

Open Document Format for Office Applications (OpenDocument) v1.1

OASIS Standard, 1 Feb 2007

Specification URIs:

This Version:

<http://docs.oasis-open.org/office/v1.1/OS/OpenDocument-v1.1.odt>  
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Related Work:

This specification supersedes OASIS OpenDocument v1.0.

Declared XML Namespaces:

A list of XML namespaces declared by this specification is available in section 1.3.

Abstract:

This is the specification of the Open Document Format for Office Applications (OpenDocument) format, an open, XML-based file format for office applications, based on OpenOffice.org XML [OOo].

Status:

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1. Introduction

## Introduction

This document defines an XML schema for office applications and its semantics. The schema is suitable for office documents, including text documents, spreadsheets, charts and graphical documents like drawings or presentations, but is not restricted to these kinds of documents.

The schema provides for high-level information suitable for editing documents. It defines suitable XML structures for office documents and is friendly to transformations using XSLT or similar XML-based tools.

Chapter 1 contains the introduction to the OpenDocument format. The structure of documents that conform to the OpenDocument specification is explained in chapter 2. Chapter 3 described the meta information that can be contained in such documents. Chapters 4 and 5 describe their text and paragraph content. Text Fields are described in chapter 6, text indices in chapter 7.

Chapter 8 describes the table content of a document in OpenDocument format, chapter 9 its graphical content, chapter 10 its chart content, and chapter 11 its form content. Content that is common to all documents is described in chapter 12. The integration of SMIL animation markup into the OpenDocument schema is described in chapter 13. Chapter 14 explains style information content, chapter 15 specifies formatting properties that are can be used within styles. The data types used by the OpenDocument schema are described in chapter 16.

The OpenDocument format makes use of a package concept. These packages are described in chapter 17.

## Notation

Within this specification, the key words "shall", "shall not", "should", "should not" and "may" are to be interpreted as described in Annex H of [ISO/IEC Directives] if they appear in bold letters.

## Namespaces

Table 1 lists the namespaces that are defined by the OpenDocument format and their default prefixes. For more information about XML namespaces, please refer to the Namespaces in XML specification [xml-names].

Table 1: XML Namespaces defined by the OpenDocument schema

| Prefix | Description | Namespace |
| --- | --- | --- |
| office | For all common pieces of information that are not contained in another, more specific namespace. | urn:oasis:names:tc:opendocument:xmlns: office:1.0 |
| meta | For elements and attributes that describe meta information. | urn:oasis:names:tc:opendocument:xmlns: meta:1.0 |
| config | For elements and attributes that describe application specific settings. | urn:oasis:names:tc:opendocument:xmlns: config:1.0 |
| text | For elements and attributes that may occur within text documents and text parts of other document types, such as the contents of a spreadsheet cell. | urn:oasis:names:tc:opendocument:xmlns: text:1.0 |
| table | For elements and attributes that may occur within spreadsheets or within table definitions of a text document. | urn:oasis:names:tc:opendocument:xmlns: table:1.0 |
| drawing | For elements and attributes that describe graphic content. | urn:oasis:names:tc:opendocument:xmlns: drawing:1.0 |
| presentation | For elements and attributes that describe presentation content. | urn:oasis:names:tc:opendocument:xmlns: presentation:1.0 |
| dr3d | For elements and attributes that describe 3D graphic content. | urn:oasis:names:tc:opendocument:xmlns: dr3d:1.0 |
| anim | For elements and attributes that describe animation content. | urn:oasis:names:tc:opendocument:xmlns: animation:1.0 |
| chart | For elements and attributes that describe chart content. | urn:oasis:names:tc:opendocument:xmlns: chart:1.0 |
| form | For elements and attributes that describe forms and controls. | urn:oasis:names:tc:opendocument:xmlns: form:1.0 |
| script | For elements and attributes that represent scripts or events. | urn:oasis:names:tc:opendocument:xmlns: script:1.0 |
| style | For elements and attributes that describe the style and inheritance model used by the OpenDocument format as well as some common formatting attributes. | urn:oasis:names:tc:opendocument:xmlns: style:1.0 |
| number | For elements and attributes that describe data style information. | urn:oasis:names:tc:opendocument:xmlns: data style:1.0 |
| manifest | For elements and attribute contained in the package manifest. | urn:oasis:names:tc:opendocument:xmlns: manifest:1.0 |

Table 2 lists the namespaces that are defined by the OpenDocument format, but contain elements and attributes whose semantics are compatible to elements and attributes from other specifications.

