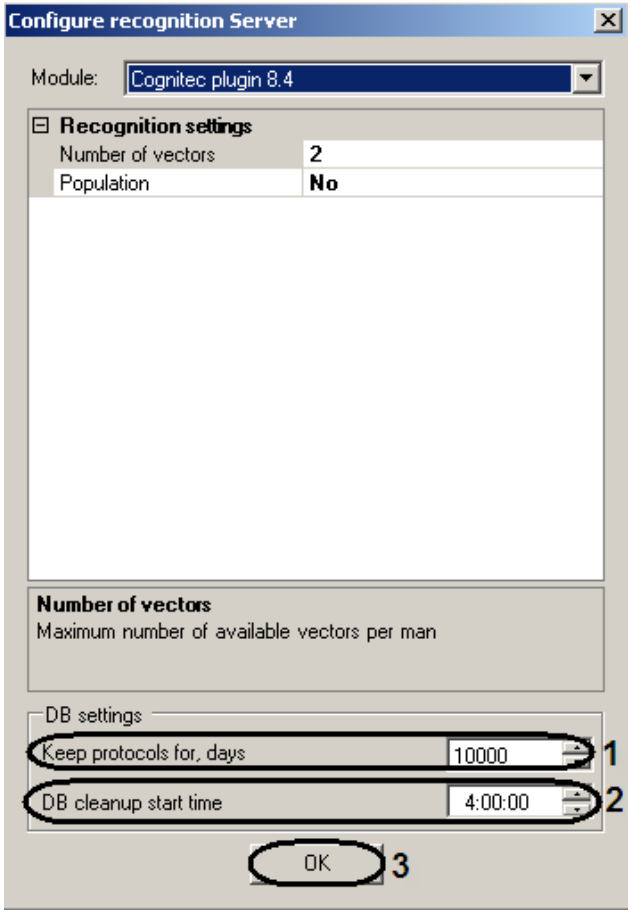

Figure 8.3-5 Face recognition module setting

3. In **Keep protocols for, days** field set the number of days during which the captured faces will be stored in database (Figure 8.3-5, **1**).
4. Set the time of cleaning the database in HH:MM:SS format in corresponding field (Figure 8.3-5, **2**).
5. Click **OK** (Figure 8.3-5, **3**).
6. To save changes click **Apply** on setting panel of the **Face recognition server** object.

Setting parameters of database is completed.

8.3.4 Selecting «Face capture camera» objects

To select **Face capture camera** objects that correspond to required video cameras do the following:

1. Go to setting panel of the **Face Search Server** object (Figure 8.3-6).

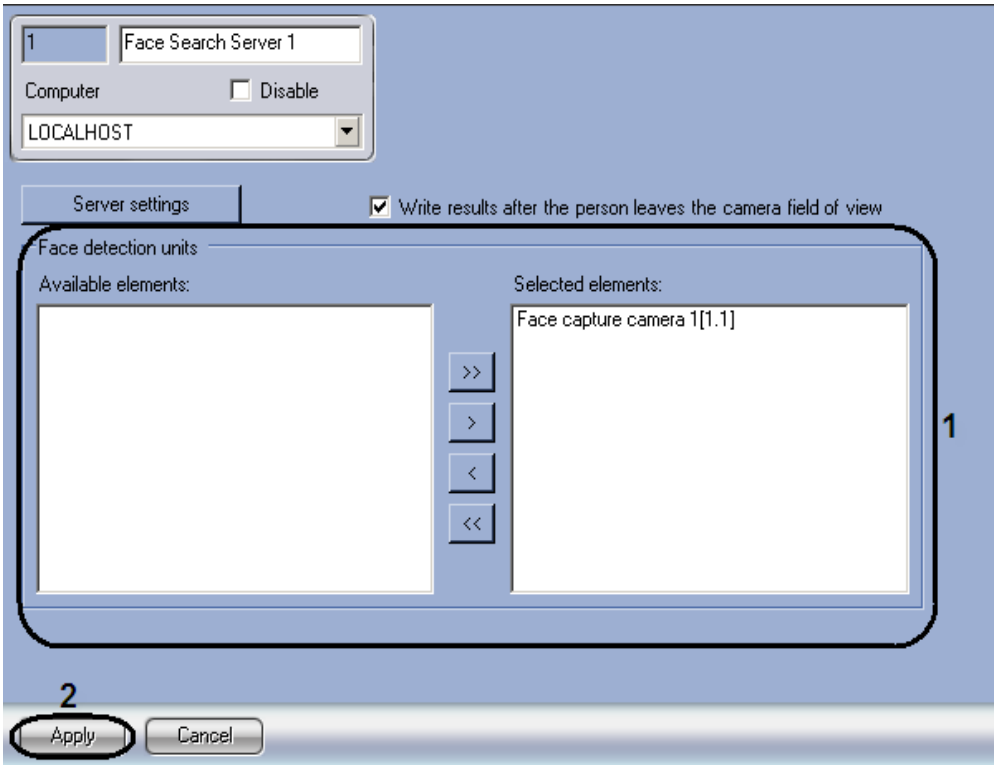

Figure 8.3-6 Face search server object setting panel

2. Select required **Face capture camera** objects in **Available elements** list of **Face detection units** group (Figure 8.3-6, **1**).
3. Move selected **Face capture camera** objects to **Selected elements** list of **Face detection units** group by clicking > (or >> for moving all objects from the list) (Figure 8.3-6, **1**).

*Note. **Selected elements** list is a list of Face detector objects that are selected for working with **Face recognition Server** object.*

< and << are for reverse actions i.e. for moving selected or all face capture cameras from the right list to the left.

As a result selected **Face capture camera** objects are displayed in **Selected elements** list of **Face capture cameras** group (Figure 8.3-6, **1**).

4. To save changes click **Apply** (Figure 8.3-6, **2**).

Selection of **Face capture camera** objects that correspond to required video cameras is completed.

8.4 Setting "Web access to face search" system object

On setting panel of the **Web access to face search** object you can get access to face search modules through Web-interface of *Face-Intellect* software package.

The **Web access to face search** object is created on the basis of the **Computer** object in the **Hardware** tab of the **System settings** dialog window (Figure 8.4-1).

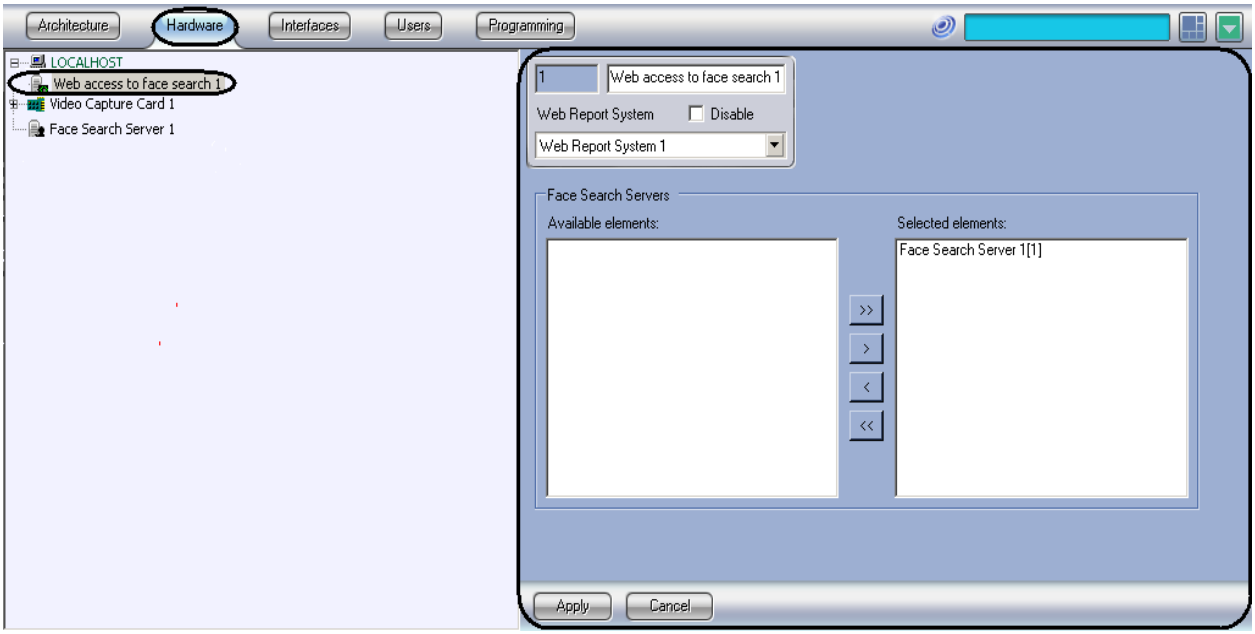

Figure 8.4-1 Web access to face recognition object

To get access to face recognition modules through Web-interface of *Face-Intellect* software package do the following:

1. Go to setting panel of the **Web access to face search** object (Figure 8.4-2).

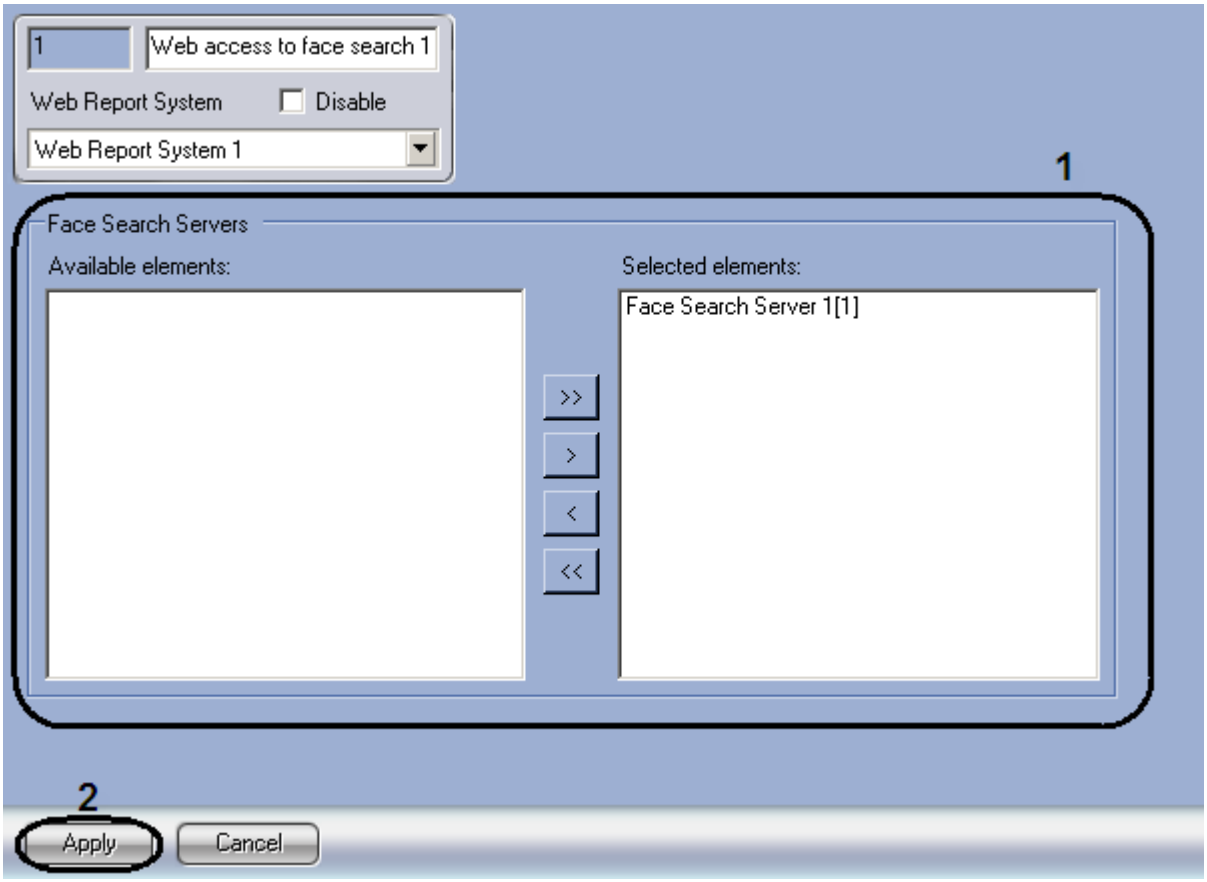

Figure 8.4-2 Setting panel of the Web access to face recognition object

2. Select required **Face Search Server** objects in **Available elements** list of the **Face recognition Server** group (Figure 8.4-2, **1**).
3. Move selected **Face Search Server** objects to the **Selected elements** list of the **Search Server** group by clicking > (or >> for moving all objects from the list) (Figure 8.4-2, **1**).

