# Review R: Introduction

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# 1 Introduction

The Darwin Information Typing Architecture (DITA) specification defines a set of document types for authoring and aggregating topic-oriented information, as well as a set of mechanisms for combining, extending, and constraining document types.

## 1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT, "RECOMMEND", "MAY", and "OPTIONAL" in this document are to be interpreted as described in **[RFC 2119]** and **[RFC8174]** when, and only when, they appear in all capitals, as shown here.

The DITA specification uses `<keyword>` elements with the `@outputclass` attribute set to "RFC-2119" for these key words. In general, normative statements that use such key words pertain to what is needed for interoperability.

These key words are rendered with bold formatting. These normative statements are indicated visually in the rendered specification by blue lines at the left and right of the statement:

> **Comment by Bill Burns**
> I don't think "these" adds anything in the paragraph above, and it seems repetitive.
>
> ---
>
> Kris Eberlein, 27 September 2022
>
> I agree. I've changed the text to the following:
>
> "The RFC-2119 key words are rendered with bold formatting. The normative statements …"
>
> **Disposition: Completed**

004 (417)    If the root element of a map or a top-level topic has no value for the `@xml:lang` attribute, a processor **SHOULD** assume a default value. The default value of the processor can be either fixed, configurable, or derived from the content itself, such as the `@xml:lang` attribute on the root map.

In addition, a hyperlink is rendered to the left of the statement that contains the normative term. The link is to a generated appendix that groups all the normative statements that appear in the specification.

## 1.2 References

This section contains the normative and informative references that are used in this document.

While any hyperlinks included in this section were valid at the time of publication, OASIS cannot guarantee their long-term validity.

### 1.2.1 Normative references

The following documents are referenced in such a way that some or all of their content constitutes requirements of this document.

**[RFC 2119]**
Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <http://www.rfc-editor.org/info/rfc2119>.

**[RFC 3986]**

Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, DOI 10.17487/RFC3986, January 2005, <http://www.rfc-editor.org/info/rfc3986>.

**[RFC 5646]**

Phillips, A., Ed., and M. Davis, Ed., "Tags for Identifying Languages", BCP 47, RFC 5646, DOI 10.17487/RFC5646, September 2009, <http://www.rfc-editor.org/info/rfc5646>.

**[RFC8174]**

Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <http://www.rfc-editor.org/info/rfc8174>.

**[XML 1.0]**

*Extensible Markup Language (XML) 1.0 (Fifth Edition)*, T Bray, J. Paoli, M. E. Maler, F. Yergeau, Editors, W3C Recommendation, 26 November 2008, http://www.w3.org/TR/2008/REC-xml-20081126/. Latest version available at http://www.w3.org/TR/xml.

**[XML 1.1]**

*Extensible Markup Language (XML) 1.1 (Second Edition)*, T. Bray, J. Paoli, M. E. Maler, F. Yergeau, J. Cowan, Editors, W3C Recommendation, 16 August 2006, http://www.w3.org/TR/2006/REC-xml11-20060816/. Latest version available at http://www.w3.org/TR/xml11/.

## 1.2.2 Informative references

The following referenced documents are not required for the application of this document but might assist the reader with regard to a particular subject area.

**[ANSI Z535.6]**

*Product Safety Information in Product Manuals, Instructions And Other Collateral Materials*, https://webstore.ansi.org/Standards/NEMA/ansiz5352011r2017-1668876.

**[HTML5]**

*HTML 5*, Living Standard, https://html.spec.whatwg.org/.

**[ISO 8601]**

ISO/TC 154, *Data elements and interchange formats—Information interchange—Representation of dates and times*, 3rd edition, http://www.iso.org/iso/catalogue_detail?csnumber=40874, 12 December 2004.

**[ISO/IEC 19757-3]**

ISO/IEC JTC 1/SC 34 Document description and processing languages, *Information technology— Document Schema Definition Languages (DSDL)—Part 3: Rule-based validation—Schematron*, http://www.iso.org/iso/catalogue_detail.htm?csnumber=40833, 1 June 2006.