Table 2: XML Namespaces defined by the OpenDocument schema that include elements and attributes that are compatible to elements and attributes of other standards.

| Prefix | Description | Namespace |
| --- | --- | --- |
| fo | For attributes that are compatible to attributes defined in [XSL]. | urn:oasis:names:tc:opendocument:xmlns: xsl-fo-compatible:1.0 |
| svg | For elements and attributes that are compatible to elements or attributes defined in [SVG]. | urn:oasis:names:tc:opendocument:xmlns: svg-compatible:1.0 |
| smil | For attributes that are compatible to attributes defined in [SMIL20]. | urn:oasis:names:tc:opendocument:xmlns: smil-compatible:1.0 |

Table 3 lists the namespaces that are imported into the OpenDocument format and their default prefixes.

Table 3: XML Namespaces used by the OpenDocument schema

| Prefix | Description | Namespace |
| --- | --- | --- |
| dc | The Dublin Core Namespace (see [DCMI]). | http://purl.org/dc/elements/1.1/ |
| xlink | The XLink namespace (see [XLink]). | http://www.w3.org/1999/xlink |
| math | MathML Namespace (see [MathML]) | http://www.w3.org/1998/Math/MathML |
| xforms | The XForms namespace (see [XForms]). | http://www.w3.org/2002/xforms |

## Relax-NG Schema

The normative XML Schema for the OpenDocument format is embedded within this specification. It can be obtained from the specification document by concatenating all schema fragments contained in chapters 1 to 16. All schema fragments have a gray background color and line numbers.

The schema language used within this specification is Relax-NG (see [RNG]). The attribute default value feature specified in [RNG-Compat] is used to provide attribute default values.

The schema provided in this specification permits arbitrary content within meta information elements and formatting properties elements as described in section 1.5. Appendix A contains a schema that restricts the content within these elements to the attributes and elements defined in this specification.

Prefix for the normative Relax-NG schema:

<?xml version="1.0" encoding="UTF-8"?>

<!--

OASIS OpenDocument v1.1

OASIS Standard, 1 Feb 2007

Relax-NG Schema

$Id$

© 2002-2007 OASIS Open

© 1999-2007 Sun Microsystems, Inc.

-->

<grammar

xmlns="http://relaxng.org/ns/structure/1.0"

xmlns:a="http://relaxng.org/ns/compatibility/annotations/1.0"

datatypeLibrary="http://www.w3.org/2001/XMLSchema-datatypes"

xmlns:office="urn:oasis:names:tc:opendocument:xmlns:office:1.0"

xmlns:meta="urn:oasis:names:tc:opendocument:xmlns:meta:1.0"

xmlns:config="urn:oasis:names:tc:opendocument:xmlns:config:1.0"

xmlns:text="urn:oasis:names:tc:opendocument:xmlns:text:1.0"

xmlns:table="urn:oasis:names:tc:opendocument:xmlns:table:1.0"

xmlns:draw="urn:oasis:names:tc:opendocument:xmlns:drawing:1.0"

xmlns:presentation="urn:oasis:names:tc:opendocument:xmlns:presentation:1.0"

xmlns:dr3d="urn:oasis:names:tc:opendocument:xmlns:dr3d:1.0"

xmlns:chart="urn:oasis:names:tc:opendocument:xmlns:chart:1.0"

xmlns:form="urn:oasis:names:tc:opendocument:xmlns:form:1.0"

xmlns:script="urn:oasis:names:tc:opendocument:xmlns:script:1.0"

xmlns:style="urn:oasis:names:tc:opendocument:xmlns:style:1.0"

xmlns:number="urn:oasis:names:tc:opendocument:xmlns:datastyle:1.0"

xmlns:anim="urn:oasis:names:tc:opendocument:xmlns:animation:1.0"

xmlns:dc="http://purl.org/dc/elements/1.1/"

xmlns:xlink="http://www.w3.org/1999/xlink"

xmlns:math="http://www.w3.org/1998/Math/MathML"

xmlns:xforms="http://www.w3.org/2002/xforms"

xmlns:fo="urn:oasis:names:tc:opendocument:xmlns:xsl-fo-compatible:1.0"

xmlns:svg="urn:oasis:names:tc:opendocument:xmlns:svg-compatible:1.0"

xmlns:smil="urn:oasis:names:tc:opendocument:xmlns:smil-compatible:1.0"

