



# Document Markup Language (DML) Specification 1.0

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## Abstract

This specification defines the Document Markup Language (DML), a markup language for books, articles, notes and other types of document. DML is normatively available as a [RELAX NG](#) (Appendix A, pg. 35) schema with additional [Schematron](#) (Appendix A, pg. 35) assertions.



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# 1. Introduction

DML is a general-purpose XML schema, particularly well suited to books, articles and annotations in other XML sources.

DML is normatively available as a [RELAX NG](#) (Appendix A, pg. 35) schema with additional [Schematron](#) (Appendix A, pg. 35) assertions to cover all missing cases.

DML is a simple set of elements and attributes which define the basic semantics for a generic document. It is designed keeping in mind that all specialization may be defined through a scoped XML schema. For example, to mark up code it may be used the [Programming Markup Language](#) (Appendix A, pg. 36).

The *metadata model* use a set of [metadata attributes](#) (Section 4, pg. 22) which are originally defined in [RDFa Syntax](#) (Appendix A, pg. 35) from W3C.

This specification has a style and nomenclature [conventions](#) (Appendix B, pg. 36) to simplify the reading process.

## 1.1. Namespace

The *DML namespace* has the URI "<http://purl.oclc.org/NET/dml/1.0/>". It is usually associated with the "[dml](#)" prefix.

## 1.2. Status of this document

This is a *draft* and it may change at any time based on comments and on its development process.

Use the [DML-discuss mailing list](#) (Appendix A, pg. 36) to discuss and learn about Document Markup Language.

## 1.3. Acknowledgments

Many people has helped to realise this document. Some of them in no particular order are: Àlex Royo, Ferran Cases, Alejandro Gonzalo Bravo, David Rodríguez, Choan Gálvez, Tatiana Ledesma, Iu Siches, Oscar Sanchez Casamitjana and Carolina Figueroa.

# 2. Elements

## 2.1. The `abbr` element

The `abbr` element represents an abbreviation or acronym.

- Children

```
( em | metadata | object | quote | span | sub | sup | text() )+
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
(  
  cell | citation | em | example | item | metadata | note | object |  
  p | quote | span | sub | summary | sup | title  
)
```

The `@content` attribute (Section 4.2, pg. 22) *may* be used to provide an expansion of the abbreviation.

The `@about` attribute (Section 4.1, pg. 22) *may* be used to provide a resource which contains the expanded form.

`@content` and `@about` attributes are mutually exclusive.

**Example 2.1-1:** `abbr` element with inline expansion

---

`<p>Example of <abbr content="Document Markup Language">DML</abbr>'s abbr element.</p>`

---

### Example 2.1-2: `abbr` element with remote expansion

---

`<p>Example of <abbr about="http://example.org/glossary#dml">DML</abbr>'s abbr element.</p>`

---

## 2.2. The `cell` element

The `cell` element represents a table data container.

- Children

```
(  
  (  
    example | list | metadata | note | object | p | quote  
  )+ | (  
    abbr | em | metadata | object | quote | span | sub | sup | text()  
  )+  
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
( group )
```

## 2.3. The `citation` element

The `citation` element represents a citation reference of a quotation block.

- Children

```
( abbr | em | metadata | object | quote | span | sub | sup | text() )+
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
( quote )
```

## 2.4. The `dml` element

The `dml` element is the root element for a DML document.

- Children

```
(  
  title,  
  ( example | figure | list | metadata | note | object | p | quote | table )*,  
  section*  
)
```

- Attributes

```
( $core.attrs* )
```

---

### Example 2.4-1: Simple DML document

```
<dml xmlns="http://purl.oclc.org/NET/dml/1.0/">  
  <title>Simple DML document</title>  
  <p>Lorem ipsum dolor sit amet...</p>  
</dml>
```

---

---

### Example 2.4-2: DML document with metadata

```
<dml xmlns="http://purl.oclc.org/NET/dml/1.0/"  
  xmlns:dct="http://purl.org/dc/terms/">  
  <title>DML document</title>  
  <metadata about="">  
    <list>  
      <item property="dct:creator">Arnau Siches</item>  
      <item property="dct:created">2009-01-02</item>  
    </list>  
  </metadata>  
  <p>Lorem ipsum dolor sit amet...</p>  
</dml>
```

---

## 2.5. The `em` element

The `em` element represents an emphasized text.

- Children

```
( abbr | em | metadata | object | quote | span | sub | sup | text() )+
```

- Attributes

( *\$core.attrs\** | *\$meta.attrs\** | @role? )

- Parents

(  
abbr | cell | citation | em | example | item | metadata | note |  
object | p | quote | span | sub | summary | sup | title  
)

The @role attribute *may* be used to provide strong emphasized text with "strong" value.

---

**Example 2.5-1:** Usage of em element

---

```
<p>  
  <em>Lorem ipsum</em> dolor sit amet, consectetur adipisicing elit, sed do <em  
  role="strong">eiusmod tempor incididunt ut labore</em> et dolore magna aliqua.  
</p>
```

---

## 2.6. The example element

The example element represents an example.

- Children

(  
title?,  
( figure | list | metadata | note | object | p | quote | table )+  
)

- Attributes

( *\$core.attrs\** | *\$meta.attrs\** )

- Parents

( dml | note | section )

---

**Example 2.6-1:** Usage of example element

---

```
<example xml:id="example-identifier">  
  <title>Title of the Lorem Ipsum example</title>  
  <p>Lorem ipsum dolor sit amet...</p>  
</example>
```

---

## 2.7. The `figure` element

The `figure` element is a figure container; it usually contains an illustration or something to be shown graphically.

