S1000D and Interactive Electronic Technical Publications

S1000D Webinar Series, Session 4
SDL Structured Content Technologies

Our Presenters Today

Ed Hougardy
Programmer Analyst, AWS Training and Support Systems
The Boeing Company

Rhonda Wainwright
S1000D and IETM Specialist
SDL Structured Content Technologies

- **Provide an introduction to Interactive Electronic Technical Publications (IETPs)**

- **Explain and demonstrate how delivering S1000D content in an IETP provides advanced functionality:**

  - Applicability/effectivity filtering at runtime

  - Process data modules for interactive fault isolation

  - Multimedia for just-in-time training

  - Intelligent graphics (hot spots, wire highlighting, more)

- **Share insights and expertise from an IETP developer**

Agenda

Introduction to Interactive Electronic Technical Publications (IETPs)

- What is an IETP?
- IETP classes, types, and the S1000D Functionality Matrix

Why use IETP with S1000D?

- Demonstration: Applicability
- Demonstration: Locator Graphic
- Demonstration: Process DM
- Demonstration: Simulations and Animations

Industry Expert Presentation: Ed Hougardy, Boeing

- IETP, Start at the Beginning

What is an IETP?

🔴 **An Interactive Electronic Technical Publication is:**

- An electronic information resource

- Can be delivered online or via CD-ROM/DVD

- Indexed to provide searching capabilities

- Hyper linked to provide easy navigation

- Non-linear in nature; the user jumps from one location to another through interaction with the content

  - Interactive; user actions drive navigation to the right information at the right time

Background

- **Known as "IETMs" or "Interactive Electronic Technical Manuals" pre-S1000D, IETPs originated as Electronic Technical Manuals (ETMs) in the late 80s/early 90s**
  - Not Interactive; Pre-PDF!
  - Usually based on ASCII "print file"
  - Basic searching capabilities; saved paper and shipping costs (and that's about all)
- **With the introduction of SGML into aviation/defense tech docs, things changed!**
  - Effectivity/applicability filtering
  - System-driven navigation and hyperlinks
  - Intelligent graphics

"Classes" and "Types"
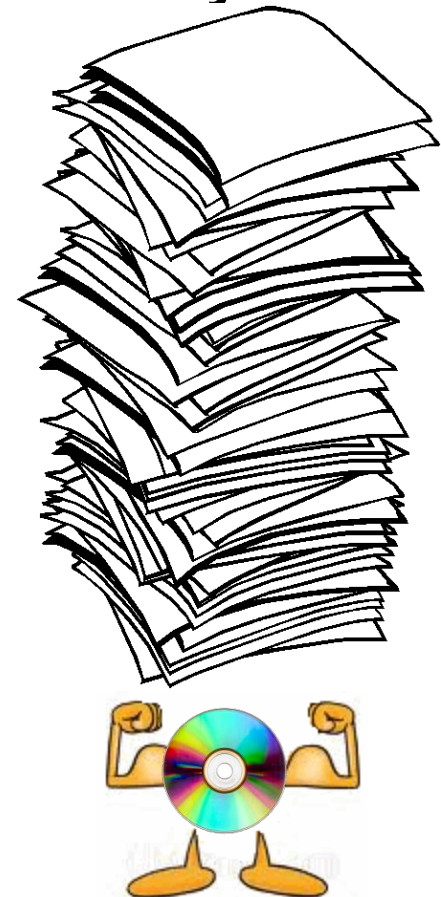
🔴 **To differentiate between "page turner" ETMs and true "interactive" electronic technical manuals, "Classes" were created:**

- Class 1:   Page turner documents, may have indexing and hyperlinking

- Class 2: Electronically scrolling documents with indexing and hyperlinking

- Class 3: SGML or XML-tagged documents with dialog-driven interaction, user selectable cross-references, indexing & hyperlinking

- Class 4: Hierarchically structured SGML or XML documents, dialog driven interaction, user selectable cross references, indexing, & hyperlinking data management by a DBMS

- Class 5: Integrated database, identical to Class 4 but integrated at the data level with other application information

"Classes" and "Types"

- **Later, "Type" classifications were defined to differentiate between the two major kinds of IETMs:**

