AAS-connect Concept Description Repository

AAS-connect Data Specification A

Version 1.0

27th of March 2025

AAS-connect Specifications for the Asset Adminstration Shell

Imprint

Publisher

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Version history

2025-03-27	Version 1.0	First release

Content

1 General Information

This document is a data specification (named AAS-connect Data Specification A) for the AAS-connect Concept Description Repository, which can be used by others under the CC-BY-4.0 license as well. Please refer to the IDTA Specification “Part 1: Metamodel” (IDTA Number: 01001-3-0-1) to which this data specification is compliant to. This AAS-connect data specification is an alternative to the IDTA Data Specification “Part 3a: Data Specification – IEC 61360” (IDTA Number: 01003-a-3-0-3).

This specification is a Data Specification Template for the Asset Administration Shell. It describes the DataSpecification as well as the DataSpecificationContent. In the following text with “this specification” this AAS-connect Data Specification A is meant.

The AAS-connect Data Specification A has been developed to simplify and harmonize the semantic referencing for asset administration shells.

This specification is suitable for Concept Descriptions for all model types with HasSemantics. In addition, additional external global references have been included in the AAS-connect Concept Description Repository.

All types are listed in the enumeration extended model types, shortly *ExtModelType (see* Table 1).

Enumeration	ExtModelType	
Explanation	Modelling elements of the AAS for that this specification and the AAS-connect Concept Description Repository has been developed.	
Literal	**Abbreviation**	**Explanation**
Qualifier	qfr	According IDTA 01001-3-0-1
Extension	ext	According IDTA 01001-3-0-1
AnnotationRelationshipElement	rela	According IDTA 01001-3-0-1
BasicEventElement	evt	According IDTA 01001-3-0-1
Blob	blob	According IDTA 01001-3-0-1
Capability	cap	According IDTA 01001-3-0-1
Entity	ent	According IDTA 01001-3-0-1
File	file	According IDTA 01001-3-0-1
MultiLanguageProperty	mlp	According IDTA 01001-3-0-1
Operation	opr	According IDTA 01001-3-0-1

Property	prop	Denotes a property according IDTA 01001-3-0-1 that can have an arbitrary value or valueId.
PropertyEnumValue	prope	Denotes a property according IDTA 01001-3-0-1. The value or valueId is taken from a list with multiple possible discrete values (Enumeration).
Range	range	According IDTA 01001-3-0-1
ReferenceElement	ref	According IDTA 01001-3-0-1
RelationshipElement	rel	According IDTA 01001-3-0-1
SubmodelElementCollection	smc	According IDTA 01001-3-0-1
SubmodelElementList	sml	According IDTA 01001-3-0-1
Submodel	sm	According IDTA 01001-3-0-1
SpecificAssetId	said	
Additional global references		
CodedValue	value	Meta data for a coded value (valueId).
ExternalSubjectId	esub	Meta data for an external subject
TemplateId	tid	Meta data for a template

Table 1: Enumeration ExtModelType

2 Template Specification

Attribute		Value
administration	version	1
administration	revision	0
administration	creator	type = ExternalReference Key/type = GlobalReference Key/value = https://aas-connect.com
id		https://aas-connect.com/dataspecification-a
description		rdf: „This is a data specification template for the AAS-connect concept description repository.”@en “Dies ist eine Datenspezifikationsvorlage für das AAS-connect Concept Description Repositorium.“@de

3 Data Specification Content

With the IDTA specifications data redundancies can occur to a large extend. Same or similar aspects are defined in the SubmodelElement itself, the referenced ConceptDescription, and DataSpecification.

To avoid redundancy of meta information in the cascade of SubmodelElement -> ConceptDescription -> DataSpecification no best practice has been established so far. We are recommending defining as much es possible generally in the ConceptDescription/DataSpecification and only give additional information for precision or comments in case of differences to the general semantic definition in the SubmodelElement. In addition, this specification avoids redundancy between ConceptDescription and DataSpecification.

For the AAS-connect Data Specification A following DataSpecificationContent is defined:

Class	DataSpecificationAasConnectA		
Explanation	Data specification content template for AAS-connect Data Specification A		
Attribute	**Explanation**	**Type**	**Cardinality**
extModelType	Abbreviation of the ExtModelType of this specification	Enumeration	1
valueType	Data type of the value attribute	DataTypeDefXsd according IDTA specification 01003-a-3-0-3	1 (in case extModelType = Property) 0 (in case extModelType != Property)
unit	Unit in case of quantitative property. Unit according to International System of Units (SI)	xs:string e.g., “ampere”	0..1

	https://si-digital-framework.org/		
unitId	Unique unit ID according to International System of Units (SI) https://si-digital-framework.org/. Unit and unitId need to be consistent if both attributes are set. Usage of the Permanent Digital Identifier (PID) according International System of Units (SI), Link: https://si-digital-framework.org/	Reference / global identifier e.g., https://si-digital-framework.org/SI/units/ampere	0..1
symbol	Symbol according to International System of Units (SI), https://si-digital-framework.org/.	xs:string e.g., “A”	0..1
sourceOfDefinition	Source document of definition	Reference / global identifier xs:string	0..1

cdWebLink	Link to the website with data of the concept description on AAS-connect.com	xs:anyURI e.g., https://aas-connect.com/cdweb/<id> see under 4 for <id>	0..1
webLink	Link to a website with additional information about the concept	xs:anyURI	0..1
value	Holds the value in case of ExtModelType = CodedValue		0..1
valueFormat	Format of the value Note: for details, please refer to [IEC61360-1], value_format. The value format is based on ISO 13584-42 and IEC 61360-2.	xs:string e.g., "NR3..3.3ES2"	0..1
valueList	Enumerated list of allowed values	ValueList according to IDTA specification 01003-a-3-0-3	0..1
level	Enumeration of levels specifying the characteristics of an item	Enumeration minimum, maximum, nominal, typical	0..1 only applying for extModelType = Property / Qualifier

Table 2: DataSpecificationContent

4 AAS-connect Concept Description Repository

The AAS-connect Concept Description Repository is compliant to the IDTA specifications “Part 1: Metamodel” (IDTA Number: 01001-3-0-1), “Part 2: Application Programming Interface” (IDTA Number: 01002-3-0-3), “Part 3a: Data Specification – IEC 61360” (IDTA Number: 01003-a-3-0-2) and this specification.

The FoP Consult GmbH offers the AAS-connect Concept Description Repository as a Service to provide ConceptDescriptions to customers.

You can find more information about this service here:
https://aas-connect.com/concept-description-repository/.

Concept Descriptions that are curated by FoP Consult GmbH follow this harmonized format for id’s, respective semanticId:

https://aas-connect.com/cd/<id>

id = <abbreviation ExtModelType>/<idShort of ConceptDescription>/<version>/<revision>

Access curated Concept Descriptions via API

Curated Concept Descriptions can be retrieved via *isCaseOf,* which refers to the id of the original concept description. The retrieval can be realized via *GetAllConceptDescriptionsByIsCaseOf*. For more information have a look at the API documentation on our webpage *https://aas-connect.com*.

5 Comments & Future Development

Please check our Youtube channel for more information: http://www.youtube.com/@aas-connect

6 Change Log

Currently none