Beginner's Guide to ONVIF

What is ONVIF?

ONVIF was founded in 2008 by Axis, Sony and Bosch to create a global standard for the interface of IP-based physical security products. The organisation was developed to provide increased flexibility and greater freedom of choice so installers and end users can select interoperable products from a variety of different vendors.

Product interoperability is a driving force behind ONVIF. Interoperability is a fairly simple concept: it is the ability of a product or system to work with another product or system, often of different brands and/or from different manufacturers.

In its early stages, ONVIF's members were from the manufacturing industry only. In recent years, membership is open to consultants and systems designers, systems integrators, end users and media, as well.

Why are standards like ONVIF important?

Standards are essential in the networking world due to the wide variety of available hardware and software; they exist to ensure network design compatibility. One of the most common needs of IP video developers and end users is a common interface that allows them to easily connect technologies from a diverse set of manufacturers, both for today's purchases and tomorrow's upgrades. This prevents end users from being locked into using solutions from a single manufacturer and being tied to that manufacturer for the life cycle of the system.

The use of ONVIF conformant products can dramatically reduce the time spent on the design and installation process, since the devices and clients communicate using standard ONVIF interfaces instead of relying on unique software integrations between particular devices, such as cameras or door controllers, and clients such as video or access control management software.

To summarise, ONVIF can provide consultants, end users and integrators:

- Reliable, out of the box interoperability
- Freedom from being "locked" into proprietary products from one manufacturer
- Simplified system design and installation
- Security of investment by using a future-proof interface for system upgrades

ONVIF's Current Profiles (Standards)

ONVIF Profiles are subsets of the overall ONVIF specification that group together sets of related features to make product selection easier for end users, consultants and systems integrators. Products must be conformant with one (or more) of ONVIF's specific profiles.

ONVIF's current profiles are:

Profile S for IP-based Video and Audio Streaming, including
- Video and audio streaming
- Pan-tilt-zoom control and relay output
- Video configuration and multicast

Profile G for Edge Storage and Retrieval, including
- Configure, request and control recording from conformant devices
- Receive audio and metadata stream

Profile C for IP-based Access Control, including
- Site information and configuration
- Event and alarm management
- Door access control

Profile Q for Easy Configuration and Advanced Security, including
- Out of box functionality
- Easy, secure configuration
- Secure client/device communications using TLS

What Makes a Product ONVIF-conformant? How Do I Know What's Conformant and What's Not?

It is fairly simple: when a product is ONVIF-conformant, it indicates that the client or device works with other products that are conformant. For example, a Profile G device is made to work with a Profile G client.

Manufacturers with products listed on the ONVIF website as conformant have completed the formal conformance process and have submitted official documentation and product test results to ONVIF.

As a system specifier, end-user or integrator, the sure-fire way to determine if a product is officially conformant with an ONVIF Profile is to check ONVIF's website: http://www.onvif.org/FindaProduct/ProfileProducts.aspx

Educating the Industry

ONVIF wants to ensure that consultants, systems integrators and end users get to know the benefits of standards and the freedom of choice that results from established standards. One of the greatest benefits of standardisation is freedom of choice. This freedom of choice allows one to select the best and most appropriate camera, NVR or door controller and to ensure that future additions to a physical security system will continue to be compatible with existing conformant equipment.

Member feedback is crucial to ONVIF's success. ONVIF solicits feedback from the market at industry trade shows and through Developers' Plugfests, market surveys and roundtable discussions. These open channels for communication create a first-hand dialog with the physical security community and ensure that ONVIF and its work remains relevant, effective and beneficial.

Looking to the Future

ONVIF has grown in size and strength rapidly over these first eight years. Both ONVIF and IP have experienced rapid deployment. With that in mind, the next few years will be focused not only on moving forward into new technical areas, but will also concentrate on refining the overall process of standardisation. A strong focus on the conformance process will ensure the quality of the specification and its continued acceptance in the market.

At the beginning, ONVIF's focus was on video surveillance. At the same time, ONVIF recognises the need for specifications in other industry segments as consultants, integrators and end users demand increased interoperability between brands and solutions. ONVIF's next profiles may include new advances in physical access control or a new market segment, such as intruder alarms — both of which seem to be natural next steps. Ultimately, though, where ONVIF goes will be determined by our members, the consultants, integrators and end users in the market, who will ultimately chart ONVIF's course in the years to come.