

## Technical Specification



FaceVACS-VideoScan is a software product supporting the identification of persons in video surveillance applications. It incorporates Cognitec's latest face recognition technology. FaceVACS-VideoScan can work as a stand-alone solution, but also easily integrates into DVR systems; a variety of integration interfaces are available.

### FaceVACS® TECHNOLOGY

#### Face recognition engine is robust against

- Typical gesture changes
- Pose (+/- 15° deviation from frontal image)
- Minor partial face occlusions
- Beard and hairstyle changes
- Wearing glasses (except dark sunglasses)
- Lighting changes that do not cause strong shadows.

#### Based on the latest and best FaceVACS® technology

- Incorporates B4T8 algorithm
- Allows easy update to future technology
- Primary facial data management, i.e. facial images including annotated eye positions guarantees technology independence.

#### Minimal image requirements for facial recognition

- Sharp image / video frames
- One face is completely visible in the image
- Inter-pupil spacing larger than 32 pixels
- At least 64 greyscales per pixel within the face are required for adequate contrast.

#### Biometric characteristics

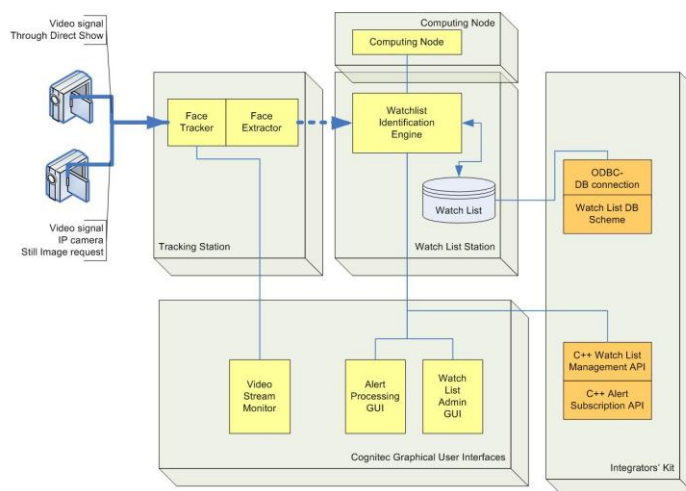
- Configurable similarity threshold
- Image quality assessment focused on face evidences.
- Optional configurable sample quality check

#### Disclaimer

*Like any biometrics, face recognition intrinsically cannot provide 100% recognition accuracy. The remaining uncertainty has to be considered by the customer and can be operationally covered to a certain degree.*

### GENERAL

- Fully Distributed Architecture of Tracking Stations, Watch List Stations, Encoders and Matchers
- Highly scalable and robust against hardware failure
- Central Software activation at Watch List Station.



### TRACKING STATION

Analyzes video streams and detects faces. Frames with found and annotated, cropped faces are sent to Watch List Station.

#### Features

- Runs as a service
- Fast and reliable face tracking
- Autonomous camera control for selected cameras based on real-time scene analysis to deliver video footage with best possible face representation
- Configurable tracking area through minimum and maximum face size relative to frame width
- Configurable face and eyes finder confidence and sample quality check; adjustable to specific application scenarios and environments
- Video channels independently configurable (frame rate, resolution, interface etc).

#### Operation Modes

- **Tracking:** exhaustively tracks all faces on video streams
- **Chokepoint:** only one face is captured per video frame; including optional triggering and feedback

#### Video input source supported on Windows

- Selected IDS GigE Vision cameras
- Selected Basler GigE Vision cameras
- Selected Prosilica GigE Vision cameras
- CCTV cameras with frame grabber via DirectShow
- USB and firewire cameras via DirectShow
- IP cameras accessible via http using still image or MJPEG requests
- IP cameras accessible by using DirectShow plugins
- Video stream format support (like MPEG2, MPEG4; AVI) depends on installed Direct Show Codecs
- Additional specific formats on request
- Evidence reference through stream ID, frame ID / timestamp
- All connected video streams can be monitored through the network
- Real time tracking of 25 frames per second at a 640 x 480 frame resolution is possible.

