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S1000D 5.0

Highlights

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Agenda

- Business Rules
- Applicability
- Information Name / Information Code
- Standard Numbering System (SNS)
- Illustrated Parts Data (IPD)
- Regulatory Information
- Editorials/Cleanup
- Other

Business Rules [1/2]

- **2013-069EPWG** [Default BREX @sparePartClassCode vs XML Schema inconsistency](#)
In S1000D 4.2, Chap 3.9.5.2.7 Para 2.5.5.3.1, the XML attribute sparePartClassCode only allows the values 0, 1, 2, or 6. The 4.2 schema defines the XML attribute sparePartClassCode as xs:string. The 5.0 schema was updated accordingly to only allow the values 0, 1, 2, or 6 as defined in S1000D 5.0.
- **CPF 2017-008PPWG** [BRDP Editorial Errors](#)
In Issue 4.2 a number of editorial errors were introduced that are related to BRDPs. These are, BRDP duplication errors, BRDP errors related to Chap 4.x, Chap 2.5.2 (removal of BRDP-S1-00238) and Chap 2.5.3 (incorrect references) which is now corrected in Issue 5.0.
- **CPF 2017-013AA** [Conflicting Usage Instructions for @allowedObjectFlag Attribute](#)
The CPF clarifies and corrects discrepancies between the wording of the specification, the BREX schema, and the default BREX that enforces usage of the @allowedObjectFlag attribute.

This CPF corrects an outstanding error by:

- removing text that indicates the attribute is optional,
- corrects the schema to make the attribute required.
- since the schema will enforce the usage, the rule within the BREX file could be removed.

Business Rules [2/2]

- 2017-029BRWG brDoc gaps

In the brDoc schema of S1000D 4.2 several gaps have been identified. Since projects capture business rules in various ways there is a need for inline references, expanded note use, expanded figure and table use. The requirements were covered accordingly in this CPF and are included in the brDoc schema of S1000D 5.0.

- 2019-004EPWG Update BREX Internal Reference Rule for brLevelledPara

The default BREX update is adding the possibility for internal references to brLevelledPara in the brDoc schema.

```
<structureObjectRule>
  <brDecisionRef brDecisionIdentNumber="BREX-S1-00051" />
  <objectPath
    allowedObjectFlag="0">//internalRef[attribute::internalRefTargetType="irrt07" and
    not(attribute::internalRefId = //levelledPara/@id or attribute::internalRefId =
    //levelledParaAlts/@id or attribute::internalRefId =
    //brLevelledPara/@id)]</objectPath>
  <objectUse>Only when the reference target is a paragraph can the value of
  attribute internalRefTargetType be irrt07 (Chap 3.9.5.2.1.2, Para 2.1).</objectUse>
</structureObjectRule>
```

Applicability

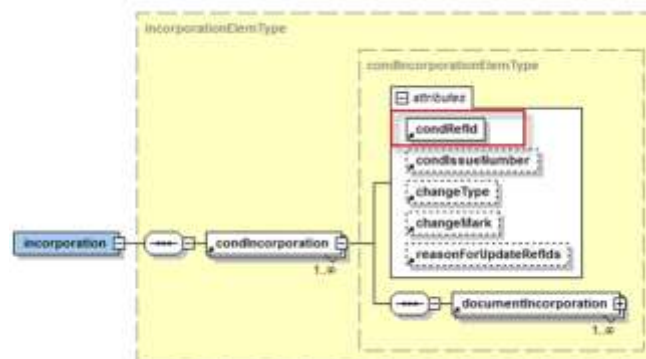
- 2013-068EPWG "textElemGroup" and "attentionText" not redefined correctly in ACT

The CPF aligns the usage of element <textElemGroup> and <attentionText> in ACT with the CCT and PCT definition.

Therefore the child elements <zoneRef>, <controlIndicatorRef>, <accessPointRef>, <identNumber>, <caption> and <captionGroup> are deleted in element <textElemGroup> and <attentionText> of the ACT schema.