*Note. The **Selected elements** list is a list of the **Face recognition Server** objects that are selected for working through Web-interface of Face-Intellect software package.*

< and << are for reverse actions i.e. for moving selected or all face detectors from the right list to the left.

As a result selected **Face Search Server** objects are displayed in the **Selected elements** list of the **Face Search Server** group (Figure 8.4-2, **1**).

4. To save changes click **Apply** (Figure 8.4-2, **2**).

Getting access to face search modules through Web-interface of *Face-Intellect* software package is completed.

8.5 Setting "Web interfaces viewer module" interface object

To setup the **Web interfaces viewer module** interface object do the following:

1. Set parameters of the **Web interfaces viewer module** interface window
2. Setup the **Web-interface for search for faces server** object.

8.5.1 Setting parameters of "Web interfaces viewer module" interface window

You can set parameters of the **Web interfaces viewer module** interface window on setting panel of corresponding object. The **Web interfaces viewer module** object is created on the basis of the **Screen** object in the **Interfaces** tab of the **System settings** dialog window (Figure 8.5-1).

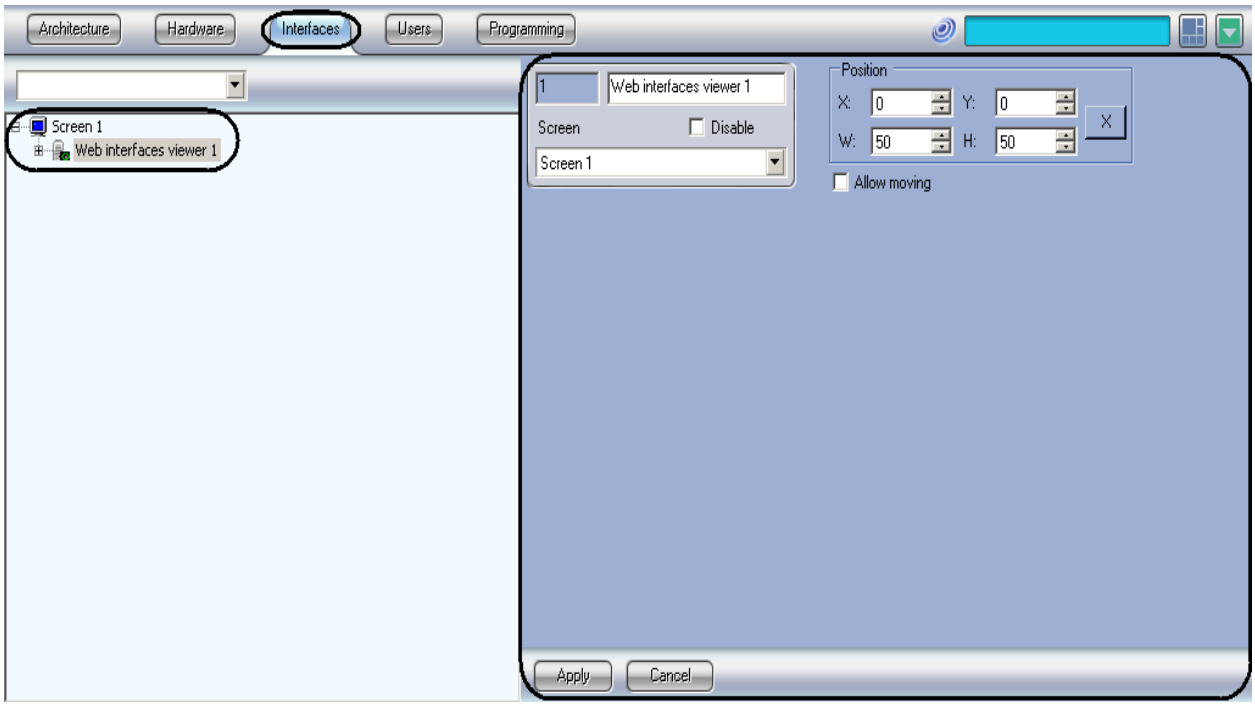

Figure 8.5-1 Web interfaces viewer module object

To set parameters of the **Web interfaces viewer module** interface window do the following:

1. Go to setting panel of the **Web interfaces viewer module** object (Figure 8.5-2).

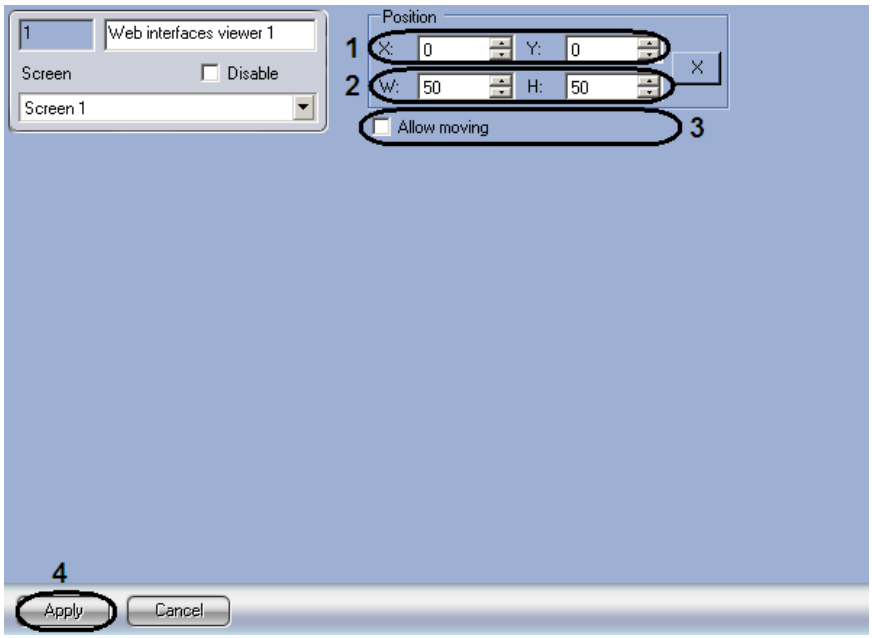

Figure 8.5-2 Setting panel of the Web interfaces viewer module object

2. Set coordinates of the top left angle of the **Web interfaces viewer module** interface window: **X** (horizontal indent from left border of computer screen) and **Y** fields (vertical indent from top

border of computer screen) (Figure 8.5-2, **1**). Coordinates are given in percentage rate relatively to screen size across and upright correspondingly.

3. Set coordinates of the top left angle of the **Web interfaces viewer module** interface window: «**W**» (window width) and «**H**» fields (window height) (Figure 8.5-2, **2**). Sizes are given in percentage rate relatively to screen size across and upright correspondingly.

*Note. For easy setting coordinates and sizes of **Web interfaces viewer module** interface window it's recommended to use visual method of coordinate setting.*

Click  *and using mouse set required size and position of test window and click **OK** (Figure 8.5-3). Coordinates of test window will be calculated and copied to X, Y, W and H fields automatically.*

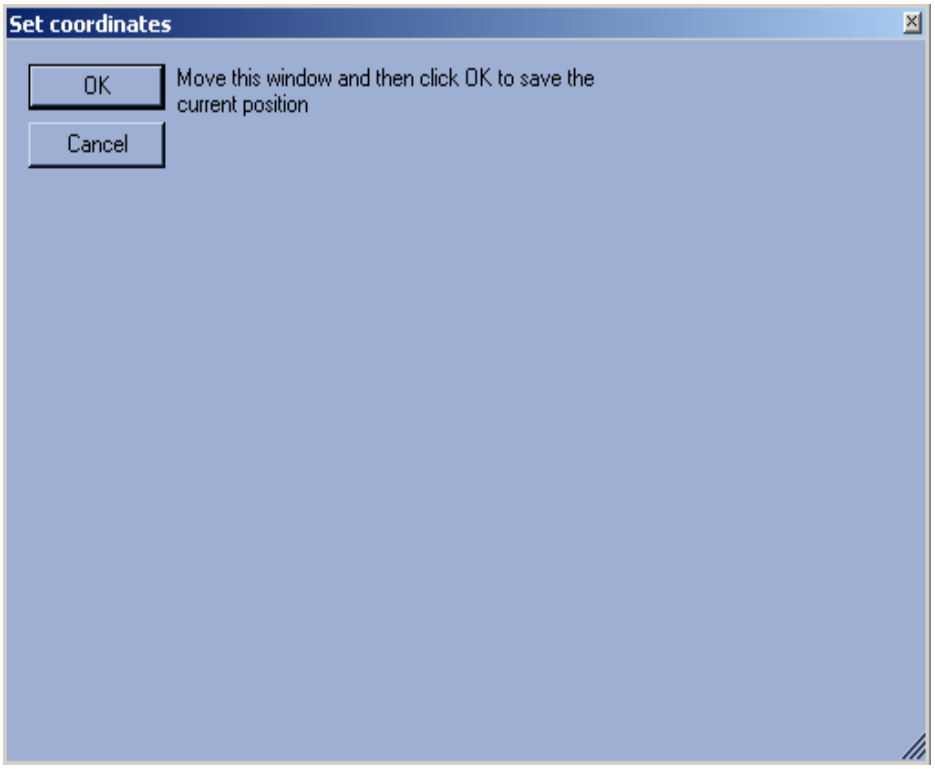

Figure 8.5-3 Visual method of setting coordinates

4. If it's necessary to move the **Web interfaces viewer module** interface window set **Allow moving** checkbox (Figure 8.5-2, **3**).
5. To save changes click **Apply** (Figure 8.5-2, **4**).

Setting parameters of **Web interfaces viewer module** interface window is completed.

8.5.2 Setting the "Web-interface for face search server" object

The **Web-interface for face search server** object is created on the basis of the **Viewing web-interfaces module** object in the **Interface** tab of the **System settings** dialog window (Figure 8.5-4).

