



# DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

ID:	<b>SE-VIDSURV-001</b>
Title:	<b>Video Surveillance Standard</b>
Domain:	<b>Security</b>
Discipline:	<b>Data Security</b>
Effective Date:	<b>10/10/2014</b>
Revision no.:	<b>1</b>
Original date:	<b>8/15/2014</b>

## I. Authority, Applicability and Purpose

- A. **Authority:** Title 29, Chapter 90C provides broad statutory authority to the Department of Technology and Information to implement statewide and interagency technology solutions, policy, standards and guidelines for the State of Delaware's technology infrastructure. "Technology" means computing and telecommunications systems, their supporting infrastructure and interconnectivity used to acquire, transport, process, analyze, store, and disseminate information or data electronically. The term "technology" includes systems and equipment associated with e-government and internet initiatives.
- B. **Applicability:** Applies to all State of Delaware communications and computing resources. DTI is an Executive Branch Agency and has no authority over the customers in Legislative and Judicial Branches, as well as School Districts, and other Federal and Local Government entities that use these resources. However, all users, including these entities, must agree to abide by all policies, standards promulgated by DTI as a condition of funding and continued use of these resources.
- C. **Purpose:** The management of physical security within the State is critical to the State's business, which often involves the use of video surveillance. This standard defines the video formats and standards that are to be used by the State of Delaware when deploying and using video surveillance.

## II. Scope

- A. **Audience:** This document is intended for organization facility managers, security managers, video contractors, video specialists and other authorized State of Delaware video surveillance personnel.
- B. **Applicability:** This standard will cover video surveillance products installed or in use by the State of Delaware. It does not apply to video surveillance equipment for public, traffic, Detention / Correctional, or law enforcement use.

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to [dti\\_tasc@state.de.us](mailto:dti_tasc@state.de.us).



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### III. Process

- A. **Adoption:** These standards have been adopted by the Department of Technology and Information (DTI) through the Technology and Architecture Standards Committee (TASC) and are applicable to all Information Technology use throughout the State of Delaware.
- B. **Revision:** Technology is constantly evolving; therefore, the standards will need to be regularly reviewed. It is the intent of TASC to review each standard annually. TASC is open to suggestions and comments from knowledgeable individuals within the State, although we ask that they be channeled through your Information Resource Manager (IRM).
- C. **Contractors:** Contractors or other third parties are required to comply with these standards when proposing technology solutions to DTI or other State entities. Failure to do so could result in rejection by the Delaware Technology Investment Council. For further guidance, or to seek review of a component that is not rated below, contact the TASC at [dti\\_tasc@state.de.us](mailto:dti_tasc@state.de.us).
- D. **Implementation responsibility:** DTI and/or the organization's technical staff will implement these standards during the course of normal business activities, including business case review, architectural review, project execution and the design, development, or support of systems.
- E. **Enforcement:** DTI will enforce this standard during the course of normal business activities, including business case and architectural review of proposed projects and during the design, development, or support of systems. This standard may also be enforced by others during the course of their normal business activities, including audits and design reviews.
- F. **Contact us:** Any questions or comments should be directed to [dti\\_tasc@state.de.us](mailto:dti_tasc@state.de.us).

### IV. Definitions/Declarations

#### A. Definitions

1. **Camera Specifications** - To understand what camera is needed in specific situations we need to define Surveillance Objectives: Detection, Recognition and Identification. Detection – ability to see something change or move. Recognition – ability to determine what changed or moved. Identification – ability to identify the object or person. Each objective requires a minimum number or pixels to perform each function. For example to detect a license plate movement requires a minimum of 6 pixels width. To recognize it is a license plate requires a minimum of 34 pixels width. To identify (or read) a license plate requires a minimum of 80 pixels width (or 12 inches). Other factors include different camera lens, camera zoom, lighting (indoor, outdoor) and environmental conditions like rain, snow, fog, camera angle, camera placement, etc. So as a base line we will assume a camera at a specific resolution will have a standard lens, no zoom and will be able to at a minimum perform facial identification in standard lighting conditions. This will require a minimum of 40 pixels width (or 6 inches) at the focus length required.



