
DataFax and XML: Has the Time Come?

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What Is XML?

- Extensible Markup Language
- A method for describing and exchanging data (in XML documents)
- Open-text based <TAG> language
- Extensible
 - define new tags
 - re-purpose existing tags
- Defines the concept of well-formedness
- Unambiguous

What Is XML?

- Gives physical and logical structure to heirarchical data
- Human readable!

This Is XML

```
<?xml version='1.0'?>
<FAMILY>
  <PARENT sex='male'>
    <FIRSTNAME>Eric</FIRSTNAME>
    <AGE>37</AGE>
  </PARENT>
  <PARENT sex='female'>
    <FIRSTNAME>Jackie</FIRSTNAME>
  </PARENT>
  <CHILD sex='female'>
    <FIRSTNAME>Madeleine</FIRSTNAME>
    <AGE>2</AGE>
    <WEIGHT units='lbs'>30</WEIGHT>
  </CHILD>
</FAMILY>
```

Why Not HTML?

- HTML provides a universal method for displaying data
- XML provides a universal method for describing data
 - separation of content from format
- HTML has 'problems'
 - it is not 'well-formed'
 - browsers allow/correct/compensate for document errors -> slower parsing, 'fatter' browser, shaky compatibility

This Is HTML

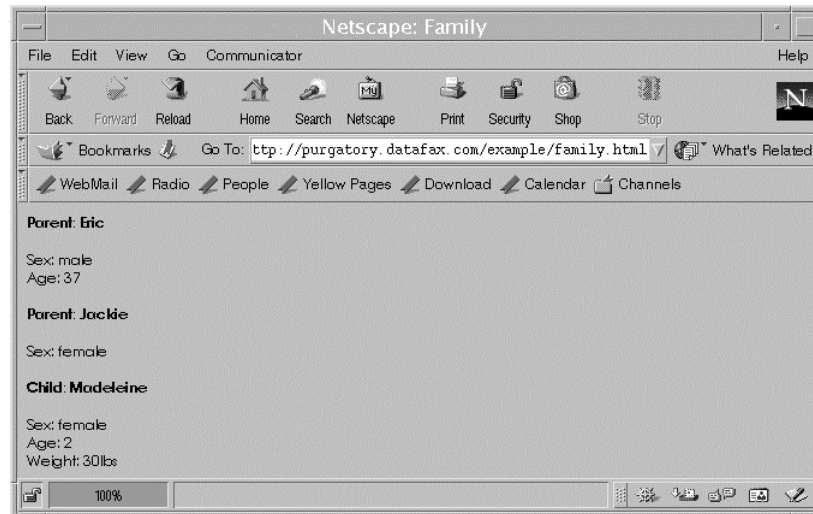
Yuck

```
<HTML>
<HEAD>
<TITLE>Family</TITLE>
</HEAD>
<BODY>
<H2>Parent: <B>Eric</B></H2>
<DIV>Sex: male</DIV>
<DIV>Age: 37
<H2>Parent: <B>Jackie</B></H2>
<DIV>Sex: female</DIV>
<H3>Child: <B>Madeleine</B></H3>
<DIV>Sex: female</DIV>
<DIV>Age: 2</DIV>
<DIV>Weight: 30lbs</DIV>
</BODY>
</HTML>
```