**[Namespaces in XML 1.0]**

*Namespaces in XML 1.0 (Third Edition)*, T. Bray, D. Hollander, A. Layman, R. Tobin, H. S. Thompson, Editors, W3C Recommendation, 8 December 2009, http://www.w3.org/TR/2009/REC-xml-names-20091208/. Latest version available at http://www.w3.org/TR/xml-names.

**[Namespaces in XML 1.1]**

*Namespaces in XML 1.1 (Second Edition)*, T. Bray, D. Hollander, A. Layman, R. Tobin, Editors, W3C Recommendation, 16 August 2006, http://www.w3.org/TR/2006/REC-xml-names11-20060816/. Latest version available at http://www.w3.org/TR/xml-names11/.

**[OASIS Table Model]**

*XML Exchange Table Model Document Type Definition*. Edited by Norman Walsh, 1999. Technical Memorandum TR 9901:1999. https://www.oasis-open.org/specs/tm9901.htm.

**[RELAX NG]**
J. Clark and M. Murata, editors, *RELAX NG Specification*, http://www.oasis-open.org/committees/relax-ng/spec-20011203.html, OASIS Committee Specification, 3 December 2001.

**[RELAX NG Compact Syntax]**
J. Clark, editor, *RELAX NG Compact Syntax*, http://www.oasis-open.org/committees/relax-ng/compact-20021121.html, OASIS Committee Specification, 21 November 2002.

**[RELAX NG DTD Compatibility]**
J. Clark and M. Murata, editors, *RELAX NG DTD Compatibility*, http://www.oasis-open.org/committees/relax-ng/compatibility-20011203.html, OASIS Committee Specification, 3 December 2001.

**[SVG 1.1]**
*Scalable Vector Graphics (SVG) Version 1.1 (Second) Edition)*, E. Dahlstrom, P. Dengler, A. Grasso, C. Lilley, C. McCormack, D. Schepers, J. Watt, Editors, W3C Recommendation, 16 August 2011, https://www.w3.org/TR/SVG11/.

**[Unicode BiDi]**
*Unicode Bidirectional Algorithm*, M. Davis, A. Lanin, A. Glass, Editors, Unicode Technical Report, 27 August 2021, https://www.unicode.org/reports/tr9/.

**[WCAG 2.1]**
*Web Content Accessibility Guidelines (WCAG) Version 2.1*, A. Kirkpatrick, J. O Connor, A. Campbell, M. Cooper, Editors, W3C Recommendation, 05 June 2018, https://www.w3.org/TR/WCAG21/.

**[XHTML 1.0]**
*XHTML™ 1.0 The Extensible HyperText Markup Language (Second Edition)*, S. Pemberton, Editor, W3C Recommendation, 1 August 2002, http://www.w3.org/TR/2002/REC-xhtml1-20020801. Latest version available at http://www.w3.org/TR/xhtml1.

**[XHTML 1.1]**
*XHTML™ 1.1 – Module-based XHTML – Second Edition*, S. McCarron, M. Ishikawa, Editors, W3C Recommendation, 23 November 2010, http://www.w3.org/TR/2010/REC-xhtml11-20101123. Latest version available at http://www.w3.org/TR/xhtml11/.

**[XPointer 1.0]**
*XML Pointer Language (XPointer)*, S. J. DeRose, R. Daniel, P. Grosso, E. Maler, J. Marsh, N. Walsh, Editors, W3C Working Draft (work in progress), 16 August 2002, http://www.w3.org/TR/2002/WD-xptr-20020816/. Latest version available at http://www.w3.org/TR/xptr/.

**[XML Catalogs 1.1]**
OASIS Standard, *XML Catalogs Version 1.1*, 7 October 2005, https://www.oasis-open.org/committees/download.php/14809/xml-catalogs.html.

**[xml:tm 1.0]**
A. Zydroń, R. Raya, and B. Bogacki, editors, *XML Text Memory (xml:tm) 1.0 Specification*, http://www.gala-global.org/oscarStandards/xml-tm/, The Localization Industry Standards Association (LISA) xml:tm 1.0, 26 February 2007.

