

# Day 2

Thu 29 August		Topic	Speaker(s)	
Session 3: IFC 5	09:00 - 10:30	60	IFC 5 Principles and considerations	Greg / Léon
	11:00 - 12:30	90	IFC 5 Hello Wall prototype	Tom / Thomas / David
		20	ISO Compatibility Policy for IFC	Léon / Evandro
Lunch	12:30 - 13:30	Lunch		
Session 4:	13:30 - 15:00	20	Wrap up: decisions and lessons learned	
			Washington DOT use-case?	Rick Brice
			IFC-LD / SHACL implementation developments	Dennis Shelden, Gabe Fierro
			bSDD in SketchUp?	Tiago Ricotta?
			bSDD plugin Japan?	Yoshiyuki Miyauchi?
			Van Westendorp questionnaire(s)	Léon
			Import files competition?	Léon
			Making sense of the CEN/ISO initiatives?	Emma Hooper?
Open house & onsite tour	15:30 - 16:30	Tour Trimble Campus		
<i>End of meeting</i>				

**There are two ISO initiatives**

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**1) Modularization (Parts) of ISO 16739**

# Modularization IFC 5

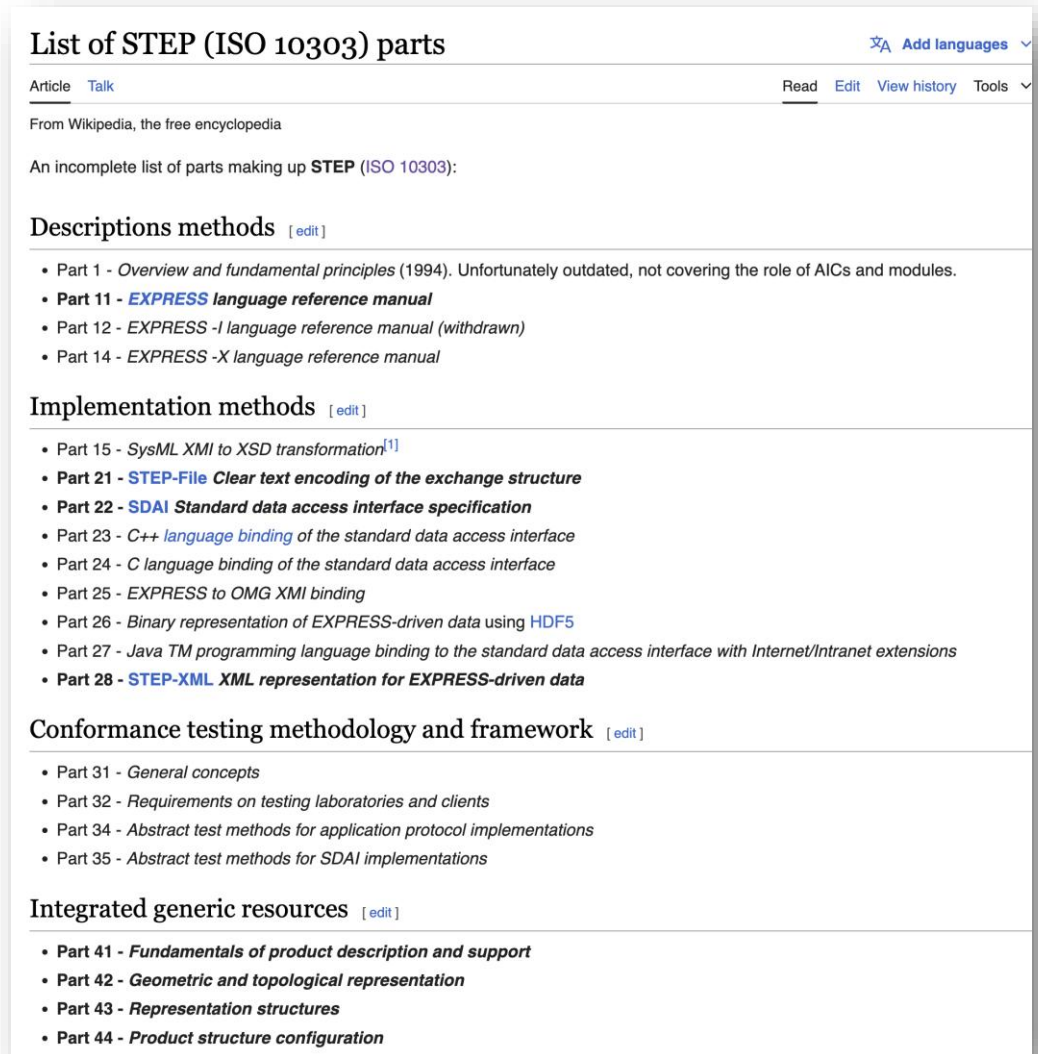
- Technical
- Organizational
- ISO
  - ISO parts
  - Part 1: current IFC
  - Part x: new IFC core
  - Part xx: domain module
  - Etc...

