Basic Software Architecture to Get Your S1000D Project in Development

September 16-19, 2013

Agenda

- Scope
- Lessons Learned
- What you need to know!
- Essential Tools
- A Simple CSDB Project
- Screenshots of a Working System
- To Conclude
- References
- Question and Answer Session

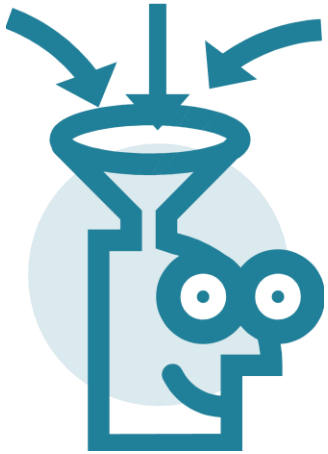
Scope

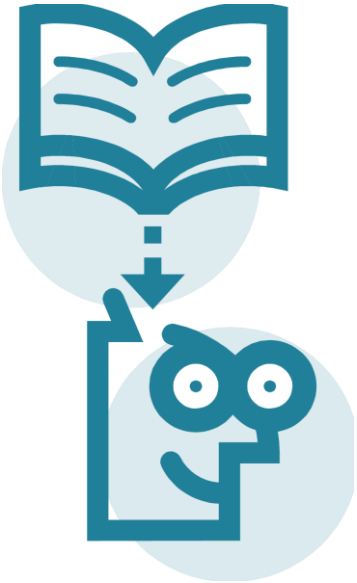
- Basic Software Architecture (Ref. S1000D Chapter 4)
  - Essential software tools incl. a web framework
  - What can we learn about managing data modules in a database-driven system?
- Development (Ref. S1000D Chapter 6.4)
  - Evaluate interactive processes and features
  - What can we learn about the complexity of implementing processes and features?

Lessons Learned

- As you will see…
  - With these essential tools, we can build the basic software architecture to manage our product data modules.
  - We can evaluate the processes and features outlined for an S1000D feature compliant CSDB.
  - It can be free and simple.*

** Takes time to build and some trial and error.*





What You Need to Know

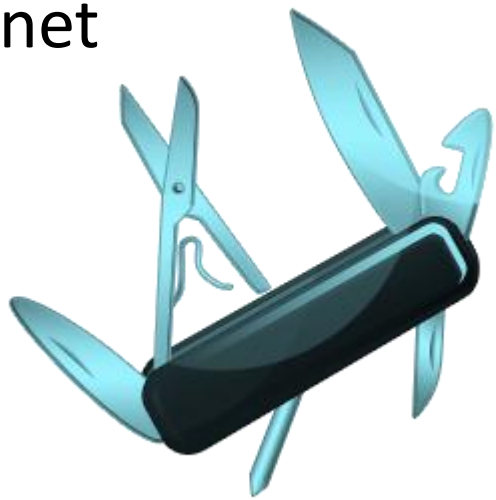
- S1000D Specification
- XML
  - Extensible Markup Language
- XSD
  - XML Schemas
- XSLT
  - Extensible Stylesheet Language Transformations
- Python
- Django
  - Pronounced “Jango” with a silent “D”.

Essential Tools

- XMLLINT & XSLTPROC
  - from the XML and XSLT C libraries
  - XMLLINT validates XML (Ref. S1000D Chapter 7)
    - Works with DTD, XSD and RNG formats.
  - XSLTPROC generates HTML