>

## Document Processing and Conformance

Documents that conform to the OpenDocument specification may contain elements and attributes not specified within the OpenDocument schema. Such elements and attributes must not be part of a namespace that is defined within this specification and are called foreign elements and attributes.

Conforming applications either shall read documents that are valid against the OpenDocument schema if all foreign elements and attributes are removed before validation takes place, or shall write documents that are valid against the OpenDocument schema if all foreign elements and attributes are removed before validation takes place.

Conforming applications that read and write documents may preserve foreign elements and attributes.

In addition to this, conforming applications should preserve meta information and the content of styles. This means:

* The various <style:\*-properties> elements (see section 15) may have arbitrary attributes attached and may have arbitrary element content. All attributes attached to these elements and elements contained within these elements should be preserved (see section 15.1.3);
* elements contained within the <office:meta> element may have arbitrary element content and should be preserved (see section 2.2.1).

Foreign elements may have an office:process-content attribute attached that has the value true or false. If the attribute's value is true, or if the attribute does not exist, the element's content should be processed by conforming applications. Otherwise conforming applications should not process the element's content, but may only preserve its content. If the element's content should be processed, the document itself shall be valid against the OpenDocument schema if the unknown element is replaced with its content only.

Conforming applications shall read documents containing processing instructions and should preserve them.

There are no rules regarding the elements and attributes that actually have to be supported by conforming applications, except that applications should not use foreign elements and attributes for features defined in the OpenDocument schema. See also appendix D.

<define name="office-process-content">

<optional>

<attribute name="office:process-content" a:defaultValue="true">

<ref name="boolean"/>

</attribute>

</optional>

</define>

## White-Space Processing and EOL Handling

In conformance with the **W3C** XML specification [XML1.0], optional white-space characters that are contained in elements that have element content (in other words that must contain elements only but not text) are ignored. This applies to the following white-space and end-of-line (**EOL**) [UNICODE] characters:

* HORIZONTAL TABULATION (0x0009)
* LINE FEED (0x000A)
* CARRIAGE RETURN (0x000D)
* SPACE (0x0020)

For any other element, white-spaces are preserved by default. Unless otherwise stated, there is no special processing for any of the four white-space characters. For some elements, different white-space processing may take place, for example the paragraph element.

The XML specification also requires that any of the four white-space characters that is contained in an attribute value is normalized to a SPACE character.

One of the following characters may be used to represent line ends:

* LINE FEED
* CARRIAGE RETURN
* The sequence of the characters CARRIAGE RETURN and LINE FEED

Conforming to the XML specification, all the possible line ends are normalized to a single LINE FEED character.

As a consequence of the white-space and EOL processing rules, any CARRIAGE RETURN characters that are contained either in the text content of an element or in an attribute value must be encoded by the character entity &#x0D;. The same applies to the HORIZONTAL TABULATION and LINE FEED characters if they are contained in an attribute value.

## MIME Types and File Name Extensions

Appendix C contains a list of MIME types and file name extensions to be used for office documents that conform to this specification and that are contained in a package (see section 2.1). This MIME types and extensions either have been registered following the procedures described in [RFC2048], or a registration is in progress.

Office documents that conform to this specification but are not contained in a package should use the MIME type text/xml.

Only MIME types and extensions that have been registered according to [RFC2048] should used for office documents that conform to this specification. The MIME types and extensions listed in appendix C should be used where appropriate.