TYPE I

- Class 1:   Page turner documents, may have indexing and hyperlinking
- Class 2: Electronically scrolling documents with indexing and hyperlinking
- Class 3: SGML or XML-tagged documents with dialog-driven interaction, user selectable cross-references, indexing & hyperlinking

TYPE II

- Class 4: Hierarchically structured SGML or XML documents, dialog driven interaction, user selectable cross references, indexing, & hyperlinking data management by a DBMS
- Class 5: Integrated database, identical to Class 4 but integrated at the data level with other application information

S1000D Functionality Matrix

Functionality	MET Requirement	Complexity – Page	Complexity – IETP	Requirement	All information sets	Crew / operator	Description and operation	Maintenance procedures	Fault isolation	Non-destructive testing	Corrosion control	Storage	Wiring diagrams	Illustrated parts data	Maintenance planning	Mass and balance	Recovery	Equipment	Weapon loading	Cargo loading	Stores loading	Role change	BDAR	Illust'd tool & support equip.	Service bulletins	Material data	Common info. & data
Access																											
Login	✓	2	2	✓	A																						
Suspend and restart	✓	1	1	✓	A																						
Exit	✓	1	1	✓	A																						
Annotation																											
Action complete indicator (checkbox)	✓	1	1	✓																							
Global data annotation	✓	2	2	✓	A																						
Local data annotation	✓	2	2	✓	A																						
Personal annotation	✓	1	1	✓	A																						
Redlining text		3	3		A																						
Redlining graphics		3	3		A																						
Delivery and distribution																											
Printed publication		1	5																								
Physical media	✓	1	1	✓																							
Network distribution	✓	2	2	✓																							
Diagnostics and prognostics																											
Diagnostics - User determined entry to dat		1	1																								
Diagnostics - Software driven entry to data		2	2																								
Dynamic diagnostics			5																								
Wire/Fluid system tracing		4	4																								

Function			A
System simulation	4	4	
Prognostics		5	
External processes			
Transmittal	3	3	
Retrieval	2	2	
Parts ordering	3	3	
Deficiency / Improvement report transmitta	3	3	A
Maintenance data collection	3	3	
Operator debriefing	3	3	
Resource scheduling	3	3	
Knowledge management		5	
Graphics			
Pan, zoom, expand, magnify	1	1	A
Assembly/Disassembly	2	2	
Locator graphics	1	1	
3D modeling	4	4	
Linking			
External references	2	2	A
Internal reference	1	1	A
Hot reference	2	2	A
Link to separate parts data	2	2	A
TOC, lists of figures, tables and photos	1	1	A
Hot spotting	3	3	A
Navigation and tracking			
Next and previous	1	1	A
Return (Chronological)	1	1	A
History of traversed links	1	1	A
User creation of bookmarks	1	1	A
System/Subsystem navigation	1	1	A
Restore initial navigation view	1	1	A
Audit trail	2	2	A
Graphical navigation	2	2	
Dialog-driven interaction	3	3	
Voice-Activated commands	3	3	A

Function			A
Search - Full text	1	1	A
Search - User defined boolean	1	1	A
Search - Across multiple databases/files	4	3	A
Search - Context	2	2	A
Search - Key word	2	2	A
Filter content per applicability	2	1	A
Simultaneous display of multiple objects	2	2	A
Tear off window	2	2	A
Printing			
Print screen	1	1	A
Data module specific printing	1	2	A
Print linked data	2	2	A
Fully formatted/book version	4	5	A
Special content			
Front matter	1	1	A
Supporting technical data	2	2	A
Warnings and cautions	1	1	A
Emergency procedures	2	2	A
Photos	1	1	
Audio	2	2	
Motion video	3	3	
Animation	4	4	
Content sensitive help (Tech data)	1	1	A
Context sensitive help (Viewer)	2	2	A
User training	3	3	A
Updates			
Passive change indications and markings	1	1	A
Active change indications and markings	2	2	A
Full change	1	1	A
Block cycle and urgent changes	2	2	A
Near real time updates	2	2	A
User operation mode			
Web browser viewable	3	3	A
Stand alone mode	1	1	A
Network connectivity	2	2	A

Polling Question #1

- **What has been your experience with the S1000D Functionality Matrix?**
  - ❑ I've never heard of it before today.
  - ❑ I've looked at it before but never used it.
  - ❑ I've used it successfully; it's a good tool
  - ❑ I've used it and don't recommend it

