

## **ONVIF Profile C: Building Interoperability Standards For Physical Access Control**

### **Introduction:**

ONVIF is an open industry forum for the development of a global standard for the interface of IP-based physical security products, and it is committed to the adoption of IP within the security market. Founded in 2008, ONVIF has operated under the premise that to reach true interoperability of IP-enabled security products the industry needed to implement a unique standard allowing the devices to interoperate without adversely impacting performance. Although many products have adopted the ONVIF specification, it is the latest development of the draft specification Profile C that now brings physical access control (PAC) into the mix. The third profile to be developed by ONVIF, Profile C enables the design of an IP-based access control system: Profile S covers video and audio streaming and Profile G encompasses the storage, searching, retrieval and playback of media on devices or clients that support recording capabilities and on-board storage.

### **Background:**

In the analog days, devices from different manufacturers could easily achieve a level of interoperability if end users were looking to combine products from multiple vendors. However, with the advent of IP-based devices, each company created its own language through the development of its proprietary technology and protocols. This made it difficult to achieve interoperability among products unless someone was using the application programming interface (API) provided by the vendors, enabling IP-based physical security products to communicate with each other.

ONVIF, in seeking to develop a common language, created a specification that would allow this interoperability. As the number of ONVIF conformant products grew, and the ONVIF specification was updated and expanded to include multiple versions, there was confusion about which version of the specification was implemented by each device or client. In addition, key product features included in the specification were, at times, different on each device due to the flexibility of implementation guidelines. As such, some devices did not work as seamlessly together as designed.

The answer for ONVIF and for the industry has been the introduction in 2012 of the profile concept, focusing initially on video streaming with Profile S, which now encompasses more than 2,000 conformant products. As a logical extension, ONVIF also identified recording and PACS as key areas for developing global interoperability standards.

## Putting Profile C to Work

Unlike Profile S, which was driven in large part by the digital revolution on the video side of the security industry, Profile C is the result of a more forward-looking approach. While access control has begun its progression from analog devices and systems to more network-based technology, the migration has not been as dramatic as its video counterpart. To aid in some of the natural hurdles of the transition, ONVIF has developed the draft Profile C, which can assist in opening up the potential for current and future product developers to move into IP-based access control.

Within the security community, there are several players who will benefit from the introduction of Profile C, ranging from the manufacturer, who can now achieve edge-to-edge integration with a range of conformant door controls and access control clients and devices; to the integrator, who would no longer need to conduct costly and time-consuming custom developments; to the end user who can build a control center or guard room that integrates different PAC devices and clients, but doesn't require operators to train on multiple systems. An additional benefit for the integrator and end user is that they can easily migrate to an integrated IP-based video and access control platform.

So let's look at a scenario in which Profile C-conformant devices and clients are put into use:

A central guard station oversees a large office building, with dozens of doors and access points. From this vantage point, the security officer in charge can use the Profile C-conformant PAC system to perform several key functions, beginning with getting a list of all the doors, access points and areas covered and their capabilities and relationships, such as which access points control specific doors.

The officer has the ability to control the doors as well, locking and unlocking them, providing temporary access, blocking a door and keeping specific doors locked or unlocked for extended periods.

Information on the state of the doors throughout the building can also be provided, giving a snapshot of the doors and how they align with the current parameters set for each of them: For example, is a locked door still locked, or when an alarm sounds, from which door did that come?

The person on duty also is privy to information about the status of and changes to various access points covered by the PAC system and can use the system to disable any access point so credentials can no longer be read when presented.

A Profile C-conformant system also allows the operator to interconnect with the video system, relying on the interoperability with Profile S. So the officer on duty

can respond to an event using Profile S-conformant video to see who at a door and then use his Profile C-based PAC to lock or unlock the door as warranted.

Profile C shares some capabilities with Profile S, such as the example just stated, and also with Profile G. In addition, while not every device will have all Profile capabilities, having some key ones is a benefit because they are speaking a common language.

Profile C is just the next step in ONVIF's ongoing efforts to anticipate the needs of the industry, helping it to future proof with products that will work with each other now and in the years ahead.