
Preface

The emerging Second-Generation Web is based entirely on XML and related technologies. It is intended to result in the creation of the Semantic Web, on which computers will be able to deal with the meaning (“semantics”) of Web data and hence to process them in a more effective and autonomous way. This new version of the Web introduces a multitude of novel concepts, terms, and acronyms.

Purpose, Scope and Methods

This dictionary is an effort to specify the terminological basis of emerging XML and Semantic Web technologies. The ultimate goal of this dictionary is even broader than just to define the meaning of new words – it aims to develop a proper understanding of these leading-edge technologies. To achieve this, comprehensible definitions of technical terms are supported by numerous diagrams and code snippets, clearly annotated and explained.

The main areas covered in this dictionary are: (1) XML syntax and core technologies, such as Namespaces, Infoset and XML Schema; (2) all the major members of the XML family of technologies, such as XSLT, XPath and XLink; (3) numerous XML-based domain-specific languages, such as NewsML (News Markup Language); (4) the concept and architecture of the Semantic Web; (5) key Semantic Web technologies, such as RDF (Resource Description Framework), RDF Schema and OWL (Web Ontology Language); and (6) Web services, including WSDL (Web Services Description Language) and SOAP (Simple Object Access Protocol).

Some areas are not included in this edition of the dictionary, but they are planned to be covered in its next editions. These areas are: (1) software for editing and processing XML documents and data; (2) programming languages that can be used with XML, such as Java, Perl and ActionScript; (3) the historical aspect of the XML-related technologies; (4) the theoretical, philosophical and interdisciplinary foundations of the Semantic Web; (5) XML databases; and (6) XML-based multimedia in detail.

A variety of sources have been used to produce this dictionary. The major ones include: (1) the latest specifications published by the W3C and other organizations; (2) authoritative books, research articles and conference proceedings; and (3) online information, especially the Web sites of domain-specific markup languages.

The production of this dictionary was not only the process of “compiling” different sources; a unique research-based approach has been taken, which includes the use of a set of methods from the methodology of science, such as conceptual, logical and methodological analysis and synthesis.

The area covered in this dictionary is under extremely rapid development. This means that it is rather unstable and fluid. To try to conceptualize it in a dictionary is a really hard task. On the other hand, such conceptualization is apparently greatly needed for such a fast-moving area. The dictionary is intended to include the terms and concepts which seem to be the most stable and which would be unlikely to be changed in the very near future. The choice of such terms was not an easy job, and was based partly on logic and partly on intuition. Notice, however, that it is always a good idea to check for the latest specifications and news available on the Web sites listed in Appendix A and in appropriate entries.

Features and Organization of the Dictionary

The dictionary includes over 1,800 terms and definitions from a newly emerging area and also 264 illustrations to promote an understanding of the latest technologies. Clear and accessible definitions and a unique writing style bridge the gap between definition and explanation. Extensive cross-referencing of terms and a CD-ROM containing a fully searchable version of the dictionary make it easy to read and navigate.

The organization of the dictionary is intended to be clear and self-explanatory. Entries in the dictionary are of two types:

1. Main entries that contain full definitions. Their entry names are mostly in the format *acronym (full name)* and look like this:

XML (Extensible Markup Language)

2. Synonymous cross-references, which contain *See* references to appropriate main entries and look like this:

Extensible Markup Language *See* XML.

The dictionary uses the following types of references and cross-references:

- All capitalized words and acronyms in a sans serif font are references that point to appropriate main entries, for example: XML, UNABBREVIATED SYNTAX, XML-BASED MARKUP LANGUAGE.
- Many entries include references to online resources that offer additional or more detailed information about a topic, for example: “For more details, see <http://www.w3.org/>”.
- *See* – A cross-reference that points to the main entry.
- *See also* – A cross-reference that is used to point to one or more main entries that contain some additional or supplementary information about a topic.
- *Contrast* – A cross-reference to another main entry that has a clearly apposite usage or meaning.
- *Compare* – A cross-reference to another main entry that is worth comparing with the current entry.

CD-ROM

The dictionary has an accompanying CD-ROM that contains a *searchable* version of the dictionary in PDF format. Clicking on any cross-references in the PDF file will take you straight to the referenced entry. The Adobe Reader can be downloaded free of charge from the Adobe Web site at <http://www.adobe.com/>.

Review Process

The choice of terms and, in many cases, the content of the Dictionary has been carefully checked by a distinguished board of experts to ensure that there are no glaring omissions. A list containing the names and short biographies of the members of the Technical Advisory Board can be found following this preface.

Acknowledgements

First of all, I would like to thank the members of the Advisory Board for helping me to make the dictionary much better. I would also like to express very special thanks to the team at Springer London Ltd, including Beverly Ford (Editorial Director) and Rebecca Mowat (Assistant Editor – Computing Science).

Trademarks

Some of the words used in this dictionary are registered trademarks. There was no attempt made to determine and report their legal status. For further information about any product name, consult the manufacturer's literature. Use of a word in this dictionary should not be regarded as affecting the validity of any trademark.

Future Editions

Although I have done my best to make this first edition of the dictionary as complete and error-free as possible, there is no doubt plenty of room for improvement. If you have an idea about a missing entry or find an error, please email me at vgeroimenko@plymouth.ac.uk.



<http://www.springer.com/978-1-85233-768-1>

Dictionary of XML Technologies and the Semantic Web

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2004, XIII, 248 p. With CD-ROM., Hardcover

ISBN: 978-1-85233-768-1