

# *OASIS TC Requirements for ODF Accessibility*

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## Form Accessibility Analysis Sub-team - ODF

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- Goal: Produce Accessibility Assessment/Recommendations 3-6 months
  - Start in January
  - Involve industry support
  - Involve advocacy groups and accessibility influencers
  - Make ODF more accessible than proprietary document formats
  
- Provide editor from Oasis
  
- Select a chair
  
- Industry technical
  - IBM (will involve accessibility experts from Emerging Technologies, Research, and Accessibility Center)
  - Sun (Star Office, Accessibility)
  - Adobe (Accessibility)
  - Corel (Accessibility)
  
- Advocacy groups and accessibility influencers
  - Royal National Institute of the Blind
  - Massachusetts commission for the Blind
  - Daisy Consortium
  - Bay state council for the Blind
  - Free Standards Group



## Accessibility Requirements – Basic Principles

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- Ensure Alternative text for all non-text elements
- Ensure text on image maps
- Ensure allowance for relative font sizes
- Ensure provides for structural and list semantics
- Ensure provides for changes in natural language
- Ensure provide for table header and row/column descriptions
- Ensure author can provide a logical keyboard navigation (needed for presentations)
- Ensure may group large blocks
- Ensure label associations
- Link Identification (allow author to describe where a link goes)
- Ensure synchronized media may include captions
- Ensure accessibility features from W3C specifications are supported



## Accessibility Requirements – Trumping proprietary office formats

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- Support DAIST standards for talking books (allow for XSLT conversion to DAISY)
- Enhance Braille support
- Improve the accessibility of presentations
  - Z-order
  - Groupings
  - Navigation
  - Relationships
  - Slide summary
  - Support for tables (include tables in presentations)
- Incorporate Dynamic Web Access Standards being developed in the W3C
  - Support for dynamic web content resulting from scripting (would like use cases from ODF Working group)
    - Through namespaces or direct incorporation
  - Support role attribute from XHTML2
  - Document structure meta data



## API Effort – Exterior to OASIS

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- IBM Workplace has built accessibility API extensions for Workplace documents
  - Design involved AT vendors and developers up front
  - Leverages basic MSAA 1.3 to speed AT vendor support
  - Extensions designed to facilitate port to Linux accessibility infrastructure
  - Consulted key AT vendors in design (Windows and Linux)
  
- Extend API to ensure leveraging new ODF accessibility extensions
  
- Ensure features adopted by FSG for Linux
  
- Deliver Documentation to industry

# Gap analysis of ODF v1.0 Accessibility

Chieko Asakawa  
IBM Research, Tokyo Research Laboratory, STSM.





## Basics of ODF Documents

- XML files and additional resources are zipped in a file
- Core XML files (cited from “OASIS OpenDocument Essentials” <http://books.evc-cit.info/>)
  - contents.xml
    - The actual content of the document.
  - meta.xml
    - Meta-information about the content of the document (such things as author, last revision date, etc.) This is different from the META-INF directory.
  - settings.xml
    - This file contains information that is specific to the application. Some of this information, such as window size/position and printer settings is common to most documents. A text document would have information such as zoom factor, whether headers and footers are visible, etc. A spreadsheet would contain information about whether column headers are visible, whether cellswith a value of zero should show the zero or be empty, etc.
  - styles.xml
    - This file contains information about the styles used in the content. The content and style information are in different files on purpose; separating content from presentation provides more flexibility.
- “contents.xml” is the target file, which should be fixed.
  - We will discuss only about “contents.xml” in the following presentation.



## Comparison between MS Office and ODF (in terms of WCAG1.0)

The significant disadvantages are **lack of alternative texts**, **lack of native tables for Presentation documents** and **lack of descriptions for links**.

WCAG 1.0	Microsoft Office	ODF v1.0
1.1 Alt Text for non-text element	Yes	<b>Insufficient</b>
1.2 Alt Text for Image Map	<b>Not Supported</b>	Yes
3.4 Relative font size	<b>No</b>	Yes
3.5 Heading	Yes	Yes
3.6 List structure	Yes	Yes
4.1 Changes in natural language	Yes	Yes
<b>5. Use Table tags for data tables</b>	<b>Yes</b>	<b>Insufficient (Presentation, Drawings)</b>
5.1 Table header	<b>No</b>	Yes
9.4 Logical tab order	<b>No</b>	Yes (Forms) <b>No (Drawings)</b>
12.3 Divide large blocks into groups	Yes	Yes
12.4 Label Association for Form inputs	<b>No</b>	Yes
<b>13.1 Link identification</b>	<b>Yes</b>	<b>No</b>





