S1000D Content Workflow

S1000D Webinar Series, Session 2

SDL Structured Content Technologies Division

SDL

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Structured Content Technologies

- Provide a review of basic S1000D concepts

- Show how S1000D information requirements are developed

- Provide an understanding of how S1000D content and metadata are created and managed

- Discuss how content is interchanged with partner companies

- Describe how publications are built and delivered

- Explain how S1000D content is updated

Agenda

- **S1000D: The Big Picture (Webinar 1 Review)**

- **Understanding the Data Module Code (DMC)**
  - Building the Standard Numbering System (SNS)

- **Building the Data Module Requirements List (DMRL)**

- **Data Modules: Authoring S1000D Content**
  - S1000D Metadata
  - Content
  - Referencing mechanisms

- **Publication Modules: Publishing S1000D Manuals**

- **Data Interchange using a Data Dispatch Note (DDN)**

- **Updating S1000D Content and Managing Revisions**

S1000D—So What's Different?

- **Unlike most legacy document types, S1000D is topic based**
  - Content is not specifically tied to a publication, thus promoting reuse and single sourcing
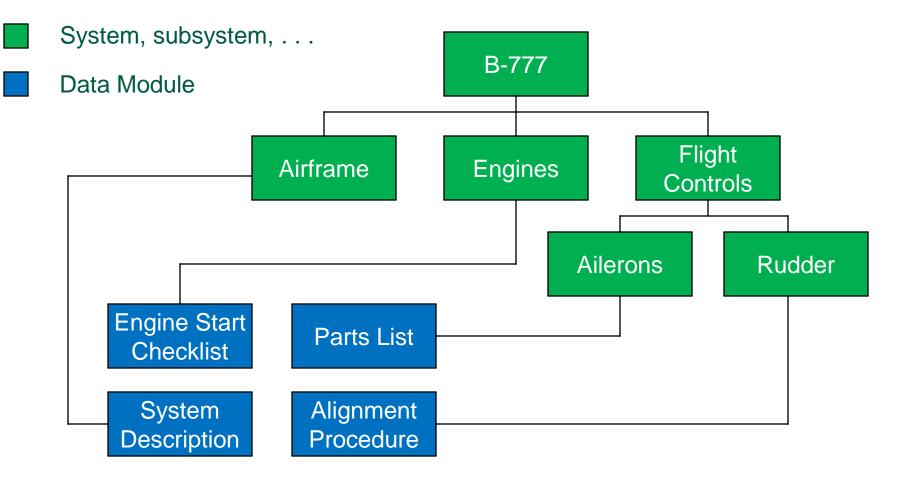- **But unlike other topic-based models (e.g. DITA) S1000D content follows strict naming conventions, indicating**
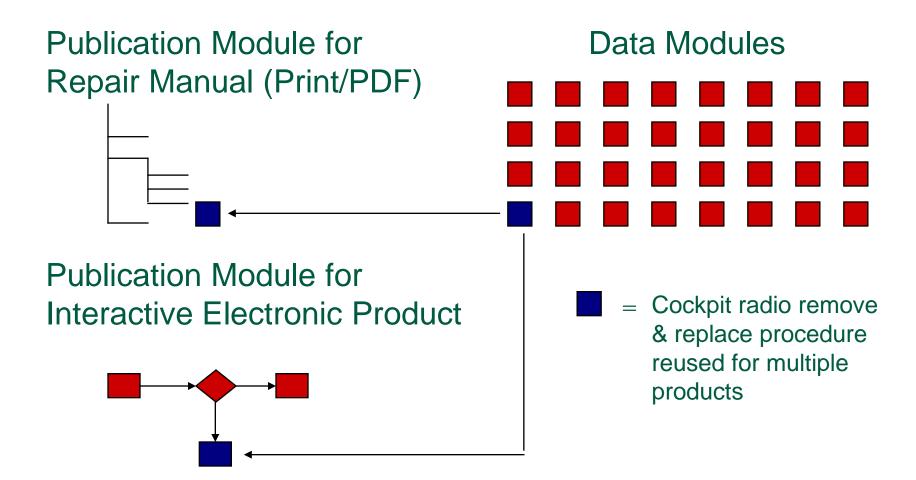 - The component to which it applies
  - The purpose of the information
- **S1000D has a built-in mechanism for data interchange**
  - Interchange is based on data modules
  - Eases the import and export processes from CSDB to CSDB

Applying Content to Component

Publication Module for
Repair Manual (Print/PDF)

