Migrating data modules to new versions of S1000D

14 June 2017

ATA E-BUSINESS
FORUM&
S1000D USER FORUM
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Migrating data modules to new versions of S1000D

Project Meeting

Migration ideas

1) Freeze all + One shot

No updates during freeze

2) Iterative migration

Adaptation + new writing rules

New revision

New revision

Input Norm `</>` → Convert → Output Norm `</>` + Error Log

Input Norm `</>` → Convert → Output Norm `</>` + Error Log

Input Norm `</>` → Convert → Output Norm `</>` + Error Log

Output Norm `</>`
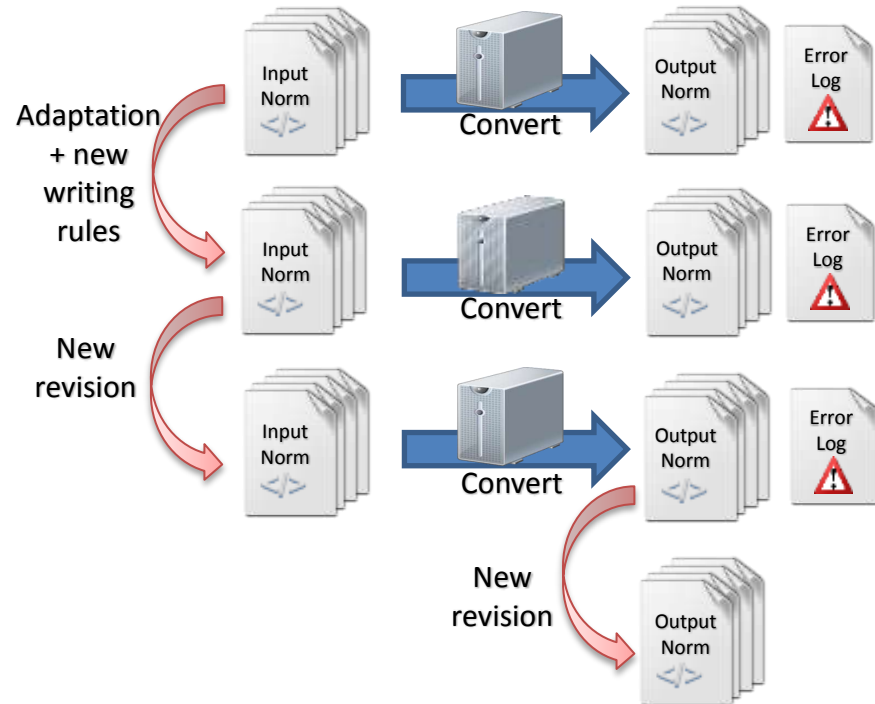
Example:

S1000D v1.7 - CTG 2.2 ⇨ S1000D v4.1

Estimated Workload

Format	Number of ICN (estimation)
CGM (v1)	4000
CG4 /FAX	0
JPEG	800
PDF	0
TIFF	500

DTD	Number of DM (estimation)
AirCrew	0
Description	400
Equipment List	0
Fault	0
IPC	400
Procedure	3200
Schedule	0
Wiring	0

S1000D
USER FORUM
14 June 2017

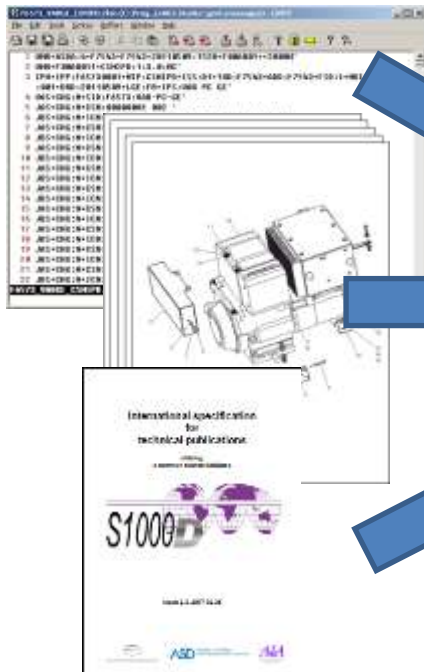| AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

