

# Document Markup Language (DML) Specification 1.0

## 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. 23) schema with additional [Schematron](#) (Appendix A, pg. 23) assertions.

## 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. 24).

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

Element:

(Review) When an element (node with type "`element`") is mentioned in the text with an associated [attribute](#) (pg. 1) it is always showed as a predicate. [Element EBNF definition](#) (pg. 3).

Notation for the `section` element

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

Attribute:

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](#) (pg. 3).

### Notation for the @role attribute

---

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

---

#### Value:

When a value is mentioned in the text, it is always preceded and followed by an quote ("). [Value EBNF definition](#) (pg. 3).

### Notation for the @role value

---

```
"value"
```

---

#### Tag:

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](#) (pg. 3).

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

### 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.

(Review) 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+`.

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

(Draft) TODO: define dml-xpath syntax used in children, attribute and parent 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 ) +`

## Status of this document

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

---

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

# Table of Contents

1. Elements.....	4
1.1. The <code>abbrabbr</code> element.....	5
1.2. The <code>cellcell</code> element.....	5
1.3. The <code>citationcitation</code> element.....	6
1.4. The <code>dmlldml</code> element.....	6
1.5. The <code>emem</code> element.....	7
1.6. The <code>exampleexample</code> element.....	8
1.7. The <code>figurefigure</code> element.....	8
1.8. The <code>groupgroup</code> element.....	9
1.9. The <code>itemitem</code> element.....	10
1.10. The <code>listlist</code> element.....	10
1.11. The <code>metadatametadata</code> element.....	12
1.12. The <code>notenote</code> element.....	12
1.13. The <code>objectobject</code> element.....	13
1.14. The <code>pp</code> element.....	15
1.15. The <code>quotequote</code> element.....	15
1.16. The <code>sectionsection</code> element.....	16
1.17. The <code>spanspan</code> element.....	17
1.18. The <code>subsub</code> element.....	17
1.19. The <code>summarysummary</code> element.....	18
1.20. The <code>supsup</code> element.....	18
1.21. The <code>tabletable</code> element.....	19
1.22. The <code>titletitle</code> element.....	19
2. Core attributes.....	20
2.1. The <code>@xml:idxml:id</code> attribute.....	20
2.2. The <code>@xml:langxml:lang</code> attribute.....	20
2.3. The <code>@classclass</code> attribute.....	20
2.4. The <code>@hrefhref</code> attribute.....	21
2.5. The <code>@statusstatus</code> attribute.....	21
3. Metadata attributes.....	21
3.1. The <code>@aboutabout</code> attribute.....	21
3.2. The <code>@contentcontent</code> attribute.....	21
3.3. The <code>@datatypedatatype</code> attribute.....	22
3.4. The <code>@typeoftypeof</code> attribute.....	22
3.5. The <code>@propertyproperty</code> attribute.....	22
3.6. The <code>@resourceresource</code> attribute.....	22
4. Flow.....	22
4.1. Block.....	22
4.2. Table.....	22
4.3. Inline.....	23
5. Relationship with RDFa.....	23
6. Namespace.....	23
7. Schema.....	23
Appendix A — Resources.....	23

# 1. Elements

(Draft) Add /listing for program listing? in cdm1?

## 1.1. The `abbr` element

The `abbr` element represents an abbreviation or acronym.

Flow

[Inline](#) (Section 4.3, pg. 23)

Children

```
( $inline[not( abbr )] | text() )+
```

Attributes

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

Parents

```
( $block | $inline[not( abbr )] )
```

The `@content` attribute (Section 3.2, pg. 21) *may* be used to provide an expansion of the abbreviation.

The `@about` attribute (Section 3.1, pg. 21) *may* be used to provide a resource which contains the expanded form.

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

### Example 1.1-1: `abbr` element with inline expansion

---

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

---

### Example 1.1-2: `abbr` element with remote expansion

---

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

---

## 1.2. The `cell` element

The `cell` element represents a table data container.