Parts organization of ISO in next meeting

# Modularization IFC 5

- Technical
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Parts organization of ISO in next meeting



The screenshot shows the Wikipedia article titled "List of STEP (ISO 10303) parts". The page includes a navigation bar with "Article" and "Talk" tabs, and a utility bar with "Read", "Edit", "View history", and "Tools" options. The main content area starts with a sub-header "List of STEP (ISO 10303) parts" and a note that the list is incomplete. It is organized into four sections: "Descriptions methods", "Implementation methods", "Conformance testing methodology and framework", and "Integrated generic resources". Each section contains a bulleted list of specific parts, many of which are in bold text.

**List of STEP (ISO 10303) parts**

From Wikipedia, the free encyclopedia

An incomplete list of parts making up **STEP** (ISO 10303):

### Descriptions methods [ edit ]

- Part 1 - *Overview and fundamental principles* (1994). Unfortunately outdated, not covering the role of AICs and modules.
- **Part 11 - EXPRESS language reference manual**
- Part 12 - *EXPRESS -I language reference manual (withdrawn)*
- Part 14 - *EXPRESS -X language reference manual*

### Implementation methods [ edit ]

- Part 15 - *SysML XMI to XSD transformation*<sup>[1]</sup>
- **Part 21 - STEP-File Clear text encoding of the exchange structure**
- **Part 22 - SDAI Standard data access interface specification**
- Part 23 - *C++ language binding of the standard data access interface*
- Part 24 - *C language binding of the standard data access interface*
- Part 25 - *EXPRESS to OMG XMI binding*
- Part 26 - *Binary representation of EXPRESS-driven data using HDF5*
- Part 27 - *Java TM programming language binding to the standard data access interface with Internet/Intranet extensions*
- **Part 28 - STEP-XML XML representation for EXPRESS-driven data**

### Conformance testing methodology and framework [ edit ]

- Part 31 - *General concepts*
- Part 32 - *Requirements on testing laboratories and clients*
- Part 34 - *Abstract test methods for application protocol implementations*
- Part 35 - *Abstract test methods for SDAI implementations*

### Integrated generic resources [ edit ]

- **Part 41 - Fundamentals of product description and support**
- **Part 42 - Geometric and topological representation**
- **Part 43 - Representation structures**
- **Part 44 - Product structure configuration**

**There are two ISO initiatives**

**1) Modularization (Parts) of ISO 16739**

**2) Compatibility policy**

# Compatibility policy

- When is something an update?
- What kind of update is it?
- For example:
  - When is an update of 4.3 become 4.4.5; or when should it be 4.4?
  - Or should it be IFC 5?

# Compatibility policy

- When is something an update?
- What kind of update is it?
- For example:
  - When is an update of 4.3 become 4.4.5; or when should it be 4.4?
  - Or should it be IFC 5?
- Or the other way around?
  - What is allowed in IFC 4.3.5?
  - What is allowed in IFC 4.4?