Essential Tools

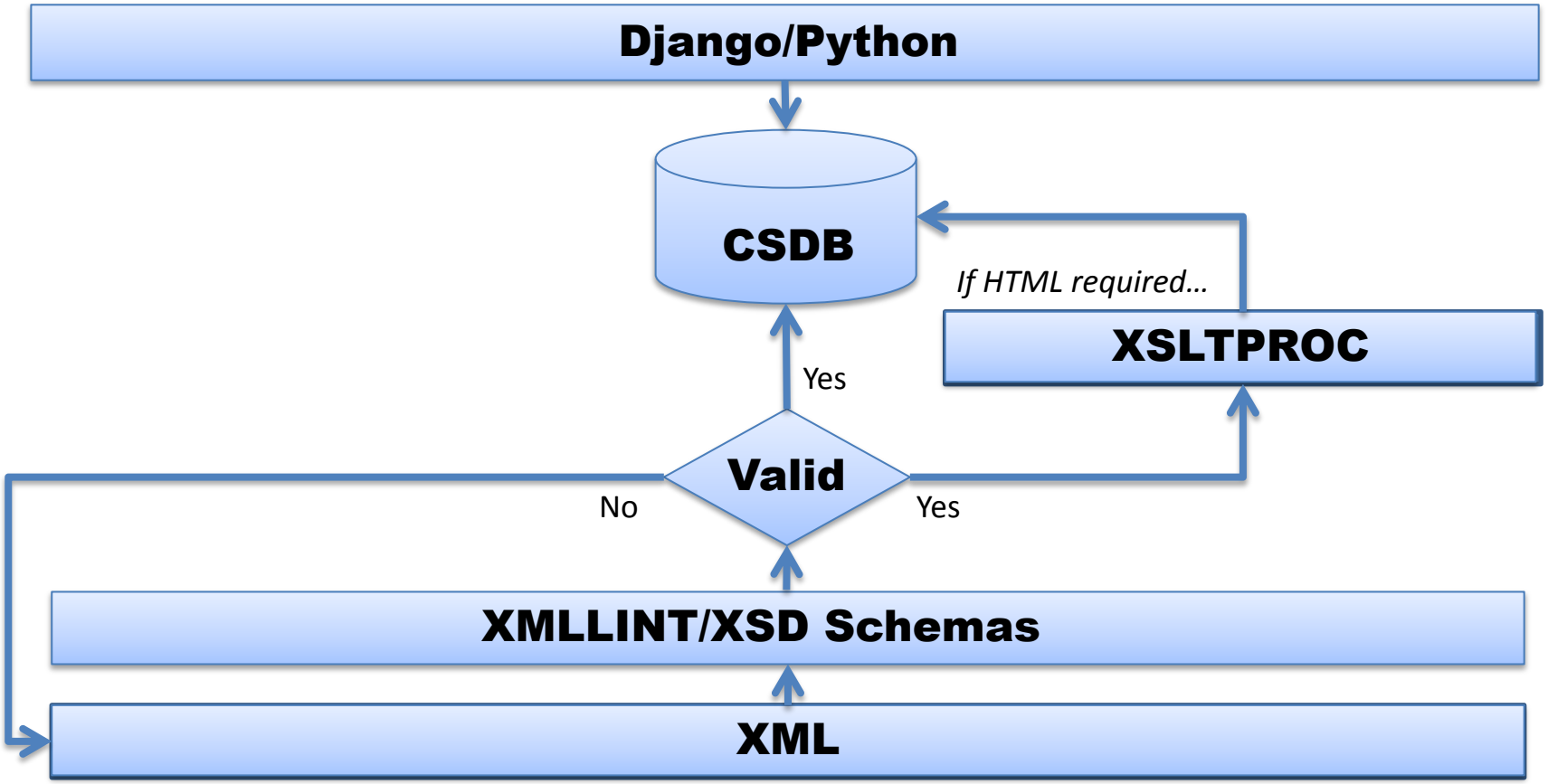
- Python
  - Excellent language for programming that works with XML
  - “Python’s power and ease of use make it an excellent choice for writing programs that process XML data” from pyxml.sourceforge.net
  - Use version 2.7



Essential Tools

- Django
  - Easy to program high-level web framework
  - Model-view-controller (MVC) architecture (Ref. S1000D Chapter 7.6)
  - Rapid development with integrated **database** support

