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Dataformat för utbyte av konfigurationsdata för industriella automationssystem (AutomationML) – Del 2: Rollbibliotek

Engineering data exchange format for use in industrial automation systems engineering – Automation markup language – Part 2: Role class libraries

Som svensk standard gäller europastandarden EN 62714-2:2015. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62714-2:2015.

Nationellt förord

Europastandarden EN 62714-2:2015

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62714-2, First edition, 2015 - Engineering data exchange format for use in industrial automation systems engineering - Automation markup language - Part 2: Role class libraries**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 25.040.40; 35.060.00; 35.240.50

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 62714-2

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English Version

Engineering data exchange format for use in industrial automation systems engineering - Automation markup language - Part 2: Role class libraries (IEC 62714-2:2015)

Format d'échange de données techniques pour une utilisation dans l'ingénierie des systèmes d'automatisation industrielle - Automation markup language - Partie 2: Bibliothèques de classes de rôles (IEC 62714-2:2015)

Datenaustauschformat für Planungsdaten industrieller Automatisierungssysteme - Automation markup language - Teil 2: Rollenbibliotheken (IEC 62714-2:2015)

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SEK Svensk Elstandard

Foreword

The text of document 65E/300/CDV, future edition 1 of IEC 62714-2, prepared by SC 65E "Devices and integration in enterprise systems", of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62714-2:2015.

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) 2016-02-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-05-04

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Endorsement notice

The text of the International Standard IEC 62714-2:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61512-1	NOTE	Harmonized as EN 61512-1.
IEC 62264-1:2013	NOTE	Harmonized as EN 62264-1:2013 (not modified).

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.

Publication	Year	Title	EN/HD	Year
IEC 61360-4	-	Standard data element types with associated classification scheme for electric components - Part 4: IEC reference collection of standard data element types and component classes	EN 61360-4	-
IEC 62424	2008	Representation of process control engineering - Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools	EN 62424	2009
IEC 62714-1	2014	Engineering data exchange format for use in industrial automation systems engineering - Automation markup language - Part 1: Architecture and general requirements	EN 62714-1	2014

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ENGINEERING DATA EXCHANGE FORMAT FOR USE IN INDUSTRIAL AUTOMATION SYSTEMS ENGINEERING – AUTOMATION MARKUP LANGUAGE –

Part 2: Role class libraries

FOREWORD

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International Standard IEC 62714-2 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

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

CDV	Report on voting
65E/300/CDV	65E/390/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 62714 series, published under the general title *Engineering data exchange format for use in industrial automation systems engineering – Automation Markup Language*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The data exchange format defined in IEC 62714 (Automation Markup Language, AML) is an XML schema based data format and has been developed in order to support the data exchange between engineering tools in a heterogeneous engineering tool landscape. IEC 62714-1 gives an overview about the format.

The goal of AML is to interconnect engineering tools from the existing heterogeneous tool landscape in their different disciplines, e.g. mechanical plant engineering, electrical design, process engineering, process control engineering, HMI development, PLC programming, robot programming, etc.

AML stores engineering information following the object oriented paradigm and allows modelling of physical and logical plant components as data objects encapsulating different aspects. An object may consist of other sub-objects and may itself be part of a larger composition or aggregation. Typical objects in plant automation comprise information on topology, geometry, kinematics and logic, whereas logic comprises sequencing, behaviour and control.

AML combines existing industry data formats that are designed for the storage and exchange of different aspects of engineering information. These data formats are used on “as-is” basis within their own specifications and are not branched for AML needs.

The core of AML is the top-level data format CAEX that connects the different data formats. Therefore, AML has an inherent distributed document architecture.

Figure 1 illustrates the basic AML architecture and the distribution of topology, geometry, kinematic and logic information.