# Compatibility policy

- ISO maintenance group (JWG 12)
- Compatibility policy document
  - Guideline for buildingSMART
  - Pretty strict for ISO
- Currently in development

# Compatibility policy Draft document

Compatibility policy for EN ISO 16739-1 revisions	
Outline	
2024-07-18	
<b>Introduction</b>	ISO 16739:2013 ISO 16739-1:2018 ISO 16739-1:2024
Last chapter to be written	
<b>Scope</b> <i>(Pierre-François)</i>	<b>Scope of compatibility</b> <i>(Thomas)</i>
Copy / paste from NWIP	Specification
	Schema
	Property and quantity sets
	Informal propositions
<b>Terms and definitions</b> <i>(Pierre-François)</i>	Serialization
Major release	ISO 10303-21
Minor release	XML following ISO 10303-28
Old software support guarantee (old software can parse and process the old part of a new edition the standard automatically)	<b>Options to improve ISO 16739-1 compatibility</b> <i>(Léon: one of the last chapters to be written based on our analysis)</i>
Old data support guarantee (new software can parse and process old data files)	ISO 12006-3 data dictionaries
Deprecation	ISO 16739 Modularization
	...
<b>Compatibility demands</b> <i>(Pierre-François)</i>	<b>Compatibility recommendations and types of standards</b> <i>(last chapter written)</i>
Old data support should be guaranteed by the standard for very long periods of time, surely between minor releases	Release
Old software support should be guaranteed by the standard for long periods of time	New edition
	Additions
The whole content of the standard is concerned by compatibility (schema, properties, informal propositions, deprecation, ...). Maybe the rules will differ between the schema and the other parts of the standard	Corrections
	<b>Tools to evaluate compatibility</b>
	- Compatibility table
	- Official documentation
	- Definitions of major/minor release
<b>Assessment of the level of compatibility</b> <i>(Evandro)</i>	<b>Recommendations regarding the bSI / ISO agreement</b>
This chapter aims at checking that the rules in the compatibility table are realistic.	
It will not be shared outside of the group.	

# Compatibility policy Draft document

Change	Old IFC implementations can parse and process the old IFC Part of a newer IFC file automatically	Newer IFC implementations can parse and process old IFC files automatically	Do we allow it in a new minor version of IFC	Comment
<b>Entity</b>	IFC 4 implementations can parse and process the IFC 4 Part of an IFC 4.3 file automatically	IFC 4.3 implementations can parse and process IFC 4 files automatically	A change is allowed if it gets a "Yes" in both columns 3 and 4	
Add an entity	Yes	Yes	Yes	Col 3: "Yes" as long as end-users understand that these entities are clearly new
Delete an entity, without replacing it by something else providing similar or extended functionalities	Yes	No	No	
Delete an entity and replace it by something else providing similar or extended functionalities (i.e. renaming)	No	No	No	
Deprecate an entity and replace it by something else providing similar or extended functionalities (i.e. renaming)	No	Yes	Yes*	Old software support is not guaranteed anymore by the standard, however we allow that
Undeprecate an entity	Yes	Yes	Yes	
Rename an abstract entity	Yes	Yes	Yes	
Add attributes to an existing abstract entity (and so change subtypes)	No	No	No	
Move attributes from sub-entities to an abstract entity (includes moving attributes and so change subtypes)	No	No	No	
Move attributes from sub-entities to an abstract entity without changing the attributes order of the subtypes	Yes	Yes	Yes	
Change the name of an entity without changing its functionality (example: changing IfcBuildingElementProxy to IfcBuildingElementProxy)	No	No	No	
Abstract entity made non abstract	Yes	Yes	Yes	
Entity made abstract	Yes	No	No	
<b>Attributes</b>				
Change attributes names without changing their semantics (e.g. change Finish to FinishDate)	No	No	No	These changes have no consequences for STEP files but have consequences for ifcxml
Change attributes order (either directly or via supertypes)	No	No	No	No for STEP files, but no consequences for ifcxml
Add attributes in the middle of the list	No	No	No	No for STEP files, but no consequences for ifcxml
Add optional attributes at the end of the list	Yes (Ask implementers to omit empty attributes at the end of the list when exporting an IFC STEP file)	Yes	Yes	No consequences for ifcxml
Add mandatory attributes at the end of the list	No	No	No	
Delete an attribute (which is not the last one)	No	No	No	
Delete the last attribute (was optional)	Yes	No	No	
Delete the last attribute (was mandatory)	No	No	No	
Change a datatype to a larger definition, which includes the previous one (e.g. from IfcBoolean to IfcLogical or from IfcLabel to IfcText)	No	Yes	No	Col3: No: Changing an attribute from IfcLabel to an IfcText would require an end-user to know that he must self limit its data entry to 255 chars
Change a datatype to a different primitive category (e.g. from string to number)	No	No	No	
Change a datatype to a stricter definition (e.g. from number to integer)	No	No	No	Col 3: Yes for STEP and no for ifcxml
Attribute made mandatory (was optional)	Yes	No	No	
Attribute made optional (was mandatory)	No	Yes	No	
Single attribute changes to list (set, bag)	No	No	No	
List (set, bag) attribute changes to single attribute	No	No	No	
<b>Enumeration</b>				
Add a new entry in an enumeration	Yes	Yes	Yes	Col 3: Yes, because we suppose that the end-user will know that the entry should not be used when exchanging data with users using old implementations
Delete an entry in an enumeration	Yes	No	No	
Change the name of an entry in an enumeration, without changing its functionality (e.g. changing GUIDINGSTRUCTURE to GUIDINGSTRUCTURE)	No	No	No	
<b>Where rule and function</b>				
Add a where rule or a function that didn't exist yet	Yes	No	No	Col 4: Parsing still possible but risks of mis-interpretation
Transform an existing ISO published agreement (e.g. an informal proposition) into a where rule	Yes	Yes	Yes	
Delete a Where rule or a function, without replacing by something else providing similar or extended functionalities	Yes	Yes	Yes	
Delete a Where rule or a function and replace by something else providing similar or extended functionalities (i.e. renaming)	Yes	Yes	Yes	
Modify a Where rule or a function	To be accurately assessed	To be accurately assessed		

