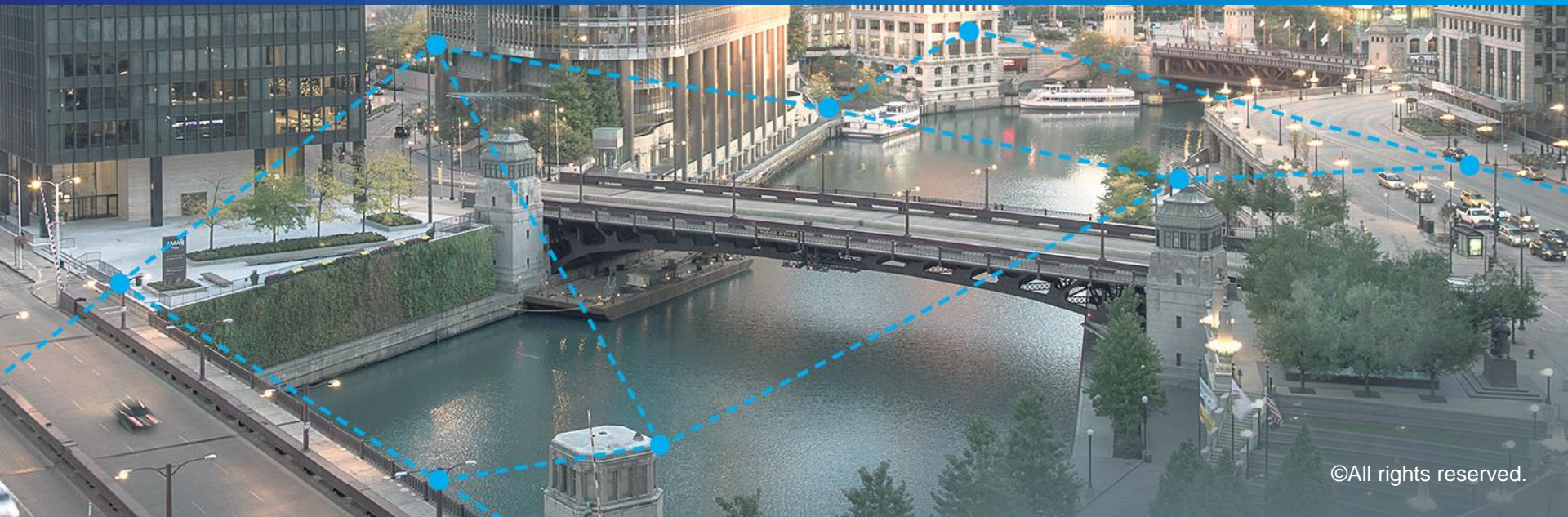
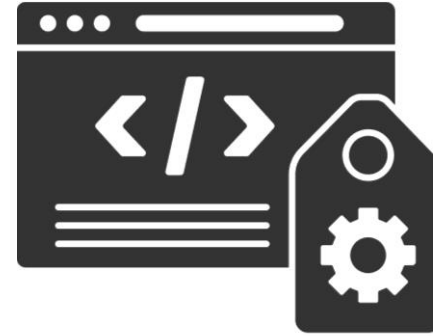


