CBS-ITS-DCM Data fusion service, 1ch, 1yr

IQsight



- **Metadata processing**: Aggregate and re-process metadata on the fly and on demand
- **Metadata retention**: Access and evaluate long-term data trends with our comprehensive cloud-based metadata retention
- **Metadata visualization**: Effortlessly visualize and analyze data with a user-friendly dashboard
- **Metadata consumption**: Integrate historical metadata into separate and/or existing applications with the REST API for custom data solutions or export data directly from the dashboards of the solution

The IQsight data fusion cloud service is a cloud-based service solution that extends the utility of advanced camera deployments beyond traditional security use cases to offer insightful analytics across various sectors, including transportation, airports, and any environment utilizing intelligent Bosch cameras. This service capitalizes on the precision of onboard analytics capabilities within Bosch cameras, which on average have object detection accuracy in the high 90 percent (for cameras with the latest IVA Pro capability). High detection accuracy at the edge delivers high accuracy data, enabling users with robust data-driven insights. The end-to-end data solution is easy to deploy and scale with the only critical requirement being the camera is well calibrated, which in many cases is an automated process when using the latest software tools from Bosch.
By connecting Bosch cameras to the IQsight data fusion cloud service through the Bosch Remote Portal, users of the IQsight data fusion cloud service can begin aggregating camera metadata from the day of the initial connection. This data encompasses timestamps, object classification and states, and real-world coordinates which are calculated based on the calibrated camera view. The versatility of the service shines in its provision for historical analysis through data compiled from multiple cameras over time, enabling the exploration of various analytical use cases. Most importantly, because only the metadata is transported from the camera to the cloud, bandwidth use is minimized in your local camera networks.
The IQsight data fusion cloud service offers interactive dashboards for data visualization, options for exporting data in common formats (e.g. CSV), and direct API access, facilitating near real-time integration with tools like Python and PowerBI for in-depth analysis. The infrastructure, data security, and features rely on the robust Bosch Cloud and Remote Portal framework, ensuring hardware encryption and secure connectivity for operational integrity.

Functions

Metadata processing

The IQsight data fusion cloud service stores aggregated metadata by object-class (e.g. count reports for the class “PERSON” during a specific timeframe in a specific location) which can be analyzed from one camera or across multiple user-defined zones and cameras. Since the IQsight data fusion cloud service aggregates and stores all camera metadata generated from the entire field of view, the dashboard view or stored datasets can be modified at any time, allowing for new data retrieved from the first day the camera (or cameras) was initially connected to the IQsight data fusion cloud service.

Metadata retention
The IQsight data fusion cloud service ensures secure metadata retention through encrypted communication that aligns with the IEC/EN 62676-2-33 standard for cloud uplink. This service is scalable, accommodating setups from a single camera to multiple cameras and grouping them into logical units, such as points of interests (landmarks etc.), intersections, or corridors. The service is designed for continuous operation and is supported by the robust security and maintenance protocols from Bosch, including 24/7 operation.
The system is designed to work best with the latest Bosch security cameras (CPP13 and CPP14) with integrated Intelligent Video Analytics Pro (IVA Pro) and specifically with IVA Pro Traffic. For the connected security cameras, high-capacity SD cards are recommended for local storage to guarantee data preservation in case of a network outage and automatic recovery of the metadata once the network connection is restored. This structured approach to data retention is critical for various analytics applications, ensuring that users can rely on a secure and comprehensive dataset.

Metadata visualization
The dashboarding capability of the service provides a multi-faceted view of metadata with three distinct perspectives:
- the count of objects by class within specific zones,
- the velocity distribution by zone, and
- the categorization of vulnerable road users (VRUs) by class.

These views facilitate a detailed understanding of the data points through interactive and customizable dashboards. This near real-time data visualization enables users to monitor and manage desired performance indicators of the system across different parameters effectively. The design of the dashboard emphasizes ease of use and the ability to manage and configure devices remotely, ensuring maximum reliability through constant online health monitoring and firmware updates. Currently, the dashboard allows to visualize all the stored historical data for interval durations of up to 7 days at one time. Utilization of the REST API permits further range duration retrieval across the entire dataset at once.

Metadata consumption
The IQsight data fusion cloud service offers comprehensive metadata consumption through a REST API that interfaces seamlessly with various data analysis tools such as Python and PowerBI. This API allows users to extract detailed filtered datasets based on:
- **Date/time range**: Specify the start (date/time) and end (date/time)
- **Object classes**: Filter the request to only obtain one of the following classes:
  - PERSON
  - CAR
  - TRUCK
  - BICYCLE
  - MOTORCYCLE
  - BUS
- **Duration**: based on the ISO-8601 duration format, the data can be aggregated

Based on the filtering, the API allows for the following retrieval options:
- **Retrieve sites**: Endpoint to retrieve identifiers, names, geolocation, and site-specific time zone information
- **Retrieve zones**: Endpoint for retrieving information about the configured zones, such as polygon coordinates and which is the best camera for the zone
- **Retrieve zone groups**: Endpoint for retrieving information about grouped zones, mainly the unique IDs of the zones which are part of the group
- **Retrieve statistics**: Endpoints for retrieving statistics that are derived for objects, zones, zone groups, cameras, and object classes of interest. Apart from start/end date/time, the API allows to retrieve object-level statistics (e.g. default is “PERSON”) and allows to specify the desired speed unit (“mph” or “km/h”). Additionally, it also can aggregate object-class statistics (e.g. allows to aggregate all counts for the class “PERSON”) across one camera or one or multiple zones at various time increments.
- **Retrieve users**: Endpoints for retrieving detailed user information, such as role and access rights
- **Retrieve heatmaps**: Endpoints for retrieving heatmap images. This allows to specify start/end date/time, as well as object classes and zones for which the heatmap shall be visualized. Also it allows for three different overlay types:
  - TRAFFIC
  - ENGAGEDTRAFFIC
  - ENGAGEDTIME

The authentication for the API is handled via an HTTP authorization header.
Additionally, the service allows to export data directly from the dashboard in commonly used formats such as SCSV and CSV.

Parts included

Quantity	Component
1	License

Technical specifications

Compatibility
Bosch IP cameras with firmware 6.40 or higher with Intelligent Video Analytics (IVA) or Intelligent Video Analytics Pro (IVA Pro). For best performance, IVA Pro is recommended.

Remote Portal
For using this service, the camera must be connected to the Bosch Remote Portal. For more information on this, refer to the *Networking guide* as well as the *Cloud Security Concept* for security documentation.

Legal aspects
The IQsight data fusion cloud service is subject to the terms and conditions of the Bosch Cloud Based Services system. Documentation on the service levels, data privacy, and other legal aspects of the service can be viewed and downloaded from the service login page: https://na.analytics.boschsecurity.com

Ordering information

CBS-ITS-DCM Data fusion service, 1ch, 1yr
IQsight data fusion cloud service enabling processing, retention, visualization, and API access to the data for one camera and one year.
Order number **CBS-ITS-DCM**

Software Options

SVC-ITS-RCC Remote commissioning, data fusion, 1cam
Remote service to initially configure one camera for the IQsight data fusion cloud service.
Order number **SVC-ITS-RCC**

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