Descript
CTG 2.2

Conversion →

Descript
S1000 4.1

- **Titles**
- **Paragraphs**
- **Symbols**
- **Tableaux**
- **Figures**

- **Titles**
- **Paragraphs**
- **Symbols**
- **Tableaux**
- **Figures**

Conversion – IPC

IPC GENERATOR

- **CSNIPD 3.0**
- **CGMs v4**
- **S1000D 4.1**

CTG 2.2 IPC DM
CGM v4 (with HotSpot)

Conversion

S1000D 4.1 IPD DM

Conversion – Procedure

AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

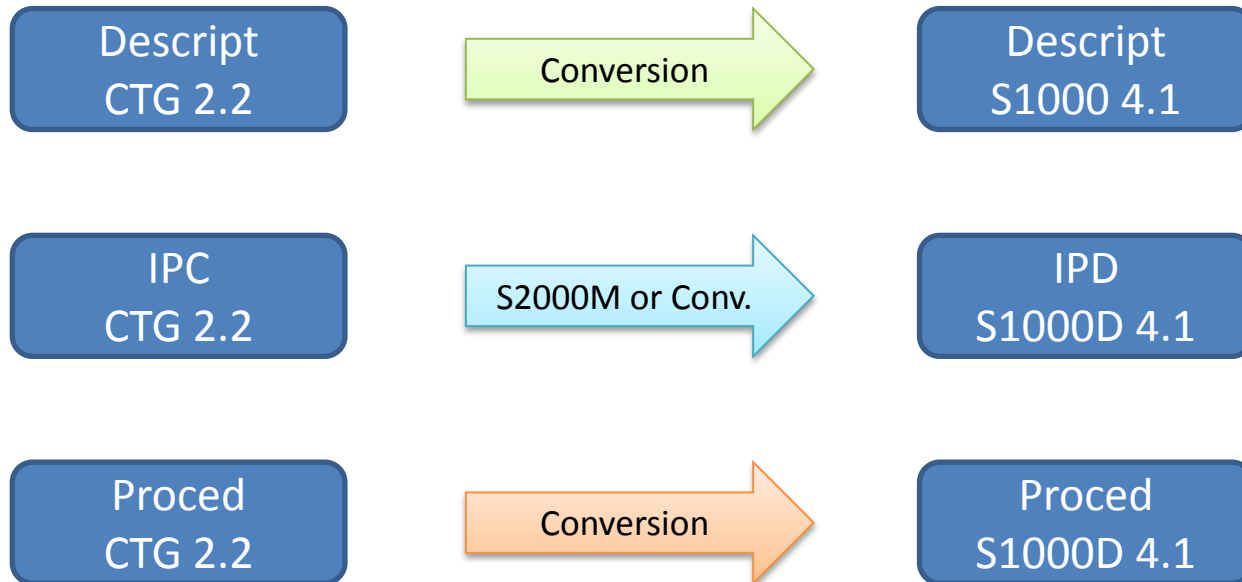| Proced CTG 2.2	→ Conversion →	Proced S1000D 4.1

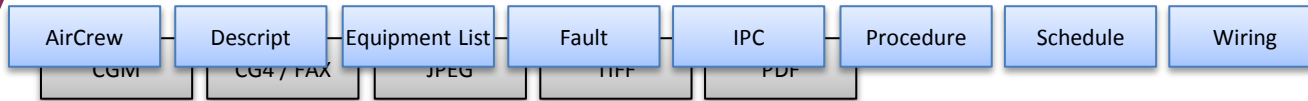**Potential problems when converting automatically!**

Example: <closeup> in Rafale uses Steps and not Required conditions

Conversion – Data Modules

AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

Descript CTG 2.2	→ Conversion →	Descript S1000 4.1
IPC CTG 2.2	→ S2000M or Conv. →	IPD S1000D 4.1
Proced CTG 2.2	→ Conversion →	Proced S1000D 4.1

Conversion – CGM

AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

CGM v1   →   Conversion   →   CGM v4
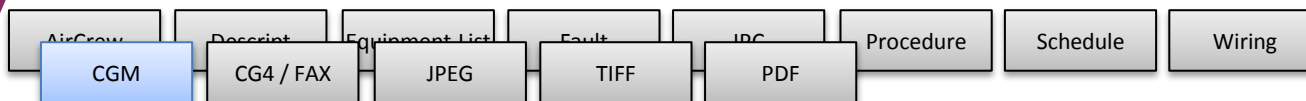
Add HotSpots to the CGM v4

Selection of the profile for the Rafale project :