- Children

```
(  
  title?,  
  ( list | metadata | note | object | p | quote | table )+  
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
( dml | example | note | section | item | cell )
```

---

### Example 2.7-1: Usage of `figure` element

---

```
<figure xml:id="figure-identifier">  
  <title>It shown an illustration through a figure element</title>  
  <object src="path/to/illustration"/>  
</figure>
```

---

## 2.8. The `group` element

The `group` element represents a generic table cell container.

- Children

```
( group+ | title+ | ( title?, cell+ ) )
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @role? )
```

- Parents

```
( group | table )
```

The `@role` attribute *may* be used to provide a form to refine the `group` element meaning. Allowed values are:



- `"header"`  
A header table group. Table header *must* be the first child of a `table` element.
- `"footer"`  
A footer table group. Table footer *must* be child of a `table` element.

## 2.9. The `item` element

The `item` element represents a list item container.

- Children

```
(  
  (  
    title*,  
    ( figure | list | metadata | note | object | p | quote | table )+  
  ) | (  
    abbr | em | metadata | object | quote | span | sub | sup | text()  
  )+  
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
( list )
```

## 2.10. The `list` element

The `list` element represents a list of items.

- Children

```
( title?, item+ )
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @role? )
```

- Parents

```
( cell | dml | example | figure | metadata | note | object | quote | section )
```

The `@role` attribute *may* be used to define an ordered list with `"ordered"` value.

---

**Example 2.10-1:** Simple list

---

```
<list>
  <item>sugar</item>
  <item>salt</item>
  <item>pepper</item>
</list>
```

---

---

**Example 2.10-2:** Ordered list

---

```
<list role="ordered">
  <item>first</item>
  <item>second</item>
  <item>third</item>
</list>
```

---

---

**Example 2.10-3:** List with title

---

```
<list>
  <title>List title</title>
  <item>first</item>
  <item>second</item>
  <item>third</item>
</list>
```

---

---

**Example 2.10-4:** Definition list

---

```
<list>
  <item>
    <title>Dweeb</title>
    <p>Young excitable person who may mature into a Nerd or Geek.</p>
  </item>
  <item>
    <title>Hacker</title>
    <p>A clever programmer.</p>
  </item>
  <item>
    <title>Nerd</title>
    <p>Technically bright but socially inept person.</p>
  </item>
</list>
```

---

---

**Example 2.10-5:** Definition list with multiple terms and definitions

---

```
<list>
  <item>
    <title>Center</title>
    <title>Centre</title>
    <list>
      <item>A point equidistant from all points on the surface of a
        sphere.</item>
    </list>
  </item>
</list>
```

```
<item>In some field sports, the player who holds the middle position on
the field, court, or forward line.</item>
</list>
</item>
<item>
  <title>Color</title>
  <title>Colour</title>
  <p>The property possessed by an object of producing different sensations on
the eye.</p>
</item>
</list>
```

---

## 2.11. The `metadata` element

The `metadata` element represents a metadata container.

- Children

```
( list | note | p )+ | ( abbr | em | span )+
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
(
  abbr | cell | citation | dml | em | example | figure | item | note |
  object | p | quote | section | span | summary | title
)
```

### Example 2.11-1: Usage of `metadata` element

---

```
<metadata about="#document-id">
  <list>
    <item property="dct:creator">Arnau Siches</item>
    <item property="dct:created">2008-12-29</item>
    <item property="dct:description">
      <p>
        This specification defines the Document Markup Language (DML), a markup
        language for books, articles, documents, notes, etc.
      </p>
    </item>
  </list>
</metadata>
```

---

## 2.12. The `note` element

The `note` element represents a generic document note or annotation. It *may* be used as a root element in *DML islands* in non-DML documents.

- Children

```
(  
  title?,  
  (  
    example | figure | list | metadata | object | p | quote | section | table  
  )+  
) | (  
  abbr | em | metadata | object | quote | span | sub | sup | text()  
)+
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @role? )
```

- Parents

```
(  
  cell | dml | example | figure | item | metadata | object | quote | section  
)
```

The `@role` attribute may be used to provide a form to refine the `note` element meaning. Allowed values are:

- `"tip"`  
A suggestion, tip or trick.
- `"warning"`  
An admonition note.
- `"sidebar"`  
A note that is isolated from the main narrative flow.
- `"footnote"`  
A footnote. Footnotes in paged media usually occur at the end of the page that reference it.

---

### Example 2.12-1: Usage of `note` element

---

```
<note>  
  <p>  
    Lorem ipsum dolor sit amet, consectetur adipisicing elit...  
  </p>  
</note>
```

---

**Example 2.12-2:** Usage of `note[@role="footnote"]` element

```
<p>
  Lorem ipsum dolor sit amet, <span href="#a-footnote">consectetur
  adipisicing</span> elit...
</p>
( ... )
<note role="footnote" xml:id="a-footnote">
  <p>
    ...sunt in culpa qui officia deserunt mollit anim id est laborum.
  </p>
</note>
```

## 2.13. The `object` element

The `object` element represents a generic embedded media object like images, videos, audio and other types of multimedia files.

- Children

```
(
  (
    figure | list | note | object | p | quote | section | table | title
  )* | (
    abbr | em | object | quote | span | sub | sup | text()
  )*
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @src | @type? | @width? | @height? )
```

- Parents

```
(
  abbr | cell | citation | dml | em | example | figure | item | note |
  object | p | quote | section | span | sub | sup | title
)
```

When its parent is an inline element or a block element that only allows inline elements its flow is inline, otherwise its flow is block.

The `@src` attribute *must* be used to provide the URI (`xs:anyURI`) of the resource. It also specifies a *resource object* in RDF triple, as it is described in [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

The `@type` attribute *may* be used to provide the [MIME type](#) (Appendix A, pg. 35) of the resource.

