RECFACES

ID-GUARD

TECHNICAL DESCRIPTION

IDGD.TI.DOC.990

CONTENTS

1 INTRODUCTION (PURPOSE)

The Id-Guard system (hereinafter referred to as the “System”) is designed to help security services and security managers to simplify their work, respond to incidents at the premises in a timely manner, and quickly conduct investigations, excluding long and time-consuming viewing the video archive. Id-Guard must be installed in parallel with an existing or newly created video surveillance system. The provided opportunities are useful to both security personnel and senior shifts:

- Maintaining a database of biometric data;
- Formation and maintenance of visitor lists for specialized processing;
- Displaying operational information about people who are currently in front of the camera;
- Identification of visitors by images obtained from the video stream;
- Sending notifications on events, including when identifying a person from a specific list;
- Searching in the archive of detected visitors;
- Collecting and generating statistical information;
- Integration with related information systems.

Using the above features of the System, a wide range of tasks can be solved:

- Assuring safety at the facility;
- Differentiation of access to facilities (visitors and staff);
- Analysis of various incidents by searching the video archive;
- Monitoring the use of premises and preventing their use for personal purposes;
- Prompt receipt of data on events and incidents;
- The ability to remotely work with the System using a mobile application;
- The formation of monthly and quarterly reports on visitors to the object.

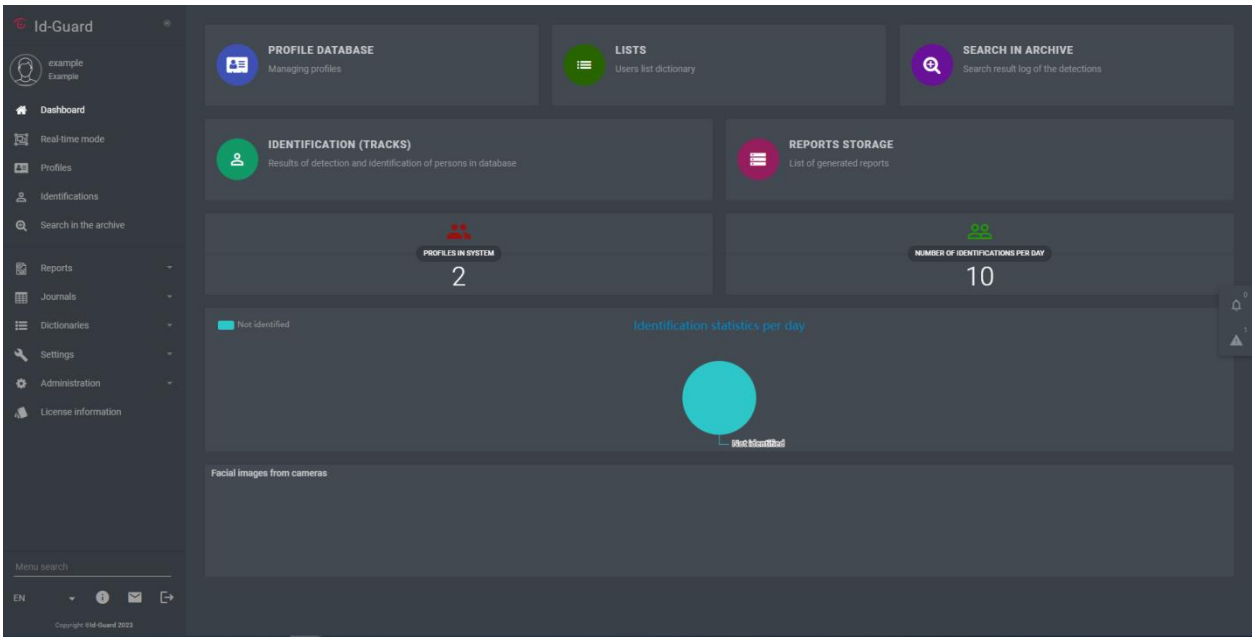

Figure 1. System dashboard

2 SOFTWARE DESCRIPTION

2.1 SYSTEM COMPONENTS

For the correct functioning of the System, the following minimal set of equipment is required:

- Server
- Monitor
- Camera(-s)

The detailed description of the equipment recommended characteristics is indicated below.