1. Document Structure

This chapter introduces the structure of the OpenDocument format. The chapter contains the following sections:

* Document Roots
* Document Metadata
* Body Element and Document Types
* Application Settings
* Scripts
* Font Face Declarations
* Styles
* Page Styles and Layout

In the OpenDocument format, each structural component is represented by an **element**, with associated **attributes**. The structure of a document in OpenDocument format applies to all document types. There is no difference between a text document, a spreadsheet or a drawing, apart from the content. Also, all document types may contain different styles. Document content that is common to all document types can be exchanged from one type of document to another.

## Document Roots

A **document root element** is the primary element of a document in OpenDocument format. It contains the entire document. All types of documents, for example, text documents, spreadsheets, and drawing documents use the same types of document root elements.

The OpenDocument format supports the following two ways of document representation:

* As a single XML document.
* As a collection of several subdocuments within a package (see section 17), each of which stores part of the complete document. Each subdocument has a different document root and stores a particular aspect of the XML document. For example, one subdocument contains the style information and another subdocument contains the content of the document. All types of documents, for example, text and spreadsheet documents, use the same document and subdocuments definitions.

There are four types of subdocuments, each with different root elements. Additionally, the single XML document has its own root element, for a total of five different supported root elements. The root elements are summarized in the following table:

| Root Element | Subdocument Content | Subdoc. Name in Package |
| --- | --- | --- |
| <office:document> | Complete office document in a single XML document. | n/a |
| <office:document-content> | Document content and automatic styles used in the content. | content.xml |
| <office:document-styles> | Styles used in the document content and automatic styles used in the styles themselves. | styles.xml |
| <office:document-meta> | Document meta information, such as the author or the time of the last save action. | meta.xml |
| <office:document-settings> | Application-specific settings, such as the window size or printer information. | settings.xml |

The definitions of the root elements described in the table above are analogous to the definition of <office:document>, except that the child element specification is suitably restricted.

<start>

<choice>

<ref name="office-document"/>

<ref name="office-document-content"/>

<ref name="office-document-styles"/>

<ref name="office-document-meta"/>

<ref name="office-document-settings"/>

</choice>

</start>

### Document Root Element Content Models

The content models of the five root elements is summarized in the following table. Note that <office:document> may contain all supported top-level elements. None of the four subdocument root elements contain the complete data, but four combined do.

| Root Element | meta­data | app. sett. | script | font decls | style | auto style | mast style | body |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| <office:document> |  |  |  |  |  |  |  |  |
| <office:document-content> |  |  |  |  |  |  |  |  |
| <office:document-styles> |  |  |  |  |  |  |  |  |
| <office:document-meta> |  |  |  |  |  |  |  |  |
| <office:document-settings> |  |  |  |  |  |  |  |  |

The <office:document> root contains a complete document:

<define name="office-document">

<element name="office:document">

<ref name="office-document-attrs"/>

<ref name="office-document-common-attrs"/>

<ref name="office-meta"/>

<ref name="office-settings"/>

<ref name="office-scripts"/>

<ref name="office-font-face-decls"/>

<ref name="office-styles"/>

<ref name="office-automatic-styles"/>

<ref name="office-master-styles"/>

<ref name="office-body"/>

</element>

</define>

The <office:document-content> root contains only the document content, along with the automatic styles needed for the document content:

<define name="office-document-content">

<element name="office:document-content">

<ref name="office-document-common-attrs"/>

<ref name="office-scripts"/>

<ref name="office-font-face-decls"/>

<ref name="office-automatic-styles"/>

<ref name="office-body"/>

</element>

</define>

The <office:document-styles> root contains all named styles of a document, along with the automatic styles needed for the named styles:

<define name="office-document-styles">

<element name="office:document-styles">

<ref name="office-document-common-attrs"/>

<ref name="office-font-face-decls"/>

<ref name="office-styles"/>

<ref name="office-automatic-styles"/>

<ref name="office-master-styles"/>

</element>

</define>

The <office:document-meta> root contains the meta information about a document.

<define name="office-document-meta">

<element name="office:document-meta">

<ref name="office-document-common-attrs"/>

<ref name="office-meta"/>

</element>

</define>

The <office:document-settings> root contains application specific settings to be applied when processing this document.