May 2022

ONVIF Profile M



Interoperability demands for analytics applications

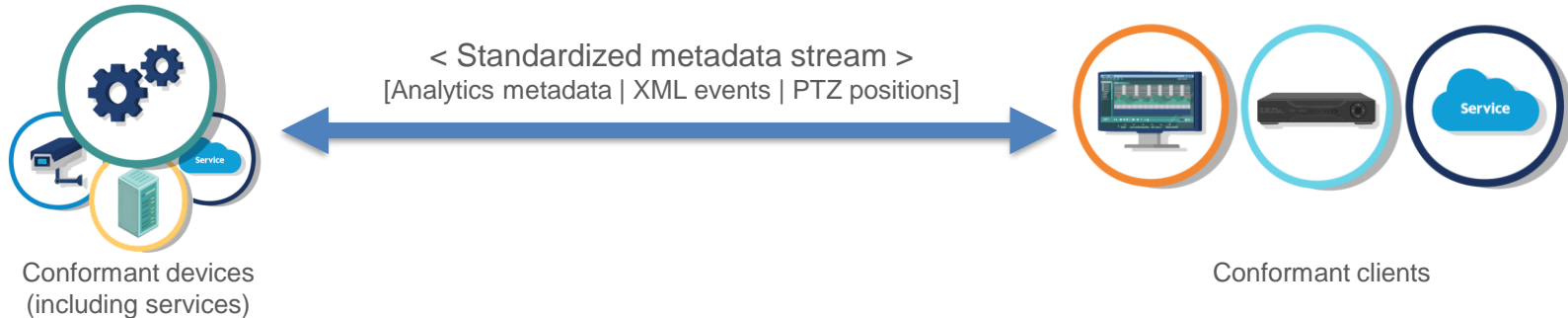


- Rise in analytics applications for security and safety, business intelligence and IoT devices
 - **Security** – Object detection, classification, tracking
 - **Business Intelligence** – People counting, vehicle traffic analysis
 - **IoT** – Smart building management
- Metadata helps tag elements in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

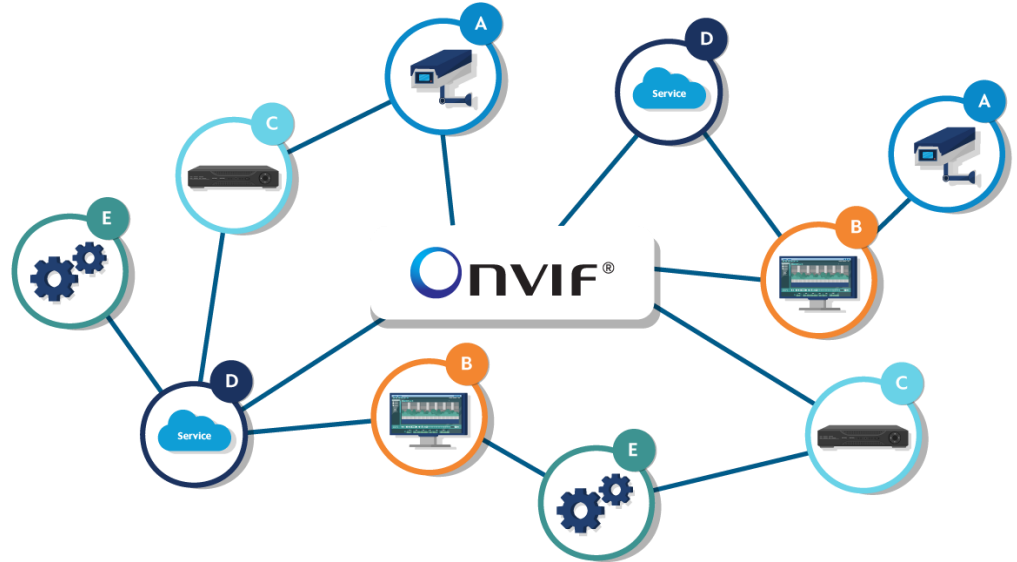
Metadata and events for analytics applications