ATA GrExchange 2.6
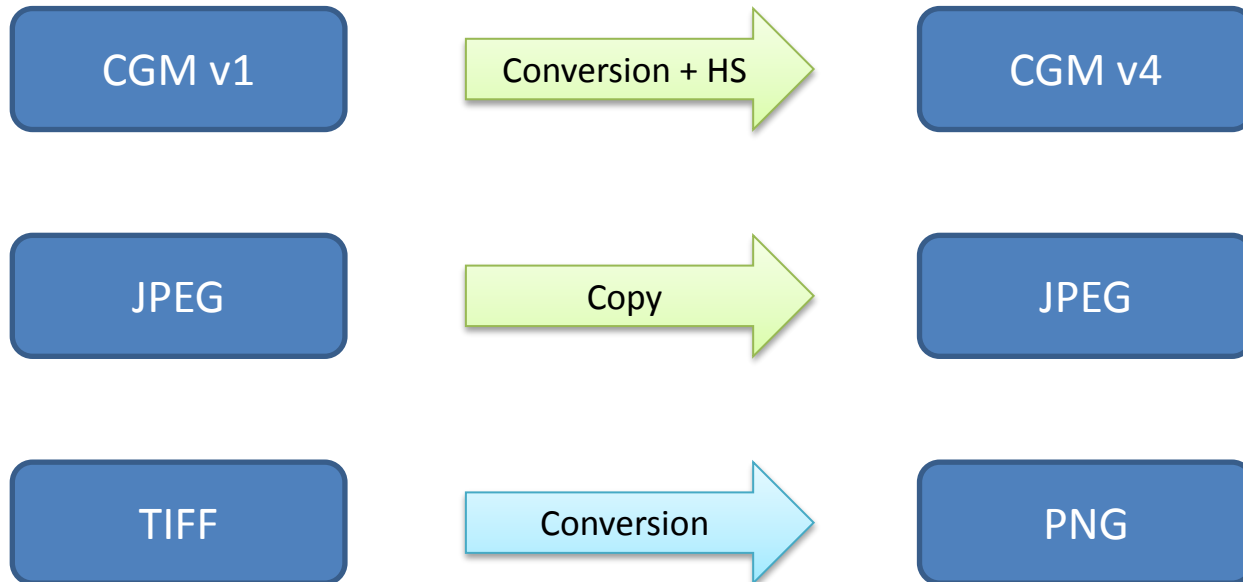or
S1000D v4.1

Conversion – JPEG

AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

JPEG → Copy → JPEG

S1000D
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AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			
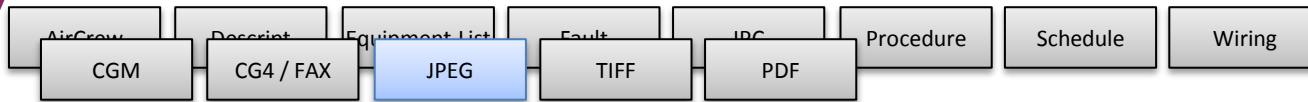
TIFF	Conversion →	PNG

Use a Web Browser compatible format

Conversion – Graphics

AirCrew	Descript	Equipment List	Fault	IPC	Procedure	Schedule	Wiring
CGM	CG4 / FAX	JPEG	TIFF	PDF			

CGM v1	Conversion + HS →	**CGM v4**
JPEG	Copy →	**JPEG**
TIFF	Conversion →	**PNG**

Converter – Theory (Rafale ⇨ S1000D v4.1)

If needed:
- Corrections of the input

CTG 2.2

Rafale (SGML) </>

Drawings

S1000D

V4.1 (XML) </>

Drawings

Log Files ⚠

Input Preparation:
- Parsing (implicit)
- Log File creation
- SGML ⇨ XML Conversion