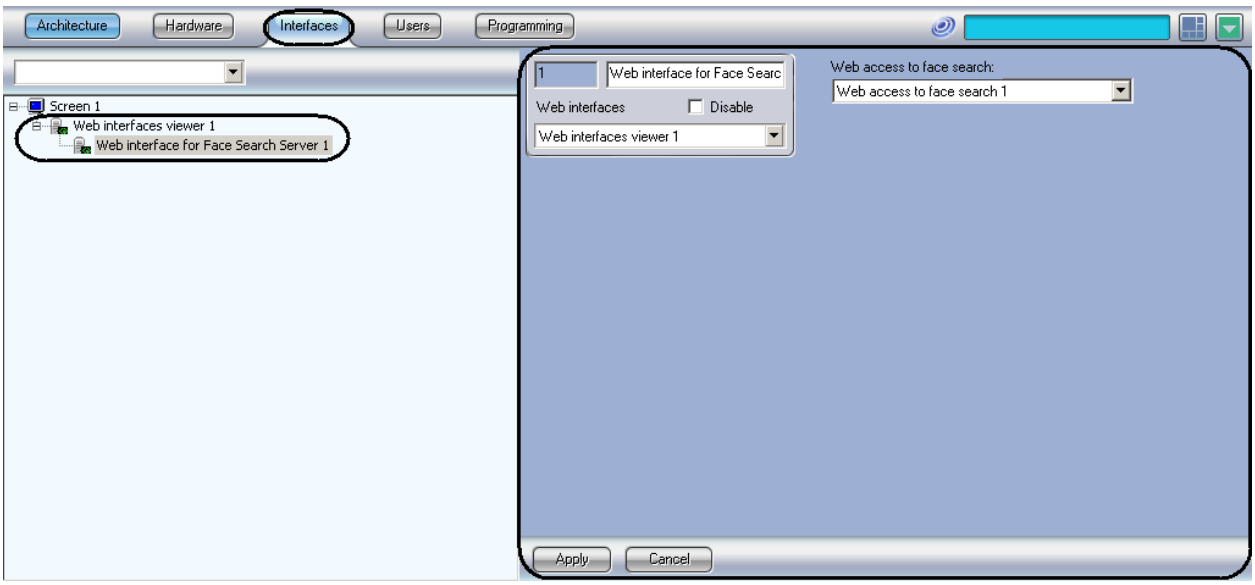

Figure 8.5-4 Web-interface for Face search server object

To set the **Web-interface for Face search server** object do the following:

1. Go to setting panel of the **Web-interface for Face search server** object (Figure 8.5-5).

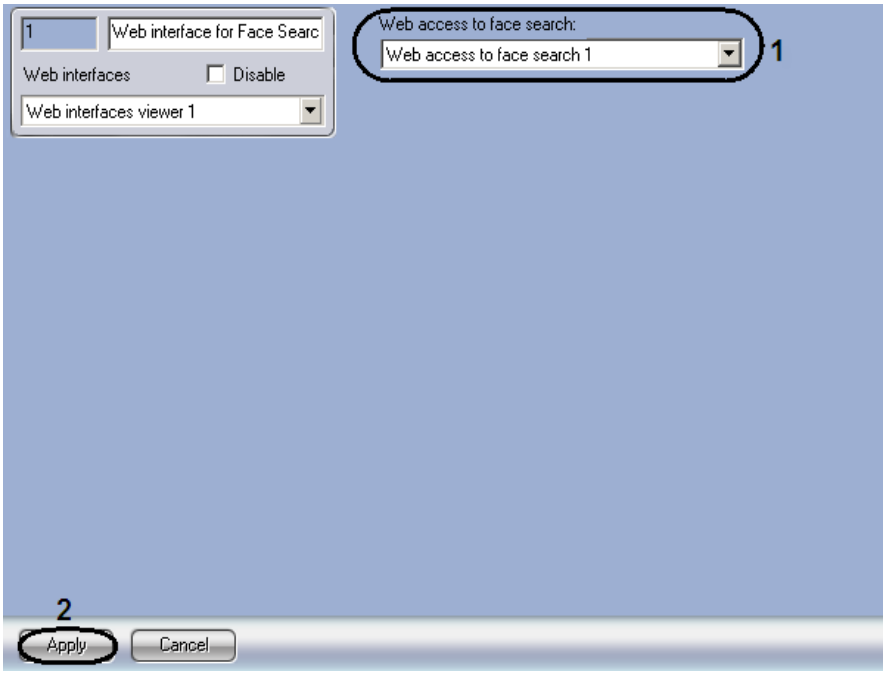

Figure 8.5-5 Setting panel of the Web-interface for Face search server object

2. From the dropdown list select required **Web-interface for Face search server** object that gives access to face recognizer module through Web-interface (Figure 8.5-5, **1**).
3. To save changes click **Apply** (Figure 8.5-5, **2**).

Setting the **Web-interface for Face search server** object is completed.

9 Working with *Face-Intellect* software package

Working with *Face-Intellect* software package is realized through Web interface of *Report System.*

Access to Web interface of *Report System* is available through the browser or **Viewing web-interfaces module** interface window of *Face-Intellect* software package.

9.1 Features of working with *Face-Intellect* software package through browser

9.1.1 *Report System* starting up and shutting down

9.1.1.1 Ways of starting up

To start up *Report System* do the following:

1. If Client coincides with Web server – through Start Windows OS menu: Start ⇒ All programs⇒ Intellect ⇒ Web report subsystem;
2. On any Client – through connection string of the browser: http://<IP-address Web-server>/Reports.

Note. In the latter case if Client coincides with Web server it's allowed to set http://localhost/Reports *address.*

As a result of one of these actions the page for authorization in *Report System* is displayed (Figure 9.1-1).

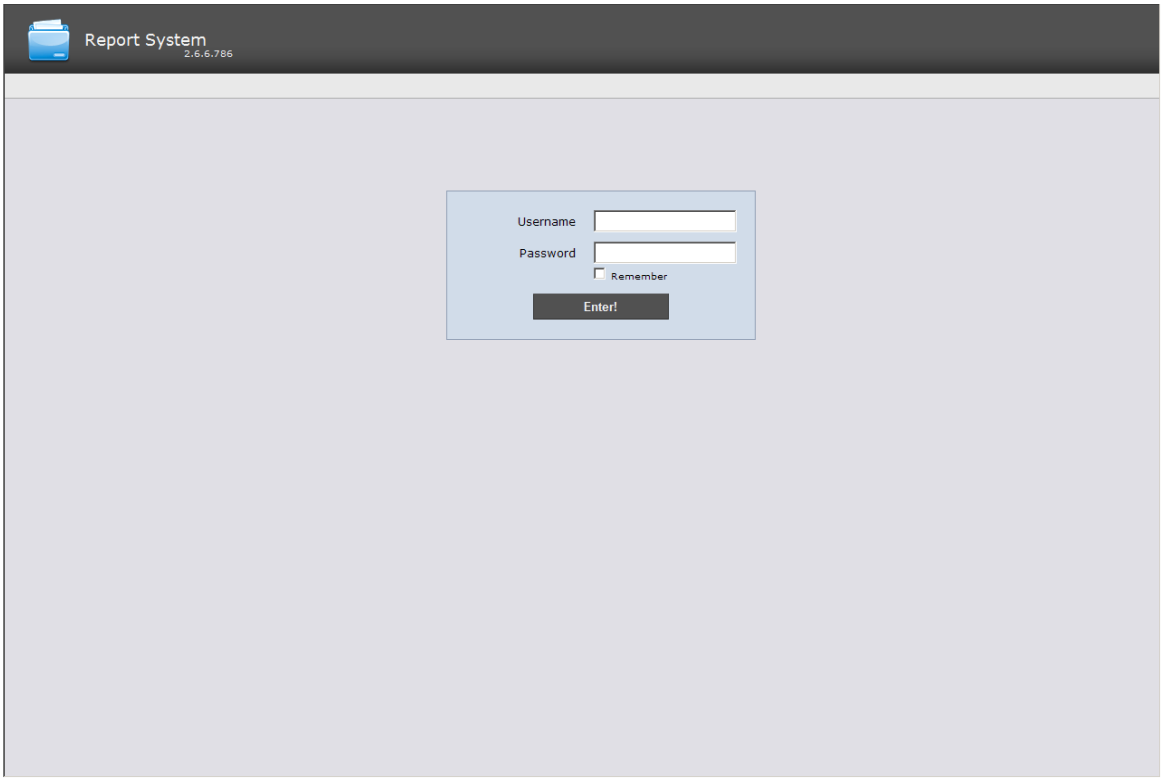

Figure 9.1-1 Page for authorization in Report System

9.1.1.2 Authorization

To authorize in *Report System* do the following:

1. Start up *Report System* in any acceptable way (see *Ways of* starting up).
2. Set username and password (Figure 9.1-2).

*Note. Initial login to Report system is done under **rs** user who has administrator's rights. In **Username** and **Password** fields set **rs**. Later administrator needs to build subsystem on multiuser mode (for more details see Setting roles and users part of of Web-reports subsystem Report System. User guide).*

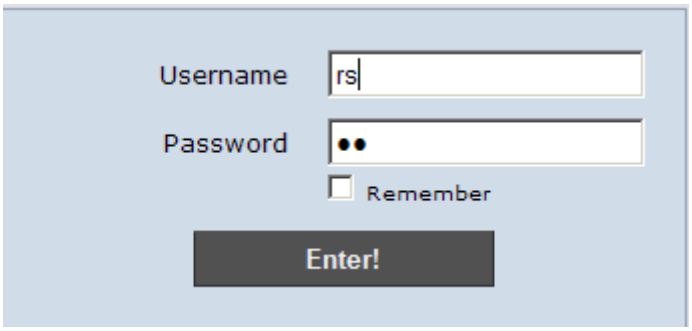

Figure 9.1-2 Authorization in *Report System*

3. Set **Remember** checkbox (Figure 9.1-2) in case when you need automatic authorization in Report System with parameters that are set in step 2.
4. Click **Enter** (Figure 9.1-2).

As a result you will go to *Report System* page (Figure 9.1-3).

Note. Description of Report System interface is given in «Report System» interface part of Web-reports subsystem Report System. User guide.

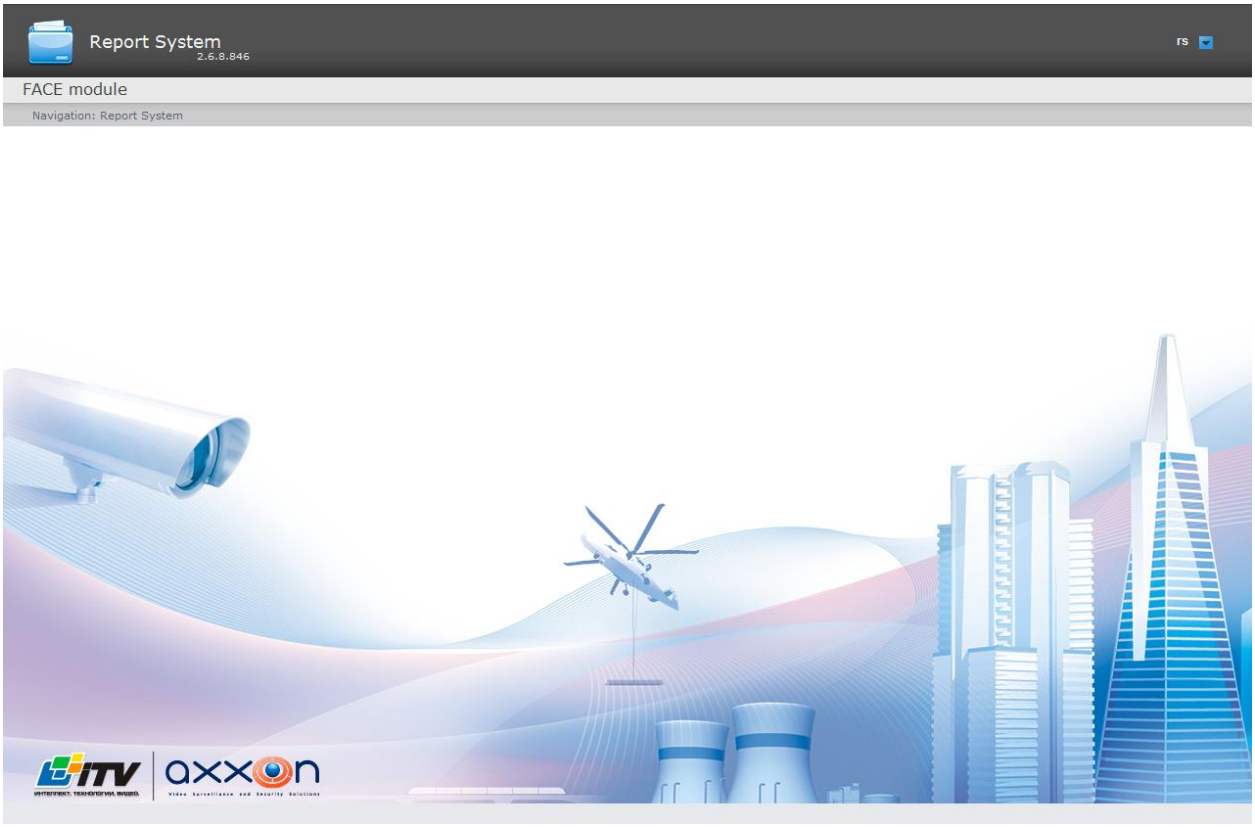

Figure 9.1-3 Report System document page

9.1.1.3 Shutting down

To shut *Report System* down it's necessary to close the page in browser.

