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Systèmes d'alarme et de sécurité électroniques – Partie 11-32: Systèmes de contrôle d'accès électronique – Commande de contrôle d'accès en fonction des services Web

IEC 60839-11-32:2016-11(en-fr)

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Part 11-32: Electronic access control systems – Access control monitoring based on Web services

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The text of this standard is based on the following documents:

CDV	Report on voting
79/523/CDV	79/547/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60839 series, published under the general title *Alarm and electronic security systems*, can be found on the IEC website.

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INTRODUCTION

This document makes it possible to build an alarm and electronic security system with clients, typically a monitoring console, and devices, typically an access control unit, from different manufacturers using common and well defined interfaces.

This document specifies only the data and control flow between a client and the services without reference to any physical device as the services required to implement a compliant electronic access control system (EACS) are not necessarily implemented on a single device, i.e. all services can be run on a control panel, event aggregator software on PC, etc.

This document does not define internal communication between an access control unit and its components if they are implemented on a single device.

This document is based upon work done by the ONVIF open industry forum. The ONVIF Access Control specification and ONVIF Door Control specification are compatible with this document.

This document is accompanied by a set of computer readable interface definitions:

- Access control service WSDL, see Clause A.1;
- Door control service WSDL, see Clause A.2;
- Common schema, see Clause A.3;

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Due to the differences in terminology used in IEC 60839-11-1, IEC 60839-11-2 and the ONVIF specification that this part of IEC 60839 is based on, a reader should take special notice of the terms and definitions clause.

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Additional services needed for configuration of an EACS such as definitions of schedules, handling of access rules, readers and credentials are outside the scope of this document. These services will be covered by other parts of the IEC 60839-11-3x family of standards.

ALARM AND ELECTRONIC SECURITY SYSTEMS –

Part 11-32: Electronic access control systems – Access control monitoring based on Web services

1 Scope

This part of IEC 60839 defines the Web services interface for electronic access control systems. This includes listing electronic access control system components, their logical composition, monitoring their states and controlling them. It also includes a mapping of mandatory and optional requirements as per IEC 60839-11-1.

This document applies to physical security only. Physical security prevents unauthorized personnel, attackers or accidental intruders from physically accessing a building, room, etc.

Web services usage and device management functionality are outside of the scope of this document. Refer to IEC 60839-11-31 for more information.

This document does not in any way limit a manufacturer to add other protocols or extend the protocol defined here. For rules on how to accomplish this refer to IEC 60839-11-31.

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2 Normative references

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The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60839-11-1, *Alarm and electronic security systems – Part 11-1: Electronic access control systems – System and components requirements*

IEC 60839-11-2, *Alarm and electronic security systems – Part 11-2: Electronic access control systems – Application guidelines*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document the terms and definitions given in IEC 60839-11-1 and IEC 60839-11-2, as well as the following, apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE When the IEC term defined in IEC 60839-11-1 and IEC 60839-11-2 differs from the terms used in this document the IEC term will be given in parentheses in the section headers.

3.1.1
access point
portal
physical entrance/exit at which access can be controlled by a door, turnstile or other secure barrier

Note 1 to entry: For the purposes of this document the access point is considered to be a logical composition of a physical door and reader(s) controlling access in one direction.

Note 2 to entry: In this document, the term "door" has the same meaning as "access point" or "portal".

3.1.2
access point actuator
portal actuator
part of an access control system that interfaces to an access control unit releasing and securing a portal according to pre-set rules

Note 1 to entry: In this document, the term “door lock” is used.

3.1.3
access point mode
logical operating mode of the portal indicating whether the portal is locked, unlocked, blocked, locked down or locked open, etc.

Note 1 to entry: In this document, the term “door mode” is used.

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3.1.4
access point sensor
portal sensor
electrical component used to monitor the open or closed status of an access point, or locked/unlocked status of a locking device, or the secure/unsecure status of an electromagnetic lock or armature plate

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Note 1 to entry: In this document, the term “door monitor” is used.

3.1.5
access point overriding
portal overriding
action of issuing a manual command to bypass the pre-configured mode of operation (i.e. release/secure/block) of an access point

Note 1 to entry: In this document, the terms “momentary access” and “unlocked” are examples of access point overriding.

3.1.6
alarm
<access control system> condition requiring human assessment or intervention

Note 1 to entry: Often used in electronic access control system in the sense of alert.

Note 2 to entry: In this document, the term "door alarm" is used.

3.1.7
client
service requester

EXAMPLE System management, annunciation, monitoring console.

3.1.8
device
service provider

EXAMPLE: Access control unit.