**[XSL 1.0]**
*Extensible Stylesheet Language (XSL) Version 1.0*, S. Adler, A. Berglund, J. S. Deach, T. Graham, P. Grosso, E. Gutentag, A. Milowski, S. Parnell, J. Richman, S. Zilles, Editors, W3C Recommendation, 15 October 2001, http://www.w3.org/TR/2001/REC-xsl-20011015/. Latest version available at http://www.w3.org/TR/xsl/.

**[XSL 1.1]**

*Extensible Stylesheet Language (XSL) Version 1.1*, A. Berglund, Editor, W3C Recommendation, 5 December 2006, http://www.w3.org/TR/2006/REC-xsl11-20061205/. Latest version available at http://www.w3.org/TR/xsl11/.

**[XSLT 2.0]**

*XSL Transformations (XSLT) Version 2.0*, M. Kay, Editor, W3C Recommendation, 23 January 2007, http://www.w3.org/TR/2007/REC-xslt20-20070123/. Latest version available at http://www.w3.org/TR/xslt20.

**[XSLT 3.0]**

*XSL Transformations (XSLT) Version 3.0*, M. Kay, Editor,W3C Recommendation, 8 June 2017, https://www.w3.org/TR/xslt-30/.

**[XTM 1.0]**

S. Pepper and G. Moore, editors, *XML Topic Maps (XTM) 1.0*, http://www.topicmaps.org/xtm/index.html, TopicMaps.Org XTM 1.0, 2001.

## 1.3 Normative versions of DITA grammar files

DITA document types and vocabulary modules can be constructed using several XML-document grammar mechanisms. The DITA specification provides coding requirements for DTDs and RNG, and it also includes grammar files that are constructed using those mechanisms. The RNG grammar files are normative.

The DITA Technical Committee chose the RELAX NG XML syntax for the following reasons:

**Easy use of foreign markup**

The DITA grammar files maintained by OASIS depend on this feature of RELAX NG in order to capture metadata about document-type shells and modules.

---

**Comment by Kristen J Eberlein on 21 August 2022**

Do we want to remove the preceding paragraph? While this was true for DITA 1.3, when we were generating DTD and XSD from the RNG grammar files, we hand edited the DTD for DITA 2.0.

---

Eric Sirois

Do we have somewhere else in the spec where we discuss or mention DTD/XSD generation from RNG? Why the metadata? To facilitate the generation of the documentation correct? If so, maybe specifically mention to help creation of the content model documentation. I know one group had created RNG representation of their specialization.

---

Kris Eberlein, 26 September 2022

We have at least one other place where we talk about generating DTD/XSD from RNG. In "C.3 RELAX NG coding requirements," we warn people against using RNG features that don't translate into DTD/XSD:

"If you plan to generate DTD- or XSD-based modules from RELAX NG modules, avoid RELAX NG features that cannot be translated into DTD or XSD constructs. Such features include lexical patterns for attributes and elements, interleave patterns, and context-specific patterns for content models or attribute lists."

Regarding the metadata: For DITA 1.3, when we generating the DTD and XSD from the RNG, we used "foreign markup" in the RNG in order to provide file names, public identifiers/URNs, and other necessary metadata.

> @Eliot, what are your thoughts about my original draft comment?
>
> **Disposition: Unassigned**

The foreign vocabulary feature can also be used to include Schematron rules directly in RELAX NG grammars. Schematron rules can check for patterns that either are not expressible with RELAX NG directly or that would be difficult to express.

**RELAX NG <div> element**

This general grouping element allows for arbitrary organization and grouping of patterns within grammar documents. Such grouping tends to make the grammar documents easier to work with, especially in XML-aware editors.

**Capability of expressing precise restrictions**

RELAX NG is capable of expressing constraints that are more precise than is possible with DTDs. For example, RELAX NG patterns can be context specific such that the same element type can allow different content or attributes in different contexts. However, the grammar files that are provided by the OASIS DITA Technical Committee do not use any features of RELAX NG that cannot be translated into equivalent DTD constructs.

The DITA use of RELAX NG depends on the *RELAX NG DTD Compatibility* specification, which provides a mechanism for defining default-attribute values and embedded documentation. Processors that use RELAX NG for DITA documents in which required attributes (for example, the `@class` attribute) are not explicitly present must implement the DTD compatibility specification in order to get default attribute values.