9.1.1.4 User switching

There is fast switching *of Report System* users.

To switch users do the following:

1. Point cursor in the upper right corner of subsystem's Web-interface to the name of current user or to icon (Figure 9.1-4).

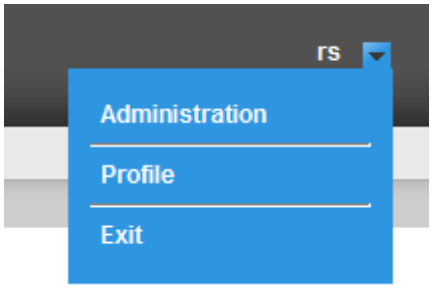

Figure 9.1-4 Exit from Report System

2. In appeared context menu select **Exit** (Figure 9.1-4).
3. The window of *Report System* authorization is displayed. Set the username under which it's necessary to login subsystem, its password and click **Enter** (see *Authorization*).

User switching is completed.

9.1.2 Setting the rights for working with *Face-Intellect* software package

To setup the rights for working with *Face-Intellect* software package do the following:

Attention! Details of setting the roles and users in Report System is given in Настройка ролей и пользователей part of Web-reports subsystem Report System. User guide.

1. Point cursor in the upper right corner of subsystem's Web-interface to the name of current user or to icon (Figure 9.1-5).