#### Video input source supported on Linux

- Selected IDS GigE Vision cameras
- Selected Prosilica GigE Vision cameras
- CCTV cameras with frame grabber via Video for Linux
- IP cameras accessible via http using still image or MJPEG requests

## Video Monitor / Chokepoint Monitor

Graphical presentation of live video streams or video streams that are processed

In chokepoint operation mode manually triggering is supported.

## Sizing

One server XEON@ 2.66 GHz; 800 MHz FSB; 1GByte RAM

- Covers one 640x480 video stream at 30 frames per second

## WATCH LIST STATION

Compares incoming and queued face evidences with watch list and rises alerts in case there is a match.

## Features

- Scalable and reliable with regards to the load of incoming identifications by adding computing power (Encoders) 'on the fly'

- Scalable and reliable with regards to growing watch lists up to 1,000,000 suspects by adding computing power (Matchers) 'on the fly'

- Encoders and Matchers are maintenance free

- High availability option for deployments where no single point of failure is allowed

- Multiple watch lists are supported.

- Automatic watch list replication and distribution with any watch list network topologies is supported

## Watch List Data Management

- System supports freely configurable case data  
- Enrolled case gets an operator's authorization tag and timestamp.

## Interactive enrolment

- From still face photograph  
- From connected video stream  
- From captured image received from acquisition camera  
- Visual inspection and manual annotation is possible  
- Re-enrolment is possible.

## Automatic enrolment

- From connected video stream

## Alert Center

Graphical presentation of alerts (matches) by time and video source

- alert confirmation and navigation  
- automatic unconfirmed alert selection

- navigation of server side stored historic alerts

## Administration

- Verification and identification for operational test purposes  
- GUI supports easy biometric and non-biometric configuration of the system.

## Batch import and enrolment

- From face photograph databases, can adopt to various naming schemes  
- Constantly provided progress feed back  
- Robust, re-start possible  
- Efficient batch enrolment failure correction and image quality assessment  
- Efficient batch enrolment  
- Import of person related data.

## Image format support for enrolment

- JPG (configurable quality)  
- PNG (configurable compression)  
- JPG2000 (read only)  
- TIFF 6.0 (read only).

## Journal storage

- Records activities of the system  
- The content of the recording is configurable  
- Timestamp for initiating user and action  
- Option to share with operation database or to install as independent database  
- Enabled for audit tracking  
- Accessible via web interface.

## Integration API

Watch list add / remove record  
Watch list enrolment  
Watch list identification  
Alert subscribing.

## Sizing

One server XEON@ 3.0 GHz; 800 MHz FSB; 1GByte RAM  
- Covers up to 10 identification events per second  
- Covers up to 100.000 watch list entries  
More specific sizing on request.

## DEPLOYMENT PACKAGES

### Tracking Station

See Tracking Station section; runs as service.

### Watch List Station

See Watch List Station section; runs as service.  
Configuration Editor and System Monitor for monitoring the distributed installation.

### Encoder

Deployment package consisting of an encoder for template generation that can be used by a Watch List Station to distribute load.  
Maintenance free; runs as service.

## Matcher

Deployment package consisting of a matcher for template comparison that can be used by a Watch List Station to distribute load.  
Maintenance free; runs as service.

## Cognitec Front-Ends

Deployment package consisting of Alert Center, Video Monitor, Watch list Administration GUI

## Integrators' Kit

The software provides various integration points, for the purpose of integrating with DVR systems and existing video surveillance solutions.

- Open and adjustable DB schema  
- Watch List Station and Tracking Station API  
- API in C++ programming language.  
- Web Service API

## TECHNICAL FACTS

### Video stream

- Minimal video stream resolution of 640 x 480.

### Operating system

- Windows 2003 Server / Windows XP (32 bit) Professional./ SuSE Enterprise Server 9, 10 (32 bit)

### Database for Watch List Station

- Microsoft Jet Engine as default (on Windows)  
- Runs optionally with Microsoft SQL Server 2005 or Oracle 10g / 11g  
- Other databases on request

### Minimum hardware requirements

- XEON @ 2.4 GHz / Pentium 4 @ 3.x GHz, 1 GBytes main memory  
- 1 GBytes free disk space  
- Covers a gallery of 100k enrollees.

## LANGUAGE SUPPORT

- English  
- Other languages on request

## DOCUMENTATION

Manual is provided as PDF and HTML.

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