ONVIF® | Standardizing IP Connectivity for Physical Security

ONVIF OVERVIEW

Driving the Future of Interoperability

November 2026



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AGENDA

- **Interoperability**
- **About ONVIF**
- **ONVIF Profile**
- **ONVIF Add-on**
- **ONVIF Conformance**
- **ONVIF Benefits**

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INTEROPERABILITY

- The World Before Interoperability
- What ONVIF Changed
- Benefits of Interoperability

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The World Before Interoperability



Security systems built in silos — SILOS

H/W & S/W locked to vendors, leading to high cost of switching & scaling — LOCKED

Innovation slowed by integration barriers, fragmented systems reduce operational intelligence — BARRIERS

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What ONVIF Changed



- Standardization of communication between IP-based physical security products and services
- Interoperability regardless of brand and deployment (on-premise, cloud, hybrid solutions)
- Openness to all companies and organizations

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Benefits of Interoperability

- Secure future system development
- Integrated system allows for more efficient workflows
- Flexibility in component selection; freedom of choice in design
- Cost-efficient system setup



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ABOUT ONVIF

- ONVIF, Mission & Vision
- ONVIF Work & Development Journey
- Committee Structure, Membership

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Our Mission

"To define and advance open standards that enable interoperability across physical security systems, devices, and platforms."

The Vision

"One connected security ecosystem"

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What we do

Development of network interface specifications

Develop, package, and market functionalities in the form of ONVIF profiles and add-ons



Work with international standards organizations, such as IEC

Develop test tools for validating product conformance

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Our Journey

Founded by Axis, Bosch & Sony

2008

- 2008, 2010: Core Specification 1.0 & 2.0
- 2009: 100 members
- 2010: Scope extended to access control
- 2011: Profile S released
- 2011: EN 50132-5-2 (IP video)
- 2013: Profile C released
- 2013: IEC 62676-2-3 (IP video)

10,000 profile conformant products

2014

- 2014: Profile G released
- 2015: Client test tool released
- 2016: IEC 60839-11-31 (access control)
- 2017: Profile A released
- 2018: Profile T released
- 2019: IEC 62676-2-31, IEC 62676-2-32 (Profile T- related)
- 2019: NIST IR 8161r1 recommends Export File Format

20,000 profile conformant products

2020

- 2020: Specification development on GitHub
- 2021: Profile D released
- 2021: Profile M released
- 2022: IEC 62676-2-33 (cloud uplink, remote management system access)
- 2024: TLS Configuration Add-on released

37,000 profile conformant products

2026

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ONVIF Profile
Conformant Products

37,000+

Conformant Products to date

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Committee Structure: Roles & Responsibilities



- ONVIF strategy, goals, rules and organization
- Finance and budget
- Membership authorization



- Creation and maintenance of specifications
- Technical roadmap
- Approval of technical projects



- Creation and maintenance of profiles and add-ons
- Test specification and test tool development
- Developers' Plugfest organization