3.1.9
portal side
logical composition of a physical door and reader (s) controlling access in one direction

3.2 Abbreviated terms

For the purposes of this document, the abbreviated terms given in IEC 60839-11-1 and IEC 60839-11-2, as well as the following apply.

ACMS Access Control Management System

BMS Building Management System

HTTP Hypertext Transfer Protocol

PSIM Physical Security Information Management

SOAP Simple Object Access Protocol

TLS Transport Layer Security

WSDL Web Services Description Language

4 Overview

4.1 Interoperability

This document provides new interoperability opportunities by separating configuration from control and monitoring. In traditional systems, the central management system pushes all configurations data to devices on startup and expects that this configuration data is not changed by other clients. Instead, a client shall expect that all information is stored on end-devices and can be changed by others.

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An EACS system defined by this document relies on service-oriented architecture principles. This allows installations where different components can be replaced or updated independently.

4.2 Event handling

Event handling is a crucial part of access control operations. In addition to real-time event delivery IEC 68839-11-31 provides the means for accessing stored events on the edge to deliver them if connection is lost.

Events are divided into 3 groups depending on their origin and purpose:

1) Configuration change events. These events are provided to achieve interoperability between several clients that control a single device simultaneously.
2) Transaction events. The core functionality of EACS that provides daily monitoring of all access events, including access granted events designed to notify clients about all detailed information (who, when and probably where they passed) on every particular access granted event, access denial events (that may or may not contain reason information), etc.
3) Alarms and faults events. These events provide health status monitoring allowing operators to take action in case of hardware failure, intrusion or other suspicious activity.

Refer to IEC 68839-11-31 for details on event delivery mechanism and 5.7 for the list of events defined by this document.

4.3 Architecture

This document does not mandate any specific physical device layout. The scheme provided in Figure 1 is not intended to be taken as a pattern but to serve as a reference for better

understanding of the given specification. Based on the definitions below, different physical configurations of an access controlled door are possible.

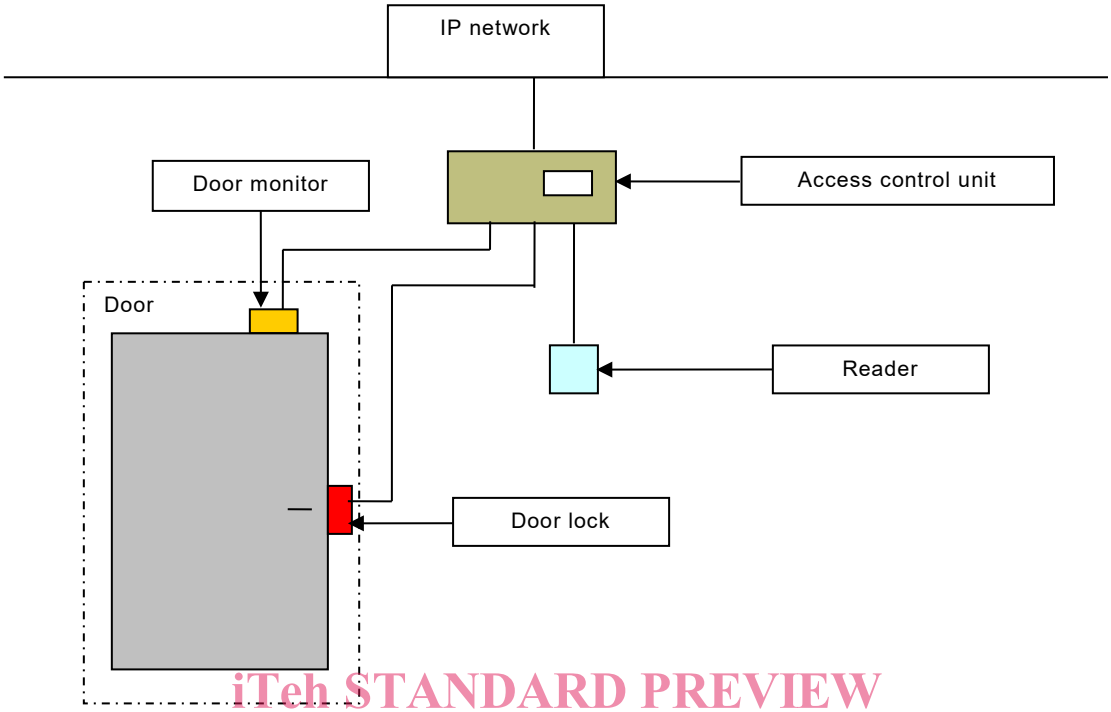

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Figure 1 – Schematic overview of an access controlled door

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A door that is controlled by an electronic access control system is equipped with the following devices:

- An access control unit that provides connections for reader, door sensor, door lock and additional digital inputs and outputs. This panel enables the software to interact with the physical devices. Sometimes these panels also contain storage and local intelligence to provide an offline functionality, so that the door will work as expected, even if there is no management system above available.
- A reader that is able to read a credential. In most cases a reader is only mounted at the outer (unsecure) side of the door. If the system monitors when somebody is leaving an area, a card reader will be mounted on both sides of the door.
- A door monitor that signals the control panel, that the door is open or closed.
- A door lock that can be engaged by the access control unit to release the door, for example in case an authorized credential is recognized.