- Supported metadata
- Supported events
- Streaming metadata and sending events



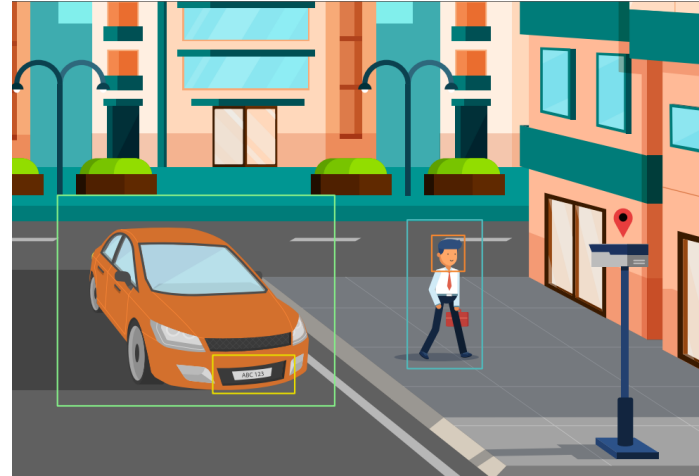
ONVIF Profile M – Benefits

- 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



[Play video >](#)

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)



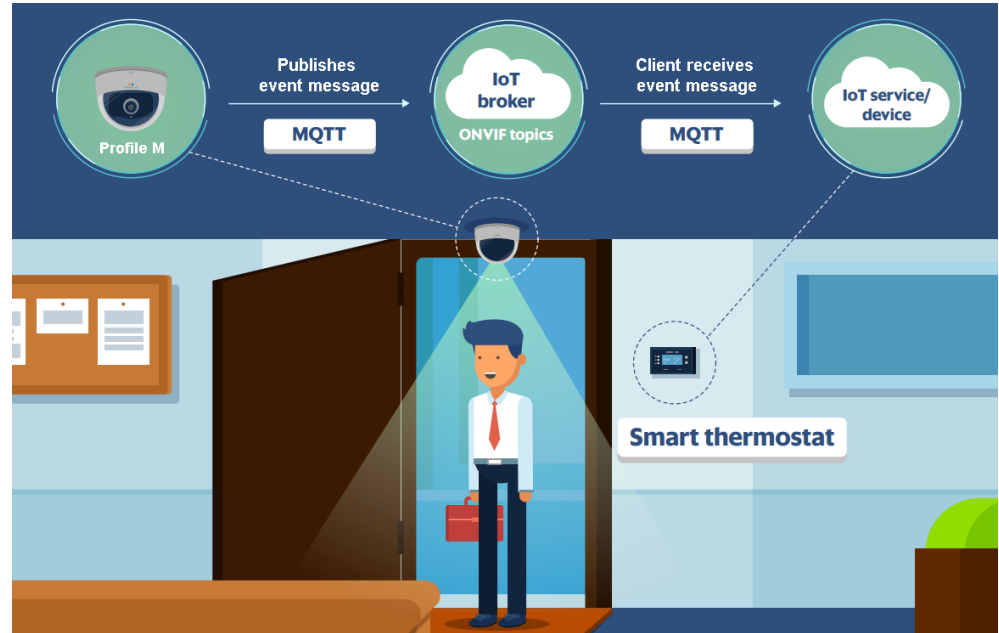
< Conditional interface: MQTT event >

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

Profile M vs. Profile T feature list

Feature	Profile M		Profile T	
	Device	Client	Device	Client
1. Metadata streaming	M	M	M	C
2. Media profile for metadata streaming out of the box	M	M	-	-
3. Metadata configuration	M	O	M	C
4. Supported metadata	M	M	-	-
5. Image sending within metadata stream	C	C	-	-
6. Video streaming	C	C	M	M
7. Media profile for video streaming ready out of the box	C	C	M	M
8. Event service (e.g. pull-point)	C	C	M	M
9. Event handling using MQTT	C	C	-	-
10. Analytics module Analytics module configuration Analytics profile configuration	M M M	C O C	-	-
11. Rule / Rules configuration	C	C	-	-
12. Face recognition rule, License plate recognition rule, Line crossing counter rule	C	C	-	-
13. Object classification	C	C	-	-
14. System settings (e.g. factory default, set date and time)	C	C	M	C
15. Device discovery	O	M	M	M
16. Network configuration	-	-	M	M
17. Media transport: RTP/UDP/RTSP/HTTP/TCP	M	M	M	M