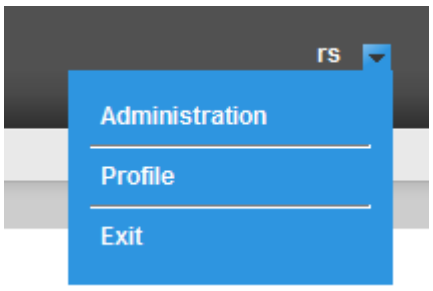

Figure 9.1-5 Going to the page of Report System administration

2. In appeared context menu select **Administration** (Figure 9.1-5).
Administration page is displayed (Figure 9.1-6).

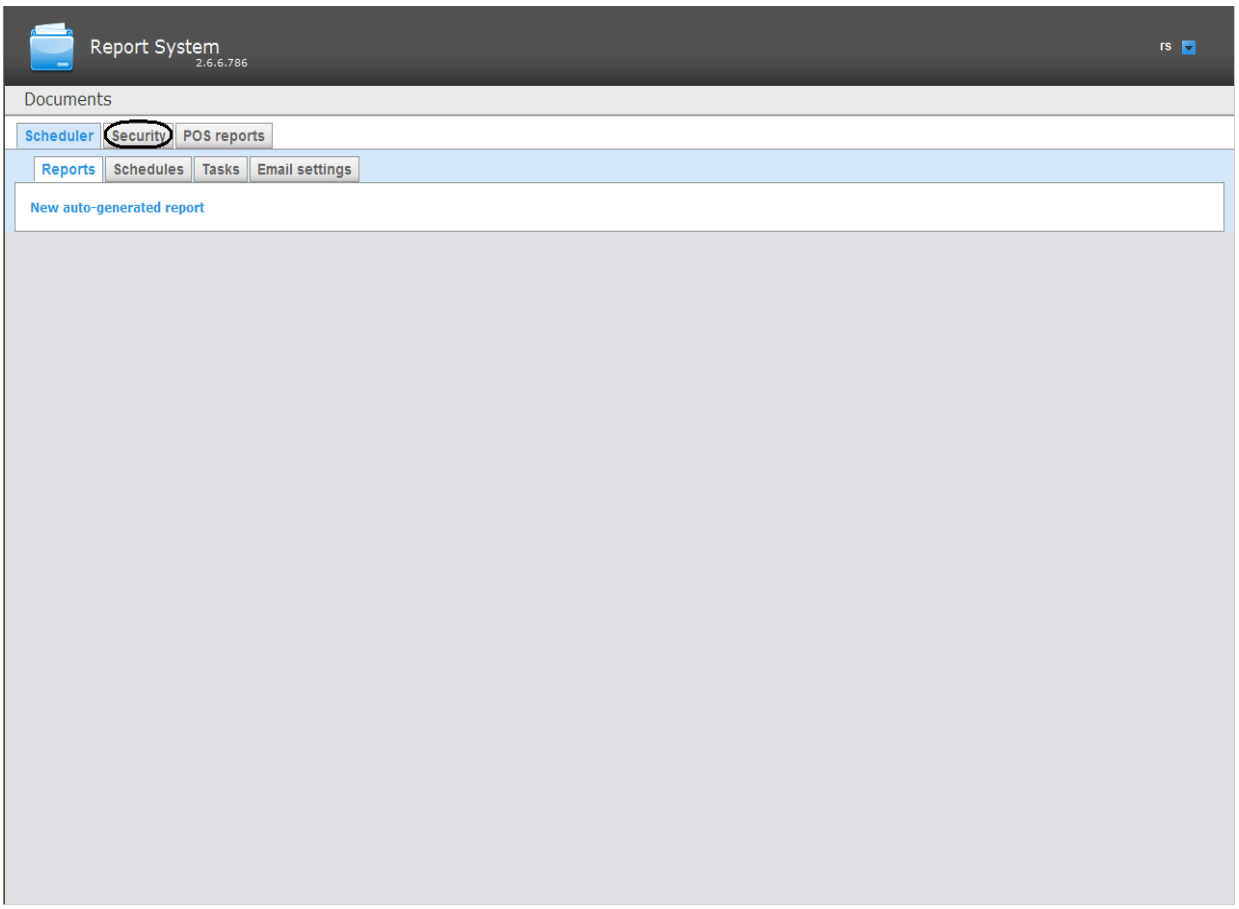

Figure 9.1-6 Administration page

3. Go to **Security** tab (Figure 9.1-6).
   Security settings page is displayed (Figure 9.1-7).

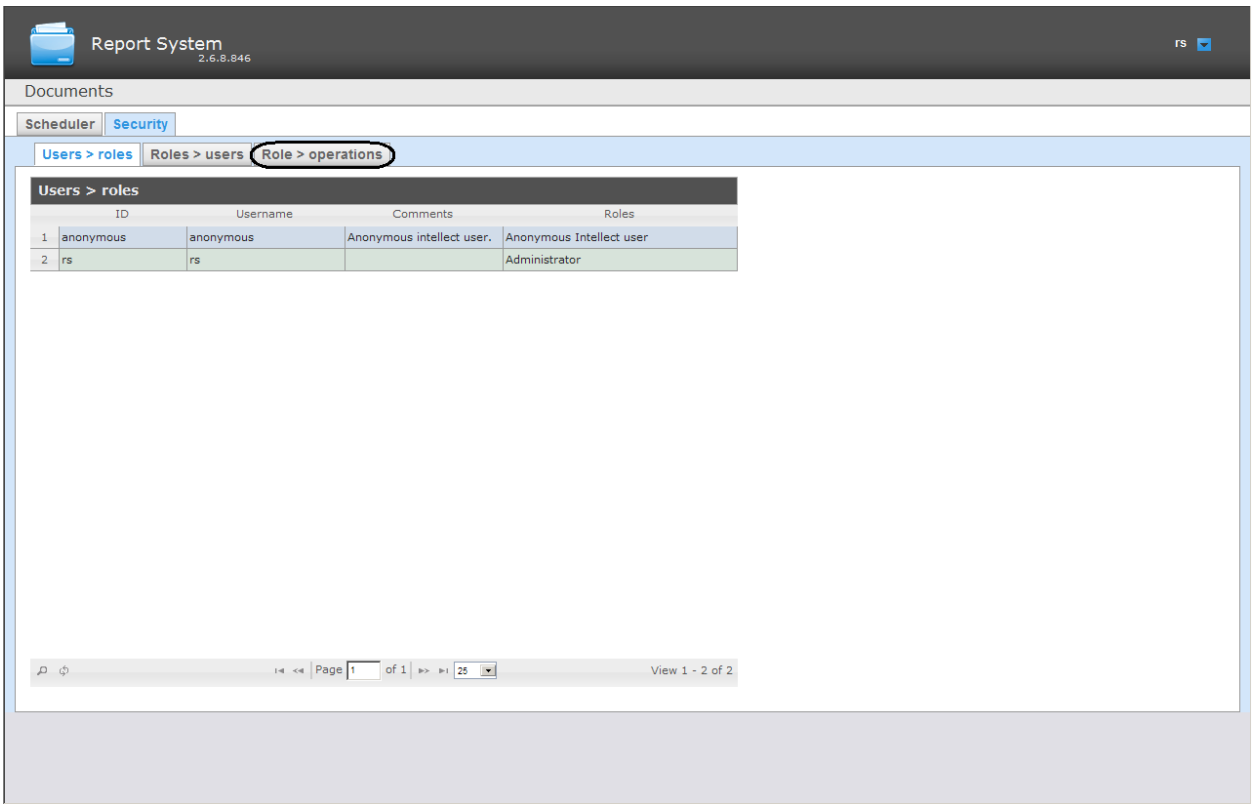

Figure 9.1-7 Security settings

4. Go to **Role > Operations** tab (Figure 9.1-7).
   Role settings page is displayed (Figure 9.1-8).

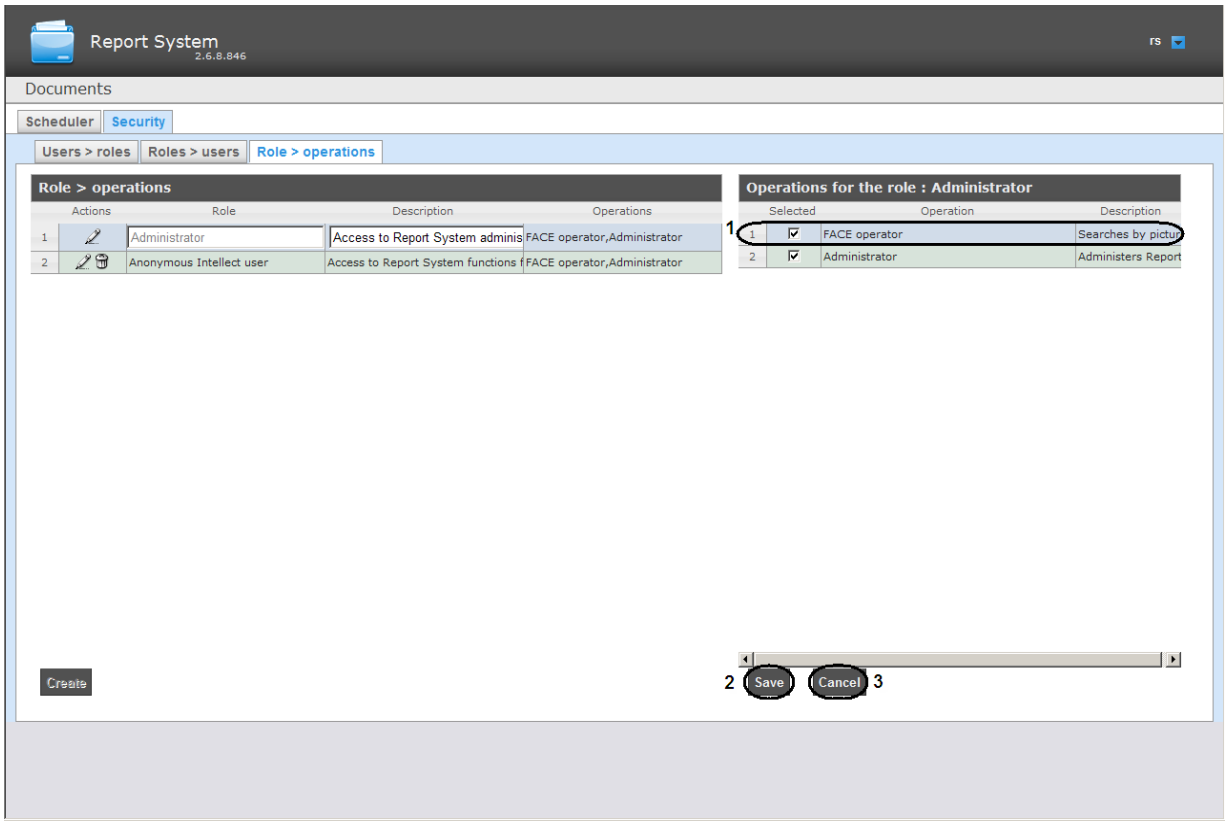

Figure 9.1-8 Role settings

5. Click  for required role in **Actions** column of **Roles > Operations** table (Figure 9.1-8).
6. As a result there is the ability to edit role parameters. It's necessary to set **Operator Face** checkbox (Figure 9.1-8, **1**).
7. To save the changes in role parameters click **Save** (Figure 9.1-8, **2**).

*Note. To cancel the changes in role click **Cancel** (*Figure 9.1-8*, **3**).*

Setting the rights for working with *Face-Intellect* software package is completed.

9.2 Features of working with *Face-Intellect* software package through «Viewing web-interfaces module» interface window

To ensure correct operation of *Face Intellect* software package through **Viewing web-interfaces module** it's necessary to add IP addresses of face search servers into trusted zone of Internet Explorer browser (see *Adding IP addresses of face search servers into trusted zone of Internet Explorer browser)* and setup security parameters of **Trusted sites** zone (see *Setting security parameters in Internet Explorer browser*).

There are some features while working with *Face-Intellect* software package through «**Viewing web-interfaces module**» interface window:

1. Interface window is a Web-page of search for faces by photo in video archive.
2. There is no report subsystem navigation in interface window.
3. There are no standard menus and browser operations in interface window.

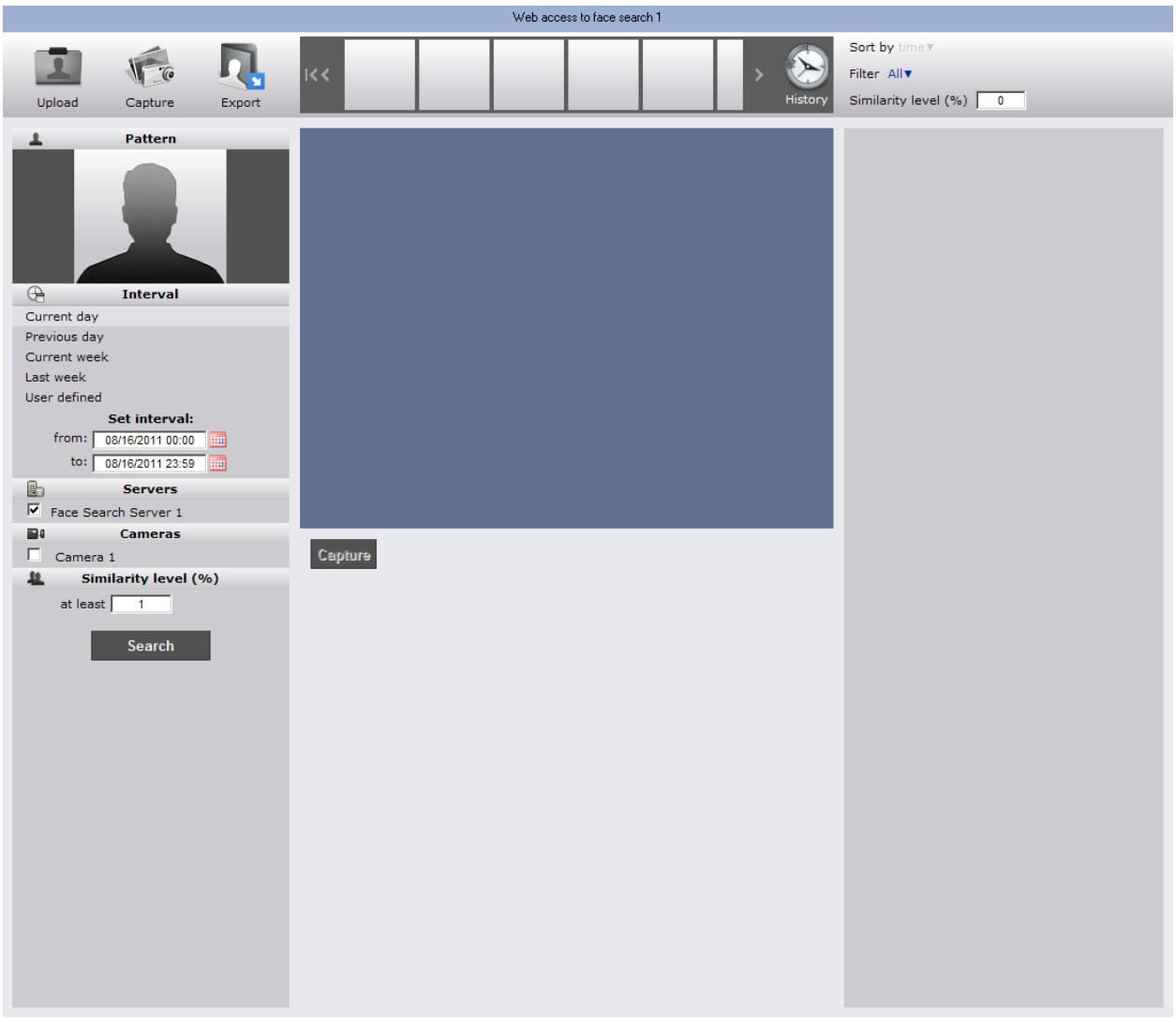

Figure 9.2-1 working with *Face-Intellect* software package through «Viewing web-interfaces module» interface window

Without taking these features into account working with *Face-Intellect* software package through «Viewing web-interfaces module» interface window is the same as working through browser.

9.3 Working with «Search by picture» program module

Face-Intellect software package allows to search faces by picture in the video archive.

To go to face search click **Face module** link in *Report System* menu (Figure 9.3-1).

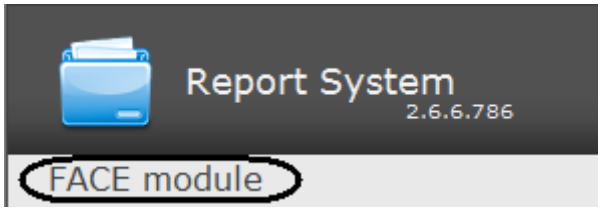

Figure 9.3-1 Switch to face search

As a result Face-Intellect software package main page is displayed on *Report System* site (Figure 9.3-2).

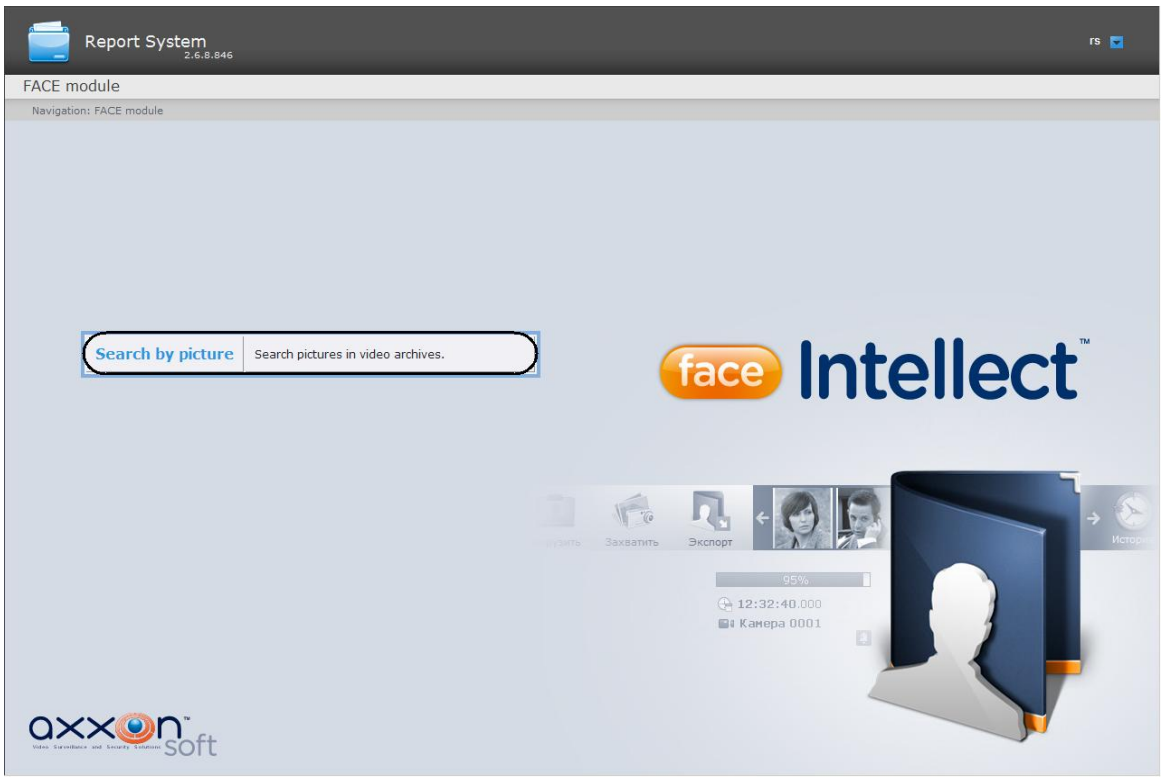

Figure 9.3-2 Face-Intellect software package main page

Click **search by picture** (Figure 9.3-2).

As a result face search by picture in the video archive page is displayed (Figure 9.3-3).