The `@width` attribute *may* be used to provide the width dimension of the resource.

The `@height` attribute *may* be used to provide the height dimension of the resource.

The children of the `object` element *must* be used to provide an alternative content if the resource provided by `@src` fails to load.

The alternative content *must* be *inline* or *block* in accordance of the flow of its `object` parent.

---

**Example 2.13-1:** Usage of block flow `object` element.

---

```
<figure xml:id="fig-markup-trends">
  <title>Usage of markup language in %</title>
  <object src="markup-trends.svg" type="application/svg+xml">
    <list>
      <item>
        <title>HTML</title>
        <p>98%</p>
      </item>
      <item>
        <title>DocBook</title>
        <p>1%</p>
      </item>
      <item>
        <title>Other</title>
        <p>1%</p>
      </item>
    </list>
  </object>
</figure>
```

---

---

**Example 2.13-2:** Usage of inline flow `object` element.

---

```
<p>
  Press the <object src="accept-call-button-icon.svg"/><em>accept
  call</em></object> button to allow an incoming call.
</p>
```

---

## 2.14. The `p` element

The `p` element represents a generic block of text, usually a paragraph.

- Children

( `abbr` | `em` | `metadata` | `object` | `quote` | `span` | `sub` | `sup` | `text()` )+

- Attributes

( `$core.attrs*` | `$meta.attrs*` )

- Parents

(  
 `cell` | `dml` | `example` | `figure` | `item` | `metadata` | `note` |  
 `object` | `quote` | `section`  
)

## 2.15. The `quote` element

The `quote` element represents a generic quotation container.

- Children

```
(
  (
    example | figure | list | note | object | p | section | table | title
  )+, citation? | (
    abbr | em | object | span | sub | sup | text()
  )+
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @citation? )
```

- Parents

```
(
  abbr | cell | dml | em | example | figure | item | note |
  object | p | section | span | title
)
```

When its parent is an inline element or a block element that only allows inline elements its flow is inline, otherwise its flow is block.

The `@citation` attribute *must* be used to provide the URI (`xs:anyURI`) of the resource cited when the flow of `quote` element is *inline*, otherwise it *must not* be used.

### Example 2.15-1: Usage of block flow `quote` element.

---

```
<section>
( ... )
<quote>
  <p>DML is a general-purpose XML schema, particularly well suited to books,
  articles and annotations in other XML sources.</p>
  <citation><span href="http://purl.oclc.org/NET/dml/1.0/">Document Markup
  Language Specification 1.0, Introduction</span>. A. Siches. 2009</citation>
</quote>
( ... )
</section>
```

---

### Example 2.15-2: Usage of inline flow `quote` element.

---

```
<p>
[... ] in that case, when the DML specification says <quote
citation="http://purl.oclc.org/NET/dml/1.0/">well suited to books, articles
and annotations</quote> it means [... ]
</p>
```

---

## 2.16. The `section` element

The `section` element represents a generic document section.

- Children

```
(  
  title,  
  (  
    example | figure | list | metadata | note |  
    object | p | quote | section | table  
  )+  
)
```

- Attributes

```
( $core.attrs* | $meta.attrs* | @role? )
```

- Parents

```
( dml | note | object | quote | section )
```

The `@role` attribute *may* be used to provide a form to refine the meaning of the `section` element. Allowed values are:

- `"abstract"`  
A summary or statement of the contents of a document.
- `"part"`  
A part of a book. Parts usually group related chapters in a book.
- `"chapter"`  
A main division of a book.
- `"appendix"`  
An appendix in a document. Appendixes usually occur at the end of a document.
- `"header"`  
A header section. Usually it groups common parts like a tagline, author, version history information, etc.
- `"footer"`  
A footer section. Usually it groups information about its parent such as rights, related links, etc.
- `"toc"`  
A table of contents.



---

**Example 2.16-1:** Usage of `section` element

---

```
<section xml:id="introduction">
  <title>Introduction</title>
  <p>
    Lorem ipsum dolor sit amet, consectetur adipisicing elit...
  </p>
</section>
```

---

---

**Example 2.16-2:** An appendix section

---

```
<section role="appendix">
  <title>Resources</title>
  <list>
    ( ... )
  </list>
</section>
```

---

## 2.17. The `span` element

The `span` element has no specific semantic. It is provided as a container of inline content.

- Children

( `abbr` | `em` | `span` | `sub` | `sup` | `text()` )+

- Attributes

( `$core.attrs*` | `$meta.attrs*` )

- Parents

(  
  `abbr` | `cell` | `em` | `item` | `metadata` | `note` | `object` | `p` |  
  `quote` | `span` | `sub` | `summary` | `sup` | `title`  
)

## 2.18. The `sub` element

The `sub` element represents a subscript.

- Children

( `abbr` | `em` | `span` | `sub` | `sup` | `text()` )+

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
(  
  abbr | cell | em | item | metadata | note | object | p |  
  quote | span | sub | summary | sup | title  
)
```

## 2.19. The `summary` element

The `summary` element is a tabular data summary.

- Children

```
( abbr | em | span | sub | sup | text() )+
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
( table )
```

## 2.20. The `sup` element

The `sup` element represents a superscript.

- Children

```
( abbr | em | span | sub | sup | text() )+
```

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
(  
  abbr | cell | em | item | metadata | note | object | p |  
  quote | span | sub | summary | sup | title  
)
```

## 2.21. The `table` element

The `table` element represents a table container.

- Children

( `title?`, `summary`, `group+` )

- Attributes

( `$core.attrs*` | `$meta.attrs*` | `@scope` )

- Parents

( `dml` | `example` | `figure` | `item` | `note` | `object` | `quote` | `section` )

The `@scope` attribute *must* be used to provide the primary scope of groups. Allowed values are: `"row"` and `"column"`.