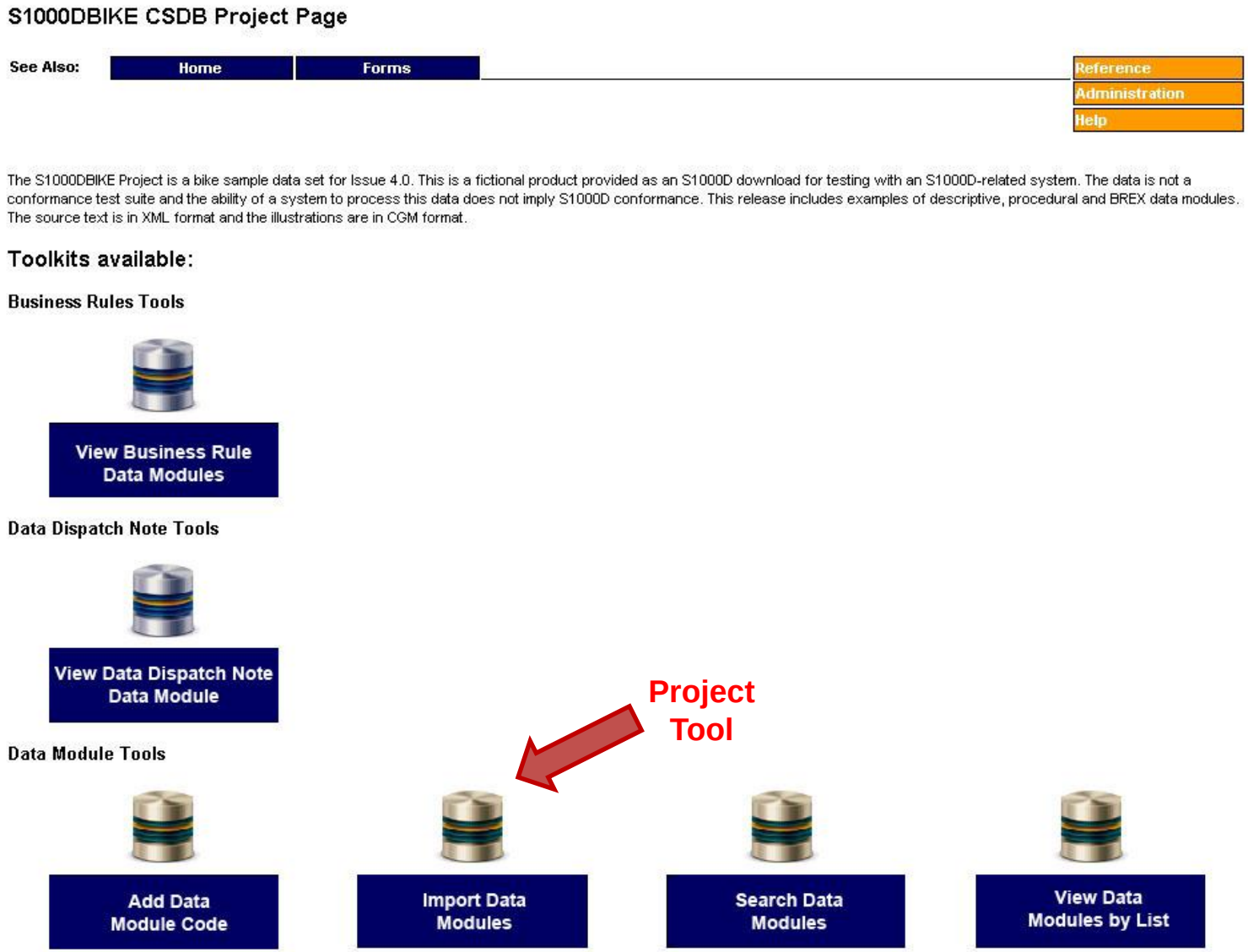
A Simple CSDB Project



NOTE

The following slides show a simple CSDB built using S1000D specifications with open-source (free) software.

Examples of CSDB with S1000DBIKE Data (1/8)



(Initial project screen with access to different data module toolkits)

Examples of CSDB with S1000DBIKE Data (2/8)

S1000DBIKE Import Data Module

See Also: Home | S1000DBIKE | Forms | Reference | Administration | Help

Add DM Code • Search Data Modules • View Data Modules

Use the form below to upload files to the database. Select the 'Browse' button to locate the file to upload. Select the appropriate schema from the choice list to validate against the uploaded data module. When you click the 'Upload' button, the CSDB will check if the file is already in the repository, if the file is already in the database, and the validity of the file. If any checks produce an error, then the file will not be uploaded. If there are no errors, the file will be upload to the CSDB. Use the 'Reset' button to clear the text field.

PASSED: Data repository check.

PASSED: CSDB check.