2.2 ARCHITECTURE

The System consists of the following components:

- **Id-Guard Core** — the server part of the System, consisting of separate services, including the System settings interface, recognition algorithms, database and reports
- **Tracker** — video preprocessing server

It is recommended to install the System components as follows:

- **Server:** Id-Guard Core + Tracker

A schematic diagram of the installation of System components is shown below.

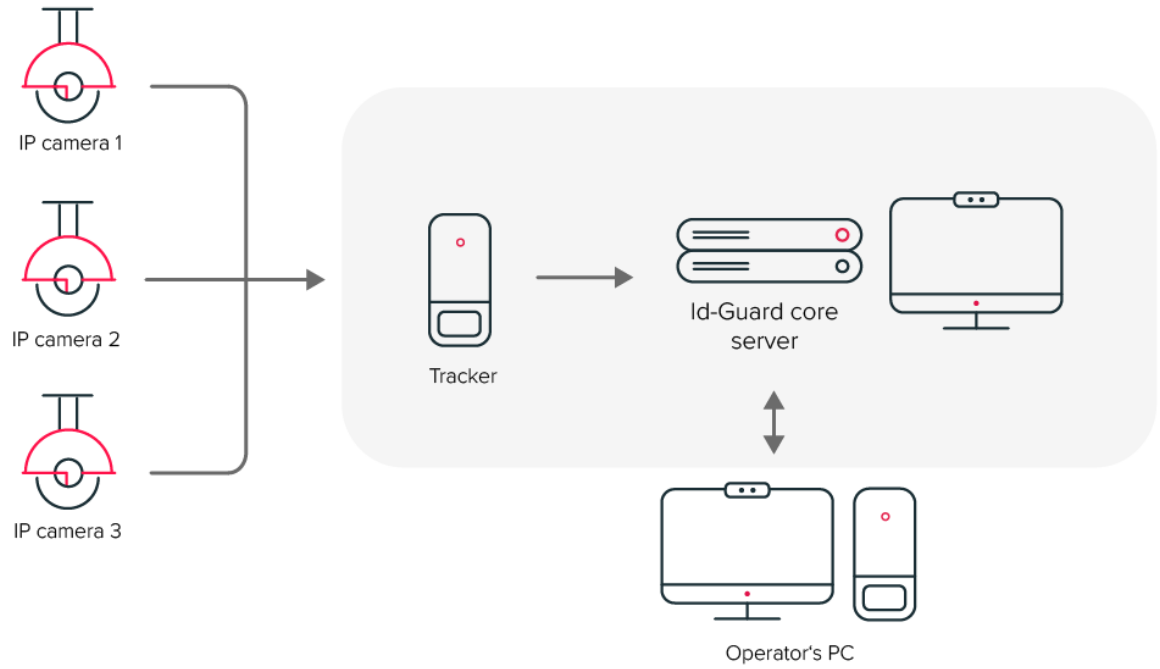

Figure 2. Schematic diagram of the connection of System components

2.3 TECHNOLOGIES

The System is developed using the following programming languages and software:

- Golang
- C#
- AngularJS
- RabbitMQ
- Nginx
- PostgreSQL
- Redis

2.4 LIST OF ID-GUARD CORE SERVICES

The Id-Guard Core includes the following services:

Table 1. Id-Guard Core services description

Service	Description	Port
Nginx	A web server and mail proxy server	80, 443, 23231
PostgreSQL	Free and open-source relational database management system (RDBMS)	5432
RabbitMQ	Service providing work with data queues	5672, 15672
Redis	Open-source software for managing NoSQL databases	6379
mkvz-tracker	Service for preprocessing video stream (tracker)	8001
mkv-server-auth-vx	Authorization service that uses VideoXpert	8111
mkvz-video	Service for analyzing video files and RTSP video streams	8871
mkvz-launcher	Service for managing client applications	8876
march-server-api	Archive management service	11061
march-storage	Storage service for the archive	11062
mkv-server-report	Service for generating reports: includes reports by gender, age, visits, etc.	11084
mu-server-api	Notification service	11090
support-server-api	Service for system maintenance	11091
mkv-server-url-shortener	URL shortening service	11092
mas-server-api	Management service, which provides API for processing data about devices, applications, cameras	11101
mas-server-settings	Service for storing configuration settings and sending them to the modules	11102
mpdn-secret-vault-api	Service for storing personal data	11204
mfs-server-api	Service for storing and working with images	11300
mfs-server-thumbnail	Service for working with thumbnails of the file storage	11301
fs-server-api	File storage service	11302
mi-sender-email	Service for sending e-mail notifications	11400
mi-sender-http	Service for sending notifications by http (push)	11401