Output Creation:
- CTG 2.2 ⇨ S1000D v4.1
- Parsing (Schema)
- Log File creation
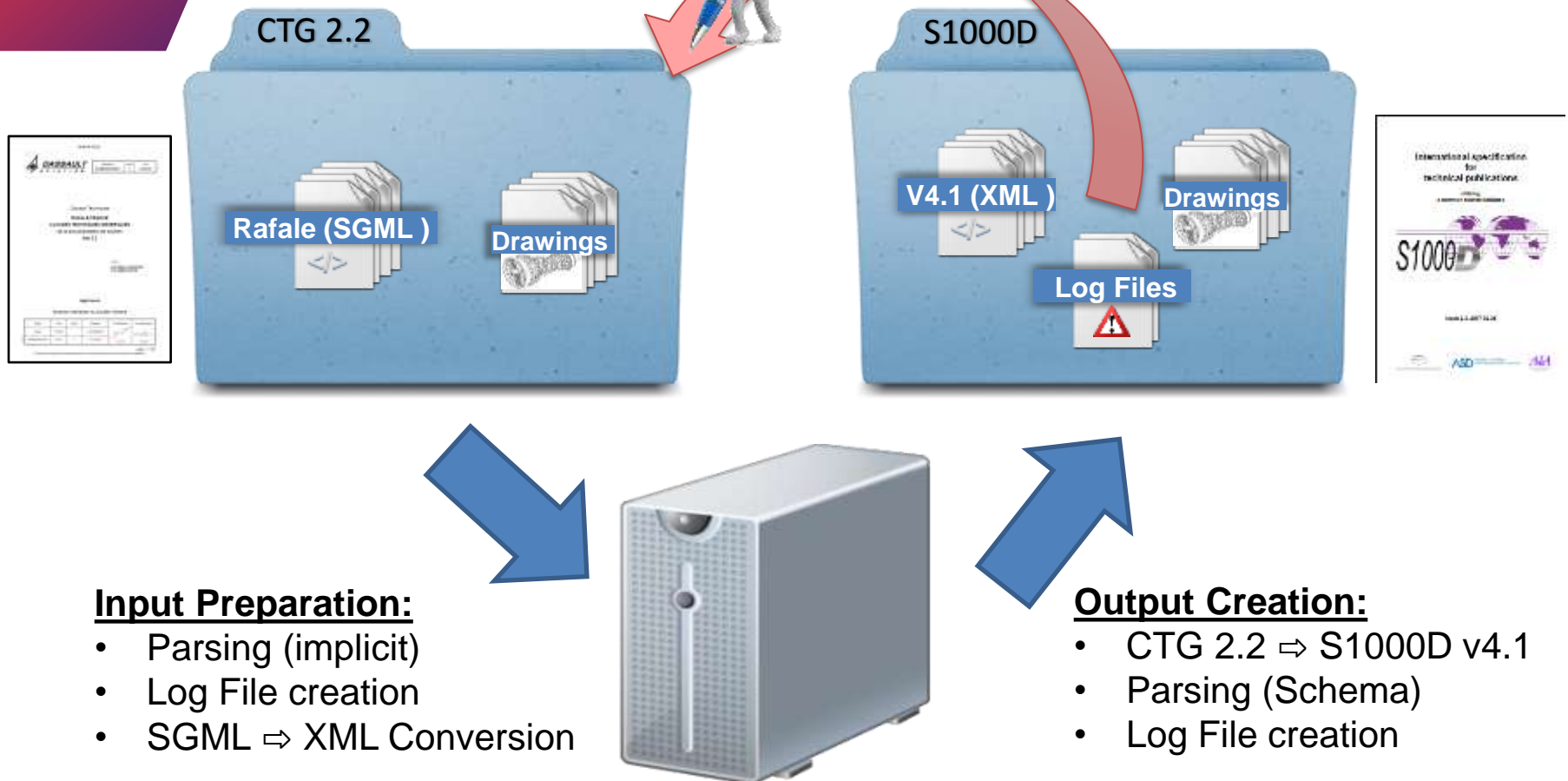
Conversion problems

Conversion problems (Example: ICN size)

