

## Information Architecture Methodologies

IA is an up-and-coming buzzword, but is the concept all that new?

Rosenfield and Morville suggest that information architecture (IA) is primarily associated with software technology and the World Wide Web: "Information architects perform a similar role [to that of librarians], but we typically do it within the context of web sites and digital content" (7). But information existed long before computers and websites – and so did the need to organize it.

To illustrate that digital realms are not IA's only application, I will describe two IA methodologies that have very different uses. Only one is computer-oriented.

The first, DocBook, sits solidly in the technology arena despite being more than ten years old. This methodology originated as a means of preparing software and hardware manuals, and is still used in that capacity today.

The second, MIL-PRF-49506, is a US Department of Defense specification with roots in the 1970s. This methodology defines standards of organizing and communicating logistics information for military equipment, and is completely unrelated to websites.

### DocBook

The DocBook methodology provides a "standard, open, interchangeable vocabulary in which to write [computer hardware and software] documentation," according to the OASIS<sup>®</sup> DocBook technical committee. This methodology is flexible enough to also be used for documents that are not computer-related.

Both SGML and XML are supported. Structural markup can be manually-applied using "human-readable" tags, or can be automatically developed with one of many authoring tools that support DocBook. Presentation characteristics of DocBook content are handled by external cascading style sheets (CSS).

### History

DocBook's current version number is 4.5, with a working draft of v5.x well underway – coordinated by the OASIS DocBook technical committee. But DocBook's first (SGML-only) versions were produced in the early 1990's by a software company, HaL Computer Systems, and a publishing company, O'Reilly<sup>®</sup> & Associates. This joint venture began in 1991 and continued through 1994 and Version 1.2.1.

In 1994, several other software companies, such as Hewlett-Packard<sup>®</sup> and Novell<sup>®</sup> contributed representatives to the project. The expanded team, dubbed the "Davenport Group," maintained DocBook through 1998 and Version 4.1. While in custody of DocBook, the Davenport Group established release standards (such as defining the difference between major and minor versions), and began work on an XML-based version.

OASIS took over in 1998. In addition to publishing Versions 4.2 through 4.5, OASIS has added XML compliance, developed a "simplified" DocBook version, and produced several supporting modules, such as the HTML Forms and MathML modules).

## Features

DocBook's important features include:

- Support and maintenance that is provided by a standards organization
- A design that centers on common characteristics of computer documentation
- A design that focuses on content structure, not presentation
- The ability to publish in multiple formats from a single source
- Commonly-available parsers and other supporting tools.

## Markup & Medium

DocBook is available as three different DTDs (XML, SGML, RELAX NG) and a W3C XML schema. Output options include both print and online formats:

- |                       |                  |
|-----------------------|------------------|
| • Eclipse             | • Postscript     |
| • HTML                | • RTF            |
| • JavaHelp            | • TeX and LaTeX  |
| • Microsoft HTML Help | • TeXinfo        |
| • OpenOffice          | • UNIX manpages. |
| • PDF                 |                  |

## Supporting Software

Many content authoring and publishing tools validate against the DocBook schema, including:

- [FrameMaker 8<sup>i</sup>](#)
- [XMetal<sup>ii</sup>](#)
- [ArborText Editor<sup>iii</sup>](#)
- [XML Spy<sup>iv</sup>](#)

For a more complete list, refer to the [DocBookTools wiki<sup>v</sup>](#).

## Pro's & Con's

In addition to its features, the open source (i.e. free) nature of DocBook is one reason to choose DocBook over other methodologies. And the fact that DocBook is actively-used by many companies is another reason - DocBook's maturity has allowed it to solidly permeate the software industry.

But DocBook's age, and SGML roots, could argue against as well. Complaints reference usability issues such as slow compiling and cumbersome tag structure. These stem from DocBook's complexity and lack of modularity, which could trace back to its history. DocBook was first designed when content management was a brand new concept - and efficiencies that we take for granted today may have been unknown!

Whether age is a "pro" or a "con" though, DocBook is still just a teenager compared to my next methodology...

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## **MIL-PRF-49506**

MIL-PRF-49506 is a Department of Defense (DOD) performance specification for logistics management information (LMI). It defines the types of and organization of data that must accompany military equipment deliverables. This spec has no direct relation to XML or other markup languages, although several software programs can now export LMI data in XML format.

### **History**

MIL-PRF-49506 originated over thirty years ago as a different military standard, which was revised twice before it was superseded. According to Sciaroni, MIL-STD-1388-2 was originally published in 1973, revised as MIL-STD-1388-2A in 1984, then revised as MIL-STD-1388-2B in 1991 (5). As noted within the standard itself, MIL-STD-1388-2B (and earlier versions, presumably) was prepared jointly by the military services, the FAA, and representatives of "private industry" (iii).

In 1996, MIL-STD-1388-2B was cancelled and replaced by MIL-PRF-49506, prepared by the "Joint Services Technical Working Group under the direction of the Office of the Deputy Undersecretary of Defense for Logistics" (LMI Homepage). MIL-PRF-49506, at 80 pages versus 630, is greatly streamlined, spelling out only essential details.

But, despite its cancellation ten years ago, MIL-STD-1388-2B seems to be more commonly referenced, based on web searches, and appears to be used synonymously with MIL-PRF-49506.

### **Features**

To ensure that delivered LMI provides "sufficient detail to allow for program decision making, assessing program status, planning, and ultimately item sustainment" (4), the MIL-PRF-49506 spec features three major definitions:

- Key terms associated with Logistics Management Information (LMI) data.

For example, the spec defines a "part" as "One piece, or more than one piece joined together, which are not normally subject to disassembly without destruction or impairment of designed use" and further defines "repair part" and "attaching part" (5).

- Content and detail level of summary reports.

Summary reports provide information about maintenance and repair planning, personnel and training, and other logistical topics (8-11).

- Level of detail and formats of data products.

For example, an allowance item code consists of two characters and consists of two subfields with directly-related values (15-18).

### Markup & Medium

MIL-PRF-49506 itemizes a set of data fields, but does not specify a particular delivery method (1). In the past, such as when I worked for Northrop Grumman in the early 1990s, logistics data was entered and tracked with in-house databases such as SLIC 2B, but provided to the military customer as hardcopy reports due to data incompatibility issues. Nowadays, several software applications (see next section) apply XML tagging to stored data, which enables the contractor to deliver data directly to DOD databases:

"The DOD has a number of standard data systems for wholesale materiel management which require data in a specific format. The contractor may interface directly with the customer data systems." (4)

### Supporting Software

Several software products have database schemas that match MIL-PRF-49506 and MIL-STD-1388-2B data specifications with front-end graphical user interfaces that promote accurate classification of information. In addition, many of these products allow data to be exported in XML format, eliminating the need for expensive hardcopy deliverables. Here are some examples:

- [PowerLOG Logistics Support Data System](#)<sup>vi</sup>
- [SLICwave™](#)<sup>vii</sup>
- [Enhanced Automated Graphical Logistics Environment \(EAGLE™\)](#)<sup>viii</sup>

### Pro's & Con's

A positive characteristic of MIL-PRF-49506 is that the organizational design work is already done. Data definitions are pre-defined, saving users the time and effort of developing their own. On the downside, if a company has its own proprietary LMI standards, it would have to adapt them to MIL-PRF-49506 before entering the arena of U.S. military contracting.

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## Conclusion

Even though most of today's information is managed and communicated with computers, the field of information architecture - and its methodologies - relate to the information itself, not the technological platform on which the information sits.

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