- 2011-020S1 condRefId mandatory in incorporation status

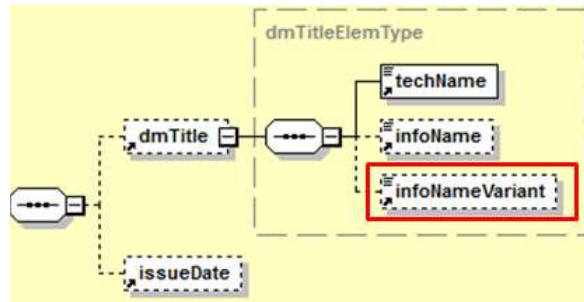
The change is to make the existing optional attribute @condRefId mandatory under the element <condIncorporation> of the CCT as the only way to indicate for which condition the incorporation status is reported is using the attribute @condRefId. This attribute must refer to a condition (using ID/IDref mechanism) defined in the CCT condition list.



Information Name / Information Code [1/2]

- 2011-009DE Information name variant

The element <dmTitle> is extended by the optional child element <infoNameVariant> which contains the information name extension describing the variation of the information related to the Product about which the data module has been written.



- 2017-014AA Need an infoCode for "Export Control"

Externalizing export control policy statements to a specific data module requires a new Information Code. The same principle for regulatory statements. For these reasons two new Information Codes are available.

- 25 -> Export control policy
- 26 -> Regulatory policy

```
<exportRegistrationStmt>
  <dmRef>
    <dmRefIdent>
      <dmCode modelIdentCode="S1000D" systemDiffCode="A" systemCode="00"
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="32"
disassyCodeVariant="A" infoCode="025" infoCodeVariant="A"
itemLocationCode="D"/>
    </dmRefIdent>
  </dmRef>
</exportRegistrationStmt>
```

Information Name / Information Code [2/2]

- **2013-072US** New information names for 022A and 024A
Rewording of Information Name regarding 022 and 024.
022:
Issue 4.2: Business rules Issue 5.0: Business rules exchange
024:
Issue 4.2: Business rules document Issue 5.0: Business rules
- **2018-002US** New information code for Flush
New Information Code 235 for flush procedure.
Code 235 gives the procedure to flush a system, equipment, or component with a liquid to clean and or remove a liquid.
- **2018-003EPWG** Info Code Name Exception
The Information Code "169 Mass & Balance" of Issue 4.2 is using the ampersand character which XML requires the usage of character entity. This CPF includes a rule for info code names must use the word "and" instead of "&" and exclude the characters "<" ">" from info code names. A respective note is included in Chap 3.9.5.1, Para 2.1.2.2.2 .
In Chap 8.4.1 and 8.4.2 "Mass & Balance" was replaced by "Mass and Balance".

Standard Numbering System (SNS)

- 2017-033FR SNS - New sub system 06-5

Introduction of the new Sub Section 5 on System 06 of Chap 8.2.1 will be used to define the master shape by representing in three dimensions the exterior and interior shapes of the product.

-50	Master shapes	<p>To define the master shape by representing in three dimensions the exterior and interior shapes of the Product, including:</p> <ul style="list-style-type: none"> - Internal and external product master shapes to be used by lead function as reference surfaces to design product parts - Simplified and adapted master shapes for physical mock-up manufacturing (for tests, for exhibitions, etc) - Specific shape profiles provided for aerodynamics studies and computation (as wind tunnel test, computational fluid dynamics, etc) - Specific proposals of style and shape for system and equipment integration
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- 2016-009AA Update of 32 SNS Definition (32 Definition & 32-50 Title and Definition)

The Sub Section 5 on System 32 of Chap 8.2.5 was modified to include also the steering and maneuvering on ground.

-50	Steering and maneuvering	<p>That portion of the system which is used to control the direction and the movement of the air vehicle on the ground. Includes items such as actuating cylinders, controls, bogie swivel unlock, motor, control systems, power supplies or converter, etc.</p>
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Illustrated Parts Data (IPD) [1/3]

- 2017-028AA IPD indenture attribute clarification

Issue 4.2 defines the attribute @indenture of element <catalogSeqNumber> within the S1000D schema for IPD as any nonNegativeInteger (which would allow 0 thru nnn) whereas text of the specification (Chap 3.9.5.2.7, Para 2.4) defines the attribute as being a numeric value from 1 thru 9. This CPF aligns schema and text of the specification to prevent mis-use and errors in usage.

```
<xs:attribute name="indenture" type="xs:nonNegativeInteger"
type="indentureAttType"/>
<xs:simpleType name="indentureAttType">
  <xs:restriction base="xs:integer">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="9"/>
  </xs:restriction>
</xs:simpleType>
```

