

# eXtensible Markup Language (XML)

## XML InfoSet, XML Serialization, Namespaces, DOM, XML Schemas (XSD), XPath, XSLT, XML in App Design

XML is well supported on all technology platforms by many editors, tools and framework vendors. As it has proven its worth in the field, it has become a highly desirable feature to leverage in applications. Hence it is now a mandatory part of the skills set for modern software developers. The W3C has defined a cohesive series of XML standards, covering core information modeling, how data is to be serialized, a Document Object Model defining a programmatic API, how data is transformed and many more standards. XML has become the foundation for whole swathes of functionality in various computing environments.

Document file formats (such as ODF and Office Open XML) have standardized on XML. Many vertical industries (e.g. <http://startndc.iata.org/> or <http://hropenstandards.org>) have defined custom XML schemas. Data exchange is exploiting it. Data delivery over the Internet is using it.

There are three reasons you will benefit from attending this training course. Firstly, you will learn what the XML data format is and its associated standards. Secondly, you will see how to integrate it with your own code. Thirdly, you will explore how XML can help you with app design.

<b>Contents of One-Day Training Course</b>		
<p><b>Target Audience</b> This training course targets component and web developers who need to know what XML is, how to program it and design support for it into their applications and web services</p> <p><b>Prerequisites</b> Understanding of document and data storage needs, along with experience of Internet programming</p>	<p><b>XML Overview</b> XML is a metalanguage for describing other data languages Representing data with markup Developer resources</p> <p><b>The W3C XML Standards</b> What are in the standards Layering Introduction to each standard</p> <p><b>The XML Information Set</b> Abstract description Information items Strict rules of XML</p> <p><b>XML Serialization Standards</b> The fundamental XML structure is a tree Each node in tree has a name, attributes &amp; can be a parent of other defined nodes</p> <p><b>Namespaces</b> Avoiding tag ambiguity when using multiple XML schemas Unique identifiers Namespace aliases</p> <p><b>XML Structure</b> Defining what is permissible in XML Logical structure of information Valid &amp; well-formed XML</p> <p><b>XML Schemas</b> Describing metadata using XML Defining schemas Type system – simple and complex Lexical space, value space and facets Modularization Schema Usage</p>	<p><b>W3C XML DOM</b> A Document Object Model for XML Programmatic Navigation Hierarchy of nodes Fundamental &amp; extended DOM interfaces Alternative: treating XML content as a stream - push (SAX) and pull (.NET)</p> <p><b>XPath</b> Identifying sub-sections of the XML tree XSL pattern matching</p> <p><b>XSLT</b> Extensible Style Language Transforms Transformations for display and into other data descriptions</p> <p><b>Additional Standards</b> XML Base XPointer / XLink XML Query XML &amp; Security</p> <p><b>XML-Based Markup Languages</b> Every industry needs to describe different data and hence need a different schema It is not feasible to have a single complete data description</p> <p><b>XML in Application Design</b> How to design for XML Creating a XML-based data format and programmatically loading and saving it</p> <p><b>Project</b> Case study showing the creation of a complex XML schema, its use within an app for data storage and exchange, and web delivery of data to a browser</p>