Data Modules

Publication Module for
Interactive Electronic Product

= Cockpit radio remove & replace procedure reused for multiple products

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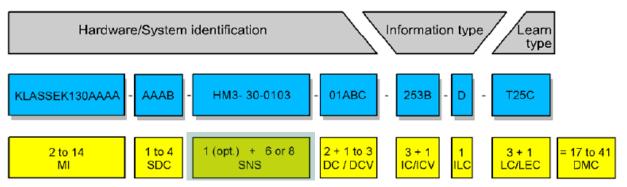- **Data Modules: Authoring S1000D Content**
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It's All in the Codes

*From S1000D Issue 4.0

MI	Model Identification	As assigned by or registered with NATO Maintenance and Supply Agency
SDC	System Difference Code	Identifies alternative versions of sys/subsys/subsubsys (SNS)
SNS	Standard Numbering System	Physical breakdown of a product by System-Subsys/SubSubsys-Assembly Code
DC/DCV	Disassembly code and Variant	Designates alternative components differing slightly in design, but not enough to warrant a new SDC
IC/ICV	Information code and variant	e.g., description & operation, illustrated parts, wiring, etc.
ILC	Item location code	e.g., on ship versus on shore
LC/LEC	Learn code/learn event code	e.g., demonstration/lesson plan

The Standard Numbering System

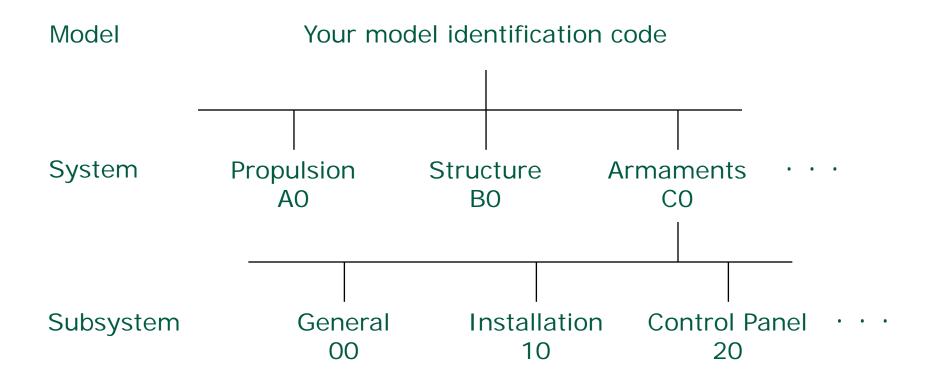- **The SNS is the portion of the DMC that identifies the physical breakdown of the Product**

  - System   Example: 12 (Braking System)
  - Subsystem   2 (Parking Brake)
  - Subsubsystem   0 (Master Cylinder)
  - Unit or Assembly   03

- **Each level is assigned a unique code; combined, they identify a specific component and are used in the DMC (e.g., 12-20-03 for the master cylinder assembly above)**

- **S1000D provides generic and "maintained" SNS for land, sea, and air systems as well as other example SNSs**

- **Projects must decide which SNS to use and what modifications are needed**

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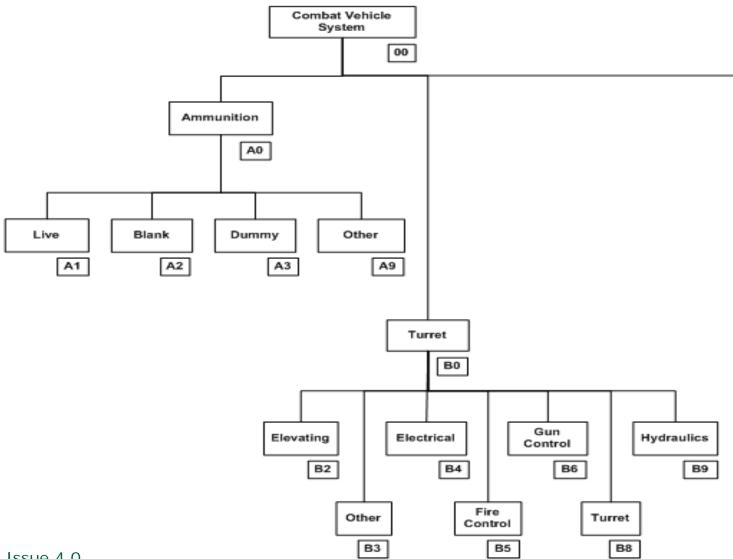Model — Your model identification code

System — Propulsion A0 — Structure B0 — Armaments C0 · · ·

Subsystem — General 00 — Installation 10 — Control Panel 20 · · ·

Subsubsystems and unit or assembly to be completed by project

SNS Application

What data module pertains to	SNS within the data module code
General information about the vehicle	00-00-00
General information about the armaments system	C0-00-00
Procedure to repair armaments system control panel	C0-20-00
Wiring diagram for some component within the control panel (assuming additional codes developed and defined)	C0-20-A8