ICN CTG 2.2

ICN - YY - Y - YYYYYY - Y - YYYYY - NNNNN - A XX X

Prefix
Model identification code
System difference code
Standard numbering system
Responsible partner company code
Originator code (NCAGE code)
Sequential number
Variant code
Issue number
Security classification
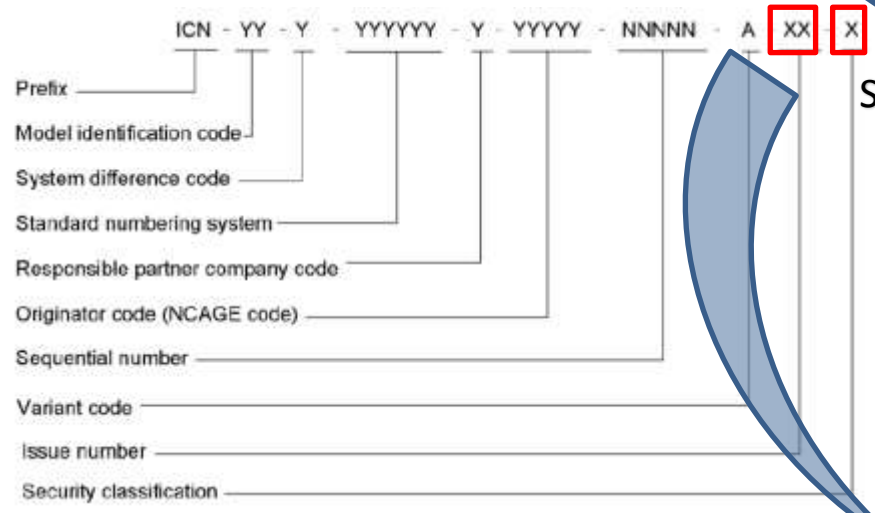
Security classification 1 => 2 digits

Issue number 2 => 3 digits

ICN – YY – Y - YYYYYY – Y - YYYYY - YYYYY – A - XXX XX

Prefix
Model identification code
System difference code
Standard numbering system code
Responsible partner company code
Originator code (CAGE code)
Unique identifier
Variant code
Issue number
Security classification
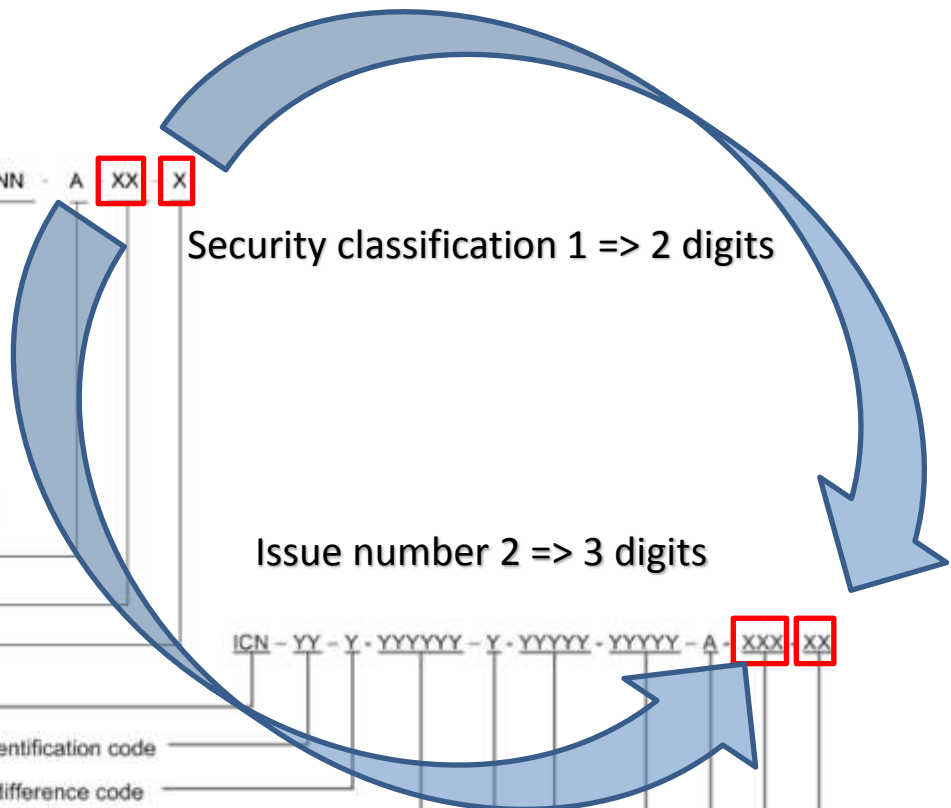
ICN S1000D v4.1
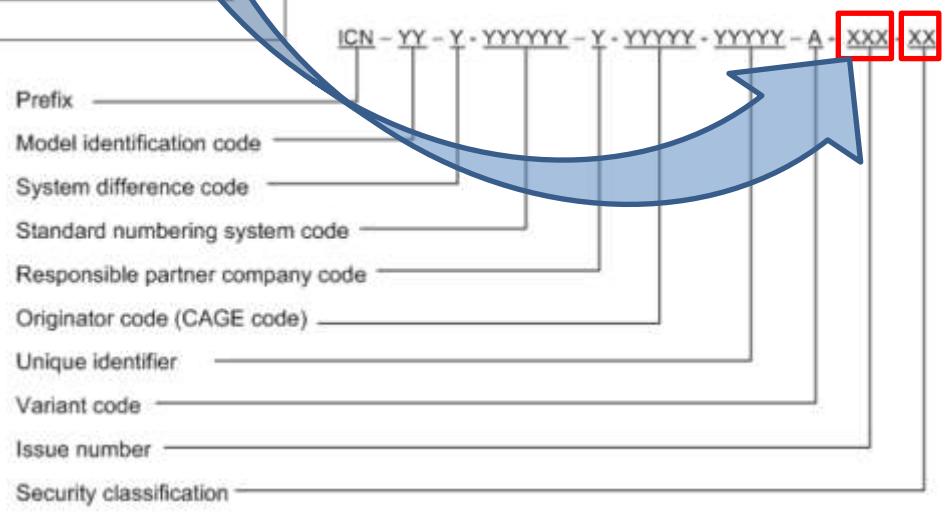
Conversion problems (Example: security level)

```
<dmodule><idstatus><dmaddres><dmc>
<avee><modelic>A1</modelic>
<sdc>A</sdc><chapnum>99</chapnum>
<section>3</section><subsect>3</subsect>
<subject>00</subject>
<discode>00</discode>
<discodev>A</discodev>
<incode>720</incode><incodev>A</incodev>
<itemloc>A</itemloc></avee></dmc>
<dmtitle><techname>Lance-Paillettes</techname>
<infoname>Pose</infoname></dmtitle>
<issno issno="08" type="d">
<issdate year="2009" month="12" day="07"></dmaddres>
<status><security class="np">
<rpc rpcname="M">
<orig>F0555</orig>
<applic><systemid><std>
<standard>F2</standard>
<standard>F3</standard></std>
<nti nti1="1"></systemid></applic>
<techstd><tpbase>Etat 2.2</tpbase></techstd>
<qa><context></qa>
<rfu>Evolution des applicabilit&eacute;s des versions</rfu>
<remarks>RAS</remarks>
```