Flow

[Table](#) (Section 4.2, pg. 22)

Children

```
( ( example | figure | list | note | p | quote )+ | ( $inline | text() )+ )
```

Attributes

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

Parents

```
( group )
```

## 1.3. The `citation` element

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

Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
( $inline | text() )+
```

Attributes

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

Parents

```
( quote )
```

## 1.4. The `dml` element

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

Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
( title, $block[not( title | citation )]+ )  
(: this expression is more accurated but necessary? :)
```

```
(
  title,
  $block[not( title | citation | preceding-sibling::section )]+,
  section*
)
```

#### Attributes

```
( $score.attrs* )
```

#### Example 1.4-1: 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>
</example>
```

---

#### Example 1.4-2: 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>
</example>
```

---

## 1.5. The **em** element

The **em** element represents an emphasized text.

#### Flow

**Inline** (Section 4.3, pg. 23)

#### Children

```
( $inline | text() )+
```

#### Attributes

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

## Parents

( \$block | \$inline )

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

---

### Example 1.5-1: 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>
```

---

## 1.6. The `example` element

The `example` element represents an example.

### Flow

`Block` (Section 4.1, pg. 22)

### Children

( title?, \$block[not( example | citation )]+ )

### Attributes

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

### Parents

( dml | note | section )

---

### Example 1.6-1: 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>
```

---

## 1.7. The `figure` element

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



Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
( title?, $block[not( example | figure | citation | quote )]+ )
```

Attributes

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

Parents

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

---

#### Example 1.7-1: Usage of `figure` element

---

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

---

## 1.8. The `group` element

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

Flow

[Table](#) (Section 4.2, pg. 22)

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.

## 1.9. The **item** element

The **item** element represents a list item container.

Flow

**Block** (Section 4.1, pg. 22)

Children

```
(
  ( title*, $block[not( item | title | citation )]+ ) |
  ( $inline | text() )+
)
```

Attributes

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

Parents

```
( list )
```

## 1.10. The **list** element

The **list** element represents a list of items.

Flow

**Block** (Section 4.1, pg. 22)

Children

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

Attributes

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

Parents

```
( dml | $block[$block[not( self::/list )]] )
```

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

---

#### Example 1.10-1: Simple list

---

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

---

---

#### Example 1.10-2: Ordered list

---

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

---

---

#### Example 1.10-3: List with title

---

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

---

---

#### Example 1.10-4: 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 1.10-5: 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>
      <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>
```

---

## 1.11. The **metadata** element

The **metadata** element represents a metadata container.

Flow

**Block** (Section 4.1, pg. 22)

Children

( \$block+ | \$inline+ )

Attributes

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

Parents

( dml | \$block | \$inline )

(Draft) TODO: examples

## 1.12. The **note** element

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

Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
(
  ( title?, $block[not( title | note | citation )]+ ) |
  ( $inline | text() )+
)
```

Attributes

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

Parents

```
( dml | $block[$block[not( self::note )]] )
```

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.

(Draft) `section[@role="aside"]` or `note[@role="aside"]` or `@role="sidebar" ...?`

`"footnote"`

A footnote. Footnotes in paged medias usually occur at the end of the page which cite it.

(Draft) TODO: examples

## 1.13. The `object` element

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

Flow

When its parent is an inline element or a block element that only allows inline elements its flow is [inline](#) (Section 4.3, pg. 23), otherwise its flow is [block](#) (Section 4.1, pg. 22).

## Children

( \$block\* | ( \$inline | text() ) \* )

## Attributes

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

## Parents

( dml | \$block | \$inline )

The **@src** attribute *must* be used to provide the URI (`xs:anyURI`) of the resource.

The **@type** attribute *may* be used to provide the mime type 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 1.13-1: 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 1.13-2: 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>
```

---

## 1.14. The `p` element

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

Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
( $inline | text() )+
```

Attributes

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

Parents

```
( dml | $block[$block] )
```

## 1.15. The `quote` element

The `quote` element represents a generic quotation container.

Flow

When its parent is an inline element or a block element that only allows inline elements its flow is [inline](#) (Section 4.3, pg. 23), otherwise its flow is [block](#) (Section 4.1, pg. 22).

Children

```
( $block[not( quote | citation )]+ citation | ( $inline | text() )+ )
```

Attributes

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

Parents

```
( dml | $block[not( quote | citation )] | $inline[not( quote )] )
```

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 *must not* be used.

(Draft)

#### Example 1.15-1: Usage of block flow `quote` element.