### Example 2.21-1: Usage of `table` element

---

```
<table scope="row">
  <title>ISO-639-1 codes</title>
  <summary>Common ISO-639-1 codes with its english name</summary>
  <group role="header">
    <title>Name</title>
    <title>Code</title>
  </group>
  <group>
    <group>
      <cell>English</cell>
      <cell>en</cell>
    </group>
    <group>
      <cell>German</cell>
      <cell>de</cell>
    </group>
  </group>
</table>
```

---

## 2.22. The `title` element

The `title` element represents a header container.

- Children

( `abbr` | `em` | `span` | `sub` | `sup` | `text()` )+

- Attributes

```
( $core.attrs* | $meta.attrs* )
```

- Parents

```
(  
  dml | example | figure | group | item | list | note |  
  object | quote | section | table  
)
```

## 3. Core attributes

```
$core.attrs = (  
  @class | @dir | @href | @status | @xml:base | @xml:id | @xml:lang  
)
```

These attributes *must not* be repeated in the same element.

### 3.1. The @class attribute

The @class attribute provides additional user-specified classification for an element. Value type is `xs:NMTOKENS`.

Any number of elements *may* be assigned the same class name.

### 3.2. The @dir attribute

The @dir attribute specifies the direction of the element and its descendants. Allowed values are:

- "ltr"  
Left to right text.
- "rtl"  
Right to left text.

### 3.3. The `@href` attribute

The `@href` attribute specifies the location of a resource through an URI (`xs:anyURI`). It also specifies a *resource object* in RDF triple, as it is described in [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

### 3.4. The `@status` attribute

The `@status` attribute specifies the status of the content in the element. Allowed values are:

- `"added"`  
Added text since last revision.
- `"deleted"`  
Deleted text since last revision.
- `"draft"`  
Text work in progress.
- `"review"`  
Text to evaluate or reevaluate but publishable.
- `user-value`  
Specific status defined by the users according their publishing process. This value *must* be an `xs:NMTOKEN`.

### 3.5. The `@xml:base` attribute

The `@xml:base` attribute specifies the base URI (`xs:anyURI`) of the element and its descendants. Its value *must* be interpreted according [xml:base W3C recommendation](#) (Appendix A, pg. 35).

### 3.6. The `@xml:id` attribute

The `@xml:id` attribute identifies the unique ID (`xs:ID`) value of the element. Its value *must* be interpreted according [xml:id W3C recommendation](#) (Appendix A, pg. 35).

## 3.7. The `@xml:lang` attribute

The `@xml:lang` attribute identifies the language of the element and its descendants.

Its value *must* be interpreted according [XML 1.0](#) (Appendix A, pg. 35).

# 4. Metadata attributes

```
$meta.attrs = (  
  @about | @content | @datatype | @property | @rel | @resource | @rev | @typeof  
)
```

These attributes *must not* be repeated in the same element.

## 4.1. The `@about` attribute

The `@about` attribute provides a *subject* for an RDF triple through an [URI or Safe CURIE](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.2. The `@content` attribute

The `@content` attribute provides a machine-readable content for a literal in an RDF triple.

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.3. The `@datatype` attribute

The `@datatype` attribute provides a datatype of a literal through a [CURIE](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.4. The `@property` attribute

The `@property` attribute provides a predicate for an RDF triple through a whitespace separated list of [CURIEs](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.5. The `@rel` attribute

The `@rel` attribute provides a predicate for an RDF triple through a whitespace separated list of [CURIEs](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.6. The `@resource` attribute

The `@resource` attribute provides an object for an RDF triple through a [URIsafeCURIE](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.7. The `@rev` attribute

The `@rev` attribute provides a reverse predicate for an RDF triple through a whitespace separated list of [CURIEs](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

## 4.8. The `@typeof` attribute

The `@typeof` attribute provides the type(s) associated with a subject for an RDF triple through a whitespace separated list of [CURIEs](#) (Appendix A, pg. 35).

This attribute is part of [RDFa Recommendation](#) (Appendix A, pg. 35) of W3C.

# 5. Flow

Usually any elements belong to a single flow type, block or inline flow type but there are two cases (`object` and `quote`) where they change their type depending on their sibling elements.

## 5.1. Block

Block elements are containers of other block elements or wrappers of inline elements and raw text.

```
$block = (  
  cell | citation | example | figure | group | item | list | metadata | note |
```

```
    object | p | quote | section | summary | table | title  
)
```

## 5.2. Inline

Inline elements are used to mark up running text. It *may* contain inline elements and raw text.

```
$inline = (  
    abbr | em | object | quote | span | sub | sup  
)
```

## 6. Schema

This section is *informative*.

