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A comparison - modeling Automation Components with AML and AAS technology of the platform Industry 4.0

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The AutomationML Component Description in the context of the Asset Administration Shell

The Asset Administration Shell

A key paradigma of Industry 4.0

A virtual representation of an asset providing standardized I4.0 software interfaces and data about the asset

Problem: how to model and store it? Currently there are two approaches.

Approach 1: AASX

The AASX format is an XML meta model, released 2018 by the Platform I4.0 in WIP papers. AASX defines also a container format (zipped file according to Open Packaging Convention)

It supports modelling a “table of content” (manifest) and a sub-model-administration (header/body).

It supports modelling of the inner structure of an asset, the properties (basic, mandatory, optional or free), and the sub models.

Approach 2: AMLX

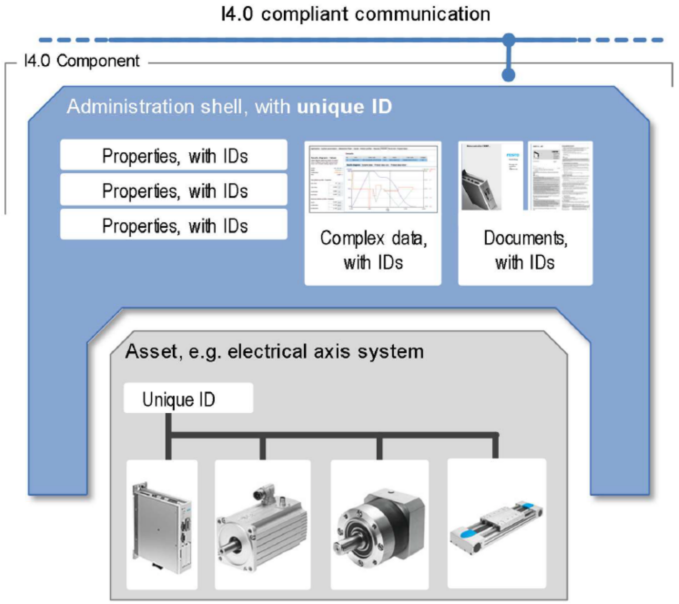
AML is a generic XML meta model according to IEC62714, AMLX is its container format (zipped file according to Open Packaging Convention)

The “Automation Component” (AC) team works on principles how to model general automation devices with AutomationML.

The AC model provides guidelines for modelling the inner structure of an asset, its properties and sub models.

Both data formats are conceptually very similar

The AutomationML Component Description in the context of the Asset Administration Shell



Work in progress

- Pro AASX: origin in the Platform Industrie 4.0
- Pro AML/AMLX: IEC status, accepted standard

Main difference: level of detail

- AAS: broad scope, a coarser view on many aspects, information backbone between all life-cycle phases from requirements, engineering, operation, maintenance to decommissioning
- AML: has its origin in engineering, but due to its meta mechanisms it has identical capabilities

Proposal

- Investigate and define the convergence options for both formats to prevent a “format war”.
- Increase acceptance in industry