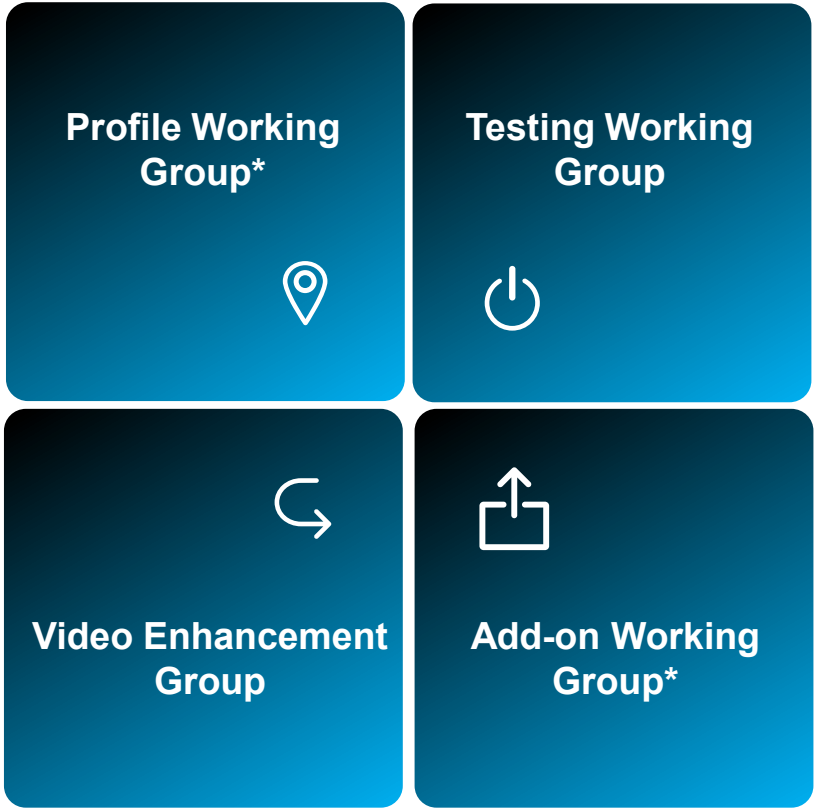


- ONVIF promotion
- Internal & external communication
- Communication tools

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Committee Working Groups

ONVIF strives to effectively transfer customer needs into solutions through working groups.



* When Applicable

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Member Privileges

* Parent member and its Registered Affiliates share participation and voting privilege.

Privileges	Membership Level				
	Observer	User	Registered Affiliate	Contributing	Full
Vote for ONVIF Board of Directors member*			Full only		•
Participate as an ONVIF Board of Directors member*			Full only		•
Add Registered Affiliates to membership				•	•
Vote for committee member (except Board of Directors)*			•	•	•
Chair a committee*			•	•	•
Participate in Technical, Technical Services and Communication Committees*			•	•	•
Vote in Committees & Working Groups*			•	•	•
Participate in ONVIF working groups			•	•	•
Early access to specifications and related material			•	•	•
Meeting participation (annual meeting and others)			•	•	•
Access to specification drafts		•	•	•	•
Ability to self-declare conformant products		•	•	•	•
Use of ONVIF and profile logos for conformant products		•	•	•	•
Use of conformance tools	•	•	•	•	•
Use of ONVIF Member Tools	•	•	•	•	•
Use of ONVIF Member Portal	•	•	•	•	•
Use of ONVIF Member logo	•	•	•	•	•
Annual Membership Fee	**$500 USD**	**$4,000 USD**	**$5,000 USD**	**$10,000 USD**	**$20,000 USD**

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ONVIF Members

ONVIF membership comprises leading companies in the global IP-based physical security products market, including frontrunners in camera, video management system and access control development.

Membership levels:

- Full members
- Contributing members
- Registered affiliates
- User members
- Observer members



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ONVIF PROFILE

- What is a Profile?
- Mandatory vs. Conditional Features
- ONVIF Profiles at a Glance

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What is a Profile

- ONVIF has a wealth of specifications
- These specifications are grouped into profiles
- A Profile has a fixed set of features
- Profiles make it easier to identify compatible products





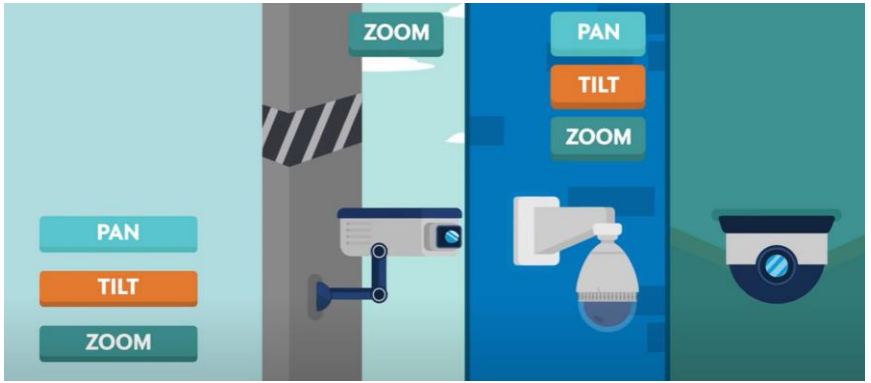
- A profile specifies a set of features that must be supported by both client and device
- Conformant products must support at least one profile...
- ...and can support more than one...