### 6.1. Relax NG for DML

```
<?xml version="1.0" encoding="UTF-8"?>  
<grammar xmlns="http://relaxng.org/ns/structure/1.0"  
    ns="http://purl.oclc.org/NET/dml/1.0/"  
    datatypeLibrary="http://www.w3.org/2001/XMLSchema-datatypes">  
    <define name="rfc4646.datatype">  
        <data type="language"/>  
    </define>  
    <!-- ContentTypes -->  
    <define name="rfc2045.datatype">  
        <text/>  
    </define>  
    <define name="URI.datatype">  
        <data type="anyURI"/>  
    </define>  
    <!-- A space-separated list of Uniform Resource Identifiers, see [URI] -->  
    <define name="URIs.datatype">  
        <text/>  
    </define>  
    <define name="URIorSafeCURIE.datatype">  
        <text/>  
    </define>  
    <define name="CURIE.datatype">  
        <text/>  
    </define>  
    <define name="CURIEs.datatype">  
        <text/>  
    </define>  
    <define name="NMTOKEN.datatype">  
        <data type="NMTOKEN"/>  
    </define>  
    <define name="NMTOKENS.datatype">
```



```

    <data type="NMTOKENS"/>
</define>
<define name="ID.datatype">
    <data type="ID"/>
</define>
<define name="IDREF.datatype">
    <data type="IDREF"/>
</define>
<define name="IDREFS.datatype">
    <data type="IDREFS"/>
</define>
<define name="dimension.datatype">
    <data type="string">
        <param name="pattern">[1-9][0-9\.\?]*(px|em|ex|pt|in|cm|mm|pc)</param>
    </data>
</define>
<define name="base.attribute">
    <optional>
        <attribute name="xml:base">
            <ref name="URI.datatype"/>
        </attribute>
    </optional>
</define>
<define name="class.attribute">
    <optional>
        <attribute name="class">
            <ref name="NMTOKENS.datatype"/>
        </attribute>
    </optional>
</define>
<define name="dir.attribute">
    <optional>
        <attribute name="dir">
            <choice>
                <value type="string">ltr</value>
                <value type="string">rtl</value>
            </choice>
        </attribute>
    </optional>
</define>
<define name="href.attribute">
    <optional>
        <attribute name="href">
            <ref name="URI.datatype"/>
        </attribute>
    </optional>
</define>
<define name="id.attribute">
    <optional>
        <attribute name="xml:id">
            <ref name="ID.datatype"/>
        </attribute>
    </optional>
</define>
<define name="lang.attribute">
    <optional>
        <attribute name="xml:lang">
            <ref name="rfc4646.datatype"/>
        </attribute>
    </optional>
</define>

```

```

<define name="status.attribute">
  <optional>
    <attribute name="status">
      <choice>
        <value type="string">added</value>
        <value type="string">deleted</value>
        <value type="string">draft</value>
        <value type="string">review</value>
        <ref name="NMTOKEN.datatype"/>
      </choice>
    </attribute>
  </optional>
</define>
<define name="about.attribute">
  <optional>
    <attribute name="about">
      <ref name="URIorSafeCURIE.datatype"/>
    </attribute>
  </optional>
</define>
<define name="content.attribute">
  <optional>
    <attribute name="content">
      <text/>
    </attribute>
  </optional>
</define>
<define name="datatype.attribute">
  <optional>
    <attribute name="datatype">
      <ref name="CURIE.datatype"/>
    </attribute>
  </optional>
</define>
<define name="property.attribute">
  <optional>
    <attribute name="property">
      <ref name="CURIEs.datatype"/>
    </attribute>
  </optional>
</define>
<define name="rel.attribute">
  <optional>
    <attribute name="rel">
      <ref name="CURIEs.datatype"/>
    </attribute>
  </optional>
</define>
<define name="resource.attribute">
  <optional>
    <attribute name="resource">
      <ref name="URIorSafeCURIE.datatype"/>
    </attribute>
  </optional>
</define>
<define name="rev.attribute">
  <optional>
    <attribute name="rev">
      <ref name="CURIEs.datatype"/>
    </attribute>
  </optional>

```

```

</define>
<define name="typeof.attribute">
  <optional>
    <attribute name="typeof">
      <ref name="CURIes.datatype"/>
    </attribute>
  </optional>
</define>
<define name="core.attributes">
  <ref name="base.attribute"/>
  <ref name="class.attribute"/>
  <ref name="dir.attribute"/>
  <ref name="href.attribute"/>
  <ref name="id.attribute"/>
  <ref name="lang.attribute"/>
  <ref name="status.attribute"/>
</define>
<define name="metadata.attributes">
  <ref name="about.attribute"/>
  <ref name="content.attribute"/>
  <ref name="datatype.attribute"/>
  <ref name="property.attribute"/>
  <ref name="rel.attribute"/>
  <ref name="resource.attribute"/>
  <ref name="rev.attribute"/>
  <ref name="typeof.attribute"/>
</define>
<!-- object attributes -->
<define name="src.attribute">
  <attribute name="src">
    <ref name="URI.datatype"/>
  </attribute>
</define>
<define name="type.attribute">
  <optional>
    <attribute name="type">
      <ref name="rfc2045.datatype"/>
    </attribute>
  </optional>
</define>
<define name="height.attribute">
  <optional>
    <attribute name="height">
      <ref name="dimension.datatype"/>
    </attribute>
  </optional>
</define>
<define name="width.attribute">
  <optional>
    <attribute name="width">
      <ref name="dimension.datatype"/>
    </attribute>
  </optional>
</define>
<!-- quote.inline attribute -->
<define name="citation.attribute">
  <optional>
    <attribute name="citation">
      <ref name="URI.datatype"/>
    </attribute>
  </optional>