mi-sender-smsmodem	Service for sending SMS with a USB gsm modem	11402
mi-server-api	Service for implementing API functions to work with services	11403
mi-sender-telegram	Service for sending SMS to Telegram	11404
mi-controller-vms	Service for integration with external systems	11405
mi-vms-adapter-videoxpert	Service of integration adapter with VideoXpert VMS	11411
mi-adapter-vms-milestone	Service of integration adapter with Milestone	11412
mi-adapter-vms-bvms	Service of integration adapter with BVMS	11424
mkv-server-admin	User interface for the System administration module	11500
mkv-server-api	The service contains API methods to work with the main functionality of the System	11501
mkv-server-auth	Service for authorization in the System by entering a username and password	11502
mkv-server-ws	Application back-end for working with the client via WebSocket	11503
backup-client-server-api	System data backup service	11506
logging-server-api	Service is used to get logs from services	11509
event-configuration-api	Service for simplifying working with event storage, so that a single request creates a pool of necessary entries in the dictionaries for event processing	11510
event-storage-server-api	Service for processing System events and performing various actions depending on the type of event	11511
map-server-api	Map service	11512
mkv-client-profiles-import	Service for importing profiles into the System	11514
mas-meta-server-api	Meta information service	11515
monitoring-server-api	Services for monitoring statuses of the running services	11517
statistics-server-api	Service for recording statistics on the System operation	11518
audit-server-api	Auditing and logging service	11521
mkv-server-auth-ldap	Service for authorization in the System via LDAP/AD	11522
mkvz-onvif-cameras	Service for searching and connecting cameras supporting ONVIF protocol	11550
mas-server-report	Report service for MAS	11553
mie-export-api	Service for exporting customized data sets from CSV	11555
mie-import-api	Service for importing customized data sets to CSV	11556
mmpd	Service for managing detecting processes	11600
mobile-service-api	API for working with mobile apps	11601
modi-image-worker	Service for processing photos (crop, resize, etc.)	11700
modi-server-api	Service for processing discrete images	11701
modi-ubda-tevian-[01-04]	Service for processing photos: searching faces and creating biometric templates	11710 y [01], 11711 y [02], 11712 y [03], 11713 y [04]
mrp-server-api	Service that provides API for processing data during working with the streaming video	11800
mrp-server-ubt-broker	Service for UBT proxying to other systems	11801

mrp-matching-tevian-go	Matching service for the Tevian engine	11806
march-matching-tevian	Identification and verification service	11810
mrp-server-broker	Service managing a request queue to the matching algorithms	11821
mrp-server-image-broker	Service for image distribution among trackers	11822
ms-server-filecache	Service providing file caching	11900
mkv-scheduler-api	Service that implements working with scheduled tasks	11910
video-restreamer-server	Server for video restreaming	40000, 40001

One of the server requirements for installing the Id-Guard Core software package is the absence on the server of the software specified in the table above and the presence of free ports indicated in the table.

3 REQUIREMENTS FOR CORRECT WORK

3.1 ID-GUARD SERVER

It is recommended to install the Id-Guard Core on the server. Server characteristics directly depend on the number of cameras processed by the System. An approximate calculation for the most common values is presented in the table below.

Table 2. Server requirements

Number of cameras	CPU (Core)	RAM (GB)	HDD (GB)	SSD (GB)
1	5	16	600	240
2	6	16	700	240
3	8	16	700	240
5	10	32	800	240
7	14	32	900	240
10	18	64	1000	240

Operating system: Windows 10 Pro (2004 and later, according to the end date of the operating system support), Windows Server 2016/2019 and later. If you have the “Windows 10 Pro N” OS edition installed, you have to additionally install the “Media Feature Pack” component. The account (login/password) (including for a remote user) must remain unchanged throughout the installation. The account (login/password) must allow upgrading privileges to Administrator if necessary.