Complete DMC for wiring diagram: HUMVEE-AAA-C0-20-A8-0000-051-A

*From S1000D Issue 4.0

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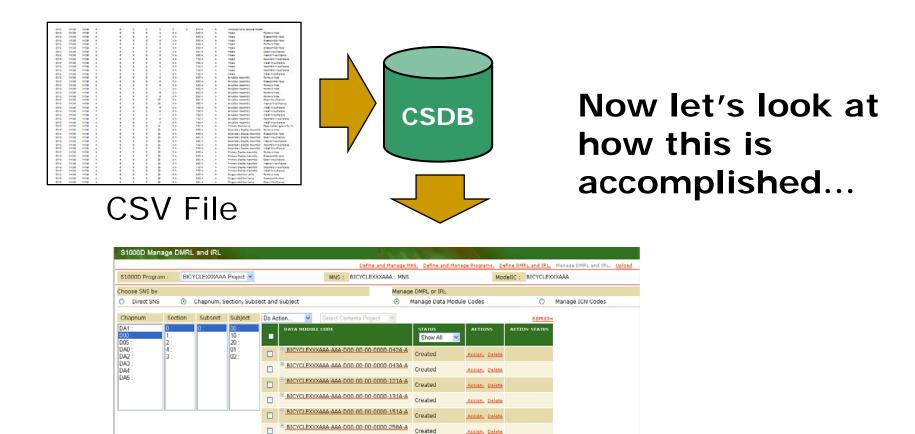- **Data Modules: Authoring S1000D Content**

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Building the DMRL

- **Essentially, doing what we just did a thousand times!**

- **But seriously, the data module requirements list represents the complete information set needed**

- **A DMRL can be created in the CSDB or may come from other systems such as an LSA (Logistic Support Analysis) system**

- **The DMRL itself is an XML file as described in the S1000D specification**

- **Alternatively, some CSDBs will allow the DMRL to be created in other machine readable formats such as CSV (Comma Separated Values) and imported**

CSV File

CSDB

Now let's look at how this is accomplished...

DMC Management Tools in the CSDB

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- **Each data module consists of metadata and content**
- **Metadata (in Issue 4.0 `<identAndStatusSection>`) is identical for every data module**
- **Content (`<content>`) varies depending on which tree of the schema you need for the particular module**

Descriptive	Procedural	Fault isolation
Maintenance planning	Crew/operator information	Illustrated parts
Battle damage assessment/ repair	Wiring data	Process data module
Technical information repository	Container data module	Learning data module
Maintenance checklists and inspections		

Top Level Hierarchy

dmodule

├── identAndStatusSection

└── content → description (para/subpara-like elements)

procedure (step/substep-like elements)

Other data module types with their required markup

Role of Metadata in S1000D

- **S1000D metadata is extremely rich, and much of it is required**
  - For example: issue number, inwork, security classification, quality assurance, language
  - Many of these will be tied to workflow and defined specifically in the project's business rules
- **Other metadata is descriptive**
  - For example: data restrictions or reason for change
  - Use should also be defined in business rules
  - Data module creation process ensures consistency
- **Publication module (and more about this will follow) has its own metadata section analogous to that of data modules**

References

- **References take on critical importance with S1000D, particularly given**
  - Smaller granularity
  - Reuse
  - Needs of electronic information consumers
- **References can be made to**
  - Other data modules using their DMC
  - Legacy publications (print/electronic)
- **Referencing is a great way to reuse existing information rather than duplicating content**
- **One of the most significant benefits of a CSDB is to facilitate reference creation and ensure referential integrity**

Reference Validation in CSDB

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Speaking of references…

- 🔴 **The Publication Module**
  - ● Is the organizing construct for data modules and/or legacy publications
  - ● Has a metadata section similar to DM

- 🔴 **The Publication Module is essentially *a collection of references* within multi-level containers that define the outline of the publication**

- 🔴 **Some CSDBs have tools that allow "drag and drop" creation of a Publication Module**
  - ● Otherwise, Publication Modules must be created from scratch using an XML Editor

Visual Representation of a Publication Module

Selecting Data Modules into the Tree View

- **Publishing involves exporting the Publication Module and all associated assets (Data Modules, graphics, multimedia, legacy publications, etc.) to an S1000D-aware rendering application**
  - A good CSDB will provide a multi-channel publishing "Print Button" that allows you to publish to PDF/Paper and IETP simultaneously
- **Publishing requires the same level of configuration control as authoring, and the CSDB should provide functionality to**
  - Track versions of Publication Modules per the S1000D specification
  - Keep track of all the different deliverables, including which customers are delivered which version(s) and in which format(s)
- **Publishing can be further enhanced by applicability (which provides for custom manuals based on configuration)**
  - This will be covered in detail during our next Webinar on S1000D Applicability