<define name="office-document-settings">

<element name="office:document-settings">

<ref name="office-document-common-attrs"/>

<ref name="office-settings"/>

</element>

</define>

### Document Root Attributes

#### Version

All root elements take an office:version attribute, which indicates which version of this specification it complies with. The version number is in the format revision.version. If the file has a version known to an XML processor, it may validate the document. Otherwise, it is optional to validate the document, but the document must be well formed.

<define name="office-document-common-attrs" combine="interleave">

<optional>

<attribute name="office:version">

<ref name="string"/>

</attribute>

</optional>

</define>

#### MIME Type

The <office:document> element takes an office:mimetype attribute, which indicates the type of document (text, spreadsheet etc.). This attribute is especially important for flat XML files, where this is the only way the type of document can be detected (in a package, the MIME type is also present in a separate file, see section 17.4). Its values are the MIME types that are used for the packaged variant of office documents (see section 1.7).

<define name="office-document-attrs" combine="interleave">

<attribute name="office:mimetype">

<ref name="string"/>

</attribute>

</define>

## Document Metadata

Metadata is general information about a document. In the OpenDocument format, all of the metadata elements are contained in an <office:meta> element, usually located at start of the document. Metadata elements may be omitted or occur multiple times. It is application-specific how to update multiple instances of the same elements.

<define name="office-meta">

<optional>

<element name="office:meta">

<ref name="office-meta-content"/>

</element>

</optional>

</define>

<define name="office-meta-content">

<ref name="anyElements"/>

</define>

<define name="office-meta-content-strict">

<zeroOrMore>

<ref name="office-meta-data"/>

</zeroOrMore>

</define>

### Pre-Defined vs. Custom Metadata

In the OpenDocument schema the metadata is comprised of pre-defined metadata elements, user defined metadata, as well as custom metadata elements. The pre-defined metadata elements have defined semantics. They should be processed and updated by editing applications. They can be referenced from within the document through the use of suitable text fields.

User-defined metadata is a more generic mechanism which specifies a triplet of name, type, and value. Supporting applications can present these value to the user, making use of the supplied data type. The user-defined metadata can be referenced from within the document through the use of suitable text fields.

Custom metadata are arbitrary elements inside <office:meta>. Since their semantics is not defined in this specification, conforming applications in general cannot process or display this data. Applications should preserve this data when editing the document.

### Sample Metadata

Example: Sample metadata of a document in **OpenDocument** format

<office:meta>

<dc:title>Title of the document</dc:title>

<dc:description>Description/Comment for the document</dc:description>

<meta:initial-creator>User Name</meta:initial-creator>

<meta:creation-date>1999-10-18T12:34:56</meta:creation-date>

<dc:creator>User Name</dc:creator>

<dc:date>1999-10-19T15:16:17</dc:date>

<meta:printed-by>User Name</meta:printed-by>

<meta:print-date>1999-10-20T16:17:18</meta:print-date>

<dc:subject>Description of the document</dc:subject>

<meta:editing-duration>PT5H10M10S</meta:editing-duration>

<meta:keyword>First keyword</meta:keyword>

<meta:keyword>Second keyword</meta:keyword>

<meta:keyword>Third keyword</meta:keyword>

<meta:template xlink:type="simple"

xlink:href="file:///c|/office52/share/template/german/finance/budget.vor"

xlink:title="Template name"

meta:date="1999-10-15T10:11:12" />

<meta:auto-reload

xlink:type="simple"

xlink:href="file:///..."

meta:delay="P60S" />

<dc:language>de-DE</dc:language>

<meta:user-defined meta:name="Field 1"

meta:value-type="string">Value 1</meta:user-defined>

<meta:user-defined meta:name="Field 2"

meta:value-type="float">1.234</meta:user-defined>

</office:meta>

## Body Element and Document Types

The document body contains an element to indicate which type of content this document contains. Currently supported document types are:

* text documents
* drawing documents
* presentation documents
* spreadsheet documents
* chart documents
* image documents

All document types share the same content elements, but different document types place different restrictions on which elements may occur, and in what combinations. The document content is typically framed by a prelude and epilogue, which contain additional information for a specific type of document, like form data or variable declarations.

<define name="office-body">

<element name="office:body">

<ref name="office-body-content"/>

</element>

</define>