Security level of the DM is marked as "NP"

```
<icns>
<icn id="FIG01"><icn-c>
<modelic>A1</modelic>
<sdc>A</sdc>
<chapnum>99</chapnum>
<section>3</section>
<subsect>3</subsect>
<subject>00</subject>
<rpc rpcname="M">
<orig>F0555</orig>
<illnum>00004</illnum>
<illver>A</illver>
<illupdat>01</illupdat>
<secur class="2"></icn-c>
</icn>
</icns>
```

Security level of the ICN called is marked as "2" (="DR")

The DM must be reclassified!

Conversion problems (Example: Figref)

Allowed in CTG 2.2

```
<icns><icn id="FIG01"><icn-c><modelic>A1</modelic>
<sdc>A</sdc>
<chapnum>99</chapnum>
<section>9</section>
<subsect>9</subsect>
<subject>99</subject><rpc rpcname="D">
<orig>FXXXX</orig>
<illnum>00001</illnum>
<illver>A</illver>
<illupdat>01</illupdat>
<secur class="2">
</icn-c>
</icn>
</icns>
</status>
  .
  :
<content>
  .
  :
<para><p>Reculer la vis rotule <figref refid="FIG01" repnohot="1">.</p>
</para>

<figure><title>LP - mise en place</title>
<graphic callicn="FIG01"></figure>
  .
  :
</content>
```

In S1000D v4.1

```
<!DOCTYPE dmodule [
  .
  :
<!ENTITY ICN-A1-A-999999-D-FXXXX-00001-A-001-02
  SYSTEM "ICN-A1-A-999999-D-FXXXX-00001-A-001-02.CGM" NDATA cgm>
  .
  :
]>
  .
  :
<content>

<para>Reculer la vis rotule <internalRef internalRefId="FIG-A1-A-999999-D-FXXXX-00001-A-001-02"
  internalRefTargetType="irtt01" xlink:href="FIG-A1-A-999999-D-FXXXX-00001-A-001-02">
  (rep. 1)</internalRef>.</para>
  .
  :
<figure id="FIG-A1-A-999999-D-FXXXX-00001-A-001-02"><title>LP - mise en place</title>
<graphic xlink:type="simple" xlink:href="URN:S1000D:ICN-A1-A-999999-D-FXXXX-00001-A-001-02"
  infoEntityIdent="ICN-A1-A-999999-D-FXXXX-00001-A-001-02"/>
</figure>
  .
  :
</content>
```