- 2017-020DE Amend IPD mapping tables

Table 7 in Chap 3.9.5.2.7 and Table 3 in Chap 5.1.3.1 were updated to include the following missing Text Element Identifiers (TEI) which are included in the S1000D schema for IPD:

- FID - File identifier
- ITY - Item type
- TQL - Total quantity
- TYP - Type of location designator

Illustrated Parts Data (IPD) [2/3]

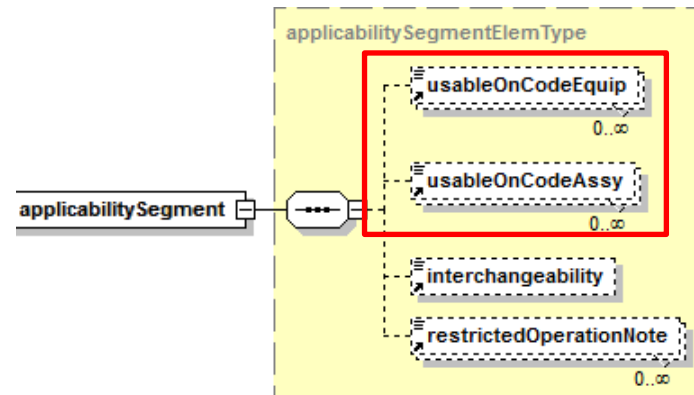
- **2017-017DE** Remove subjectVariantSegment from IPD
The child element <subjectVariantSegment> of element <initialProvisioningProject> in the S1000D Schema for IPD is no longer supported by S2000M. Therefore the element <subjectVariantSegment> was removed.
- **2011-039AA** IPD Attaching Parts Illustrations
Deletion of statement in Chapter 3.9.2.2 Para 2.9 which states, "Plate nuts must not be illustrated, but the bore must indicate their location and rivet holes on the respective component."
Reason: Plate nuts are saleable and are unique in configuration and may require illustrating following the guidelines of the previous bullets in this section of Chapter 3.9.2.2.
- **2017-030AA** To allow Maintenance-Level Filtering without Data Replication
Optional attribute @applicRefIds was added to element <referTo> to allow the element <referTo> to be included/excluded upon applicability filtering.

Illustrated Parts Data (IPD) [3/3]

- 2017-026AA Make usableOnCodes Repeatable

The elements <usableOnCodeEquip> and <usableOnCodeAssy> are used to tie specific sub-parts back to the primary equipment/assembly variant that they apply to within the S1000D Schema for IPD.

The elements <usableOnCodeEquip> and <usableOnCodeAssy> elements are now repeatable so that the content of the elements can reflect a single applicable value which will allow the data developer and data receiver to have a common implementation paradigm.



Regulatory Information [1/2]

- 2015-016AA Identification of Regulatory Information
- 2019-001EPWG Identification of Regulatory Information **Addendum**

CPFs add markup to S1000D schemas to support the identification of regulatory agency requirements. The controlled content structure (@authorityName and @authorityDocument) in S1000D 4.2 does not meet this requirement and needed enhancement.

A new element <controlAuthorityGroup> (that supports the definition of regulatory data) was introduced in <dmStatus> section of the schemas. The regulatory data in element <controlAuthorityGroup> will be referenced from the <content> section of a data module via the new attribute @controlAuthorityRefs (identical to eg, the @reasonForUpdateRefs is implemented)

Markup Example:

```
<dmStatus>
  ...
  <security securityClassification="01"/>
  <dataRestrictions>...</ dataRestrictions>
  <controlAuthorityGroup>
    <controlAuthority id="controlAuthority-001"
controlAuthorityType="cat01" controlAuthoritySource="FAA"
controlAuthorityValue="2005-23-17">
      <controlAuthorityText>
        <para>Text related to an AD - Airworthiness
Directive (cat01)</para>
      </controlAuthorityText>
      <symbol infoEntityIdent="FLAGNOTEINDICATOR"/>
    </controlAuthority>
```

Regulatory information relevant for the first step in the data module

```
<mainProcedure>
  <proceduralStep controlAuthorityRefs="controlAuthority-001">
    <para>Apply grease on the headset</para>
  </proceduralStep>
  <proceduralStep controlAuthorityRefs="controlAuthority-002">
    <para>Install the headset, refer to:</para>
  </proceduralStep>
  <proceduralStep controlAuthorityRefs="controlAuthority-003
controlAuthority-004">
    <para>Install the stem, refer to...</para>
  </proceduralStep>
  <proceduralStep controlAuthorityRefs="controlAuthority-005">
    <para>Installation Test</para>
  </proceduralStep>
</mainProcedure>
```

Regulatory Information [2/2]

- 2019-007NN FM and Regulatory Information

Based on the enhancement for regulatory information markup in data modules a need to update the front matter schema was identified.