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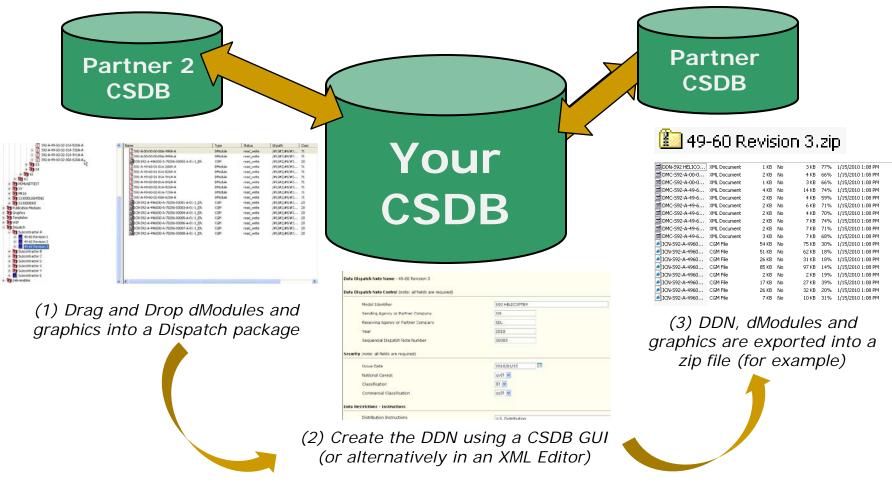- **Updating S1000D Content and Managing Revisions**

- **The Data Dispatch Note (DDN) is a built-in S1000D mechanism for interchanging content with partner organizations**
  - Subcontractors
  - OEMs
  - Distributed authoring groups without access to your CSDB
- **The DDN is essentially a manifest which lists all of the Data Modules and other assets (graphics, etc.) in a delivery package**
- **A good CSDB will provide the means to easily create a DDN using a forms-based interface**
  - Otherwise, you will need to create an XML file
- **Look for a CSDB that allows files to be added to a Dispatch package using drag-and-drop or other simple means**

(1) Drag and Drop dModules and graphics into a Dispatch package

(2) Create the DDN using a CSDB GUI (or alternatively in an XML Editor)

(3) DDN, dModules and graphics are exported into a zip file (for example)

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- **The S1000D specification governs metadata changes, and you are highly encouraged to play by the rules**
  - "inwork" is incremented as data module is changed
  - "Issue number" is incremented when updated data module is released
  - A released data module that is no longer needed is never physically deleted; rather, it is retained in the CSDB with its status marked "deleted"
- **The challenge is maintaining visibility into the implications of change**
  - What publications are affected?
  - Where is this module referenced?
  - What illustrations need to be changed?

- **S1000D introduces complexities that at first glance may appear to be daunting**

- **In reality, though, it provides a framework that makes a lot of sense because it enables automation**

  - Encapsulated processes that extend from requirements development to information delivery

  - Allows for considerable flexibility

  - Provides guidance to solve problems you would need to solve anyway, while taking advantage of years of best practice

  - Automates many of the processes needed to produce technical documentation in a controlled way

- **While S1000D requires an up front investment for a CSDB, the payoff is likely to be large and can provide considerable return on investment**

Upcoming S1000D Webinars

SDL

- ## S1000D Applicability – April 2010

  - Overview of the S1000D applicability model with demonstrations of how applicability filtering is achieved during publishing and in an IETP

- ## S1000D IETPs – June 2010

  - Overview of S1000D IETP functionality as identified in the S1000D Functionality Matrix; demonstrations will be provided to show functionality that can be achieved for the various data module types such as Process Data, Illustrated Parts, Fault Isolation, and Wiring

- ## S1000D and Multimedia: September 2010

  - Hot spots are just the tip of the iceberg; S1000D provides for the use of 3D models, animations, simulations, video, digital photographs, and more; multimedia demonstrations will be provided

Questions?

Thank You for Joining Us

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For more information…

- Visit us on the web: **www.sdlxysoft.com**

- Email

  - Rhonda Wainwright: rwainwright@sdl.com
  - Harvey Greenberg: hgreenberg@sdl.com

Join us for our next S1000D webinar…

- S1000D Content Applicability

- Tuesday, April 13, 2010

- To register:
  http://www.sdlxysoft.com/en/news-and-events/events