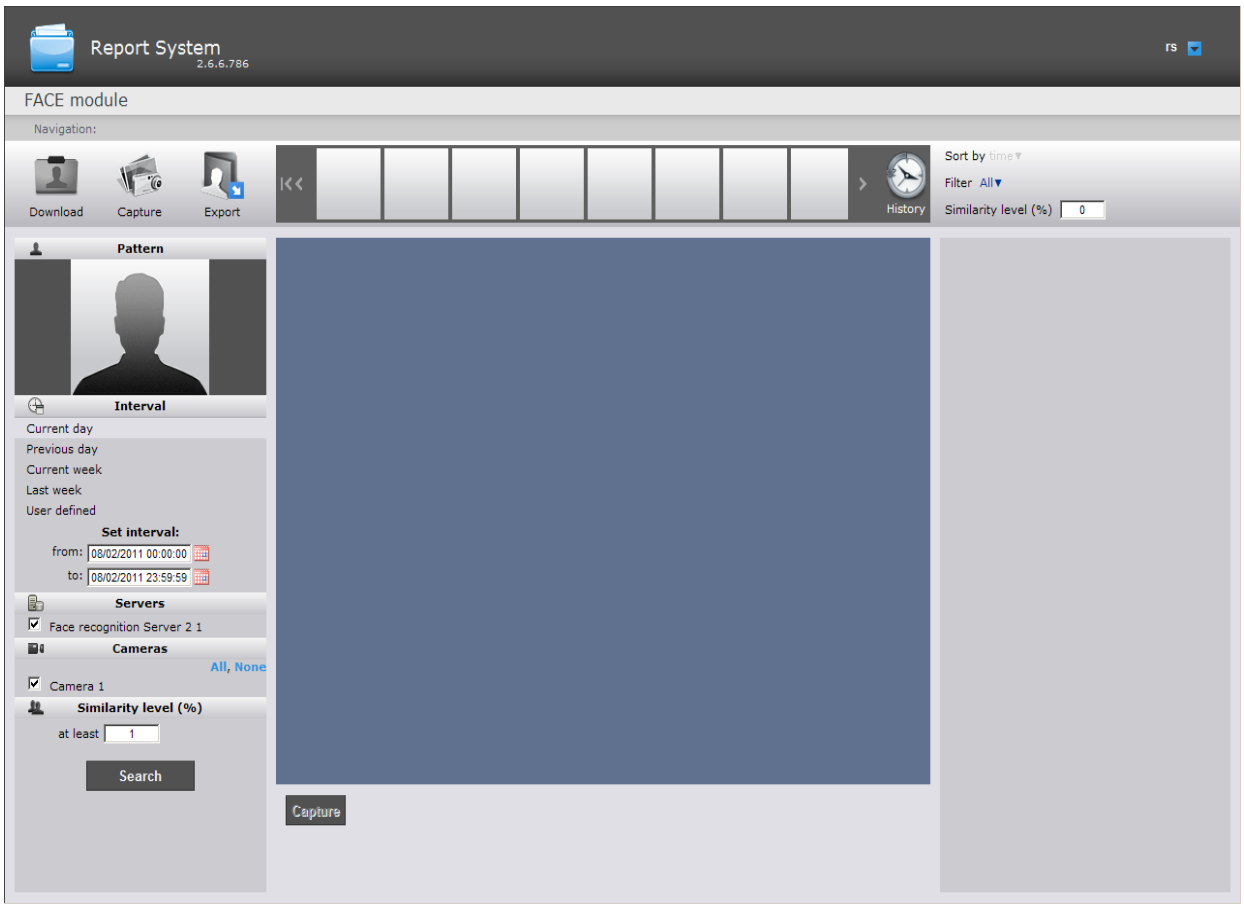

Figure 9.3-3 Face search

9.3.1 Setting search criteria

9.3.1.1 Selection of image for search

You can select the image for search in two ways:

1. By capturing the image from video camera.
2. By downloading the file with image.

9.3.1.1.1 Capturing image from video camera

To capture the image from video camera do the following:

1. Click **Capture** on control board (Figure 9.3-4).

Figure 9.3-4 Capturing image from video camera

Window of capturing image from video camera is displayed (Figure 9.3-5).

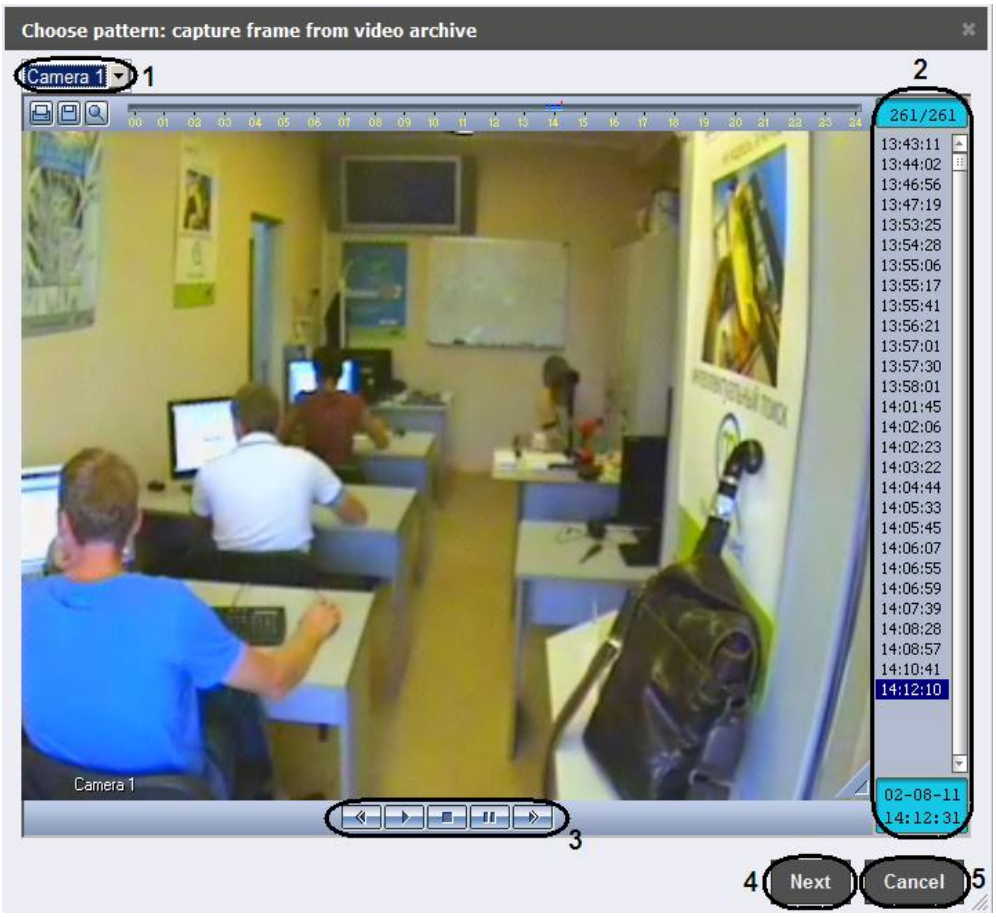

Figure 9.3-5 Window of capturing image from video camera

2. From the dropdown list select video camera from video archive in which it's necessary to capture the image (Figure 9.3-5, **2**).
3. Select required video. To go to video records click left mouse button on the corresponding time marker (Figure 9.3-5, **2**).
4. Select required video frame. Use playback control board for video frame selection (Figure 9.3-5, **3**).

Note.  *button is for starting playback of selected video recording,*  *button stops playback and set video recording playback current position to the beginning of video recording fragment.*

 *and*  *buttons are used for going to video recording back and forth in playback mode and also for paging frames in pause mode. To go to pause mode кнопка*  *button is used,*  *button is used for restarting playback.*

5. Click **Next** to go to select area on the image (Figure 9.3-5, **4**).

Note. To return to the page of search for face click ***Cancel*** *(*Figure 9.3-5*, **5**).*

Window of selecting frame area is displayed (Figure 9.3-6).

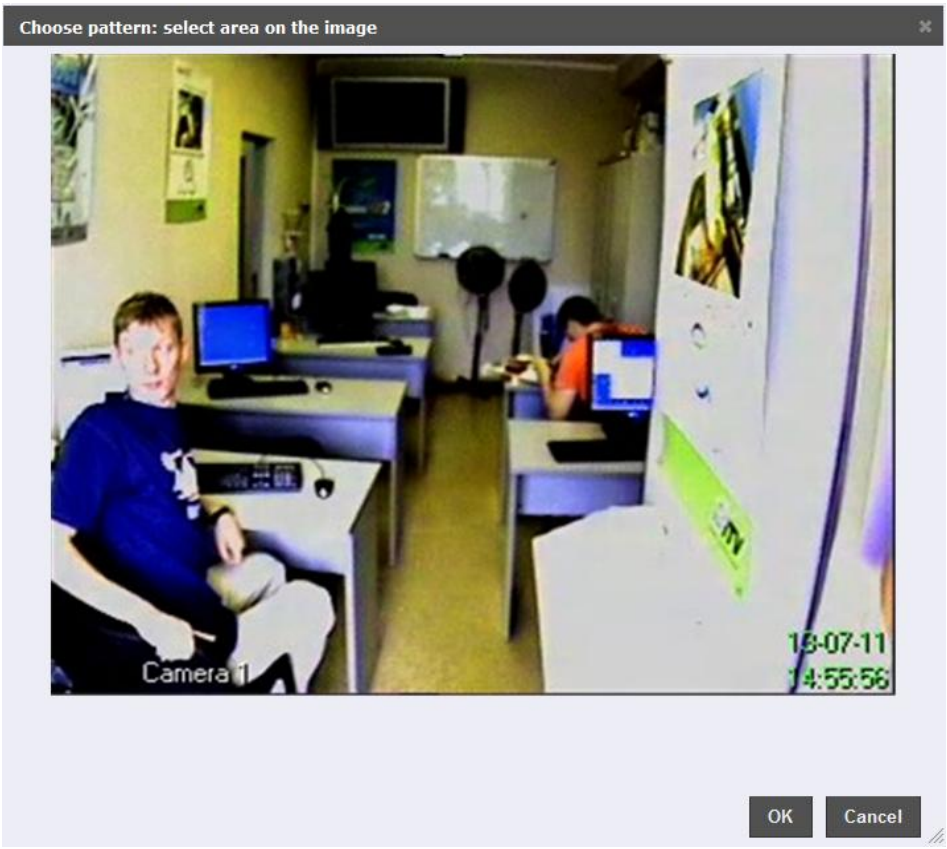

Figure 9.3-6 Window of selecting frame area

6. Select the area in frame where the face is by clicking and holding left mouse button and dragging mouse cursor (Figure 9.3-7).

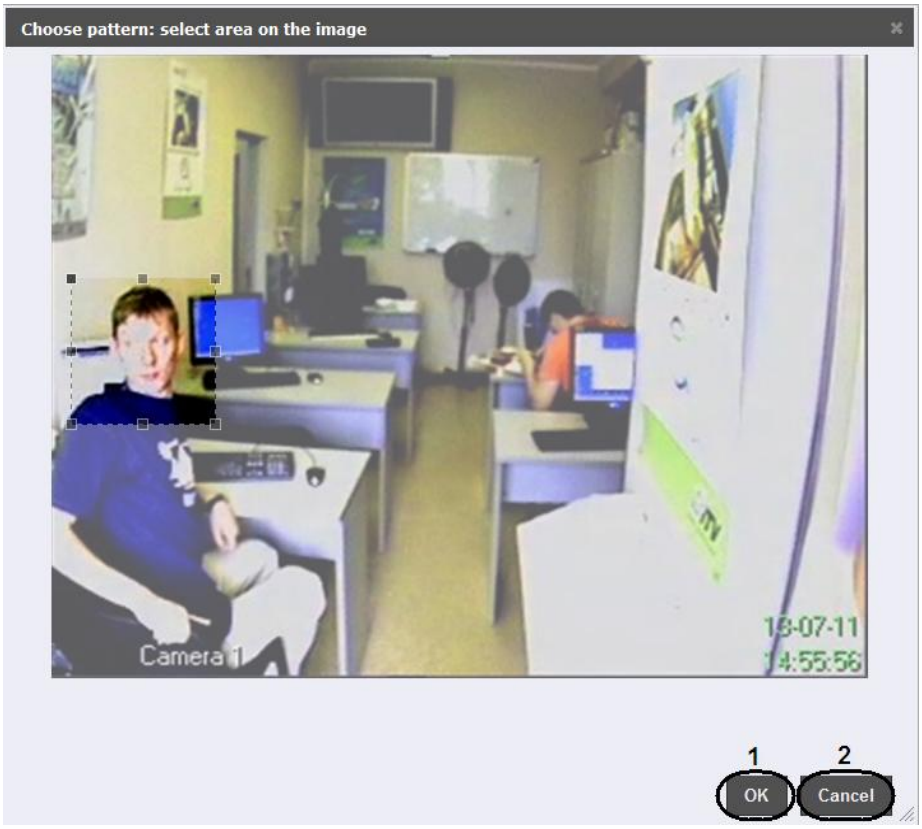

Figure 9.3-7 Selecting area

7. To continue click **Ok** (Figure 9.3-7, **1**).

*Note. To return to the page of search for face click **Cancel** (Figure 9.3-7, **2**).*

As a result the selected area is displayed in the **Pattern** field on setting search conditions board (Figure 9.3-8).