In Issue 4.2 there has been an unintended possibility to apply the controlled structure attributes @authorityName and @authorityDocument (in Issue 5.0 replaced by controlAuthorityRefs and related structures) to large number of elements and also the Front Matter (FM) schema.

A new BREX rule BREX-S1-00271 was introduced which ensures that all use of @controlAuthorityRefs is disallowed in the FM schema structure.

Default BREX changes

New BREX rule, BREX-S1-00271:

```
<structureObjectRule>
<brDecisionRef brDecisionIdentNumber="BREX-S1-00271"
changeType="add" changeMark="1"/>
<objectPath allowedObjectFlag="0">//dmodule[descendant::frontMatter
and descendant::*[attribute::controlAuthorityRefs]]</objectPath>
<objectUse>The attribute controlAuthorityRefs must not be used in
front matter (Chap 3.9.5.2.16, Para 2.1).</objectUse>
</structureObjectRule>
```

Remark:

All BREX rules in default BREX of Issue 4.2 which explicitly disallow the usage of @authorityName and @authorityDocument in context of certain elements of the FM schema were modified accordingly for default BREX of Issue 5.0 (as the general rule with BREX-S1-00271 was introduced in Issue 5.0).

Editorials/Cleanup [1/2]

- **2018-012PPWG** Correct schema invocations

Schema invocation declarations for non-data modules were introduced incorrectly at Issue 4.2. The following schemas were corrected: comments.xsd, ddn.xsd, dml.xsd, icnmetadata.xsd, pm.xsd, scormcontentpackage.xsd, update.xsd.

Example (for the **PM** schema, Chap 7.3.1.3, Para 23, the correction as follows):

Issue 4.2: <!DOCTYPE **dmodule** [

Issue 5.0: <!DOCTYPE **pm** [

- **2018-013PPWG** Incorrect usage of thru

The word “thru” should only be used when writing an interval in running text (eg, 1 thru 50), and “through” should be used otherwise. Text in S1000D 5.0 was updated based on this principle.

- **2018-014PPWG** Typos, punctuation errors and format errors

Editorial changes throughout the specification. Typographical errors, punctuation errors, format errors and MS Word styling errors were corrected.

Editorials/Cleanup [2/2]

- **2018-016PPWG** Minor editorial wording changes
Throughout the specification minor editorial wording errors were corrected.
- **2018-018PPWG** Incorrect references
Correction of a number of incorrect, missing or broken references/links (to paragraphs and chapters) throughout the specification.
- **2018-019PPWG** Missing references
Many child elements are listed in the S1000D 4.2 which do not have a reference to the chapter or paragraph where they are defined. The appropriate chapter or paragraph references to each child element was incorporated in S1000D 5.0.
- **2018-022PPWG** Incorrect graphic for limit
Chap 3.9.5.2.5 (Fig 4) in S1000D 4.2 is incorrect as it shows the element <trigger> as a choice, rather than a sequence. The figure content was corrected accordingly and also the ICN of Fig 4 to show the appropriate security classification of “01”.

Remark:

A number of chapters in the specification that were not affected by CPFs contain references to the previous or current issue of the specification by number (e.g., 4.2). The references were updated accordingly to qualify for Issue 5.0.

Other [1/4]

- **2013-066EPWG** Allow Issue Numbers Greater than 999

The schema in S1000D 4.2 restricts the issue number to three digits. Long lasting product life cycles may require issue numbers greater than 999.