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Mandatory vs. Conditional Features

- Features in a profile are either mandatory or conditional
- Mandatory features must be supported
- Conditional features only supported if relevant
  - i.e., PTZ functions can only be supported in PTZ cameras





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ONVIF Profiles at a Glance

Access Control Profiles

ONVIF® | A

For broader access control configuration

ONVIF® | C

For door control and event management

ONVIF® | D

For access control peripherals

Video Profiles

ONVIF® | S

For basic video streaming

**ONVIF to end support for Profile S on March 31, 2027.*

ONVIF® | G

For edge storage and retrieval

ONVIF® | M

Metadata and events for analytics applications

ONVIF® | T

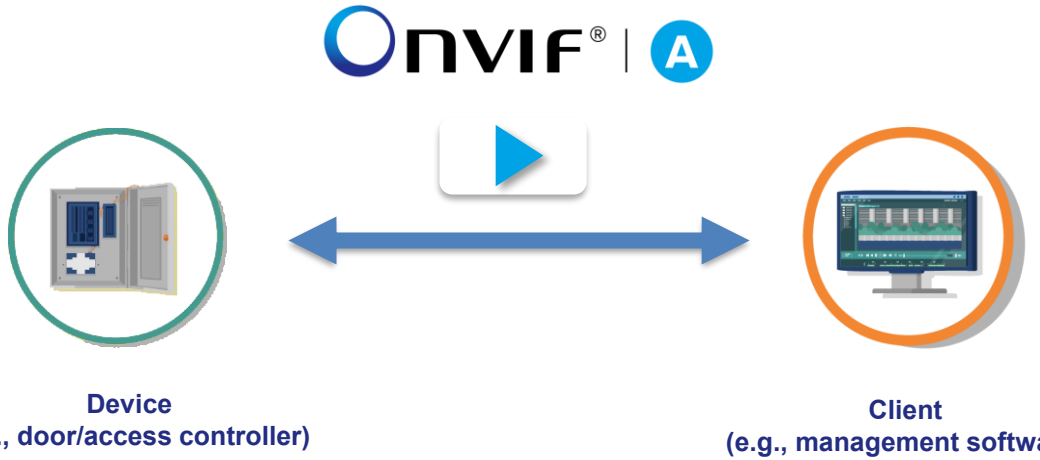
For advanced video streaming

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Profile A

For access control configuration

- Granting/revoking credentials
- Creating schedules
- Assigning access rules

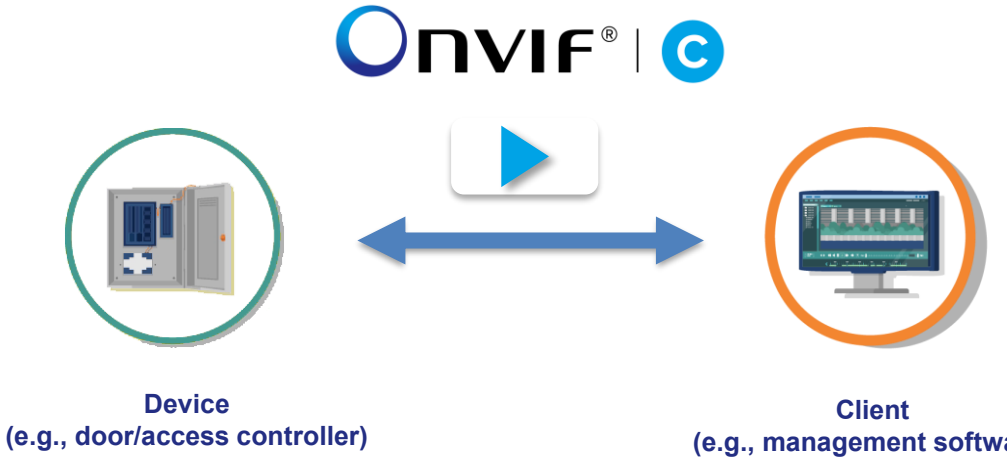


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Profile C

For door control and event management

- Site information and configuration
- Event and alarm management
- Door access control

