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Standards

Irish Standard
I.S. EN 62559-2:2015

Use case methodology - Part 2: Definition of the template for use cases, actor list and requirements list

I.S. EN 62559-2:2015

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EUROPEAN STANDARD

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English Version

**Use case methodology - Part 2: Definition of the template for use cases, actor list and requirements list
(IEC 62559-2:2015)**

Méthodologie des cas d'utilisation - Partie 2: Définition du formulaire type de modèle de cas d'utilisation, de la liste d'acteurs et de la liste d'exigences
(IEC 62559-2:2015)

Anwendungsfallmethodik - Teil 2: Definition der Anwendungsfallvorlage, Akteurliste und der Anforderungsliste
(IEC 62559-2:2015)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 62559-2:2015**European foreword**

The text of document 8/1389/FDIS, future edition 1 of IEC 62559-2, prepared by IEC TC 8, "Systems aspects for electrical energy supply" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62559-2:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-03-04
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

| | | |
|--------------------|------|----------------------------------|
| IEC 61850 (Series) | NOTE | Harmonized as EN 61850 (Series). |
| IEC 61968-1 | NOTE | Harmonized as EN 61968-1. |
| IEC 61968-11 | NOTE | Harmonized as EN 61968-11. |
| IEC 61968-100:2013 | NOTE | Harmonized as EN 61968-100:2013. |
| IEC 61970-301 | NOTE | Harmonized as EN 61970-301. |
| IEC 62056 (Series) | NOTE | Harmonized as EN 62056 (Series). |
| IEC 62325-301 | NOTE | Harmonized as EN 62325-301. |
| IEC 62507-1:2010 | NOTE | Harmonized as EN 62507-1:2011. |

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|----------------|-------------|
| IEC 60870-5-10x | | Telecontrol equipment and systems -- Part 5: Transmission protocols | EN 60870-5-10x | series |
| IEC 61850 | series | Communication networks and systems for power utility automation -- Part 3: General requirements | EN 61850 | series |
| IEC 61968-1 | - | Application integration at electric utilities - System interfaces for distribution management -- Part 1: Interface architecture and general requirements | EN 61968-1 | - |
| IEC 61968-11 | - | Application integration at electric utilities - System interfaces for distribution management -- Part 11: Common information model (CIM) extensions for distribution | EN 61968-11 | - |
| IEC 61968-100 | 2013 | Application integration at electric utilities - System interfaces for distribution management -- Part 100: Implementation profiles | EN 61968-100 | 2013 |
| IEC 61970-301 | - | Energy management system application program interface (EMS-API) - Part 301: Common information model (CIM) base | EN 61970-301 | - |
| IEC 62056 | series | Electricity metering - Data exchange for meter reading, tariff and load control -- Part 47: COSEM transport layers for IPv4 networks | EN 62056 | series |
| IEC 62325-301 | - | Framework for energy market communications -- Part 301: Common Information Model (CIM) extensions for markets | EN 62325-301 | - |
| IEC 62507-1 | 2010 | Identification systems enabling unambiguous information interchange - Requirements -- Part 1: Principles and methods | EN 62507-1 | 2011 |

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



Use case methodology –

Part 2: Definition of the templates for use cases, actor list and requirements list

Méthodologie des cas d'utilisation –

Partie 2: Définition du formulaire type de modèle de cas d'utilisation, de la liste d'acteurs et de la liste d'exigences



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



Use case methodology –

Part 2: Definition of the templates for use cases, actor list and requirements list

Méthodologie des cas d'utilisation –

Partie 2: Définition du formulaire type de modèle de cas d'utilisation, de la liste d'acteurs et de la liste d'exigences

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

USE CASE METHODOLOGY –

Part 2: Definition of the templates for use cases, actor list and requirements list

FOREWORD

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International Standard IEC 62559-2 has been prepared by IEC technical committee 8: Systems aspects for electrical energy supply.

This first edition cancels and replaces IEC PAS 62559:2008 which had been published together with EPRI. Main content of the former PAS will be transferred to the new IEC 62559-4.

IEC 62559-1 to IEC 62559-3 are now more related to the application of the use case methodology in standardisation. In this document, a revised and updated template is provided.

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

| FDIS | Report on voting |
|-------------|------------------|
| 8/1389/FDIS | 8/1395/RVD |

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 62559 series, published under the general title *Use case methodology*, can be found on the IEC website.

