

Impact of EDS Requirements Changes on Host Applications and EDS Files

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Key Takeaways

- Awareness
  - Recent EDS changes that impact everyone
  - Every EDS file (likely) requires changes
  - EDS Interpreters will be tested
    - What is an EDS interpreter?

- Ongoing Efforts
  - Many follow-on tasks spawned
  - Specification improvements needed

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The EDS baseline had to change

Optionality accelerated adoption, but it also created predictable cross-vendor gaps

Inconsistent detail

Devices exposed different levels of EDS detail and tool behavior varied by vendor.

Chicken-or-the-egg

Device vendors waited for tool support while control vendors waited for device adoption.

“Stub” EDS files

Minimal files could pass conformance but still be inadequate for ecosystem interoperability.

New direction: replace optional capability with a dependable minimum baseline

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SIG Process & Priorities



Interoperability

Exposing more details

Adopting underutilized functions

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Two explicit requirement columns

Edition 3.40 defines both device EDS file and EDS interpreter requirements

Added

Clarified

Field Name	Field Number	Data Type	EDS Interpreter Requirement	~~Required/Optional~~ Device EDS Requirement
Revision	1	UINT	Required	Required
MaxInst	2	UINT	Required	Optional
NumInst	3	UINT	Required	Conditional[1]

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EDS Requirements Hierarchy

1

SECTION

An optional section does not need to be supported

2

ENTRY

If an optional entry is supported, its required semantics apply

3

FIELD

Required fields within that supported entry must be implemented

Result: consistent support without requiring every optional feature

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Configuration and Connections

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Configuration and Connection Sections

Section Name	Legal Delimiter	EDS Interpreter Requirement	Device EDS Requirement
Parameters	[Params]	Required	~~Optional~~ Required
Parameter Groups	[Groups]	Required	Optional
Assembly Object	[Assembly]	Required	~~Optional~~ Conditional[1]
Connection Manager Object	[Connection Manager]	Required	~~Optional~~ Required
Parameter Object	[ParamClass]	Required	~~Optional~~ Conditional[1]

Table Footnotes:

1. Required if the device supports the corresponding CIP Object, otherwise not allowed.

EDS files must describe connections, configuration, and referenced data structures well enough for another vendor's tool to use them.

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Richer Support for Parameters

Interpreter support becomes predictable across fields, descriptors, associated entries, and data types

17 required ParamN fields

Name, units, help, minimum, maximum, default, and other core fields become a dependable baseline.

Descriptor Bits

Read Only, Write Only, and Monitor Parameter descriptors guide tool interaction.

Associated entries

EnumN, RangesN, and FixedN refine enumerations, valid ranges, and fixed bits.

Required data types include BOOL, integer families, REAL/LREAL, bit strings, strings, and time types

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Discoverable and Self-Describing

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Make products discoverable and self-describing

Two additions close important gaps: static instance lists and attribute metadata

List of Static Instances

A device can identify sparse instance populations explicitly, avoiding broad probing across unused instance numbers.

Attribute Details

New entries describe reference, access rule, rate of change, nonvolatile storage, and related behavior.

Published in Edition 3.41

Outcome: the static details of an object implementation can be completely described in the EDS

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Object support must be documented

EDS Object Class sections expose implemented objects, instances, attributes, and services

Example of Chicken / Egg

Required Common object class content

- Object Name
- Object Class Code
- Revision
- Instance population
- Class attributes supported
- Instance attributes supported
- Class Services supported
- Instance Services supported

Optional Semantic details

- Class services definition
- Instance services definition
- Class Attribute details
- Instance Attribute details

PUBLIC OBJECTS: REQUIRED

VENDOR-SPECIFIC: OPTIONAL TO EXPOSE

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Underutilized Features

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Underutilized Features

Reliable EDS content gives tool vendors confidence to build in useful customer experiences

Capacity Section

Device EDS files must populate communication capacity so clients and tools can budget system communications.

Extended Device Status

Interpreters must expose vendor-specific extended status fields from the Device Description section.

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Minimum bar rises for both EDS files and Interpreters

More complete EDS files and more capable interpreters

Device vendors

- Describe information model more completely
- Define data structures and configuration
- Document connection behavior
- Confident in interpreter support

Control and tool vendors

- Support required EDS constructs
- Support most defined data types
- Apply connection semantics consistently
- Confident in EDS content

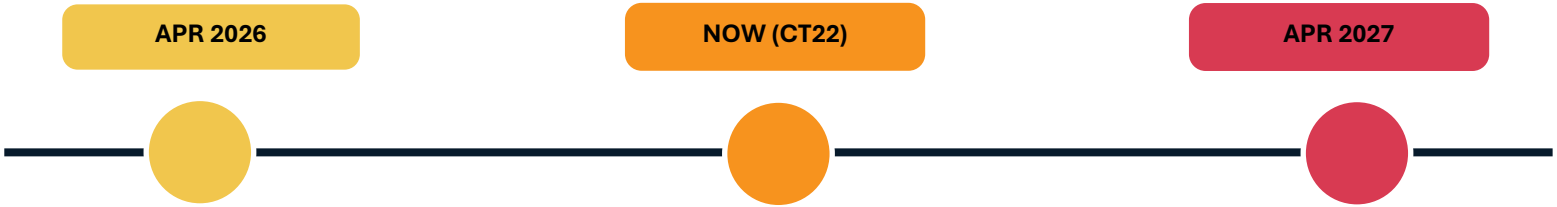
Shared benefit: fewer cross-vendor surprises and more usable EDS features

We never want to hear “I need multiple EDS files” again

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Enforcement Begins Soon

The requirements are published now; conformance tooling stages the transition



Specification release

Edition 3.40 updates requirements and semantics.

CT22 warnings

EDS deficiencies are reported as warnings.

Official enforcement

CT23 reports EDS deficiencies as errors and enforces interpreter tests.

Interpreter testing applies to interpreters used for device configuration and connection building

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We are not done

- Once the work started, issues were identified
  - Unclear specifications lead to interoperability concerns
  - Some features may be obsolete
  - Reversing some of the changes, possibly deferring others
- We did not meet the minimum bar (yet)
  - EDS signing
- More work is needed
  - We need more input on interoperability issues
  - This could naturally be a repeating topic for future round table meetings

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Higher bar equals customer satisfaction

The ecosystem can now rely on a known minimum level of EDS content and support

More complete device descriptions + **Predictable interpreter behavior** = **Better interoperability**

Better interoperability leads to satisfied customers

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Questions



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