# Gemalto Cogent LFIS Watch

High Performance Face Identification for Smarter Surveillance

Gemalto Cogent LFIS Watch provides a proactive solution to recognize faces in a crowd that can be used for surveillance in safe cities, transportation hubs, campuses, border crossings, and more. LFIS Watch detects faces from multiple live video streams, performs several to many (n:m) searches, identifies persons of interest from watch lists, and provides real-time alerts. Drastically reducing surveillance operator workload, it allows for a faster identification and response. Instead of constantly monitoring and scrutinizing multiple live video streams, the operator can monitor the system alerts and decide if action is required.

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LFIS Watch helps increase overall security by automatically monitoring areas and reducing the probability of missing a person of interest.
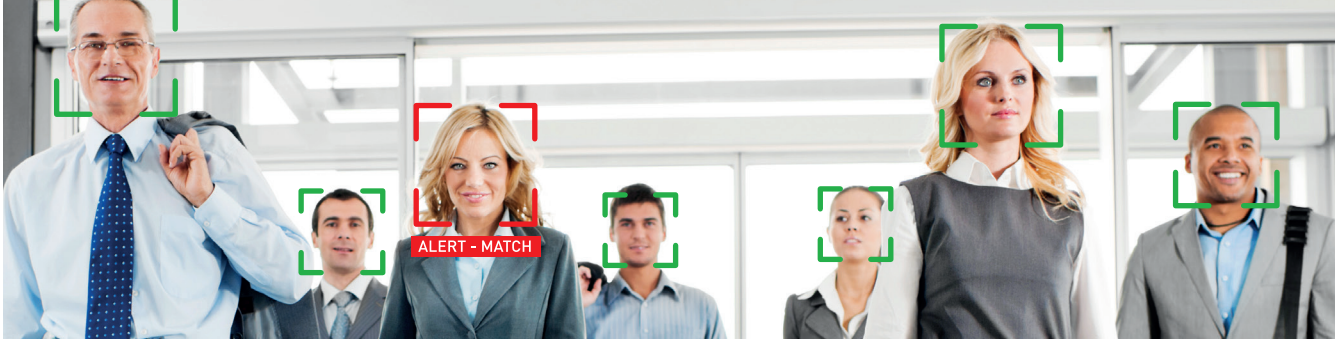
Trained by neural networks, the embedded algorithm ensures efficiency and accuracy for face detection and recognition even with challenging scenarios such as varying head positioning, lighting and weather conditions, and occlusions such as hats and glasses. Gender, age and race can be recognized as face attributes.

An operator friendly, web-based-user interface provides the ability to display the live view, history view, watch lists, and system management. The history automatically saves all detection and identification events, facilitating real-time review or for post-event queries and analysis.
Highly scalable, the state-of-the-art solution architecture can adjust to large numbers of cameras, high traffic areas and large watch lists. The solution is available on-premise for Windows, Linux and in the cloud (AWS and Azure).

LFIS Watch provides rich RESTful APIs for developers, allowing them to build their own web applications for on PC, tablet and mobile or to easily and seamlessly integrate with 3rd party solutions. The logs can track all identification history with name, time, match score, group, etc. and can be retrieved by 3rd party solutions to monitor system usage, create statistics metrics and build reports. LFIS Watch has been integrated with several Video Management Software (VMS) systems to process video streams and return identification events and alerts. Integration into other VMS systems can be done upon request.

The LFIS Search module can be added to LFIS Watch, to extend the functionality to pre-recorded videos.

Operations GUI
The Operations GUI (Graphical User Interface) is a built-in, password-protected, web-based user interface accessible via a web browser.