Yum

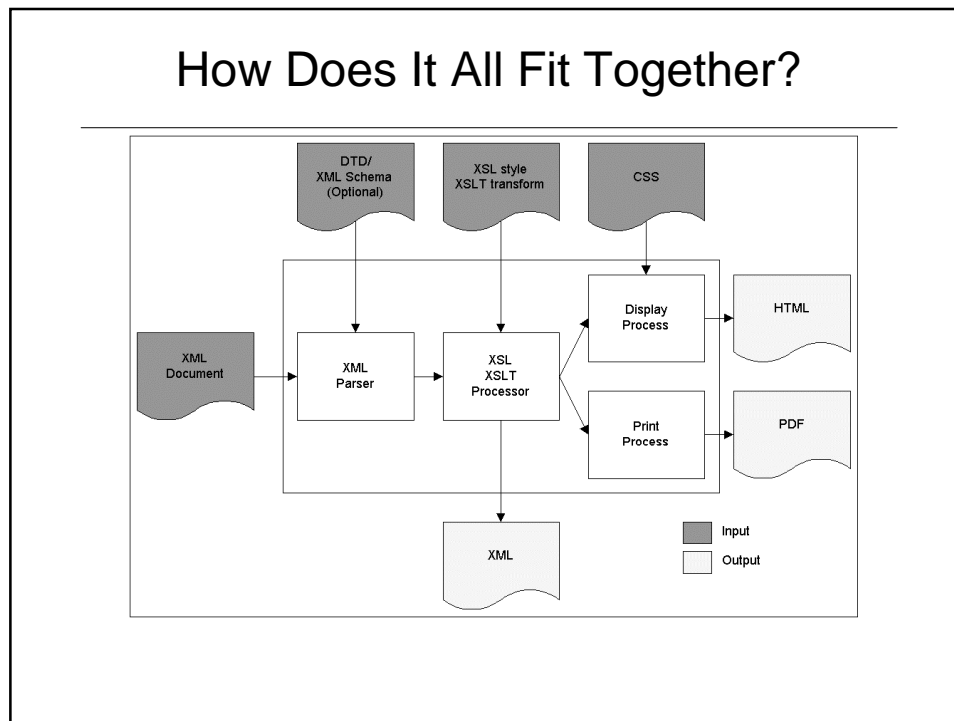
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<?xml version='1.0'?>
<FAMILY>
  <PARENT sex='male'>
    <FIRSTNAME>Eric</FIRSTNAME>
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  </PARENT>
  <PARENT sex='female'>
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  </PARENT>
  <CHILD sex='female'>
    <FIRSTNAME>Madeleine</FIRSTNAME>
    <AGE>2</AGE>
    <WEIGHT units='lbs'>30</WEIGHT>
  </CHILD>
</FAMILY>
```

This Is HTML



There Must Be More

-
- Input**
- DTD – document type definition
 - XML Schema - constraints/semantics
- Output**
- CSS/XSL – format document
 - XSLT – transform document
 - XPath – document addressing
 - FOP – flow objects (PDF!)
 - XLink – assert relationships



XSL(T) In Action

- List all first names
`//FIRSTNAME`
- List first names of all female children
`//CHILD[@sex='female']/FIRSTNAME`
- List sex of all family members over 30
`//@sex[../AGE > '30']`
- Transformation can occur at the server or the client!

Implementation Status

- XML
 - V 1.0 became a W3C recommendation 02/98
 - <http://www.w3.org/TR/REC-xml>
- XSL, XSLT and XPath
 - V 1.0 became W3C recommendation 11/99
 - <http://www.w3.org/TR/xslt>

A Recommendation is work that represents consensus within W3C and has the Director's stamp of approval. W3C considers that the ideas or technology specified by a Recommendation are appropriate for widespread deployment and promote W3C's mission.

XML/XSL in Industry

- Oracle
 - XML parser, Oracle 8i, XSQL
- Microsoft
 - Internet Explorer 5+, Office 2000
- Sun
 - Java Beans, JDBC, Java Server Pages
- IBM
 - XML parser, XML editor, XSL processor
- Apache Software Foundation
 - xml.apache.org

+It's All Free!

+Too Many More To List!

XML In The CDISC Initiative

- **Data Interchange and Archival Standards Group**
 - *develop a set of technical requirements for an industry standard for data interchange and archival of electronic data (supporting data acquisition)*
 - *compile a set of requirements for data interchange specific to medical and biopharmaceutical product development companies*
 - *propose a set of recommendations with a goal to present an initial standard by the first quarter of 2000.*
- www.diahome.org/cdisc

XML In DataFax

- Use XML as a delivery language for all currently available DataFax study information
- Allow user control over filtering, sorting, and formatting
- Use XML as a storage language where it makes sense and is efficient

Some DataFax Examples

- Centers Database
- DF_PTlist output
- DF_SSschema output
- Reports Tool
- Batch Edit Checks Log

Implementation Priorities

- Reports Output
- Study Setup Files
- All Documentation
- XML-based help extracted from documentation
- Data Interchange

Early Access Program

- Serve XML study reports output
- Requirements
 - Apache Web Server
 - Java 1.2
 - Apache JServ

For More Information

- www.w3.org/XML
- metalab.unc.edu/xml
- www.oasis-open.org/cover
- www.xmlinfo.com, www.xslinfo.com
- www.xml.org
- msdn.microsoft.com/xml/default.asp
- www.oracle.com/xml
- www.ibm.com/developer/xml

Too Many More To List!

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