How to know what features are supported by a conformant product

Information on DoC (Declaration of Conformance)

onvif.org/conformant-products/

Product name	Device	G M S T	Firmware	Approval date
01	Application type: Device		Product name: Product name	
	Model: Product name			
	Related products: Not Applicable ⓘ Related Products have not been individually tested.			
	Test date: Date		Firmware version: Firmware	
	Profiles: G M S T		Category: Fixed Camera	
	FeatureList	DoC	Interface Guide	



Driving IP-based physical security through global standardization

Declaration of Conformance – Device

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

The screenshot displays the ONVIF Device Test Tool interface. The 'Test Cases' pane on the left shows a tree structure with 'Profile M' selected. The 'Features' pane on the right lists various features under 'Profile M', including 'Profiles Mandatory Features' and 'Profile Conditional Features'. The 'Refresh Features' button is highlighted in the top toolbar. The 'Output' pane on the right shows the results of the test, including 'STEP 43 - Define AnalyticsService features', 'STEP 44 - Get Analytics Service Capabilities', 'STEP 45 - Get Supported Metadata', and 'STEP 46 - Get Analytics Configurations'. The output indicates that various features are supported, such as 'AnalyticsService: SUPPORTED', 'Rule Engine: SUPPORTED', 'Object Classification: SUPPORTED', and 'Geo Location: NOT SUPPORTED'.

ONVIF Device Test Tool

File Help

Discovery Management Conformance Test Diagnostics Debug

Run Run Current Run Selected Refresh Features No Repeat Pause Stop Halt Clear Save

Test Cases

- Profile A
- Profile C
- Profile D
- Profile G
- Profile M
 - Scopes
 - Discovery Types
 - Functionality
 - Profiles Mandatory Features
 - User Authentication
 - Get Services
 - Discovery
 - System
 - Metadata Streaming
 - Metadata Information
 - Configuration of Metadata Profile
 - Metadata Configuration
 - Configuration of Analytics Profile
 - Analytics Module Configuration
 - Profile Conditional Features
 - Media Profile Management
 - Video Streaming
 - Image Sending
 - Event Handling Using Pull Points
 - Event Handling via MQTT
 - Rule Configuration
 - Object Classification
 - Human Face Metadata
 - Human Body Metadata
 - Vehicle Metadata
 - License Plate Metadata
 - GeoLocation Metadata
 - Face Recognition Event
 - License Plate Recognition Event
 - Line Crossing Counter
- Profile S
- Profile T

Features

Profiles

Pre-Configuration

Output Step Details Specification

STEP 43 - Define AnalyticsService features
StepStart: 2022-05-02T12:56:40.2393881Z
Use GetServices response
STEP PASSED

AnalyticsService: SUPPORTED

STEP 44 - Get Analytics Service Capabilities
StepStart: 2022-05-02T12:56:40.3001924Z
Transmit done
Receive done
STEP PASSED

Rule Engine: SUPPORTED
Rule Options: SUPPORTED

Analytics Modules: SUPPORTED
Analytics Module Options: SUPPORTED

Supported Metadata: SUPPORTED

STEP 45 - Get Supported Metadata
StepStart: 2022-05-02T12:56:40.7209772Z
Transmit done
Receive done
STEP PASSED

Object Classification: SUPPORTED
Vehicle Info: SUPPORTED
Geo Location: NOT SUPPORTED
Human Face: NOT SUPPORTED
Human Body: NOT SUPPORTED
License Plate Information: NOT SUPPORTED

Image Sending: NOT SUPPORTED

Embedded Image Sending Type: NOT SUPPORTED
Local Storage Image Sending Type: NOT SUPPORTED
Remote Storage Image Sending Type: NOT SUPPORTED

STEP 46 - Get Analytics Configurations
StepStart: 2022-05-02T12:56:40.939762Z
Transmit done
Receive done
STEP PASSED

STEP 47 - Get Supported Rules



Thank you

For more information, visit www.onvif.org

Contact us at <https://help.onvif.org>

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