Interoperability demands for analytics applications

• Rise in analytics applications for security and safety, business intelligence and IoT devices
  • **Security** – Object detection, classification, tracking
  • **Business Intelligence** – People counting, vehicle traffic analysis
  • **IoT** – Smart building management

• Metadata helps tag elements in a scene
  • Highlight certain objects, including, for instance, heat mapping in a retail store or vehicle mapping in a parking lot
  • Trigger automatic responses
  • Effectively store and search for content of interest
ONVIF Profile M – Summary

Metadata and events for analytics applications

• Supported metadata
• Supported events
• Streaming metadata and sending events
ONVIF Profile M – Benefits

- Easier integration of analytics solutions
- Easier integration with IoT applications
- Greater product choice for system integrators and end users; flexibility to mix and match products from different vendors
- Expanded market opportunities for traditional camera and VMS vendors, as well as for independent developers of analytics solutions
- Can be combined with other ONVIF video and access control profiles for an integrated system based on ONVIF interfaces
- Future proofs your system for a more secure investment
ONVIF Profile M – Supported Metadata

- Analytics configuration
- Generic object classes
- Specified object classes
  - Geolocation
  - Vehicle
  - License plate
  - Human face
  - Human body
- Use cases
  - Displaying objects of interest in video
  - Heat mapping in retail, vehicle mapping in parking lots
  - Forensic search
ONVIF Profile M – Supported Events

• Line crossing counter for object counting events
  • For gaining visitor statistics, crowd control, visitor or queue management
• License plate recognition events for access control to a parking lot
• Facial recognition events for access control to a building premise
Profile M – Streaming Metadata & Sending Events

Support for metadata stream is mandatory for all Profile M conformant products.

< Mandatory interface: Standardized metadata stream >
Data in stream: analytics metadata / XML events (e.g. motion alarm) / PTZ positions

Profile M also specifies two conditional methods for communicating events.

< Conditional interface: ONVIF event service >
Data in stream: XML events (e.g. motion alarm)

< Conditional interface: MQTT event >
Data in stream: JSON formatted events (e.g. motion alarm)
ONVIF Profile M – For IoT Systems

• Sends JSON event over MQTT – transport method used often by IoT applications

• Use case
  • Room temperature control
Profile M feature list compared with Profile T
<table>
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<th>Feature</th>
<th>Profile M</th>
<th>Profile T</th>
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<td>2. Media profile for metadata streaming out of the box</td>
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<td>14. System settings (e.g. factory default, set date and time)</td>
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<td>15. Device discovery</td>
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<td>16. Network configuration</td>
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<td>17. Media transport: RTP/UDP/RTSP/HTTP/TCP</td>
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<td>M</td>
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</tbody>
</table>
How to know what features are supported by a conformant product
Information on DoC (Declaration of Conformance)

Profile M features:

- **General:**
  - Network Configuration: Yes
- **Streaming:**
  - HTTPS Streaming: NO
  - Video Streaming: Yes
    - H264: Yes
    - H265: Yes
- **Image Sending:**
  - Sending Image Reference: Yes
  - Sending Embedded Image: NO
- **Event Handling:**
  - Pull Points: Yes
  - MQTT: NO
- **Analytics:**
  - Analytics Modules Configuration: Yes
  - Analytics Rules: Yes
    - Rule Configuration: Yes
    - Face Recognition Rule: NO
    - License Plate Recognition Rule: NO
    - Line Crossing Counter Rule: NO
  - Object Classification: Yes
  - Human Face Metadata: Yes
  - Human Body Metadata: Yes
  - Vehicle Metadata: Yes
  - License Plate Metadata: NO
  - Geo Location Metadata: Yes
Use of test tool

• Open test tool, which shows Profile M’s list of mandatory and conditional features

• Connect tool to device’s IP address and click on “Refresh Features” for Output of results