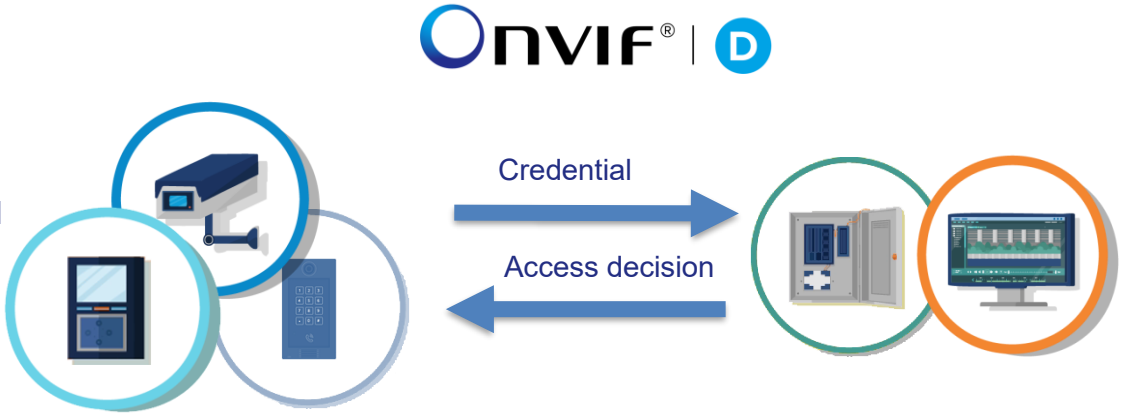


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Profile D

For access control peripherals

- Transfers input credential identifiers and requests for access
- Performs actions such as locking/unlocking



Input device
(e.g., token readers, biometric readers, cameras, keypads, sensors) and output device (e.g., locks, displays, LEDS)

Client
(e.g., access control unit, management system)

