

TR 69 : Part 1 : 2019
(ICS 13.320, 35.240.99)

TECHNICAL REFERENCE

**Video analytics within video surveillance
systems**

– Part 1 : Reference architecture and interoperability



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	Mr Tan Boon Yuen	<i>Singapore Polytechnic</i>
	Mr Too Huseh Tien	<i>Defence Science and Technology Agency</i>
	Mr Wong Wai Meng	<i>SGTech</i>

ITSC sets up the Technical Committee on Internet of Things to oversee the preparation of this standard. The Technical Committee consists of the following members:

	Name	Representation
Chairman	: Mr Lim Chee Kean	<i>Individual Capacity</i>
Secretary	: Mr Steven Tan	<i>Infocomm Media Development Authority</i>
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	Mr Eddie Teo	<i>StarHub</i>
	Mr Teo Shin Jen	<i>Singapore Polytechnic</i>

The Technical Committee sets up the Working Group on Video Analytics and Video Surveillance (Part 1) to prepare this standard. The Working Group consists of the following experts who contribute in their *individual capacity*:

	Name
Convenor	: Mr Raj Joshua Thomas
Deputy Convenor	: Dr Tan Guan Hong
Secretary	: Mr Jourdan Sabapathy
Members	: Mr Christian de Suner Mr Durairaj Gireraj Mr David Goh Mr Victor Goh Hai Kiat Mr Eric Ho Kai Kwong Mr Lee Wee Kai Mr Lim Khing Tat Mr Lim Soon Hock Mr Raymond Looi Dr Neo Shi Yong Mr Oh Tiong Keng Mr Philip Ong Mr Rajamoorthy Karapaya Mr Guy Ron Mr Sim Bak Chor Mr Sugiri Pranata Mr Gary Tan Mr Thomas Yip

The organisations in which the experts of the Working Group are involved are:

Axxonsoft Asia Pte Ltd

Cyrus Innovations Pte Ltd

Hikvision Overseas Division

Infocomm Media Development Authority

Nanyang Polytechnic

NCS Pte Ltd

NEC Asia Pacific Pte Ltd

Panasonic R & D Center Singapore

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Foreword

This Technical Reference (TR) was prepared by the Working Group on Video Analytics and Video Surveillance (Part 1) set up by the Technical Committee on Internet of Things under the purview of ITSC.

TR 69 is intended to support the wider adoption of video analytics technology within video surveillance systems and consists of the following parts under the general title “Video analytics within video surveillance systems”:

Part 1 : Reference architecture and interoperability

Looks at the fundamental concepts that are key to architecting a solution for the use of video analytics, and puts it in the context of the other systems that video analytics need to be interoperable with.

Part 2 : Selection, installation and benchmarking

Sets out practical steps for the selection, installation and benchmarking of video analytics system, to help users size up their requirements systematically in order to match it with the relevant capabilities that current video analytics systems can deliver.

This TR is a provisional standard made available for application over a period of three years. The aim is to use the experience gained to update the TR so that it can be adopted as a Singapore Standard. Users of the TR are invited to provide feedback on its technical content, clarity and ease of use. Feedback can be submitted using the form provided in the TR. At the end of the three years, the TR will be reviewed, taking into account any feedback or other considerations, to further its development into a Singapore Standard if found suitable.

In preparing this TR, reference was made to the following publications:

1. TR 38 : Technical Reference for sensor network for smart nation (public areas)
2. TR 47 : Technical Reference for IoT reference architecture for Smart Nation
3. TR 50 : Technical Reference for IoT information and services interoperability for Smart Nation

This TR is expected to be used by suppliers, buyers, service providers, systems integrators, end users and manufacturers of video surveillance systems, testing, inspection and certification bodies, and industry associations.

Attention is drawn to the possibility that some of the elements of this TR may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as “Mature standards”. Mature Standards will not be subject to further review, unless there are requests to review such standards.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Video analytics within video surveillance systems – Part 1 : Reference architecture and interoperability

0 Introduction

0.1 Current landscape

Video analytics (VA) has been developed in response to the overwhelming increase in the amount of surveillance data accumulated in recent times and the need to make sense or derive useful information from surveillance videos. VA leverages machine vision technology to automate the process of viewing and searching for events of interest in the numerous streams of video being captured by cameras.

As such, it typically sits within a wide landscape of video surveillance systems (VSS) and has to interact with other systems to perform its function of delivering intelligence to the end-user and stakeholders. Video surveillance systems are often connected to and required to communicate with other complex systems such as physical security management systems, building management systems, and storage systems. Each of these smaller, function-focused systems is supported by a variety of devices from different manufacturers.

In today's connected world, the need for interoperability between systems owned or operated by different organisations, or set up using different architectures with different level of capabilities, may be required. An understanding of the different types of architecture that exist and the possible forms of interoperability is needed for stakeholders of VA systems to help them improve information sharing capabilities so as to enhance the security capabilities of the users. Through collaboration with other security stakeholders such as building owners and government agencies, it may be possible to identify and act upon opportunities for productivity gains through the sharing of resources and equipment.

0.2 Intended audience

This TR serves to inform users who are exploring different architectural and deployment options for a VA system and to provide a guide in terms of sizing the system. It also provides end-users, especially those who may be new to the domain, with a quick reference of the concepts and functions of the various components that make up a VA system, and their roles in video surveillance.

The document can help personnel who are part of procurement, operations, or support functions, quickly understand and navigate the landscape when faced with the need to enable or support interoperability with other systems.

1 Scope

The TR provides:

- An overview of the wider landscape within which VAS functions – the different systems it may have to connect with and the types of connections that exist.
- Descriptions for a range of architectures, including conceptual models, under which VAS may be deployed.
- An overview of the specifications that facilitate interoperability between VAS and the other systems supporting the wider landscape of video surveillance and security.

The scope of this TR is not limited to the use of VA for any particular industry or business use case but aims to provide information applicable in a wide range of scenarios. For practical information on the selection, implementation and benchmarking of VAS, users can refer to Part 2 of this TR.

2 Normative references

There are no normative references in this TR.