Choosing an IETP

● **Major considerations**

- Standard technologies: XML, XSL, XSLT, XSL-FO, Java, JavaScript, HTML, XHTML
- Performance: PDOM, AJAX
- Open architecture
- Scalable

● **Program considerations**

- Web-enabled / support for CD/DVD
- API for integration
- Graphic viewer support
- Runtime applicability filtering
- Everything on the S1000D Functionality Matrix that your program needs

SDL

IETP configuration development

- Your data must be rendered into the appropriate format for display on screen
- An IETP "skin" needs to be developed
- Any special dialogs need to be created
- IETP print styles need to be developed
- Most IETPs require some sort of configuration file(s)

Another publishing output

- When integrated with an S1000D Common Source Data Base (CSDB) , IETP publishing can become as simple as "pushing the print button"
- PDF can be generated as a secondary output from the same XML source

13

Agenda

- **Introduction to Interactive Electronic Technical Publications (IETPs)**
  - What is an IETP?
  - IETP classes, types, and the S1000D Functionality Matrix
- **Why use IETP with S1000D?**
  - Demonstration: Applicability
  - Demonstration: Locator Graphic
  - Demonstration: Process DM
  - Demonstration: Simulations and Animations
- **Industry Expert Presentation: Ed Hougardy, Boeing**
  - IETP, Start at the Beginning

S1000D IETP Demonstration

SDL

🔴 **What is your prior experience with IETMs or IETPs?**

- ❑ None. I have never worked with IETMs in any capacity
- ❑ I have used IETMs as an information consumer (end-user)
- ❑ I have prepared data for publishing to IETM
- ❑ I have developed IETMs

Agenda

- **Introduction to Interactive Electronic Technical Publications (IETPs)**
  - What is an IETP?
  - IETP classes, types, and the S1000D Functionality Matrix
- **Why use IETP with S1000D?**
  - Demonstration: Applicability
  - Demonstration: Locator Graphic
  - Demonstration: Process DM
  - Demonstration: Simulations and Animations
- **Industry Expert Presentation: Ed Hougardy, Boeing**
  - IETP, Start at the Beginning

IETP: Start at the Beginning

Ed Hougardy

**Programmer Analyst,
AWS Training and Support Systems**

The Boeing Company

Start at the Beginning – Business Rules are a must

- Authoring guidelines
- Element / Attribute usage
- What data module types are used?

Do you have everything you need?

- DMRL (Data Module Requirements List)
  - *A spreadsheet might be more useful*
- What about graphics?
  - *There might be more than meets the eye*

Think outside the box (or IETP)

- Will the data modules be printed?
  - *What about multimedia*
- Graphics and Foldouts?
  - *What size is the screen*
- Look and Feel
  - *Be open to change*

Do you know its right? Internal Quality Check

- Is the data valid? Does it parse?
  - *Applicability might be an issue*

- Does it hold up against the business rules?
  - *Are you doing what you said you would do*

- Does it pass tagging "gotchas"
  - *A internalRef element might reference the wrong internalRefTargeType*

The Publication Module ~
The Key to Navigation

- Master module include smaller publication modules
  - *Flexibility create the navigation hierarchy (TOC)*
    - By Standard Numbering System
    - By traditional "publication" order.
  - *Flexibility to update modules within the hierarchy*

SDL

Be ready for change; it's coming

- Have a test suite of data modules
  - *Known results and behavior*
  - *Use all elements*
  - *Use fewer elements*
- Requirements can change; can you?

Playing with fire

- Change the schema
  - *Remove elements*
  - *Require attributes and elements*

- Maintenance Issues
  - *Staying in sync with the specification*

The very beginning

- Vendor Selection

  - *Does it meet your specification requirements (Functionality Matrix)?*

  - *Flexibility to update styles and look & feel*

  - *Support Team*

  - *"No Special Tagging" required*

Questions?

For Additional Information

For S1000D specification training or for more information…

- Visit us on the web: www.sdl.com/xml
  Email: Rhonda Wainwright: rwainwright@sdl.com

Join us for our next S1000D webinar…

- S1000D and Multimedia

- Tuesday, September 21, 2010

- To register: http://www.sdlxysoft.com/en/news-and-events/events/2010-09-21-S1000D-Multimedia.asp