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Profile G

For edge storage and retrieval

- Configure, request and control recording
- Receive audio and metadata stream

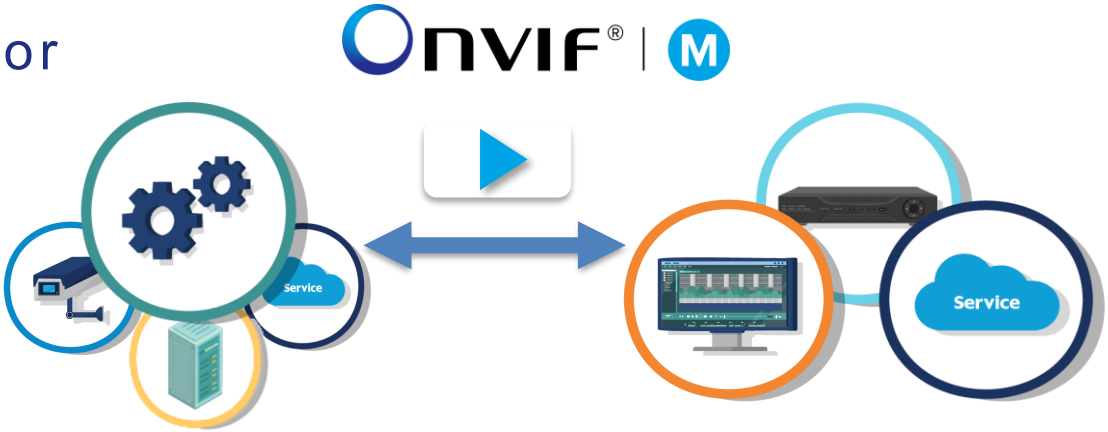


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Profile M

Metadata and events for analytics applications

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

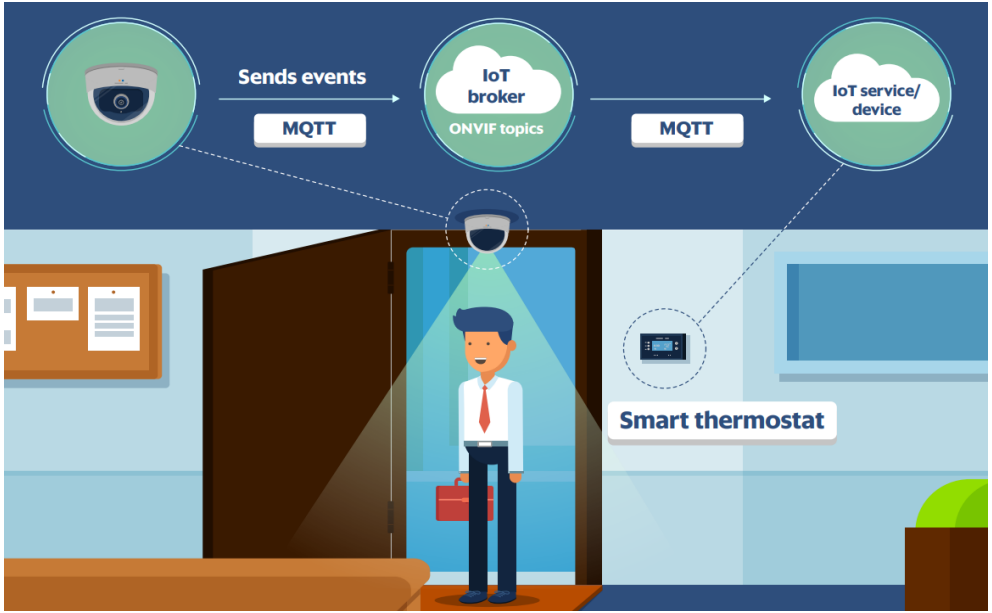


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Profile M

For IoT Systems

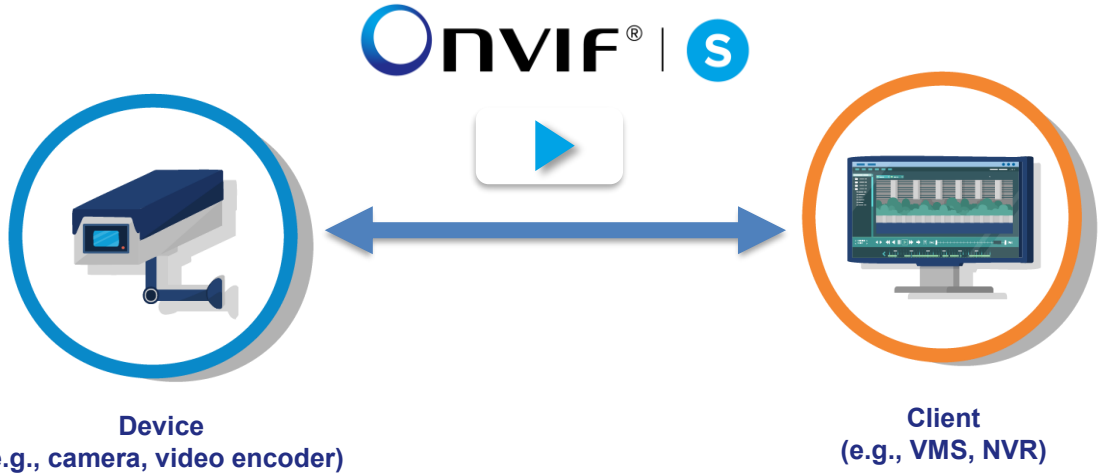
- Publishes message about event over MQTT – transport method used often by IoT applications
- Use case - Room temperature control



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Profile S*

For basic video streaming & configuration



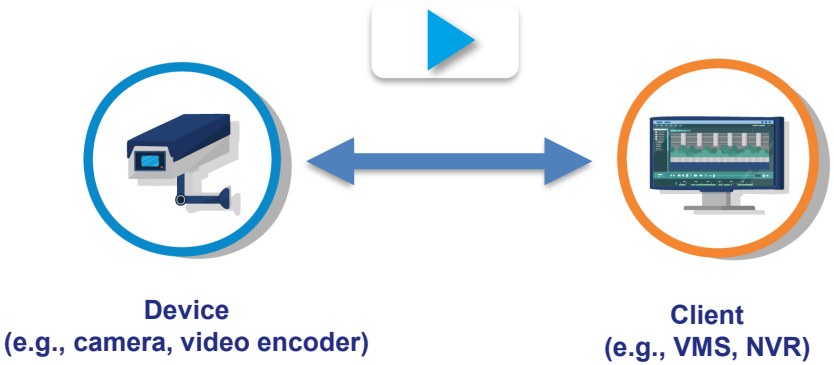
ONVIF to end support for Profile S on March 31, 2027.

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Profile T

For advanced video streaming

- H.264/H.265 video compression
- Imaging settings
- Motion alarm and tampering events
- Metadata streaming
- Bi-directional audio



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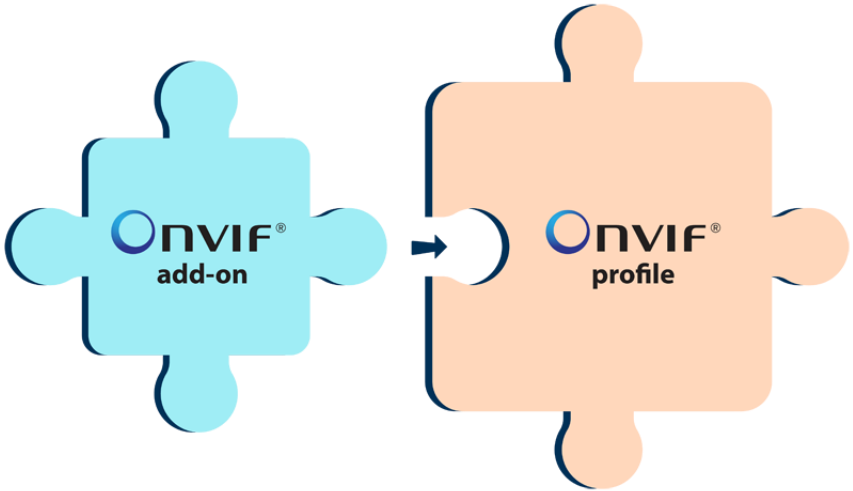
ONVIF ADD-ON