Conversion problems (Example: duration/perstime)

```
<DURATION value="0,1">

<taskDuration startupDuration="" procedureDuration="6" closeupDuration="" unitOfMeasure="min" />
```

Rafale (1/10 h)	S1000D v4.1 (min)
0,1	6
0,2	12
0,3	18
0,4	24
0,5	30
0,6	36
0,7	42
0,8	48
0,9	54
1,0	60

```
<PERSTIME value="0,1">

<estimatedTime unitOfMeasure="min">6</estimatedTime>
```

Conversion problems (Example: proceduralStep)

In S1000D v4.1

Allowed in CTG 2.2

```
<STEP1><SPECPARA><CAUTION><P>Le d&eacute;lai maximal entre l'application
du mastic sur les 4 vis et leur fixation est de 15 minutes.</P>
</CAUTION>
</SPECPARA>
<STEP2><PARA><P>Appliquer du mastic sur les 4 vis de fixation du demi-joint
d'&eacute;tanch&eacute;it&eacute; <MISCREF REFID="MIS200">.</P>
</PARA>
</STEP2>
<STEP2><PARA><P>Fixer le demi-joint d'&eacute;tanch&eacute;it&eacute; sur
la t&ecirc;te de balayage<FIGREF REFID="FIG002" REPNOHOT="2"> en serrant en
quinconce les 4 vis au couple de 0,4 Nm <SUPPLREF REFID="SPARE113"> au
moyen d'un tournevis dynamom&eacute;trique <SUPEQREF REFID="TOOL091">
<SUPEQREF REFID="TOOL211"><SUPEQREF REFID="TOOL417">.</P>
</PARA>
</STEP2>
</STEP1>
```

proceduralStep ~

- title ~
- * warning ~
- * caution ~
- note ~
- circuitBreakerDescrGroup ~
- para ~
- figure ~
- figureAlts ~
- multimedia ~
- multimediaAlts ~
- foldout
- table ~
- caption ~
- * warning ~
- * caution ~
- note ~
- circuitBreakerDescrGroup ~
- para ~
- figure ~
- figureAlts ~
- multimedia ~
- multimediaAlts ~
- foldout
- table ~
- caption ~
- proceduralStep ~
- proceduralStepAlts ~
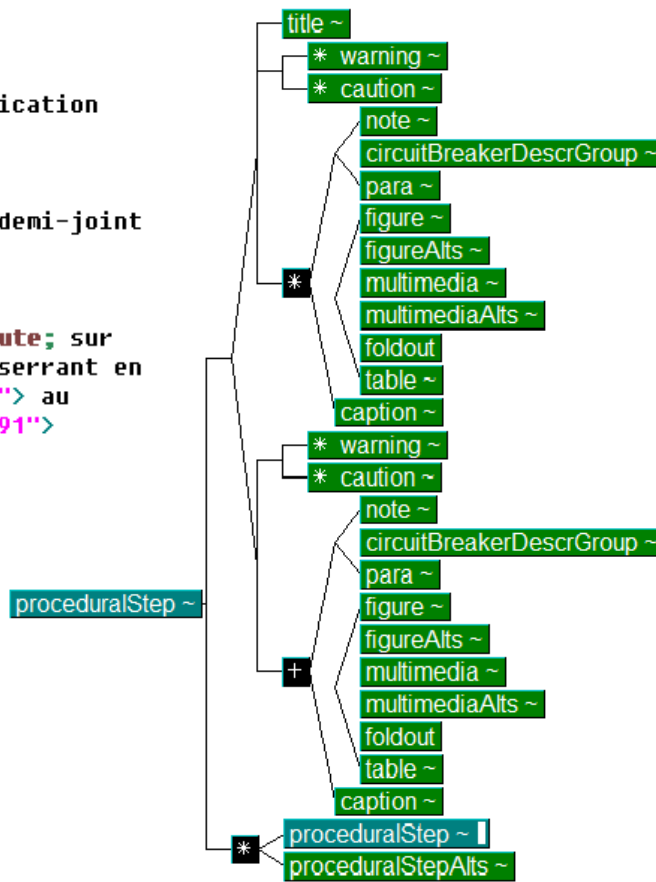
Conversion problems (Example: tpubref in reqcond)