Validation Error

*ERROR [3]: The file, **DMC-S1000DBIKE-AAA-D00-00-00-00AA-151A-A_008-00_en-US**, is not valid against the **proced** schema and cannot be uploaded into the database. Please check this data module against the appropriate schema. If assistance is needed, please contact data management.*

File: Browse... Select schema: S1000D_401\xml_schema_flat\proced.xsd

Upload Reset

XMLLINT

```
[22/Aug/2013 12:46:48] "GET /static/CSS/images/loading_background.png HTTP/1.1"
304 0
[22/Aug/2013 12:46:48] "GET /static/CSS/images/loading.gif HTTP/1.1" 304 0
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"
        "http://www.w3.org/TR/REC-html40/loose.dtd">
<html><head><title>xmllint output</title></head>
<body bgcolor="#ffffff"><h1 align="center">xmllint output</h1>
file:///C:/websites/s1000d/nordamCSDB/nordamCSDB/csdb/static/TEMP/temp.xml:88: e
lement refs: Schemas validity error : Element 'refs': This element is not expect
ed. Expected is ( content ).
C:\websites\s1000d\nordamCSDB\nordamCSDB\csdb\static\TEMP\temp.xml fails to vali
date
</body></html>

[22/Aug/2013 12:47:13] "GET /static/CSS/colorbox.css HTTP/1.1" 304 0
[22/Aug/2013 12:47:13] "GET /static/JS/jquery.colorbox.js HTTP/1.1" 304 0
[22/Aug/2013 12:47:13] "GET /static/illustrations/NORDAM.jpg HTTP/1.1" 304 0
[22/Aug/2013 12:47:14] "GET /static/CSS/images/overlay.png HTTP/1.1" 304 0
[22/Aug/2013 12:47:14] "GET /static/CSS/images/controls.png HTTP/1.1" 304 0
[22/Aug/2013 12:47:14] "GET /static/CSS/images/border.png HTTP/1.1" 304 0
[22/Aug/2013 12:47:14] "GET /static/CSS/images/loading_background.png HTTP/1.1"
304 0
[22/Aug/2013 12:47:14] "GET /static/CSS/images/loading.gif HTTP/1.1" 304 0
```

(Ref. S1000D Chapter 7)

Examples of CSDB with S1000DBIKE Data (3/8)

S1000DBIKE DATA

Data Module Viewer

See Also: Home | S1000DBIKE | Forms | Reference | Administration | Help

Annote | Reset | Fullscreen | Previous | Next | TOC | History | Search | Clear Search | Print | Feedback | Exit | IDSTATUS

S1000DBIKE UNCLASSIFIED DMC-S1000DBIKE-AAA-D00-00-00-00AA-00PA-D_004-00

Mountain bicycle

Products cross-reference table

Table of contents

List of tables

Products cross-reference table

Table 1 Products cross-reference table

serialno: 1B070643	model: Brook trekker	version: Mk9	versrank: 2	SB-S001: Pre
serialno: 1B070644	model: Brook trekker	version: Mk9	versrank: 1	SB-S001: Post
serialno: 1B070701	model: Mountain storm	version: Mk1	versrank: 1	SB-S001: Pre

(Ref. S1000D Chapter 6.3)

Examples of CSDB with S1000DBIKE Data (4/8)

Search S1000DBIKE Data Module Content

See Also: Home | S1000DBIKE | Forms | Reference | Administration | Help

Import Data Module(s) - Add DM Code - View Data Modules

Search Term

Search Data Modules By Word or Phrase:

frame [Search]

Remove XML metadata from Search: ☑

Match whole words only: ☐

Ignore case: ☐

Search cannot link to individual results if XML tags are part of the results.

Also note, search cannot hightlight terms in XML instance for circuit breaker descriptions and figure titles.

Search Results for ...

DMC-S1000DBIKE-AAA-D00-00-00-00AA-00PA-D_004-00_en-US.xml

No matches.

DMC-S1000DBIKE-AAA-D00-00-00-00AA-00QA-D_004-00_en-US.xml

No matches.

Results

DMC-S1000DBIKE-AAA-D00-00-00-00AA-00WA-D_005-00_en-US.xml

1. Serial number etched on the **frame** [Locate Result]

DMC-S1000DBIKE-AAA-D00-00-00-00AA-022A-D_007-00_en-US.xml

No matches.