- What is an Add-on
- Profile vs. Add-on
- Benefits

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ONVIF Add-on

- One or more features that solve one use case
  - Not enough to qualify as a profile by itself
- Allows for version handling
  - Features can be added/removed if there is market justification
- Devices/clients claiming add-on conformance must:
  - Pass add-on conformance tests
  - Conform to an ONVIF profile



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Profile vs. Add-on

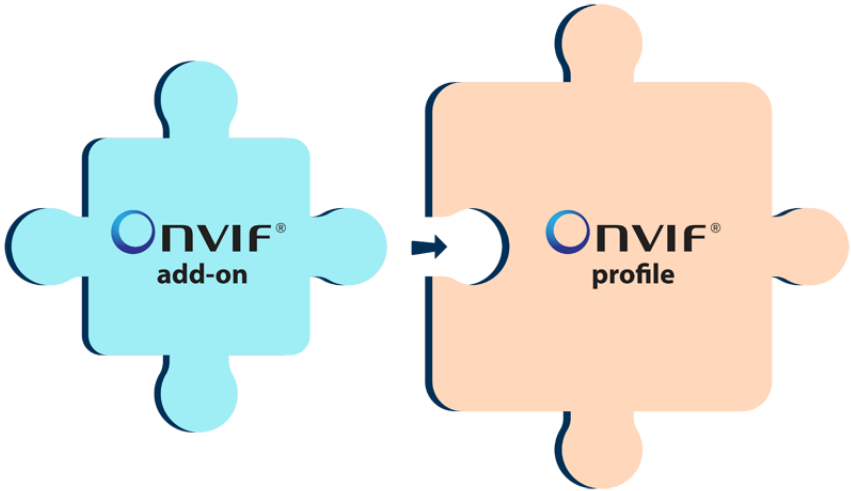
Key Differences and Similarities	Applicable for ONVIF profile	Applicable for ONVIF Add-on
Comprehensive enough to allow functional product development on its own	**Yes**	**No**
Adaptable through version handling	**No**	**Yes**
Covers specifications for both client and device	**Yes**	**Yes**
Both client and device must pass conformance tests to claim conformance	**Yes**	**Yes**
Can be proposed by any ONVIF member, but can only be developed by ONVIF full and contributing members	**Yes**	**Yes**

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Benefits of an Add-on

1. Allows ONVIF profile conformant device/client to claim conformance to additional capabilities outside of profiles

2. Easier and quicker to develop and release due to its limited features as compared with a profile



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TLS Configuration Add-on - For encrypted communication



- Provides a baseline for encrypted communications between a client and device that conform with the ONVIF add-on
- Regardless of brand, a client with this add-on will be able to configure and update the TLS settings on a device with the same add-on