Allowed in CTG 2.2

```
<REQCONDLI>
<REQCOND>
<COND>
<PARA>
<P>Le test statique doit &ecirc;tre pr&eacute;valid&eacute; au banc d'essai
sur base<TPUBREF XREFID="A8894010001">.</P>
</PARA>
</COND>
</REQCOND>
<REQCOND>
<COND>
<PARA>
<P>Le test statique doit &ecirc;tre pr&eacute;valid&eacute; au banc d'essai
sur PA CdG<TPUBREF XREFID="A8894000001">.</P>
</PARA>
</COND>
</REQCOND>
</REQCONDLI>
```
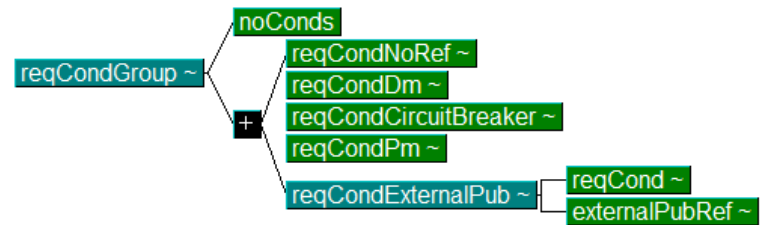
Reference in the middle of a <P>

In S1000D v4.1

Are we allowed to convert it

automatically?

Conversion problems (Example: refipc in reqcond)

Allowed in CTG 2.2

```
<REQCONDS>
<REQCONDLI>
<REQCOND>
<COND>
<PARA>
<P>Le carburant pré&#233;levé&#233; doit &#234;tre dans une
&#233;prouvette<REFIPC CSN="72016002 239 "/>.</P>
</PARA>
</COND>
</REQCOND>
</REQCONDLI>
</REQCONDS>
```
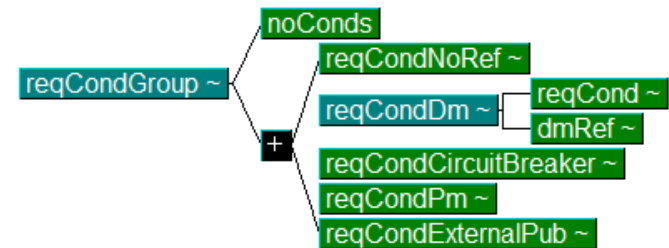
Reference to the IPC in

the middle of a <P>

In S1000D v4.1

There are no REFIPC in S1000D v4.1.

What to do specially in REQCOND?

All tag names are given in French

```
<operprincipal>
  <operation id="OPE00000042">
    <appliccont/>
    <title>
      <p>Abaissement et Réhausse du véhicule</p>
    </title>
    <prereqs>
      <condreq>
        <outilstdli><aucun/></outilstdli>
        <outilcomplli><aucun/></outilcomplli>
        <outilspecifli><aucun/></outilspecifli>
        <ingredientli><aucun/></ingredientli>
        <consoli><aucun/></consoli>
        <rechangeli><aucun/></rechangeli>
        <duree operation="0.2" cumul="0" tmi="0"/>
        <environnement condition="sans"/>
        <masse>0,1 kg</masse>
      </condreq>
      <persreq>
        <personne clair="Mécanicien" id="OPE00000042_MECANIC" nbre="1"/>
      </persreq>
    </prereqs>
    <tache1>
      <appliccont></appliccont>
      <nota><para><p>En cas de problème contacter le fournisseur.</p></para></nota>
    </tache1>
```

reqSupportEquips

reqSupplies

reqSpares

taskDuration

What to do here?

reqPersons

Conclusion

Iterative conversion - Conclusion

○ **No freezes in documentation process:** old norm data can be delivered to your customer at all time.

○ **No hard dead line:** you decide when to switch from the old norm to the new one.

○ **Save money:** if your program does not need new features you can remain in the old norm, keep your tools, avoid training people, deliver converted DMs.

○ **Possibility to "play"** with new features like CIR, Containers, etc.

Thank you for your patience!

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Slides available at:

http://www.s1000dimpl.org/