Change	Old IFC implementations can parse the old IFC Part of a newer IFC file automatically	Old IFC implementations can process the old IFC Part of a newer IFC file automatically	Newer IFC implementations can parse and process old IFC files automatically	Do we allow it in a new minor version of IFC	Comment
	IFC 4 implementations can parse the IFC 4 Part of an IFC 4.3 file automatically	IFC 4 implementations can process the IFC 4 Part of an IFC 4.3 file automatically	IFC 4.3 implementations can parse and process IFC 4 files automatically	A change is allowed if it gets a "Yes" in both columns 3 and 4	
<b>Property set</b>					
Add a property set with new properties	Yes		Yes	Yes	
Add a property set which is a duplicate of an existing one	No		No	No	Not allowed by the schema. Col 4: technically could be a Yes but such changes are nonetheless not allowed
Delete a property set, without replacing it by something else providing similar or extended functionalities	Yes	No	No	No	
Delete a property set and replace it by something else providing similar or extended functionalities (i.e. renaming)	Yes	No	No	No	
Deprecate a property set and replace it by something else providing similar or extended functionalities (i.e. renaming)	Yes	No	Yes	No	
Undeprecate a property set	Yes	Yes	Yes	Yes	
<del>Delete a property set</del>	<del>Yes</del>	<del>No</del>	<del>No</del>	<del>No</del>	Replaced by rows #39, #40
Change the name of a property set without changing its properties	Yes	No	No	No	
<b>Property</b>					
Add a property with new functionalities	Yes	Yes	Yes	Yes	Col 3: "Yes" as long as end-users understand that these structures are clearly new
Add a property which is a duplicate of an existing one	No	No	No	No	Col 4: technically could be a Yes but such changes are nonetheless not allowed
Delete a property, without replacing it by something else providing similar or extended functionalities	Yes	No	No	No	
Delete a property and replace it by something else providing similar or extended functionalities (i.e. renaming)	Yes	No	No	No	
Deprecate a property and replace by something else providing similar or extended functionalities (i.e. renaming)	Yes	Yes	Yes	No	
Undeprecate a property	Yes	Yes	Yes	Yes	
<del>Delete a property</del>	<del>Yes</del>	<del>No</del>	<del>No</del>	<del>No</del>	Replaced by rows #48 and #49
Change the name of a property without changing its functionality (example: changing GrossAreaPlanned to GrossPlanned area)	Yes	No	No	No	
<b>Concept template</b>					
Rename a concept template	Yes		Yes	Yes	
<b>Informal proposition</b>					
Change an informal proposition	To be accurately assessed case by case	To be accurately assessed case by case	To be accurately assessed case by case	To be accurately assessed case by case	

# Compatibility policy Draft document

Anyone interested in reviewing it?

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