DMC-S1000DBIKE-AAA-D00-00-00-00AA-041A-A_007-00_en-US.xml

1. A bicycle (refer to) is a **frame** and a number of movable components with mechanical parts that are completely open. There are no covers or sheet metal panels that prevent access to the mechanical parts. Thus, you can disassemble the different components of a bicycle (refer to) to do: [Locate Result]

2. A bicycle **frame** is made of metal tubes that are welded together. [Locate Result]

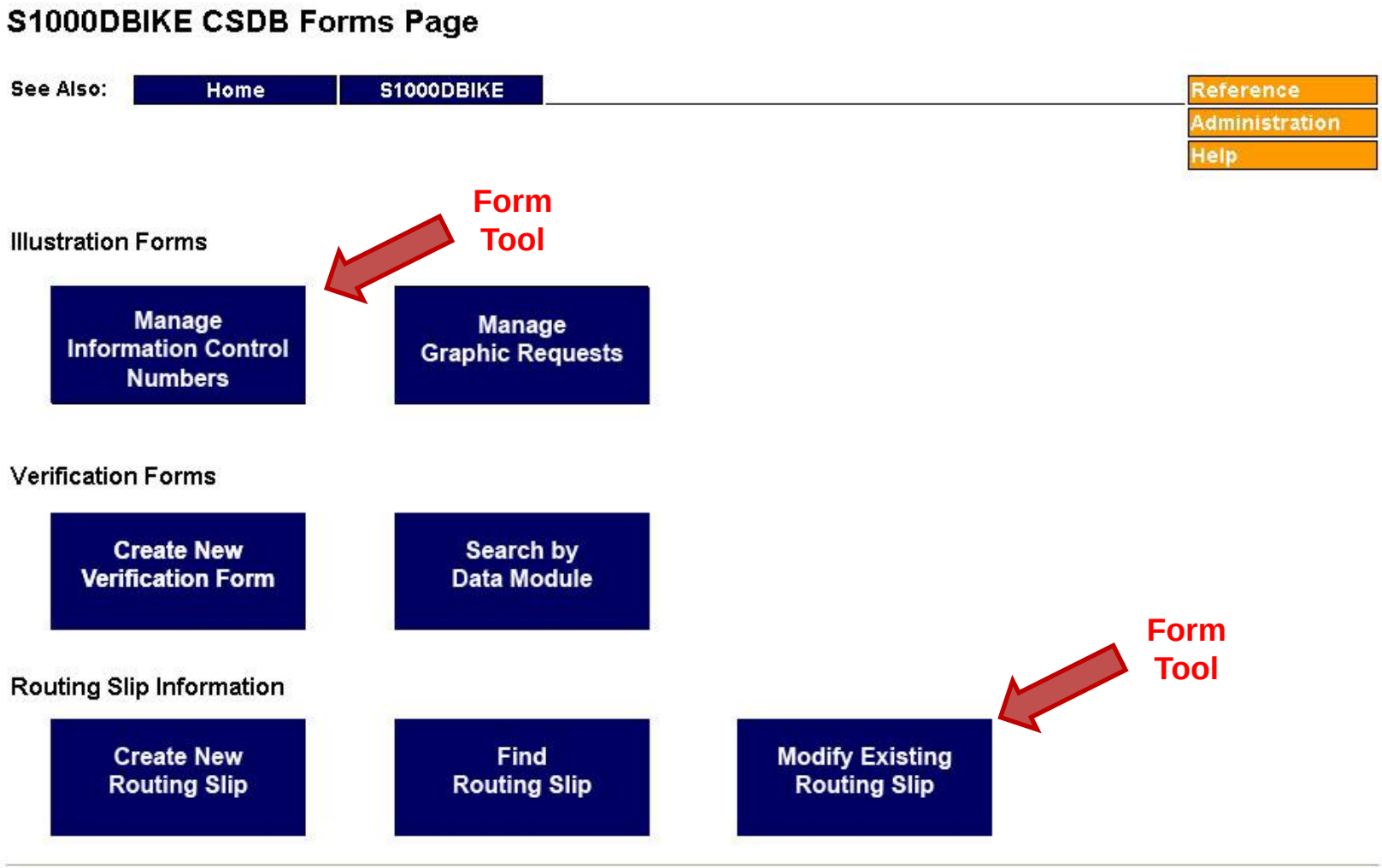
DMC-S1000DBIKE-AAA-D00-00-00-00AA-042A-A_007-00_en-US.xml

1. The **frame** is the skeleton of the bicycle. Refer to [Locate Result]

2. for a functional description of the **frame** system. [Locate Result]