S1000D 5.0 allows a sequential numbering for a field size of three to five digits. In case the issue number 999 is exceeded, the four digit issue number starts with 1000. In case 9999 is exceeded, the five digit issue number starts with 10000.

```
<xs:simpleType name="issueNumberAttType">
  <xs:restriction base="xs:nonNegativeInteger">
    <xs:pattern value="\d{3,5}"/>
  </xs:restriction>
</xs:simpleType>
```

- **2013-063DE** Redefine the type of attribute toleranceValue

In S1000D 4.2 only integer values are allowed for tolerances. To satisfy project needs and to provide more flexibility in using values provided by engineering departments, the tolerance value type was updated to decimal.

```
<xs:attribute name="toleranceValue" type="xs:decimal"/>
```


Other [2/4]

- **2013-062DE** Duration and estimated time with more than one decimal

In S1000D 4.2 the unit of measure for both estimated times and task duration is fixed to be hours (“h”) and checked by the default BREX rule BREX-S1-00072.

Furthermore only one decimal is expected.

See for example S1000D 4.2, Chap 3.9.5.2.1.9, Para 2.3.1.4.

2.3.1.4 Estimated time

Description: The element `<estimatedTime>` contains the estimate of aggregation of all the time that the person will be required to complete the task. The estimated time must be given in man-hours with maximum one decimal (eg, 2,4 h). The time and unit of measure must be entered.

This restriction is too rough for some tasks (eg, a short visual inspection). Therefore and to satisfy project needs, two decimals are allowed in S1000D 5.0 for elements `<estimatedTime>`, `<sbEstimatedTime>`, `<taskDuration>` and `<sbDuration>`.

- **2017-022DE** Correct an error in S1000D 4.2, Chap 4.13.1

The definition of criteria for updating publication self-standing data modules is wrong in S1000D 4.2 and was corrected accordingly in S1000D 5.0.

Other [3/4]

- 2015-026EPWG Preserving White Space with Verbatim Text

In S1000D 4.2, Chap 3.9.5.2.1.10, Para 2.1.15 the element `<verbatimText>` was defined to contain text that “is supposed to be presented as is”. This statement was precised by “must be presented as is”.

In addition and to enable native tool support to preserve whitespace and line breaks, the attribute `xml:space="preserve"` was added to element `<verbatimTextElemType>`.

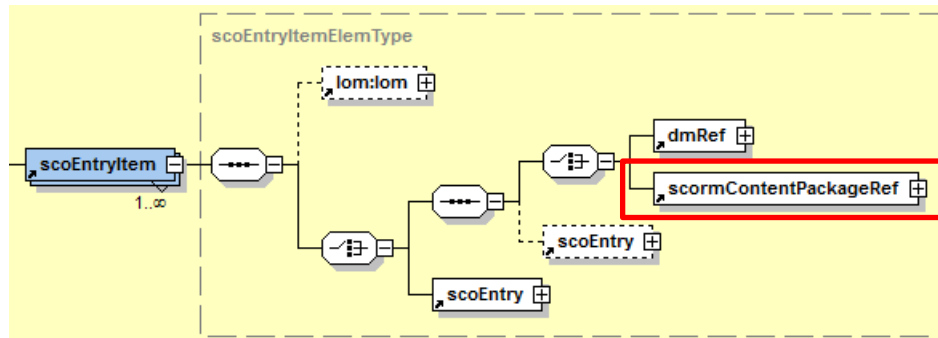
```
<xs:complexType mixed="true" name="verbatimTextElemType">
  <xs:attribute ref="verbatimStyle"/>
  <xs:attribute ref="xml:space" fixed="preserve"/>
  <xs:attribute ref="id"/>
  <xs:attributeGroup ref="changeAttGroup"/>
  <xs:attributeGroup ref="securityAttGroup"/>
</xs:complexType>
```

Other [4/4]

- **2014-015AA** scoEntryItem Possible Error (Lacking ability to Reference a Content Package)

In S1000D 4.2 the Chapter 4.15.1, Paragraph 1.2 describes how a SCORM content package can aggregate other SCORM content packages. However, there is no mechanism in the corresponding schema to support such aggregation.

Alignment of specification text/figures and schema scormcontentpackage.xsd by introducing the new element `<scormContentPackageRef>`.



- **2019-005NN** Update Chap 3.9.5.2.16.1 to match revised FM Package for Iss 4.2-03

Alignment of FM Package for Issue 5.0 with the text in Chapter 3.9.5.2.16.1 of the specification.

Remark:

A patch for Issue 4.2 which is available on the public S1000D website (<http://s1000d.org>) also includes the FM package for Issue 4.2 and an aligned chapter 3.9.5.2.16 and 3.9.5.2.16.1.

Thank you

for your attention!

Questions?

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