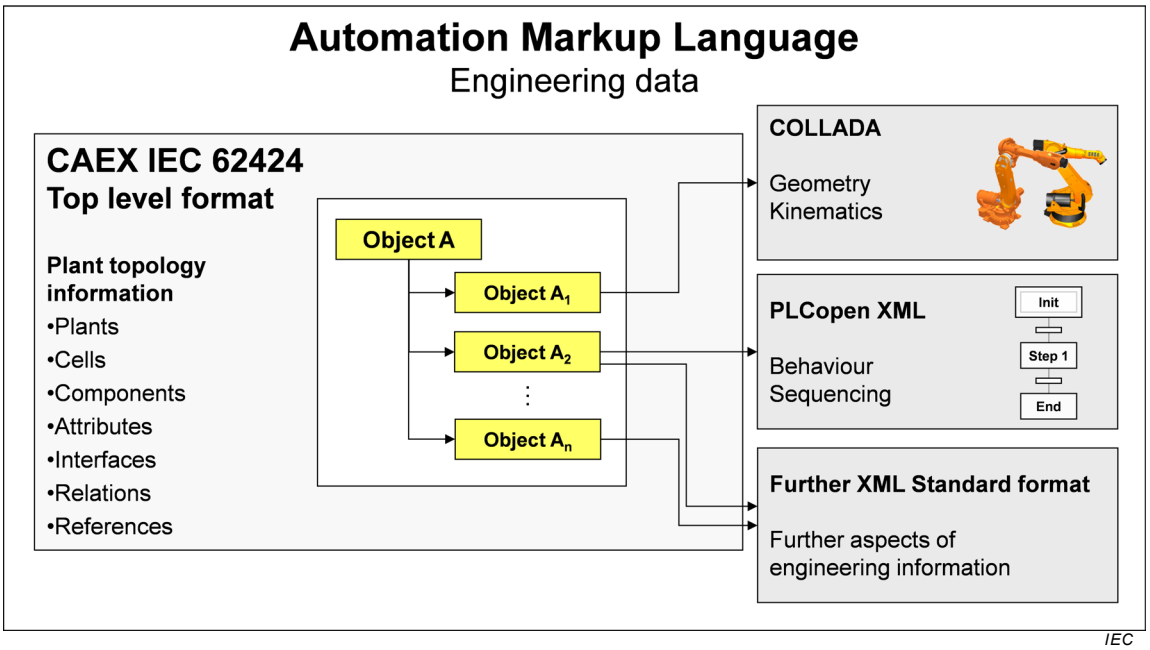

Figure 1 – Overview of the engineering data exchange format (AML)

Due to the different aspects of AML, IEC 62714 consists of different parts focussing on different aspects.

- IEC 62714-1: Architecture and general requirements

This part specifies the general AML architecture, the modelling of engineering data, classes, instances, relations, references, hierarchies, basic AML libraries and extended AML concepts.

- IEC 62714-2: Role class libraries

  This part specifies additional AML libraries.

- IEC 62714-3[1]: Geometry and kinematics

  This forthcoming part is intended to specify the modelling of geometry and kinematics information.

  In addition, another part (possibly Part 4) will specify the modelling of logics, sequencing, behaviour and control related information.

Further parts may be added in the future in order to interconnect further data standards to AML.

Clause 5 describes normative role class libraries within AML.

Annex A describes the informative AML extended role class library.

Annex B gives an informative example for the usage of AML role classes.

Annex C shows some user-defined role class libraries of different origins.

Annex D gives an informative XML representation of the libraries defined in this part of IEC 62714.

[1] Under consideration.

ENGINEERING DATA EXCHANGE FORMAT FOR USE IN INDUSTRIAL AUTOMATION SYSTEMS ENGINEERING – AUTOMATION MARKUP LANGUAGE –

Part 2: Role class libraries

1 Scope

The IEC 62714 series specifies an engineering data exchange format for use in industrial automation systems.

This part of IEC 62714 specifies normative as well as informative AML role class libraries for the modelling of engineering information for the exchange between engineering tools in the plant automation area by means of AML. Moreover, it presents additional user defined libraries as an example. Its provisions apply to the export/import applications of related tools.

This part of IEC 62714 does not define details of the data exchange procedure or implementation requirements for the import/export tools.

2 Normative references

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.

IEC 62714-1:2014, *Engineering data exchange format for use in industrial automation systems engineering – Automation Markup Language – Part 1: Architecture and general requirements*

IEC 61360-4, *Standard data element types with associated classification scheme for electric components – Part 4: IEC reference collection of standard data element types and component classes* (available at http://std.iec.ch/iec61360)

IEC 62424:2008, *Representation of process control engineering – Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools*

Extensible Markup Language (XML) 1.0:2004, *W3C Recommendation* (available at http://www.w3.org/TR/2004/REC-xml-20040204/)