## 1.4 Formatting conventions in the HTML5 version of the specification

Given the size and complexity of the specification, it is not generated as a single HTML5 file. Instead, each DITA topic is rendered as a separate HTML5 file.

The HTML5 version of the specification uses certain formatting conventions to aid readers in navigating through the specification and locating material easily: Link previews and navigation links.

### 1.4.1 Link previews

The DITA specification uses the content of the DITA `<shortdesc>` element to provide link previews for its readers. These link previews are visually highlighted by a colored background.

The link previews serve as enhanced navigation aids, enabling readers to more easily locate content. This usability enhancement is one of the ways in which the specification illustrates the capabilities of DITA and exemplifies DITA best practices.

The following screen capture illustrates how link previews are displayed in the HTML5 version of the specification:

**Figure 1: Link previews**
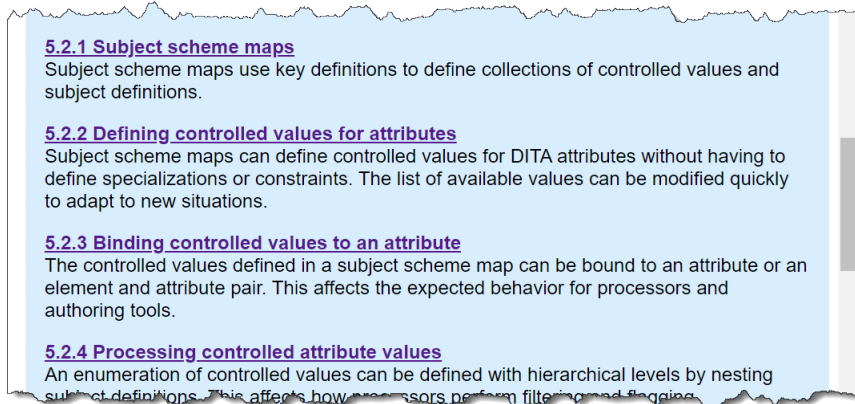


## 1.4.2 Navigation links

To ease readers in navigating from one topic to another, each HTML5 file generated by a DITA topic contains navigation links at the bottom.

**Parent topic**
> Takes readers to the parent topic, which is the topic referenced by the closest topic in the containment hierarchy

**Previous topic**
> Takes readers to the previous topic in the reading sequence
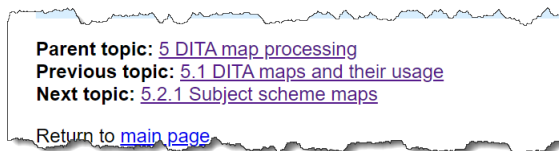
**Next topic**
> Takes readers to the next topic in the reading sequence

**Return to main page**
> Takes readers to the place in the table of contents for the current topic in the reading sequence

The following screen capture illustrates how navigation links are displayed in the HTML5 version of the specification:

**Figure 2: Navigation links**



When readers hover over the navigation links, the short description of the DITA topic is also displayed.

## 1.5 About the specification source

The DITA specification is authored in DITA. It is a complex document that uses many DITA features, including key references (keyrefs), content references (conrefs), and controlled values set in a subject scheme map.

The source files for the DITA specification are managed in a GitHub repository that is maintained by OASIS; they also can be downloaded from OASIS.

The DITA Technical Committee used the following applications to work with the DITA source:

- Antenna House Formatter
- DITA Open Toolkit
- Congility Content Server
- Oxygen Content Fusion
- Oxygen XML Editor
-
  **Comment by Eric Sirois**
  Do we still use XMetal?

  Kris Eberlein, 26 September 2022

  I don't know if anyone does currently, but Tom Magliery certainly did and he was actively doing some DITA 2.0 editing before he left JustSystems and the TC.

  **Disposition: Closed**

  XMetaL Author Enterprise

# A Aggregated RFC-2119 statements

This appendix contains all the normative statements from the DITA 2.0 specification. They are aggregated here for convenience in this non-normative appendix.

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