```

## 6 Document Markup Language (DML) Specification 1.0 Schema

```
</define>
<define name="role.em.attribute">
  <optional>
    <attribute name="role">
      <choice>
        <value type="string">strong</value>
      </choice>
    </attribute>
  </optional>
</define>
<define name="role.list.attribute">
  <optional>
    <attribute name="role">
      <choice>
        <value type="string">ordered</value>
      </choice>
    </attribute>
  </optional>
</define>
<define name="role.note.attribute">
  <optional>
    <attribute name="role">
      <choice>
        <value type="string">tip</value>
        <value type="string">warning</value>
        <value type="string">sidebar</value>
        <value type="string">footnote</value>
      </choice>
    </attribute>
  </optional>
</define>
<define name="role.section.attribute">
  <optional>
    <attribute name="role">
      <choice>
        <value type="string">part</value>
        <value type="string">chapter</value>
        <value type="string">appendix</value>
        <value type="string">header</value>
        <value type="string">footer</value>
        <value type="string">toc</value>
      </choice>
    </attribute>
  </optional>
</define>
<define name="scope.attribute">
  <attribute name="scope">
    <choice>
      <value type="string">row</value>
      <value type="string">column</value>
    </choice>
  </attribute>
</define>
<define name="role.group.attribute">
  <optional>
    <attribute name="role">
      <choice>
        <value type="string">header</value>
        <value type="string">footer</value>
      </choice>
    </attribute>
  </optional>
</define>
```

```

    </optional>
</define>
<define name="abbr.element">
  <element name="abbr">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <oneOrMore>
      <choice>
        <text/>
        <ref name="em.element"/>
        <ref name="object.inline.element"/>
        <ref name="span.element"/>
        <ref name="sub.element"/>
        <ref name="sup.element"/>
        <ref name="other"/>
      </choice>
    </oneOrMore>
  </element>
</define>
<define name="em.element">
  <element name="em">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="role.em.attribute"/>
    <ref name="inline.flow"/>
  </element>
</define>
<define name="object.inline.element">
  <element name="object">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="src.attribute"/>
    <ref name="type.attribute"/>
    <ref name="width.attribute"/>
    <ref name="height.attribute"/>
    <ref name="inline.flow"/>
  </element>
</define>
<define name="quote.inline.element">
  <element name="quote">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="citation.attribute"/>
    <oneOrMore>
      <choice>
        <text/>
        <ref name="em.element"/>
        <ref name="object.inline.element"/>
        <ref name="span.element"/>
        <ref name="sub.element"/>
        <ref name="sup.element"/>
        <ref name="other"/>
      </choice>
    </oneOrMore>
  </element>
</define>
<define name="span.element">
  <element name="span">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="inline.flow"/>
  </element>
</define>

```

```

    </element>
</define>
<define name="sub.element">
  <element name="sub">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="inline.flow"/>
  </element>
</define>
<define name="sup.element">
  <element name="sup">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="inline.flow"/>
  </element>
</define>
<define name="inline.class">
  <choice>
    <ref name="abbr.element"/>
    <ref name="em.element"/>
    <ref name="object.inline.element"/>
    <ref name="quote.inline.element"/>
    <ref name="span.element"/>
    <ref name="sub.element"/>
    <ref name="sup.element"/>
  </choice>
</define>
<define name="inline.flow">
  <oneOrMore>
    <choice>
      <text/>
      <ref name="inline.class"/>
      <ref name="other"/>
    </choice>
  </oneOrMore>
</define>
<start>
  <choice>
    <ref name="dml.element"/>
    <ref name="note.element"/>
  </choice>
</start>
<define name="example.element">
  <element name="example">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <optional>
      <ref name="title.element"/>
    </optional>
    <ref name="block.flow"/>
  </element>
</define>
<define name="figure.element">
  <element name="figure">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <optional>
      <ref name="title.element"/>
    </optional>
    <ref name="block.flow"/>
  </element>

```

```

</define>
<define name="item.element">
  <element name="item">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <choice>
      <group>
        <zeroOrMore>
          <ref name="title.element"/>
        </zeroOrMore>
        <ref name="block.flow"/>
      </group>
      <ref name="inline.flow"/>
    </choice>
  </element>
</define>
<define name="list.element">
  <element name="list">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="role.list.attribute"/>
    <optional>
      <ref name="title.element"/>
    </optional>
    <oneOrMore>
      <ref name="item.element"/>
    </oneOrMore>
  </element>
</define>
<define name="metadata.element">
  <element name="metadata">
    <ref name="metadata.attributes"/>
    <ref name="block.flow"/>
  </element>
</define>
<define name="note.element">
  <element name="note">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="role.note.attribute"/>
    <ref name="inline.block.flow"/>
  </element>
</define>
<define name="object.block.element">
  <element name="object">
    <ref name="core.attributes"/>
    <ref name="metadata.attributes"/>
    <ref name="src.attribute"/>
    <ref name="type.attribute"/>
    <ref name="width.attribute"/>
    <ref name="height.attribute"/>
    <choice>
      <ref name="block.flow"/>
      <zeroOrMore>
        <ref name="section.element"/>
      </zeroOrMore>
    </choice>
  </element>
</define>
<define name="p.element">
  <element name="p">

```

```

        <ref name="core.attributes"/>
        <ref name="metadata.attributes"/>
        <ref name="inline.flow"/>
    </element>
</define>
<define name="quote.block.element">
    <element name="quote">
        <ref name="core.attributes"/>
        <ref name="metadata.attributes"/>
        <oneOrMore>
            <choice>
                <ref name="example.element"/>
                <ref name="figure.element"/>
                <ref name="list.element"/>
                <ref name="metadata.element"/>
                <ref name="note.element"/>
                <ref name="object.block.element"/>
                <ref name="p.element"/>
                <ref name="section.element"/>
                <ref name="table.element"/>
                <ref name="section.element"/>
                <ref name="other"/>
            </choice>
        </oneOrMore>
    </optional>
        <ref name="citation.element"/>
    </optional>
</element>
</define>
<define name="citation.element">
    <element name="citation">
        <ref name="core.attributes"/>
        <ref name="metadata.attributes"/>
        <ref name="inline.flow"/>
    </element>
</define>
<define name="section.element">
    <element name="section">
        <ref name="core.attributes"/>
        <ref name="metadata.attributes"/>
        <ref name="role.section.attribute"/>
        <ref name="title.element"/>
        <ref name="block.flow"/>
        <zeroOrMore>
            <ref name="section.element"/>
        </zeroOrMore>
    </element>
</define>
<define name="title.element">
    <element name="title">
        <ref name="core.attributes"/>
        <ref name="metadata.attributes"/>
        <ref name="inline.flow"/>
    </element>
</define>
<define name="dml.element">
    <element name="dml">
        <ref name="core.attributes"/>
        <ref name="title.element"/>
        <ref name="block.flow"/>
        <zeroOrMore>

