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 documents. DML is normatively available as a RELAX NG (Appendix A, pg. 22) schema with additional Schematron (Appendix A, pg. 22) 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. 23).

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

Element:

> When an element (node with type `element`) is mentioned in the text, it is always preceded by a slash (`/`) and it optionally has an associated attribute (pg. 1) as a predicate. Element EBNF definition (pg. 2).

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. 2).

Notation for the `@role` attribute

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

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. 2).

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 modificator 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[1] definitions

(Draft) TODO: define dml-xpath syntax used in chlidren, 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)+`

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

Status of this document

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

Table of Contents

1. Elements

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

1.1. The `/abbr` element

The `/abbr` element represents an abbreviation or acronym.

Flow

Inline (Section 4.3, pg. 22)

Children

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

Attributes

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

Parents

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

The `@content` attribute (Section 3.2, pg. 20) *may* be used to provide an expansion of the abbreviation.

The `@about` attribute (Section 3.1, pg. 20) *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. 21)

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. 21)

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. 21)

Children

```
( /title, $block[not( /title | /citation )]+ ) (: this expression is more
accurated but necessary? :) ( /title, $block[not( /title | /citation | preceding-
sibling::/section )]+, /section* )
```

Attributes

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

(Draft) TODO: examples

1.5. The `/em` element

The `/em` element represents an emphasized text.

Flow

Inline (Section 4.3, pg. 22)

Children

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

Attributes

```
( $core.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. 21)

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. 21)

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. 21)

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. 21)

Children

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

Attributes

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

Parents

```
( /list )
```

(Draft) The functionality of `/item[@role="footer"]` is too specific for DML? maybe yes. Reevaluate.

The `@role` attribute *may* be used to provide a form to refine the `/item` element when is the last child of a `/list[@role="leaded"]` element. The only possible value is `footer`.

1.10. The `/list` element

The `/list` element represents a list of items.

Flow

Block (Section 4.1, pg. 21)

Children

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

Attributes

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

Parents

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

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

`ordered`

A list which items order is relevant.

`leaded`

(Review) A list with enforced relation between item title and item content. Like price list.

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>
```

Example 1.10-6: Leaded list

```
<list role="leaded">
  <item>
    <title>Sugar</title>
    <p>1 €/u.</p>
  </item>
  <item>
    <title>Salt</title>
    <p>1 €/u.</p>
  </item>
  <item>
    <title>Pepper</title>
    <p>2 €/u.</p>
  </item>
</list>
```

1.11. The `/metadata` element

The `/metadata` element represents a metadata container.

Flow

Block (Section 4.1, pg. 21)

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. 21)

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. 22), otherwise its flow is block (Section 4.1, pg. 21).

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 role="leaded">
      <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. 21)

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. 22), otherwise its flow is block (Section 4.1, pg. 21).

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. 21)

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. 22)

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. 22)

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. 21)

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. 22)

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. 21)

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. 21)

Children

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

Attributes

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

Parents

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

(Draft) TODO: examples

2. Core attributes

```
$core.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). ISO/IEC. 2008.
- RELAX NG Home page (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). ISO/IEC. 2006.
- Schematron Home page (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). S. Bradner. 1997.
- RFC 4646: Tags for the Identification of Languages (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). B. Adida, M. Birbeck, S. McCarron, S. Pemberton. 2008.
- RDFa Primer (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/)
- Expressing Dublin Core metadata using HTML/XHTML meta and link elements (http://dublincore.org/documents/2008/08/04/dc-html/). P. Jhonston, A. Powell. 2008.