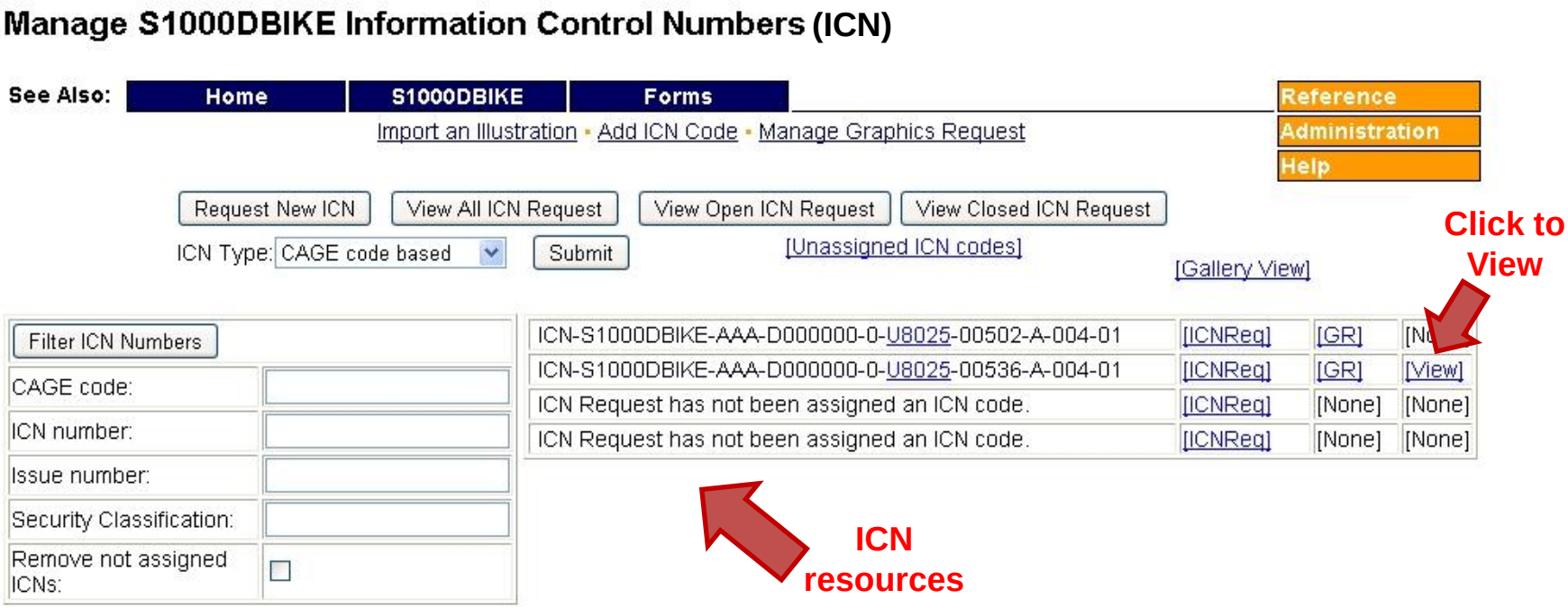
(Ref. S1000D Chapter 6.4)

Examples of CSDB with S1000DBIKE Data (5/8)