```



```

        <ref name="section.element" />
    </zeroOrMore>
</element>
</define>
<define name="block.flow">
    <zeroOrMore>
        <choice>
            <ref name="example.element" />
            <ref name="figure.element" />
            <ref name="list.element" />
            <ref name="metadata.element" />
            <ref name="note.element" />
            <ref name="object.block.element" />
            <ref name="p.element" />
            <ref name="quote.block.element" />
            <ref name="table.element" />
            <ref name="other" />
        </choice>
    </zeroOrMore>
</define>
<define name="inline.block.flow">
    <choice>
        <group>
            <optional>
                <ref name="title.element" />
            </optional>
            <ref name="block.flow" />
            <zeroOrMore>
                <ref name="section.element" />
            </zeroOrMore>
        </group>
        <ref name="inline.flow" />
    </choice>
</define>
<!-- silent errors for non DML elements -->
<define name="other">
    <zeroOrMore>
        <element>
            <anyName>
                <except>
                    <nsName />
                </except>
            </anyName>
            <zeroOrMore>
                <choice>
                    <attribute>
                        <anyName />
                    </attribute>
                    <ref name="block.flow" />
                    <ref name="inline.flow" />
                    <ref name="other" />
                </choice>
            </zeroOrMore>
        </element>
    </zeroOrMore>
</define>
<define name="table.element">
    <element name="table">
        <ref name="core.attributes" />
        <ref name="metadata.attributes" />
        <ref name="scope.attribute" />
    </element>
</define>

```

```

    <optional>
      <ref name="title.element" />
    </optional>
    <ref name="summary.element" />
    <oneOrMore>
      <ref name="group.element" />
    </oneOrMore>
  </element>
</define>
<define name="summary.element">
  <element name="summary">
    <ref name="core.attributes" />
    <ref name="metadata.attributes" />
    <ref name="inline.flow" />
  </element>
</define>
<define name="group.element">
  <element name="group">
    <ref name="core.attributes" />
    <ref name="metadata.attributes" />
    <ref name="role.group.attribute" />
    <choice>
      <oneOrMore>
        <ref name="group.element" />
      </oneOrMore>
      <group>
        <oneOrMore>
          <choice>
            <ref name="title.element" />
            <ref name="cell.element" />
          </choice>
        </oneOrMore>
      </group>
    </choice>
  </element>
</define>
<define name="cell.element">
  <element name="cell">
    <ref name="core.attributes" />
    <ref name="metadata.attributes" />
    <optional>
      <ref name="title.element" />
    </optional>
    <choice>
      <ref name="block.flow" />
      <ref name="inline.flow" />
    </choice>
  </element>
</define>
</grammar>

```

(Draft)

## 6.2. Schematron for DML

coming soon



## Appendix A — Resources

### RELAX NG

- ISO/IEC 19757-2:2008: [Information technology — Document Schema Definition Language \(DSDL\) — Part 2: Regular-grammar-based validation — RELAX NG](http://standards.iso.org/ittf/PubliclyAvailableStandards/c052348_ISO_IEC_19757-2_2008(E).zip) ([http://standards.iso.org/ittf/PubliclyAvailableStandards/c052348\\_ISO\\_IEC\\_19757-2\\_2008\(E\).zip](http://standards.iso.org/ittf/PubliclyAvailableStandards/c052348_ISO_IEC_19757-2_2008(E).zip)). ISO/IEC. 2008.
- [RELAX NG Home page](http://www.relaxng.org/) (<http://www.relaxng.org/>)

### Schematron

- ISO/IEC 19757-3:2006: [Information technology — Document Schema Definition Language \(DSDL\) — Part 3: Rule-based validation — Schematron](http://standards.iso.org/ittf/PubliclyAvailableStandards/c040833_ISO_IEC_19757-3_2006(E).zip) ([http://standards.iso.org/ittf/PubliclyAvailableStandards/c040833\\_ISO\\_IEC\\_19757-3\\_2006\(E\).zip](http://standards.iso.org/ittf/PubliclyAvailableStandards/c040833_ISO_IEC_19757-3_2006(E).zip)). ISO/IEC. 2006.
- [Schematron Home page](http://www.schematron.com) (<http://www.schematron.com>)

### IETF (Internet Engineering Task Force)

- [RFC 2119: Key words for use in RFCs to Indicate Requirement Levels](http://www.apps.ietf.org/rfc/rfc2119.html) (<http://www.apps.ietf.org/rfc/rfc2119.html>). S. Bradner. 1997.
- [RFC 4646: Tags for the Identification of Languages](http://www.apps.ietf.org/rfc/rfc4646.html) (<http://www.apps.ietf.org/rfc/rfc4646.html>). A. Phillips, Ed., M. Davis. 2006.
- [RFC 2045: Multipurpose Internet Mail Extensions \(MIME\) Part One: Format of Internet Message Bodies](http://www.apps.ietf.org/rfc/rfc2045.html) (<http://www.apps.ietf.org/rfc/rfc2045.html>). N. Freed, N. Borenstein. 1996.