The access control unit will, through the IP network, be connected to a system, typically a monitoring console, for monitoring and configuration.

4.4 External authorization (Overriding)

External authorization is a feature used to take access decisions for an access point outside the access control unit. External authorization entails, but is not limited to, a policy within the access control unit where the access control unit delegates the access decisions to an outside entity such as a guard or ACMS.

4.5 Security considerations

This document assumes possibility of building EACS systems interacting on the device level. This implies more security consideration than regular client-server interaction.

IEC 68839-11-31 defines several mechanisms to achieve this. They include, but are not limited to

- TLS for transport encryption;
- HTTP digest for client authentication;
- user management and access policies for client authorization;
- IEEE 802.1X certificate management for server authentication and spoofing protection.

Refer to the respective whitepapers and specifications for more information.

4.6 Door (access point) control

The door control service provides mechanisms for controlling physical door instances and monitoring their status.

The Door in this document can refer to such physical objects as an automatic barrier or a door equipped with an electric lock. Turnstiles which can restrict access in either direction can be represented with a pair of doors.

4.7 Design considerations

4.7.1 Instance-level capabilities

A single EACS device may have diverse components of the same type. For example, a controller may operate two doors: one at the entrance to the building which has secure locking, monitoring and alarm abilities, and the other one is internal which can be only locked and unlocked.

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Therefore, capabilities can be divided into two groups:

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- overall service capabilities;
- capabilities for a particular entity in the service. It can also work in conjunction with the GetEventProperties function to provide finer control over the system.

Refer to 5.2 and 6.2 for more information.

4.7.2 Retrieving status

This document defines two parallel mechanisms for retrieving status information for most entities:

- Get<*Entity*>State functions return a cumulative snapshot of the current state, operating mode and other run-time information.
- The Event service returns up-to-date and consistent states of entities. Each entity provides a set of events (usually one per each field in the State type) to notify a client about status changes. As far as these events are property events, a client receives the current state whenever a new subscription is initialized.

4.7.3 Retrieving system configuration

This document defines several Get-functions that can return data incrementally. These functions allow the processing of a large number of entities even though resources are highly constrained.

To return data incrementally, these functions make use of a parameter called StartReference. StartReference is a device internal identifier used to continue fetching data from the last position, and allows a client to iterate over a large dataset in smaller chunks. The device handles a reasonable number of different StartReferences at the same time and they live for a reasonable time so that clients are able to fetch complete datasets.

A client always passes the value returned from a previous request to continue fetching data. Clients do not use the same reference more than once.

For example, the StartReference can be the incrementing start position number or the underlying database transaction identifier.

The returned NextStartReference is used as the StartReference parameter in successive calls, and may be changed by device in each call.

The following pseudo-code demonstrates how information about all access points can be obtained from a device:

```
StartRef = null
do {
     Response = GetAccessPointInfoList(StartReference = StartRef)
     if (Response.AccessPointInfo != null) {
          AllAccessPoints.Append(Response.AccessPointInfo)
     }
     StartRef = Response.NextStartReference
} while (StartRef != null)
```

5 Access control

5.1 General

iTeh STANDARD PREVIEW

This service offers commands to retrieve status information and to control access point instances.

(standards.iteh.ai)

5.2 Service capabilities

IEC 60839-11-32:2016
https://standards.iteh.ai/catalog/standards/sist/69575c45-468e-4021-b69c-8a7407dbb76e/iec-60839-11-32-2016

5.2.1 General

A device shall provide service capabilities in two ways:

1) With the GetServices method of Device service when IncludeCapability is true. Refer to IEC 68839-11-31 for more details.
2) With the GetServiceCapabilities method.

5.2.2 Data structures: ServiceCapabilities

The service capabilities reflect optional functionality of a service. The information is static and does not change during device operation. The following capabilities are available:

- **MaxLimit**

  The maximum number of entries returned by a single Get<Entity>List or Get<Entity>request. The device shall never return more than this number of entities in a single response.

5.2.3 GetServiceCapabilities command

This operation returns the capabilities of the access control service. A device shall support this command as described in Table 1.