The following components **must not** be pre-installed on the server:

- PostgreSQL
- RabbitMQ
- Redis
- Web server that uses ports 80 and 443

3.2 CAMERA INSTALLATION

- The camera must be fixed using the special bracket supplied to minimize the blurring caused by the movement of the camera. It is allowed to mount the camera on a tripod; the camera installation height is from 1.5 to 2 m.
- The recommended camera placement: a person looks at the camera and moves towards it or across the camera's line of sight.
- Screens, interactive kiosks, boards, banners should not block a person moving.
- For recognition and identification purposes, it is required to use cameras with varifocal lenses.
- The lens focal length must be in the range from 9 to 40 mm.
- The camera tilt at the end of the face detection area should be within 15 deg.
- The optimal camera height above the floor is 2.2 m, it is desirable that the beginning of the face detection area is located further than 8.0–8.5 m.
- If cameras are mounted indoors, uniform and constant level of illumination must be provided. For proper facial recognition, indirect lighting must provide such conditions, when visitors' faces have uniform illumination without shadows or glare. The recommended light intensity is about 300 Lux (minimum 150 Lux, maximum 600 Lux).
- At the beginning of the process of facial recognition, it is required to mount and configure a camera so that the size of an adult's face is about 160x160 pixels (the line of sight is more than 2 meters in width — a little wider than the width of outstretched arms).

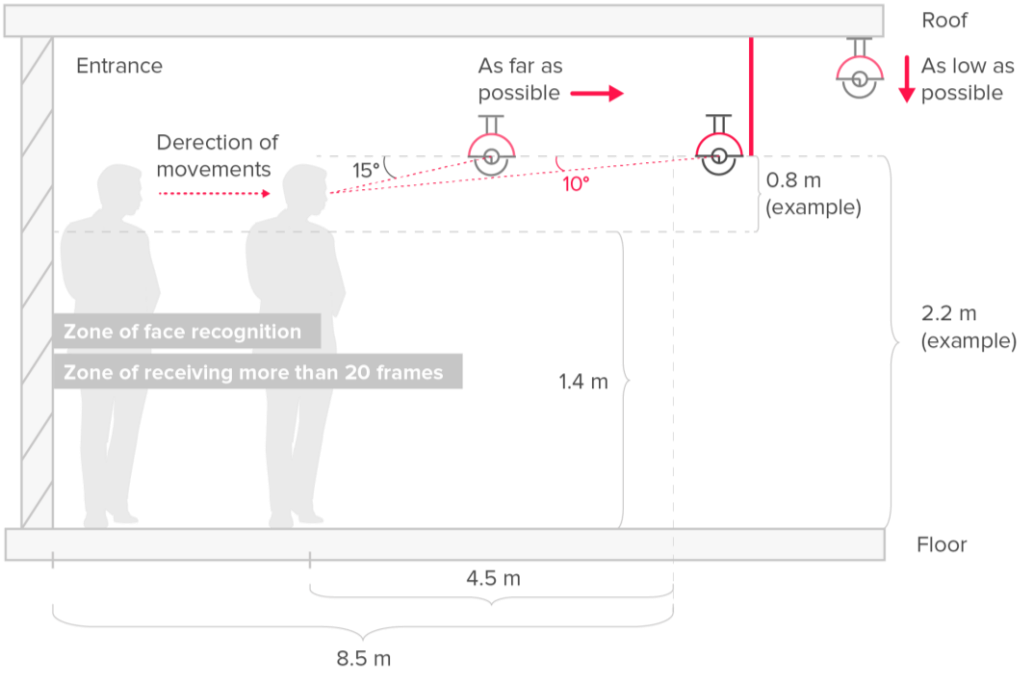

Figure 3. Camera placement recommendations

4 LANGUAGE SUPPORT

The Id-Guard software is a multilingual solution that allows you to choose from the following language options:

- English (by default)
- Spanish

The list of available languages can be expanded upon request.

5 DOCUMENTATION LIST

- Id-Guard Administrator's Guide
- Id-Guard Operator's Guide

6 SOFTWARE MANUFACTURER

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