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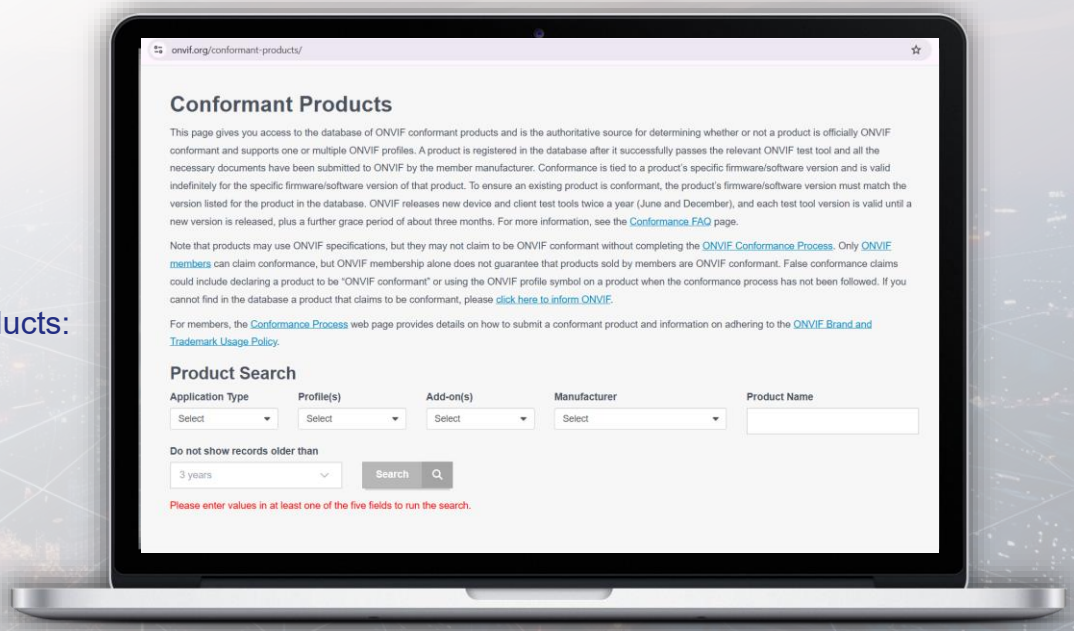
ONVIF CONFORMANCE

- **What ONVIF Conformance Means**

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What ONVIF Conformance Means

- ONVIF conformance is tied to a particular product and firmware/software version
- Product conforms to a profile and optionally, an add-on
- Product has passed ONVIF device/client test tool
- Authoritative source of ONVIF conformant products: https://www.onvif.org/conformant-products/



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ONVIF BENEFITS

- Why Use ONVIF?
- ONVIF for System Integrators
- ONVIF for End Users
- ONVIF for Manufacturers

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Why Use ONVIF?

- In a multi-vendor environment, ONVIF conformant products from different brands can work together
- 37,000+ conformant products to match your needs and preferences, regardless of vendor
- Makes integration easier and future-proofs your installation



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Benefits for the Users, Manufacturers & System Integrators



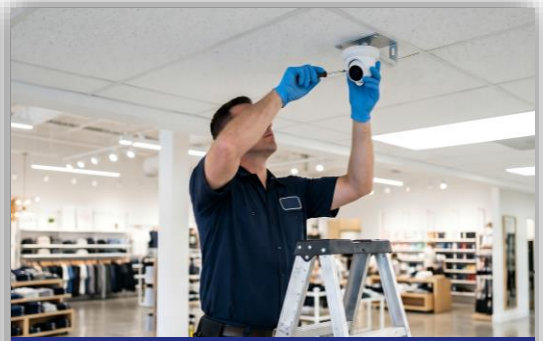
End Users

- Increased flexibility and greater freedom of choice
- Future-proof system for a more secure investment
- No vendor lock-in



Manufacturers

- Easier market acceptance
- Access to projects
- Build partnerships



System Integrators

Interoperability

- Easier integration for flexible, cost-effective solutions

Greater freedom

- Flexibility to choose products from different vendors and meet specific needs of your customers

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How you can get involved

- ONVIF is open to all companies and interest groups who want to participate in our efforts towards global standardization in IP-based physical security

- Membership can specifically benefit:
  - Manufacturers
  - End Users
  - Integrators
  - Specifiers



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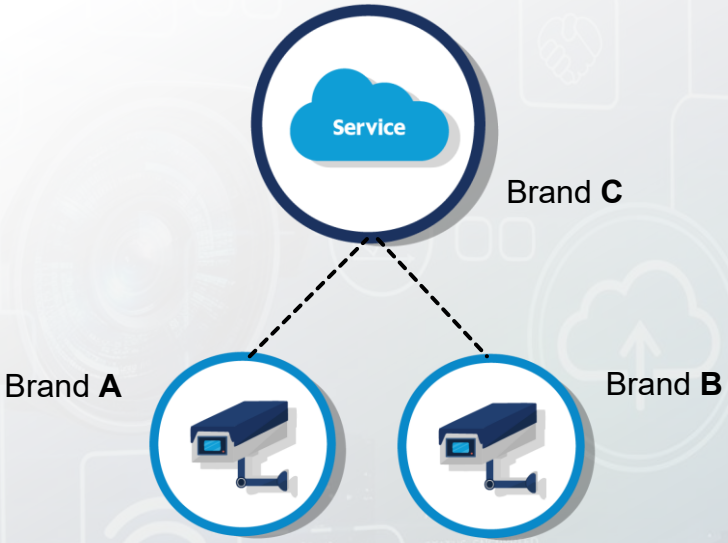
Looking to the FUTURE



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CLOUD PROFILE

Standardizing authentication, streaming, recording from device to cloud



Cloud interoperability regardless of brand.