```
<section>
  ( ... )
  <quote>
    <p>Lorem ipsum</p>
    <citation>??? <span href="http://some.resource">???</span> ??? </citation>
  </quote>
  ( ... )
</section>
```

(Draft)

#### Example 1.15-2: Usage of inline flow `quote` element.

```
<p>
  ??? <quote citation="http://some.resource">cite</quote> ???
</p>
```

## 1.16. The `section` element

The `section` element represents a generic document section.

Flow

[Block](#) (Section 4.1, pg. 22)

Children

```
( title, $block[not( title | citation )]+ )
```

Attributes

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

Parents

```
( dml | note | object[parent::$block] | quote[parent::$block] | section )
```

The `@role` attribute *may* be used to provide a form to refine the `section` element meaning. 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"

(Review) A main division of a book.

"appendix"

An appendix in a document. Appendixes usually occur at the end of a document.

(Draft) "header"

(Draft) description ...?

(Draft) "footer"

(Draft) description ...?

(Draft) "toc"

(Draft) description ...?

"license"

(Draft) description ...?

(Draft) TODO: examples

## 1.17. The `span` element

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

Flow

[Inline](#) (Section 4.3, pg. 23)

Children

```
( $inline | text() )+
```

Attributes

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

Parents

```
( $block | $inline )
```

## 1.18. The `sub` element

The `sub` element represents a subscript.

Flow

[Inline](#) (Section 4.3, pg. 23)

Children

```
( $inline | text() )+
```

Attributes

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

Parents

```
( $block | $inline )
```

## 1.19. The `summary` element

The `summary` element is a tabular data summary.

Flow

[Table](#) (Section 4.2, pg. 22)

Children

```
( $inline | text() )+
```

Attributes

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

Parents

```
( table )
```

## 1.20. The `sup` element

The `sup` element represents a superscript.

Flow

[Inline](#) (Section 4.3, pg. 23)

Children

```
( $inline | text() )+
```

#### Attributes

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

#### Parents

```
( $block | $inline )
```

## 1.21. The `table` element

The `table` element represents a table container.

#### Flow

[Block](#) (Section 4.1, pg. 22)

#### Children

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

#### Attributes

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

#### Parents

```
( dml | $block[$block] )
```

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

(Draft) TODO: examples

## 1.22. The `title` element

The `title` element represents a header container.

#### Flow

[Block](#) (Section 4.1, pg. 22)

#### Children

```
( $inline | text() )+
```

## Attributes

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

## Parents

```
( dml | $block[$block] )
```

(Draft) TODO: examples

## 2. Core attributes

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

These attributes *must not* be repeated.

- `@xml:id`
- `@xml:lang`
- (Draft) `@xml:base`
- (Draft) `@dir`
- `@class`
- `@href`
- `@status`

(Draft)

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

...?

(Draft)

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

...?

(Draft)

## 2.3. The `@class` attribute

...?

(Draft)

## 2.4. The `@href` attribute

...?

(Draft)

## 2.5. The `@status` attribute

...?

# 3. Metadata attributes

- `@about?`
- `@content?`
- `@datatype?`
- `@typeof?`
- `@property?`
- `@resource?`

(Draft)

## 3.1. The `@about` attribute

...?

(Draft)

## 3.2. The `@content` attribute

...?

(Draft)

### 3.3. The `@datatype` attribute

...?

(Draft)

### 3.4. The `@typeof` attribute

...?

(Draft)

### 3.5. The `@property` attribute

...?

(Draft)

### 3.6. The `@resource` attribute

...?

(Draft)

## 4. Flow

### 4.1. Block

### 4.2. Table

<http://www.w3.org/TR/CSS21/tables.html>

## 4.3. Inline

(Draft)

## 5. Relationship with RDFa

...?

(Draft)

## 6. Namespace

<http://purl.oclc.org/NET/dml/1.0>

(Draft)

## 7. Schema

RELAX NG and Schematron references

# 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.

## **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.
- [RDFa Primer](http://www.w3.org/TR/2008/NOTE-xhtml-rdfa-primer-20081014/) (<http://www.w3.org/TR/2008/NOTE-xhtml-rdfa-primer-20081014/>). B. Adida, M. Birbeck. 2008.

## **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.