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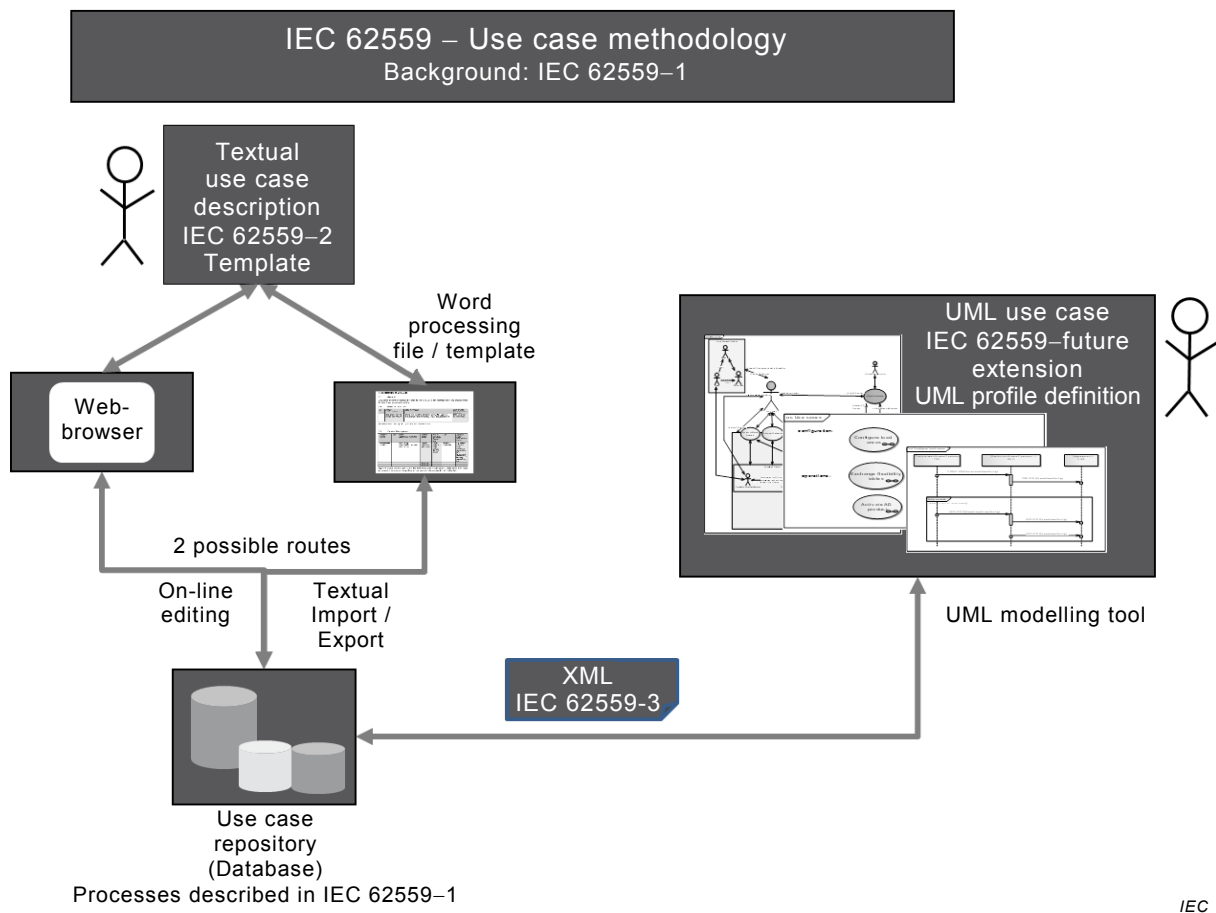
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INTRODUCTION

For complex systems, the use case methodology supports a common understanding of functionalities, actors and processes across different technical committees or even different organizations. Developed as software engineering tool, the methodology can be used to support the development of standards as it facilitates the analysis of requirements in relation to new or existing standards. Further arguments for the use case methodology and background information are available in IEC 62559-1.

Figure 1 provides an overview of the intended first parts of the IEC 62559, mainly describing the relation between IEC 62559-2 and IEC 62559-3.



IEC

Figure 1 – IEC 62559 standard series

IEC 62559-1 – Concept and processes in standardization

IEC 62559-1 is the basis for a common use case repository in order to gather use cases within IEC on a common collaborative platform. This repository will also be used to organize a harmonization of use cases in order to provide broadly accepted generic use cases as basis for the further standardization work. It describes processes and provides basics for the use case methodology like terms or use case types.

IEC 62559-2 – Definition of the templates for use cases, actor list and requirements list

IEC 62559-2 defines the structure of a use case template, an actor list and a list for requirements. The document is mainly based on the previous IEC PAS 62559 specification and shall be read together with IEC 62559-1.