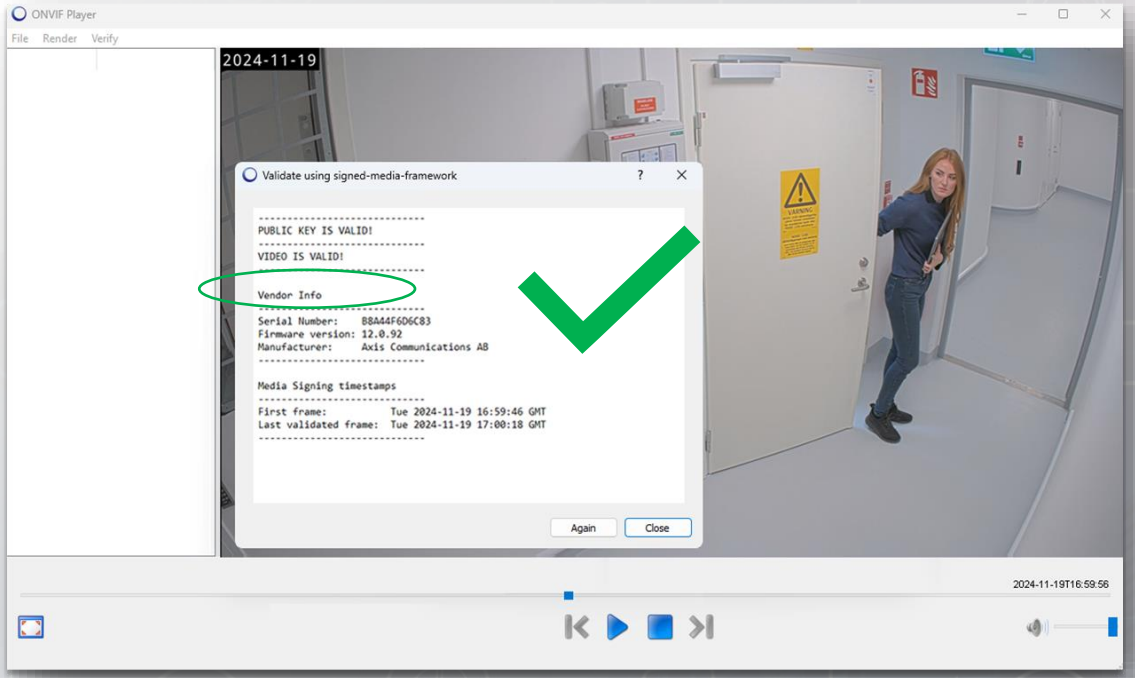
Easy to leverage cloud technology benefits.

Expanded customer choices and innovation.

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MEDIA AUTHENTICITY

Verify that video content has not been tampered with and can be trusted.



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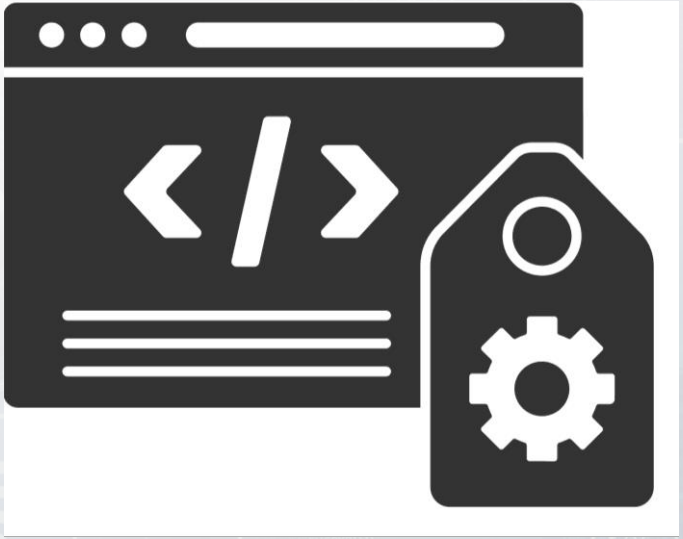
AUDIO STREAMING PROFILE

Services and commands appropriate for the integration of devices such as IP speakers into an ONVIF system



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DATA ONTOLOGY



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