Key features include:

> Monitor connected cameras within the network through live video feeds and receive real-time information about persons of interest as well as those who are not known to the system
> See recent encounter information
> Watch video clips of encounters, if setting enabled within the configurations
> View faces detected ordered by date and time
> View dynamically generated reports on historical results
> Filter historical results according to matching confidence
> Inspect consolidated list of all faces detected
> Drill down into particular encounters to find more specific associated information
> Export historical data from customized date ranges
> Text search for names of identities within the persons of interest list
> Add or remove identities from the persons of interest list, add or remove photos, and move identities from one watch list to another
> Bulk import appropriately configured data from external sources automatically using the import tool
> View all encounters of a person of interest since the time that they were added to a watch list
> Search historic encounters using images collected from external sources
> Search watch list using images & video collected from external sources
> Conveniently launch multiple searches in parallel
> Monitor search progress
> View interim search results

Application Management GUI

The Management GUI is a built-in, password-protected, web-based, administrative interface accessible via a web browser. The following table highlights some of the key features that can be accessed via the Management GUI's screens.

Key features include:

> View live system summary statistics – overall running status, number of running services, cameras configured, persons of interest list statistics, average extraction time, average tracking time, average record saving time, average identification time, up time, number of hits, number of searches, number of faces qualified, number of faces detected, frames tracked and frames processed
> Product key management
> Summary information to show product features enabled through current product key
> Automatic rebalancing of Core LFIS processes to make use of available servers
> Add new servers to Core LFIS network (servers must have agent software installed)
> Remove servers from Core LFIS network
> View server utilization information
> View current configuration information – identifies which processes are running on which servers
> Reconfigure the system – simple and advanced configurations can be accessed by authorized users through the user interface, for those who wish to experiment and optimize system
> Change various thresholds (including matching thresholds)
> Change business rules associated with video clip capture
> Experiment with algorithm settings
> Automated IP camera discovery for ONVIF compliant cameras available to Core LFIS servers
> Add new cameras using manual RTSP address or from Genetec system
> Add 3D and IR cameras
> Create virtual cameras to aid software development using supported video file(s) and/or supported local USB camera
> Remove or disable cameras
> Add meta data to cameras such as camera name
> View list of all configured cameras
> Add multiple watch list and single or multiple groups within one watch list
> Provision and deprovision role-based user accounts
> View audit logs
> Search audit logs

Developer Microsite

The Developer Microsite can be accessed via a web-based interface. It is designed to help developers who wish to make use of the powerful and rich set of Core LFIS RESTful web services. Developers can also find resources to help connect to the notifications web socket. These resources are accessible via the web browser on machines that have the permissions required to connect to your instance of Core LFIS.

Key features include:

> Technical description of web services
> View list of operations
> View interface technical details
> Graphical interface that can be used to interact with web services
> Main groups of functionality available via RESTful web service: authentication, system configuration, face matching, database data access, file access and history access
> API summary for developers
> Online working example for LFIS model creation (includes sample code)
> Online working example for matching (includes sample code)
> Online working example for searching (includes sample code)
> Online working example for alert subscription web socket (including sample code)
> Download for sample Android application that uses Core LFIS web services

System and Performance Specifications
> Support multiple nVIDIA GPUs with CUDA9.2+ and 2.0G+ memory
> Windows 7+ and Linux 2.4+ 64bit supported
> Less than 0.1 second with GPU or 1 second with CPU for face recognition
> Less than 3 seconds for searching millions history
> Support ONVIF compliant cameras
> ICAO compliant quality check
> GDPR compliance

Note: LFIS Watch supports a face image resolution down to 24 pixels between the eyes. Using images with a minimum of at least 48 pixels between the eyes is highly recommended for best performance.

Gemalto, a Thales company, is a global leader in digital security, bringing trust to an increasingly connected world. We design and deliver a wide range of products, software and services based on two core technologies: digital identification and data protection.

Our solutions are used by more than 30,000 businesses and governments in 180 countries enabling them to deliver secure digital services for billions of individuals and things. Our technology is at the heart of modern life, from payment to enterprise security and the Internet of Things.

We have built a unique portfolio of technology and expertise including physical and digital identity credentials, multiple methods of authentication – including biometrics – and IoT connectivity as well as data encryption and cloud service protection. Together, these technologies help organizations protect the entire digital service lifecycle from sign-up to sign-in and account deletion with data privacy managed throughout.

Gemalto is part of the Thales group, a €19bn international organization with more than 80,000 employees in 68 countries worldwide.

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