IEC 62559-3 – Definition of use case template artefacts into an XML serialized format

Based on IEC 62559-2, IEC 62559-3 defines the required core concepts and their serialization into an XML format of a use case template, an actor list and a list for detailed requirements. The XML format is used to transfer the content of the template to other engineering systems (e.g. UML modelling tools). These documents are developed using the energy system and Smart Grids as examples, but they are general enough to be transferred to other domains and systems. It is intended to develop a UML profile definition based on this part in the future.

Motivation

The International Standard IEC 62559 "Use case methodology" is needed to fulfill the SG3 decision 7 made by the SMB at its February 2010 meeting (SMB/4204/DL, Decision 137/10) requesting the urgent delivery of a generic use case repository for all Smart Grid applications. Nevertheless, the use case methodology described in this document is intended for a broader application within standardization exceeding Smart Grid systems.

More and more complex systems such as Smart Grids or Smart Cities are raising the question of managing system level requirements, which have to be fed by many domains of expertise (in standardization related to different Technical Committees (TCs)), and which have to be broken down further and shared by many TCs in charge of specifying standards to support these system level functions.

One way to handle this transversality efficiently is to set some common methods and terms. The use case methodology is the current state of art and supports further engineering activities.

The use case methodology offers a unique way for sharing ideas and requirements of new use cases or business cases between many experts/TC's with different backgrounds: e.g. domain experts with knowledge about energy systems or business processes on one hand and system-/IT-experts defining exchanged information and communication on the other hand. In the requirement development process, domain experts are providing general ideas and functional requirements. The main goal is for system experts to detail down these use cases to a level they can be used to specify interfaces, dedicated functionality, data and service model exchange. However, safety- or EMC-experts (as examples) may also make use of the described use cases, their terminology and identified requirements.

However, the starting point is to set up a frame for consistency within IEC helping IEC members to provide use cases in a consistent manner – this standard shall serve as basis for use case repositories in order to gather, administrate, maintain, and evaluate use cases.

Within IEC, a use case repository shall be used as common collaborative platform for use case elaboration and to organize a harmonization of use cases in order to provide broadly accepted generic use cases as basis for further standardization work.

But the use case template defined in this document may serve not only for the development of standards, but also – as it was the original purpose of the previous IEC PAS 62559:2008 (refer to IEC 62559-4) – as a helpful means for the realization of projects within the area of complex systems. Also other applications, which need the benefits of a structured requirements development and formalized description of functionality, may make use of the suggested template.

The use case methodology has to be seen as a process which starts with the definition of business ideas, goals and requirements, detailing these in use case descriptions. This information can be used as a basis to identify/link reference architectures describing the types of components used, and going further down to an analysis for the further standardization process.

Further developments regarding the use case template are expected. These developments are mainly related to information, which is required in the use case description for further analysis, and which can be mapped to other information (e.g. to a reference architecture, IT security methods, standards and data models). Partly this is considered in the suggested template of this standard. Further relations will be described separately as they are still under development and they might be considered for the further development of the IEC use case repository.

USE CASE METHODOLOGY –

Part 2: Definition of the templates for use cases, actor list and requirements list

1 Scope

This part of IEC 62559 “Use case methodology” defines the structure of a use case template, template lists for actors and requirements, as well as their relation to each other. In this document, a standardized template for the description of use cases is defined for various purposes like the use in standardization organizations for standards development or within development projects for system development.

This document was developed for general application in various domains and systems. The energy system/smart grid is used as example in this document as it was one of the first usage areas for this use case template, but this general template can be applied in other usage areas different from energy systems as well (e.g. smart home or electro-mobility).

The motivation, background information on use cases, recommendations for the handling of use cases and the processes for the description of use cases inside standardization and in relation to a central use case repository is described in IEC 62559-1.

2 Normative references

Void.

3 Terms, definitions and abbreviations

For the purposes of this document, the terms and definitions given in IEC 62559-1 and the following apply.

3.1

use case

specification of a set of actions performed by a system, which yields an observable result that is, typically, of value for one or more actors or other stakeholders of the system

[SOURCE: ISO/IEC 19505-2:2012, 16.3.6]

3.2

actor

entity that communicates and interacts

Note 1 to entry: These actors can include people, software applications, systems, databases, and even the power system itself.

[SOURCE: Based on IEC PAS 62559:2008]

3.3

role

role played by an actor in interaction with the system under discussion

Note 1 to entry: Alternative: A role represents the external intended behavior of a party. A party cannot share a role.

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