Figure 9.3-8 Captured image

Capture frame from video camera is completed.

9.3.1.1.2 Downloading image from file

To download image from the file do the following:

1. Click **Download** on control board (Figure 9.3-9).

Figure 9.3-9 Downloading image from file

Window of selecting file is displayed (Figure 9.3-10).

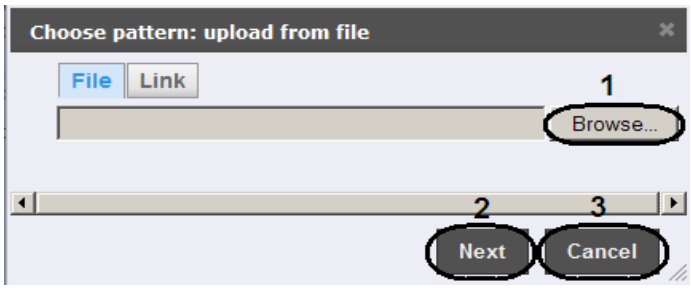

Figure 9.3-10 Window of selecting file

2. You can download the image from the file in two ways:
   2.1 Set the file on computer:
      a) Click **Browse** and select required image file (Figure 9.3-10, **1**).
      b) To continue click **Next** (Figure 9.3-10, **2**).

*Note. To return to the page of search for face click **Cancel** (Figure 9.3-10, **3**).*

   2.2 Set the URL-address of the file:
      a) Go to the **Url** tab (Figure 9.3-11, **1**).

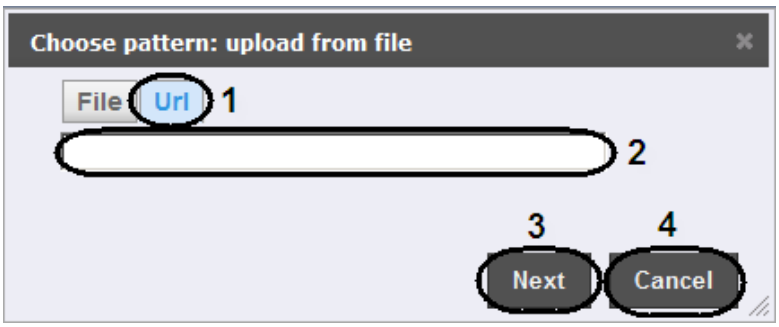

Figure 9.3-11 Uploading the file through URL-address

b) Set URL-address of the image (Figure 9.3-11, **2**).
c) To continue click **Next** (Figure 9.3-11, **3**).

*Note. To return to the page of search for face click **Cancel** (Figure 9.3-11, 4).*

Window of selecting area on the image is displayed (Figure 9.3-12).

Figure 9.3-12 Window of selecting area on the image

3. Select the area in frame where the face is by clicking and holding left mouse button and dragging mouse cursor (Figure 9.3-13).

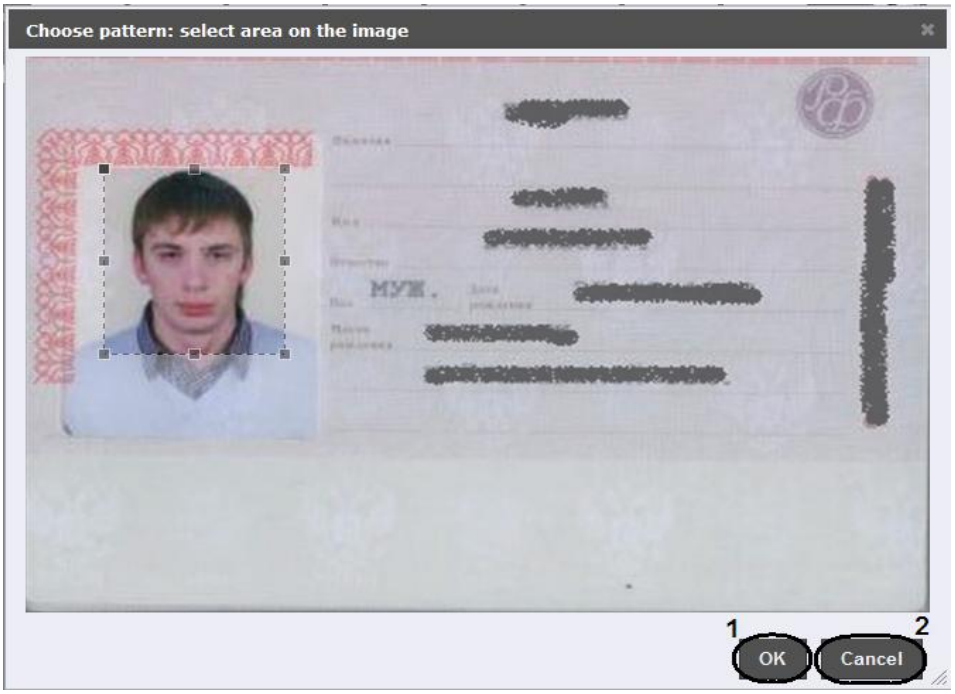

Figure 9.3-13 Selecting image area

4. To continue click **Ok** (Figure 9.3-13, **1**).

*Note. To return to the page of search for face click **Cancel** (*Figure 9.3-13*, **2**).*

As a result the selected area is displayed in **Pattern** field on setting search conditions board (Figure 9.3-14).

Figure 9.3-14 Downloaded image

Downloading image from file is completed.

9.3.1.2 Setting search criteria

Search criteria are set on corresponding board of face search page (Figure 9.3-15).

Figure 9.3-15 Setting search criteria board

To set search criteria do the following:

1. Select search interval from the list by clicking on corresponding link or set proper interval (Figure 9.3-15, **1**).
   You can set the proper interval in two ways:
   a) Manually setting the ends of interval in **from** and **to** fields in DD/MM/YY HH:MM:SS format.
   b) Using calendar (Figure 9.3-16).
      To activate calendar click .

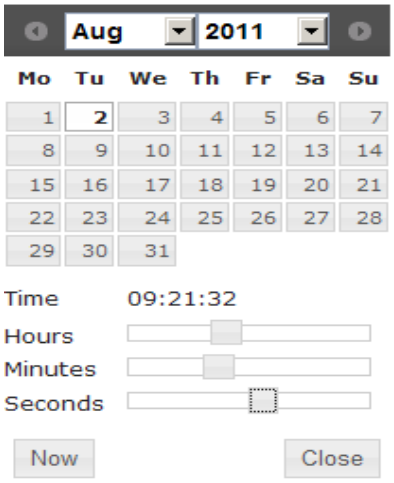

Figure 9.3-16 Calendar

2. Set required servers of face search by setting corresponding checkboxes (Figure 9.3-15, **2**).
3. Set required cameras of face search by setting corresponding checkboxes (Figure 9.3-15, **3**).

*Note 1.To select all cameras click the **All** link, for inverse action click the **None** link.*

Note 2. If no video camera is detected, you will be asked to refresh the page (Figure 9.3-17).

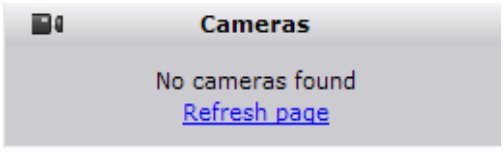

Figure 9.3-17 Page refresh

4. In the corresponding field set minimal face similarity level (in percentage) on the selected image with faces on video recordings fragments (Figure 9.3-15, **4**). Only those video recordings where there are faces with similarity level that is more than the set one will be displayed in search results.

Setting search conditions is completed.

9.3.2 Starting search process

After setting search criteria it's necessary to start search process. To do this click **Search** (Figure 9.3-18).

Figure 9.3-18 Search starting

Note. The illustration of starting search process is a display of process on search results board (Figure 9.3-19).

Figure 9.3-19 Display of search process

*Note. To stop searching process click the **cancel** link (Figure 9.3-19).*

9.3.3 Search results viewing

After finishing of search the message about successful complete of the search and its result will appear on the search results board (Figure 9.3-20).

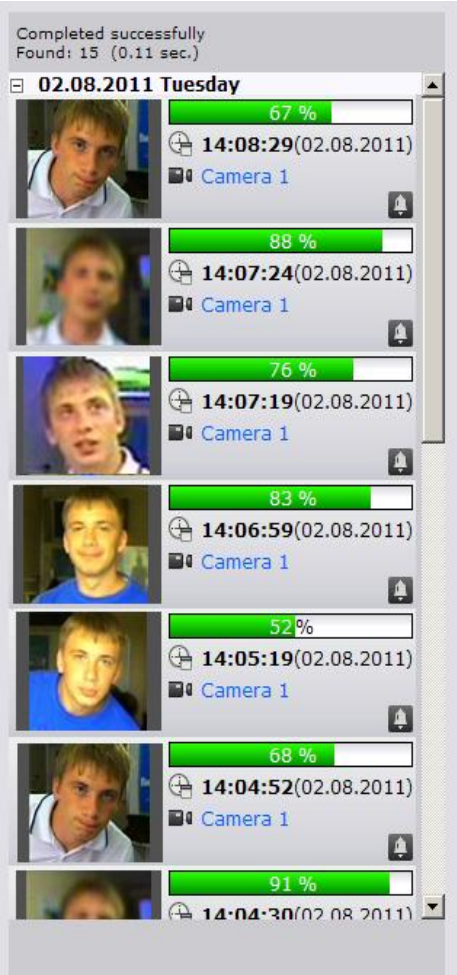

Figure 9.3-20 Search results board

Search result is set of video recordings that meet search criteria. The following information is given for each video recording:

1. Similarity level of face in the frame with the face on the video recording.
2. Time and date of the video recording.
3. Video camera from which the video recording is taken.

For video recording viewing click on it with the left mouse button. After this window of video recording viewing is displayed (Figure 9.3-21).

Figure 9.3-21 Window of video recording viewing

Note.  *button is for starting playback of selected video recording,*  *button stops playback and set video recording playback current position to the beginning of video recording fragment.*

 *and*  *buttons are used for going to video recording back and forth in playback mode and also for paging frames in pause mode. To go to pause mode кнопка*  *button is used,*  *button is used for restarting playback.*

To capture the image in video recording that is been playing back and to start a new search click **Capture** (Figure 9.3-21). After this the window of selecting frame area is displayed (see *Capturing image from video* camera).

9.3.4 Setting search results display

To set search results display do the following:

1. Set sorting principle of search results:
   1.1 Click the link of **Sort by** parameter or ▼ sign (Figure 9.3-22). Contextual menu of sorting types is displayed (Figure 9.3-22).