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Cameras:

Name	Resolution	Megapixel	General	Facial	High Detail
CIF	320x240	0.1	16'	8'	3'
VGA	640x480	0.3	32'	16'	6'
WVGA	752x480	0.4	38'	19'	9'
720P	1280x720	0.9	64'	32'	16'
SXGA	1280x1024	1.3	64'	32'	16'
UXGA	1600x1200	1.9	80'	40'	20'
1080P	1920x1080	2.0	96'	48'	24'
QXGA	2048x1536	3.1	102'	51'	26'
QSXGA	2560x2048	5.2	128'	64'	32'

## 2. Guidance

Small Analog DVR	1 – 16	Video surveillance is not required or critical	<p><b>Pros</b></p> <ol style="list-style-type: none"> <li>Price. Overall system is inexpensive. Cameras are very cheap (as low as \$29). The most expensive part will be the installation of the cabling needed to transmit the video and power the camera.</li> <li>Easy setup.</li> </ol> <p><b>Cons</b></p> <ol style="list-style-type: none"> <li>Cost of wiring is expensive due to needing coax and power cabling.</li> <li>720p (1280x720) cameras are available but only the most expensive recorder can utilize this resolution. Most cameras for standard DVR's range at about 500 lines of resolution.</li> <li>Only the most expensive systems offer any type of RAID array for disk redundancy.</li> <li>Most of these systems only have one hard drive so if that drive fails all of video archive is lost.</li> <li>Pulling large hour blocks from these recorders can be very time consuming. An eight hour block can take up to 3 days to process and download.</li> <li>Generally video quality is poor due to the capabilities of the DVR storage.</li> </ol>
Small SDI <sup>1</sup> DVR	1 - 16	Video surveillance is not required or	<p><b>Pros</b></p> <ol style="list-style-type: none"> <li>Price. Overall system is inexpensive. A 2.1M Pixel Camera runs as low as \$210. The most expensive part will be the installation of the cabling needed to transmit the video and power the camera. If this is an upgrade</li> </ol>

<sup>1</sup> Serial Digital Interface



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		critical	<p>from an existing analog system the cabling can be reused.</p> <ol style="list-style-type: none"> <li>2. Easy setup.</li> </ol> <p><b>Cons</b></p> <ol style="list-style-type: none"> <li>1. Cost of wiring is expensive due to needing coax and power cabling.</li> <li>2. DVR's max inputs can only handle 16 cameras and they are not designed to be daisy chained.</li> </ol>
<p>Small IP-Based No Central Recording Server</p>	<p>1 - 16</p>	<p>Video surveillance is not required or critical</p>	<p style="text-align: center;"><b><u>Axis Camera Companion</u></b></p> <p><b>Pros</b></p> <ol style="list-style-type: none"> <li>1. Software is free.</li> <li>2. Excellent HDTV image quality.</li> <li>3. Easy to install.</li> <li>4. No central PC or DVR needed.</li> <li>5. Can handle up to 16 cameras.</li> <li>6. No external recorder required.</li> <li>7. No single point of failure due to distributed recording on each camera.</li> <li>8. When moving to a central recorder server existing cameras can be easily re-used.</li> </ol> <p><b>Cons</b></p> <ol style="list-style-type: none"> <li>1. Works with Axis cameras only.</li> <li>2. Recordings are not redundant.</li> <li>3. Concurrent viewing is very limited.</li> <li>4. Recorded searches are slow and there are limited options.</li> <li>5. If camera is damaged or stolen the video archive is also lost.</li> </ol> <p style="text-align: center;"><b><u>Exacq Vision Edge</u></b></p> <p><b>Pros</b></p> <ol style="list-style-type: none"> <li>1. Client software is free (but there is a fee per camera).</li> <li>2. Excellent HDTV image quality.</li> <li>3. No central PC or DVR needed.</li> <li>4. No external recorder required but recordings are able to record to internal SD card within the camera or external NAS storage units. If NAS storage is disrupted the camera will record to its' local storage so that video is not lost.</li> <li>5. No limit to the amount of cameras that can be installed.</li> <li>6. No single point of failure due to distributed recording on each camera.</li> <li>7. When moving to a central recorder server existing cameras can be easily re-used.</li> </ol>