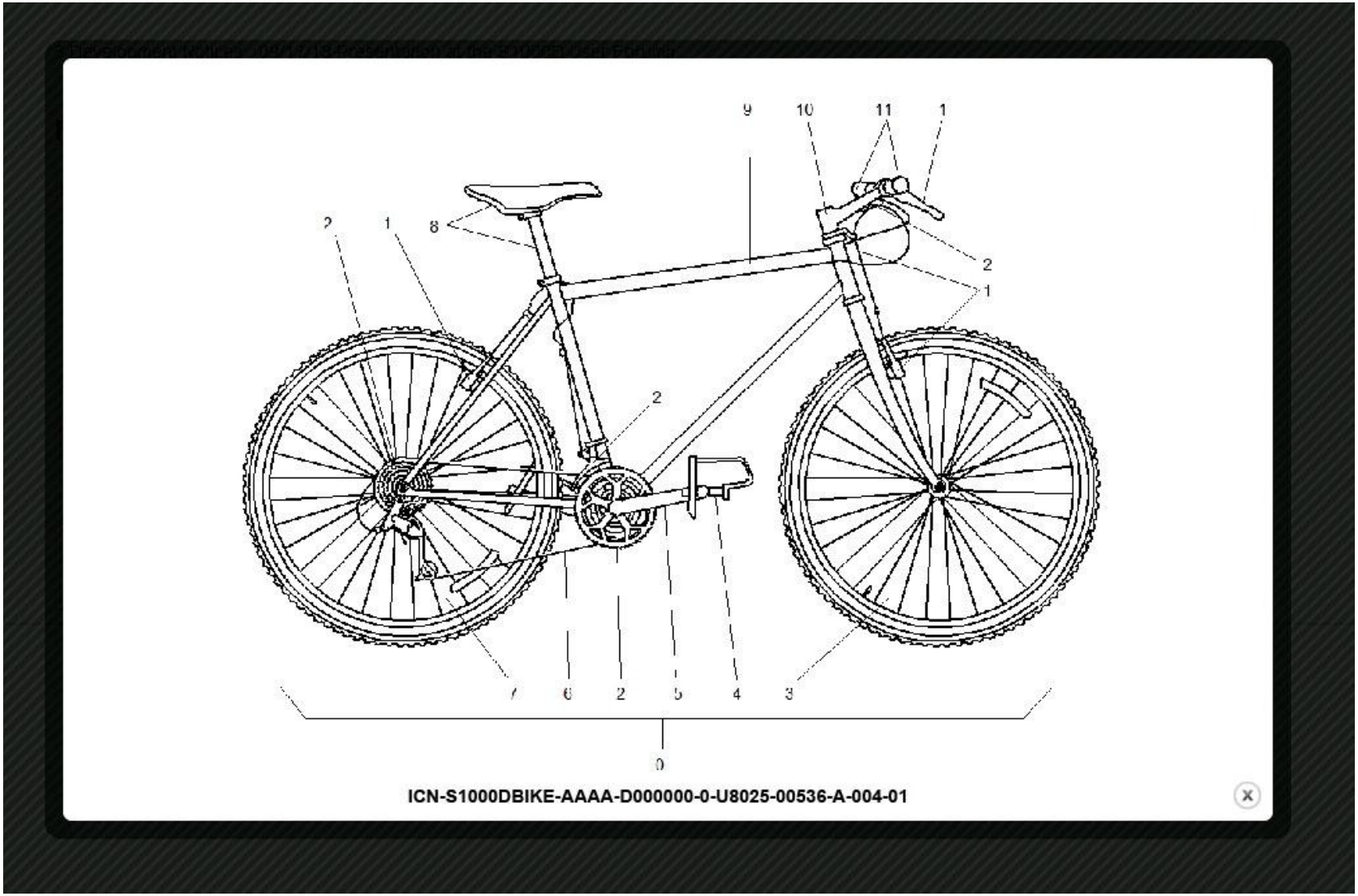
(Forms screen with access to manage CSDB resources)

Examples of CSDB with S1000DBIKE Data (6/8)



(Ref. S1000D Chapter 4.4)

Examples of CSDB with S1000DBIKE Data (7/8)



(Ref. S1000D Chapter 4.4)

Examples of CSDB with S1000DBIKE Data (8/8)

S1000DBIKE: Modify Existing Routing Slip

See Also: Home | S1000DBIKE | Forms | Reference | Administration | Help

Create Routing Slip • Find Routing Slip

Select a Routing Slip ID Number in this project: 1 - RS-TEST 1 Get

Project: S1000DBIKE

Technical Writer: H..... B ..... M ..... P ..... Change TW

Technical Illustrator: J ..... Not Applicable T ..... Change TI

Data Manager: A..... Not Applicable M ..... Change DM

Editor: H Change Editor to M .....

Current Routing Process:

TW, STEP 3. Place screen-shots of CATIA models in graphics folder, save screen-shots as TIFF files.

None

Modify Comments

Change Routing Process to:

4 - TW - Email editor that In Work 00 is ready for edit.

Change to selected step

Data Module(s): DMC-S1000DBIKE-AAA-D00-00-00-00AA-151A-A_00-007_en-US

Data Module Tracking Information

(Routing slips manage the product's data modules from creation to final approval.)

To Conclude

- Have we answered our essential questions?
  - With these essential tools, can we build the basic software architecture to manage our product data modules?
  - Can we evaluate the processes and features outlined for an S1000D feature compliant CSDB?
  - Can it be free and simple?

YES

References

Software

- xmlsoft.org
- python.org
- djangoproject.com

Documentation

- public.s1000d.org
- w3schools.com
- python.org/doc
- docs.djangoproject.com

Thank you for your attention!

Questions?

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NOTE: Please start subject line of any e-mail correspondence with ‘RE: UF13’.