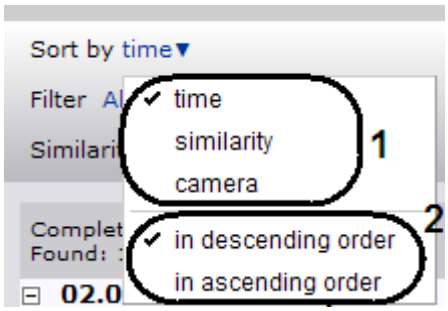

Figure 9.3-22 Contextual menu of sorting types

   1.2 Select parameter by which it's necessary to sort search results (Figure 9.3-22, **1**).

1.3 Select sorting type of search results (Figure 9.3-22, **2**).

2. Set filter of search results display:

   2.1 Click the link of **Filter** parameter or ▼ sign (Figure 9.3-23).
   Contextual menu of filter setting is displayed (Figure 9.3-23).

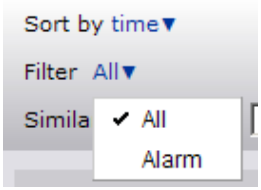

Figure 9.3-23 Filter setting

   2.2 In case when it's necessary to display only video recordings that are made by alarm select the **Alarm** menu item (Figure 9.3-23).

*Note. On default the **All** item is selected. It means that all video recordings are displayed on search results board.*

3. In the **Similarity level (%)** field set minimal similarity level (Figure 9.3-24).
   Only video recordings with similarity level that is higher than a set one are displayed on search results board.

Figure 9.3-24 Setting similarity level

Setting search results display is completed.

9.3.5 Exporting search results to report file

To export search results to report file of **pdf** format do the following:

1. Click **Export** on control board (Figure 9.3-25).

Figure 9.3-25 Exporting search results

Export window is displayed (Figure 9.3-26).

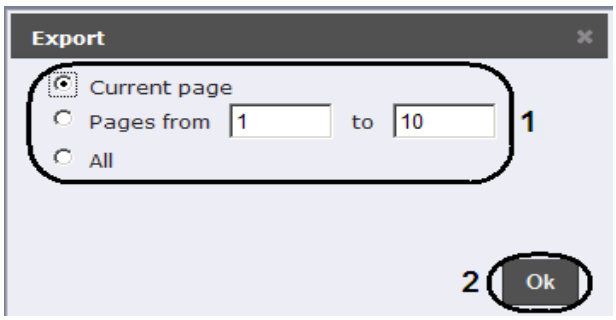

Figure 9.3-26 Export window

2. Set pages of search results that should be exported to report file (Figure 9.3-26, **1**).
3. Click **Ok** (Figure 9.3-26, **2**).

After this browser will offer to save or open report file (Figure 9.3-27).

Figure 9.3-27 Report file

Exporting search results to report file is completed.

9.3.6 Retrieval requests change-over

Retrieval requests icons are on navigation board (Figure 9.3-28).

Figure 9.3-28 Search requests

Icons are scaled images by which there was a searching.

To page the requests list use and buttons correspondingly. To go to the last request click .

To go to required retrieval request click left mouse button on corresponding icon.

Note. Pointing mouse cursor to request icon information about this request is displayed (Figure 9.3-29).

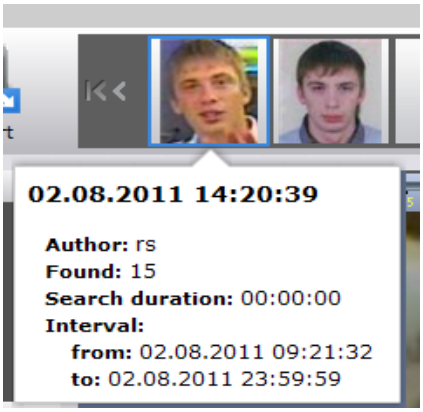

Figure 9.3-29 Information about retrieval request

After this results of this retrieval request are displayed on search result board.

9.3.7 Searching requests

To search requests do the following:

1. Click **History** on navigation board (Figure 9.3-30).

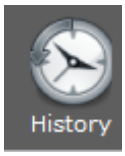

Figure 9.3-30 Change for searching requests

Requests history window is displayed (Figure 9.3-31).

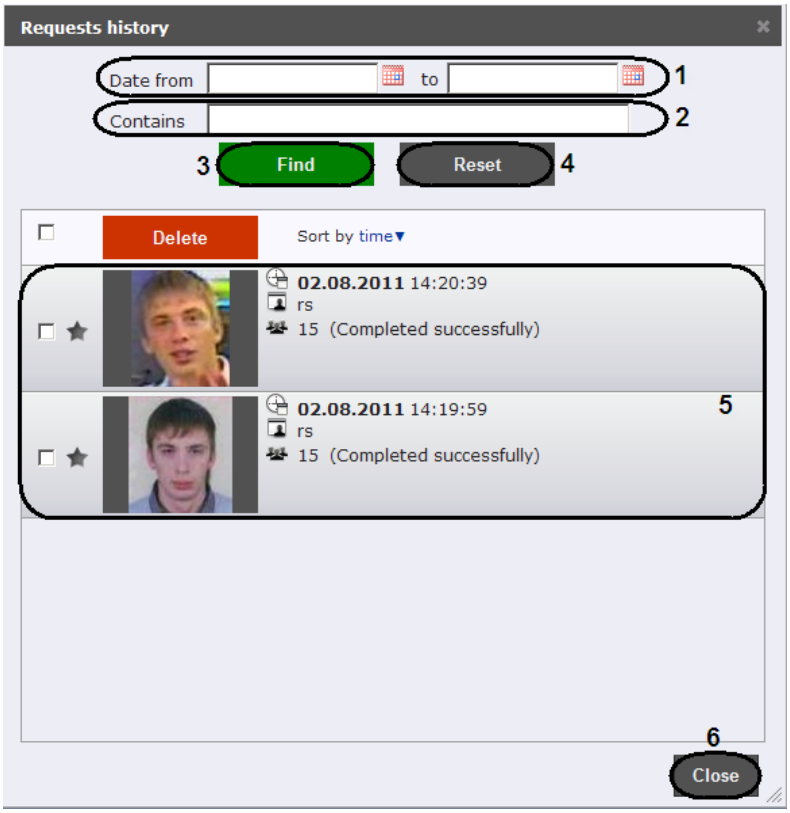

Figure 9.3-31 Requests history

2. Set the ends of search intervals in DD/MM/YY HH:MM:SS format manually or using calendar (button) (Figure 9.3-31, **1**).
3. In **Contains** field set comment or name of request tag (Figure 9.3-31, **2**).
4. Click **Find** (Figure 9.3-31, **3**).
   After this search results are displayed in requests window (Figure 9.3-31, **5**).

Note 1. Search results are retrieval requests that meet set criteria and contain the following information:

a) Date and time of search.
b) User who was searching.
c) Quantity of search results.
d) Tag name (if it is set, see Giving a tag to retrieval request).
e) Comment to the tag (if it is set).

*Note 2. To clean request window click **Reset** (Figure 9.3-31, 4).*

5. To close the **Requests history** window and returning to face search page click **Close** (Figure 9.3-31, **6**).

Searching requests is completed.

9.3.8 Giving a tag to retrieval request

To give a tag to retrieval request do the following:

1. Click **History** on navigation board (Figure 9.3-32).

Figure 9.3-32 History button

Requests history window is displayed (Figure 9.3-33).

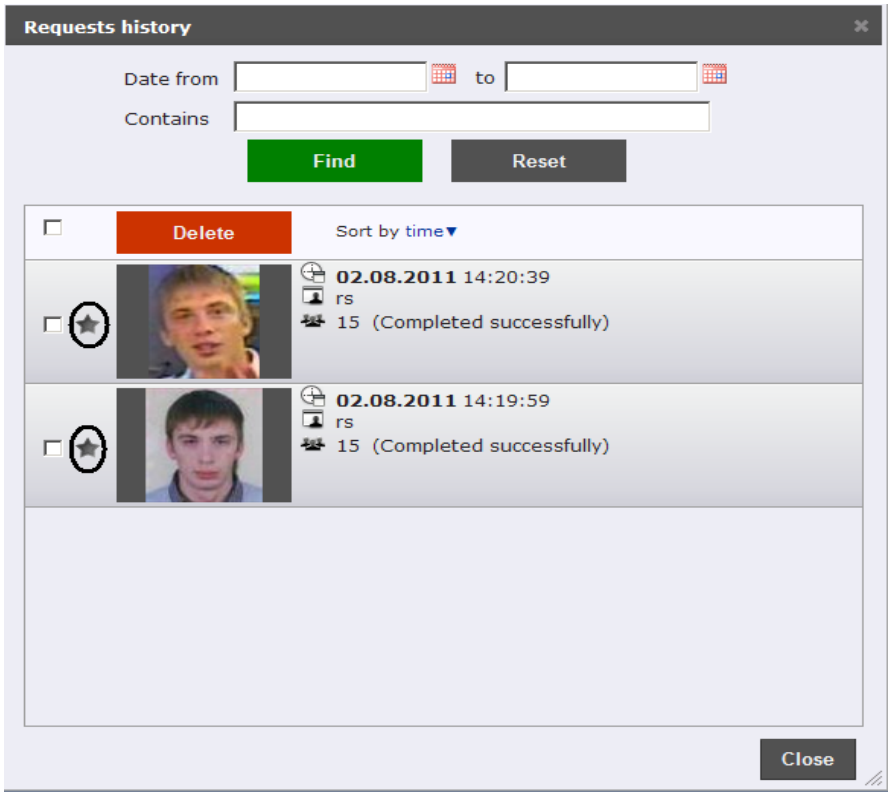

Figure 9.3-33 Requests history

2. Implement searching requests (see *Searching requests*).
3. Click ★ button in required request field (Figure 9.3-33).
   Bookmark window is displayed (Figure 9.3-34).

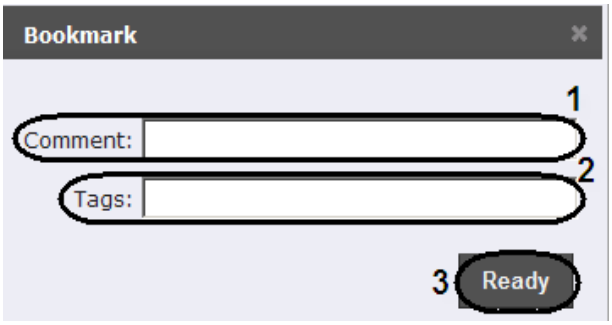

Figure 9.3-34 Adding a tag to retrieval request

4. In **Comment** field set the comment to the tag (Figure 9.3-34, **1**).
5. In **Tags** field set name of the tag (Figure 9.3-34, **2**).
6. Click **Ready** Figure 9.3-34, **3**).

Giving a tag to retrieval request is completed.

Note 1.Button of giving a tag to request that has already had a tag will colour yellow -  .

*Note 2. To remove a tag it's necessary to go to the **Bookmark** window once again and click the **Delete tag** link (Figure 9.3-35).*

Figure 9.3-35 Deleting a tag

9.3.9 Deleting retrieval requests

To delete retrieval requests do the following:

1. Click **History** on navigation board (Figure 9.3-36).

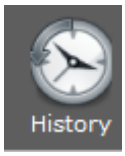

Figure 9.3-36 Change for removing retrieval requests

Requests history window is displayed (Figure 9.3-37).

Figure 9.3-37 Requests history

2. Implement searching requests (see *Searching requests*).
3. Set checkboxes in requests that should be deleted (Figure 9.3-37, **1**).
4. Click **Delete** (Figure 9.3-37, **2**).
5. To close the **Requests history** window and returning to face search page click **Close** (Figure 9.3-37, **3**).

Deleting retrieval requests is completed.

10 Conclusion

Please send your comments or requests concerning this Guide to the AxxonSoft Training and documentation development division at documentation@itv.ru.

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