



The Safe City and Its Need for Interoperability

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- Interoperability is one of the biggest challenges for establishing safe city common infrastructure
- ONVIF standards bring disparate safe city systems together through a common interface
- ONVIF member companies are taking the lead in the safe city movement
- Standard-setting groups are looking toward a global Internet of Things standard

Today's cities often use video management systems or other platforms to view camera footage, protect citizens and property, analyze incidents, evaluate security and to help them determine appropriate responses to events like natural disasters, disruptions to public transit and other municipal services, and to other threats to public safety. Cities implementing this connected security approach are typically referred to as safe or smart cities. Most safe cities share a common infrastructure and operate using sensors and/or cameras over a shared municipal network. Using these sensors and the data from many different devices synthesized through one interface, government officials and law enforcement are afforded a comprehensive view of a city's security.

Integrating the Many Parts of a Safe City

There are operational challenges that accompany the many systems that are included in a safe city deployment. Interoperability continues to present one of the greatest challenges, particularly with video management systems, video recording devices and cameras. The most common scenario is that municipalities have several different management systems for city operations that were created by different manufacturers, each with proprietary interfaces for integration.

In order to connect its different systems together, cities often end up employing a single-vendor "build once and maintain forever" approach, in which the continuing cost for integration of the city's systems becomes prohibitively expensive. In a world where technology and features change quickly, this approach is not practical because it severely limits an end user's ability to try new technology and/or different vendor's products and requires a substantial financial commitment to specific manufacturers and proprietary interfaces.

Standards in Safe Cities

Standards, such as those from ONVIF, provide the common link between disparate components of safe city systems. Designed specifically to overcome the challenges in multi-vendor environments, ONVIF's common interfaces facilitate communication between technologies from different manufacturers and foster an interoperable system environment where system components can be used interchangeably, provided they conform to the ONVIF specification.



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A standardized approach for both file format and associated players, which is often a challenge in multi-vendor environments, is also provided by ONVIF, increasing the efficiency of the process and also adding the potential of including meta data in exported materials and reports. ONVIF has also released an export file format specification that outlines a defined format for effective export of recorded material and forensics. These specifications together make it possible not only to integrate devices in multi-vendor video security system deployments in safe city environments but offer an effective common export file format that can streamline post-event investigations where authorities are trying to react as fast as possible to apprehend suspects or to diffuse an ongoing situation.

ONVIF Members' Safe City Solutions

In 2014, ONVIF member company Meyertech helped the city of York, U.K., to deploy a safe city solution for the city's public spaces and transportation system. Using a Meyertech video management software and information management software, the city was able to integrate IP cameras with the many legacy systems for its York Travel and Control Centre command center. The city's control room monitors more than 150 cameras from different manufacturers in the city and city representatives reported an immediate impact on crime rates. The integration of legacy and new IP cameras with the new VMS, which interfaced with the information management software, was made possible through the ONVIF video specification.

Another ONVIF member, Huawei, is considered a leader in smart city solutions. Huawei has deployed smart city solutions in Nairobi, Kenya, and in China in the cities of Nanjing and Shanghai. Huawei's video management system was used in the Shanghai project as part of the Chinese Ministry of Public Security's safe cities construction initiative. One of the key challenges of the project was to integrate old and new technology. Huawei's VMS uses ONVIF to integrate cameras from manufacturers Dahua, Haikang, Axis, Sony and other brands.

Multi-discipline Standards

A multi-discipline physical security standard that specifies parameters for video surveillance, access control and other essential operations of a safe city command center would likely increase the prevalence of safe cities even further. Many in the broader technology industry see standards as an important component in both safe cities and the Internet of Things (IoT). The IEEE (the Institute of Electrical and Electronics Engineers) and other standards groups are already working on IoT standards for technology-based industries, with some experts predicting the introduction of global IoT standards by the end of this year.

As standards and industries collaborate even further and establish minimum interoperability standards together, the need for a multi-discipline physical security standard will become more urgent. ONVIF envisions that all physical security systems will eventually have the same interfaces for interoperability, and the organization is dedicated to facilitating the work of its members in developing such a multi-discipline standard.