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			<ol style="list-style-type: none"> <li>8. Enterprise video search options.</li> <li>9. Guaranteed recording in wireless IP camera deployments, such as parking lots, where network connectivity is less reliable.</li> <li>10. The full functionality and performance of exacqVision Pro and exacqVision Enterprise is available in exacqVision Edge. Third-party integrations with POS, access control, LPR, video analytics; Video Wall; Mapping; Digital PTZ, and more are all included with exacqVision Edge</li> </ol> <p><b>Cons</b></p> <ol style="list-style-type: none"> <li>1. Works with Axis and IQeye cameras only. (<a href="https://exacq.com/products/exacqvision_edge.html">https://exacq.com/products/exacqvision_edge.html</a>)</li> <li>2. Each camera must be licensed at about \$150 each.</li> <li>3. There is no redundancy because the camera cannot record to both its' internal memory and an external NAS drive at the same time.</li> <li>4. Concurrent viewing is very limited.</li> <li>5. Recorded searches are slow.</li> <li>6. If camera is damaged or stolen the video archive is also lost.</li> </ol>
Small IP-Based Central Recording Server	1 - 16	Video surveillance is required or critical	<p>We recommend systems that can use many different brands of IP cameras due to technology advancements among different vendors for specialized applications.</p> <p>There are many companies that can provide small central IP based recorders. The main things to look for here are search features, storage capacity, multi-streaming, camera model requirements, concurrent users, concurrent cameras and general features.</p>
Medium to Large IP-Based Central Recording Server(s)	1 – 100+	Video surveillance is required or critical	<p><b>Pros</b></p> <ol style="list-style-type: none"> <li>1. Very redundant storage arrays.</li> <li>2. Multi-console viewing.</li> <li>3. 5M pixel camera (2592x1944 resolution).</li> <li>4. Expandable to 100s of cameras.</li> <li>5. Can support many brands of IP cameras.</li> <li>6. Recorded searches are very fast. I processed a full 24 hours on four cameras (two being 5M pixel using continuous recording) in less than 20 seconds.</li> </ol> <p><b>Cons</b></p> <ol style="list-style-type: none"> <li>1. Costs for storage array, infrastructure costs are high vs. other storage media.</li> </ol>

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			2. RAID 6 for large storage arrays. 3. Systems require fast reliable networks.
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3. **ONVIF** – Open Network Video Interface Forum - ONVIF is an open industry forum for the development of a global standard for the interface of IP-based physical security products.  
<http://www.onvif.org/>
4. **Resolution** – Recommended minimum resolution for all surveillance cameras - D1 resolution (704x480)..
5. **SDI** – Serial Digital Interface

### **B. Declarations**

1. Surveillance Video is classified as Confidential data, as such, it must be treated according to the applicable State of Delaware Policies and Standards  
<http://dti.delaware.gov/information/standards-policies.shtml>
2. All IP surveillance cameras covered by this standard must belong to a protected VRF.
3. All captured video will be retained for no less than 30 days.
4. The recommended video retention period is 60 days, individual agency requirements may require a retention period of longer than 60 days.
5. In order to reduce the impact of account management when utilizing 16 or more cameras, Active Directory account management is advised



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### V. Definitions of Ratings

Individual components within a Standard will be rated in one of the following categories.

COMPONENT RATING	USAGE NOTES
<b>STANDARD</b> – DTI offers internal support and/or has arranged for external vendor support as well (where applicable). DTI believes the component is robust and can be expected to enjoy a useful life of 3+ years from the Effective Date.	These components can be used without explicit DTI approval for both <b><u>new projects</u></b> and <b><u>enhancement</u></b> of existing systems.
<b>DECLINING</b> – Deprecated - DTI considers the component to be a likely candidate to have support discontinued in the near future. A deprecated element is one becoming invalid or obsolete.	Via the State's waiver process, these components must be explicitly approved by DTI for <b><u>all projects</u></b> . They must not be used for <b><u>minor enhancement</u></b> and <b><u>system maintenance</u></b> without explicit DTI approval via the State's waiver process.
<b>DISALLOWED</b> – DTI declares the component to be unacceptable for use and will actively intervene to disallow its use when discovered.	No waiver requests for new solutions with this component rating will be considered.

- A. Missing Components** – No conclusions should be inferred if a specific component is not listed. Instead, contact TASC to obtain further information.



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### VI. Component Assessments

Standard Name	Ratings	Standard Reference
ONVIF	Standard	<a href="http://www.onvif.org/">http://www.onvif.org/</a>

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