### xml namespace

- [xml:id Version 1.0](http://www.w3.org/TR/2005/REC-xml-id-20050909/) (<http://www.w3.org/TR/2005/REC-xml-id-20050909/>). N. Walsh, D. Veillard, J. Marsh. 2005.
- [Extensible Markup Language \(XML\) 1.0 \(Fifth Edition\), 2.12 Language Identification](http://www.w3.org/TR/REC-xml/#sec-lang-tag) (<http://www.w3.org/TR/REC-xml/#sec-lang-tag>). T. Bray, J. Paoli, C. M. Sperberg-McQueen, E. Maler, F. Yergeau. 2008.
- [XML Base](http://www.w3.org/TR/2001/REC-xmlbase-20010627/) (<http://www.w3.org/TR/2001/REC-xmlbase-20010627/>). J. Marsh. 2001.

### RDFa

- [RDFa in XHTML: Syntax and Processing](http://www.w3.org/TR/2008/REC-rdfa-syntax-20081014/) (<http://www.w3.org/TR/2008/REC-rdfa-syntax-20081014/>). B. Adida, M. Birbeck, S. McCarron, S. Pemberton. 2008.
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### Dublin Core Metadata Initiative

- [Dublin Core Metadata Initiative Home page](http://dublincore.org/). (<http://dublincore.org/>)



- [Expressing Dublin Core metadata using HTML/XHTML meta and link elements](http://dublincore.org/documents/2008/08/04/dc-html/) (<http://dublincore.org/documents/2008/08/04/dc-html/>). P. Jhonston, A. Powell. 2008.

## XPath

- [XML Path Language \(XPath\) 2.0, A.1 EBNF](http://www.w3.org/TR/xpath20/#id-grammar) (<http://www.w3.org/TR/xpath20/#id-grammar>). A. Berglund, S. Boag, D. Chamberlin, M. F. Fernández, M. Kay, J. Robie, J. Siméon. 2007.

## Discuss

- [DML-discuss mailing list](http://groups.google.com/group/dml-discuss) (<http://groups.google.com/group/dml-discuss>)

## XML Schemes

- [Programming Markup Language Specification 1.0](http://purl.oclc.org/NET/pml/1.0/) (<http://purl.oclc.org/NET/pml/1.0/>). A. Siches. 2009.

## CSS

- [Cascading Style Sheets Level 2 Revision 1 \(CSS 2.1\) Specification, 9.2.4 The 'display' property](http://www.w3.org/TR/CSS21/visuren.html#propdef-display) (<http://www.w3.org/TR/CSS21/visuren.html#propdef-display>). B. Bos, T. Çelik, I. Hickson, H. Wium Lie. 2007.

# Appendix B — Conventions

The keywords *must*, *must not*, *required*, *shall*, *shall not*, *should*, *should not*, *recommended*, *may*, and *optional*, when emphasized, are to be interpreted as described in [IETF RFC 2119](#) (Appendix A, pg. 35).

- A `monospaced` font is used for code, elements, attributes, tags and value literals.
- An *italic monospaced* font is used for variables.

The expressions to define allowed *children*, *attributes* and *parent* for an element uses [XPath 2.0 grammar](#) (Appendix A, pg. 36) with addition of [quantifier modifiers](#) (Appendix B, pg. 37).

When an element (node with type `"element"`) is mentioned in the text with an associated [attribute](#) (Appendix B, pg. 36) it is always showed as a predicate. [Element EBNF definition](#) (Appendix B.1, pg. 38).

### Example B-1: Notation for the `section` element

---

```
section
section[@role]
```

---

When an attribute (node with type `"attribute"`) is mentioned in the text, it is always preceded by an at-sign (@) and it optionally has an associated value. [Attribute EBNF definition](#) (Appendix B.1, pg. 38).



---

### Example B-2: Notation for the `@role` attribute

---

```
@role  
@role="chapter"
```

---

When a value is mentioned in the text, it is always preceded and followed by an quote ("). [Value EBNF definition](#) (Appendix B.1, pg. 38).

---

### Example B-3: Notation for the `"chapter"` value

---

```
"chapter"
```

---

When a tag is mentioned in the text, it is always preceded by a less-than symbol (<) and it is followed by a greater-than symbol (>). [Tag EBNF definition](#) (Appendix B.1, pg. 38).

When a tag is mentioned with some omitted attributes it has an ellipsis symbol (...) preceding greater-than symbol (>).

---

### Example B-4: Notation for the start tag `<section ...>`

---

```
<section role="chapter" ...>
```

---

Any element or attribute can be modified by a quantifier modifier as follows:

- ?  
Zero or one time.
- +  
One or more times.
- \*  
Zero or more times.

Therefore, to indicate that an “status” attribute is optional the expression will be `@status?`. Or, if a “section” element is repeatable the expression will be `section+`.

For brevity, throughout this document, assume that the following namespace prefixes have been defined:

- `"dct"`  
`http://purl.org/dc/terms/`
- `"dml"`  
`http://purl.oclc.org/NET/dml/1.0/`



- `"rdf"`  
`http://www.w3.org/1999/02/22-rdf-syntax-ns#`
- `"xi"`  
`http://www.w3.org/2001/XInclude`
- `"xs"`  
`http://www.w3.org/2001/XMLSchema`

## B.1 EBNF<sup>[1]</sup> definitions

- `Element ::= Name ( '[' Attribute ' ' ) *`
- `Attribute ::= '@' Name ( '=' Value ) ?`
- `Tag ::= '<' Name ( S Name '=' Value ) * S ? '...' ? '/' ? '>'`
- `Name ::= ( [A-Za-z] + ':' ) ? [A-Za-z_] [A-Za-z0-9_-.] *`
- `Value ::= ' ' ' ' [ ^ < > " ] + ' ' ' '`
- `S ::= ( #x20 | #x9 | #xD | #xA ) +`

# Appendix C — GNU Free Documentation License

Version 1.3, 3 November 2008

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<sup>[1]</sup> [W3C notation](http://www.w3.org/TR/REC-xml/#sec-notation) (<http://www.w3.org/TR/REC-xml/#sec-notation>)



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