## Comparison of Alternative Texts between MS Office and ODF

	MS Office (Word, PowerPoint, Excel)	ODF v1.0 (Text, Presentation, Spreadsheet, Drawing)	ODF Element Names
Image	Yes	Yes	draw:image
<b>Line and Arrow</b>	<b>Yes</b>	<b>No</b>	draw:line, draw:connector, draw:polyline, draw:path
<b>Auto Shape</b>	<b>Yes</b>	<b>No</b>	draw:rect, draw:circle, draw:polygone, draw:regular-polygon, draw:ellipse, draw:custom-shape
<b>3D Shape</b>	<b>Not Supported</b>	<b>No</b>	dr3d:scene
<b>Grouped Object</b>	<b>Yes</b>	<b>No</b>	draw:g
Sound and Video	Yes	Yes	draw:plugin
Chart	Yes	Yes	draw:object
Image Map	<b>Not Supported</b>	Yes	draw:area-rectangle, draw:area-circle, draw:area-polygon
Text Box, Title, Caption	Yes	Yes	draw:text-box, draw:caption

Reference: OpenDocument Specification v1.0 Chapter 9, 9.3.9 "Alternative Text"



## Example: Alternative Texts for Images

ODF v1.0 already supports alternative texts for images

	MS Office (Word, PowerPoint, Excel)	ODF v1.0 (Text, Presentation, Spreadsheet, Drawing)	ODF Element Names
Image	Yes	Yes	draw:image

### MS Office (Office 2002 HTML/XML export function)

```
<v:shape id="_x0000_s2052" type="#_x0000_t75" alt="Puzzle"
style='position:absolute;left:180pt;top:18pt;width:5in;height:7in'>
  <v:imagedata src="slide0001_image001.jpg"
o:title="MPj03853440000[1]"/>
</v:shape>
```

### ODF v1.0

```
<draw:frame draw:style-name="gr1" draw:text-style-name="P1"
draw:layer="layout" svg:width="12.7cm" svg:height="17.78cm"
svg:x="6.35cm" svg:y="0.635cm">
  <draw:image
xlink:href="Pictures/10000000000002EE0000041A8C367975.jpg"
xlink:type="simple" xlink:show="embed" xlink:actuate="onLoad">
    <text:p text:style-name="P2" />
  </draw:image>
  <svg:desc>Puzzle</svg:desc>
</draw:frame>
```



Screen capture of tested slide

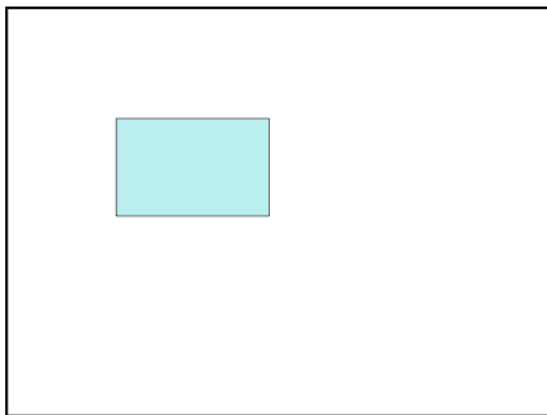
## Example: Alternative Texts for Auto Shapes

ODF v1.0 **does not** support alternative texts for auto shapes.

	MS Office (Word, PowerPoint, Excel)	ODF v1.0 (Text, Presentation, Spreadsheet, Drawing)	ODF Element Names
Auto Shape	Yes	<b>No</b>	draw:rect, draw:circle, draw:polygone, draw:regular-polygon, draw:ellipse, draw:custom-shape

### MS Office

```
<v:rect id="_x0000_s7172" alt="Rectangle Shape"
style='position:absolute;left:144.5pt;top:145.25pt;width:204pt;height:130.5pt;
mso-wrap-style:none;v-text-anchor:middle' fillcolor="#bbe0e3 [4]"
strokecolor="black [1]">
    <v:fill color2="white [0]" />
    <v:shadow color="gray [2]" />
</v:rect>
```



Screen capture of tested slide

### ODF v1.0

```
<draw:rect draw:style-name="gr11" draw:text-style-name="P7"
draw:layer="layout" svg:width="7.197cm" svg:height="4.605cm"
svg:x="5.098cm" svg:y="5.124cm"/>
```

### Suggestion

```
<draw:rect draw:style-name="gr11" draw:text-style-name="P7"
draw:layer="layout" svg:width="7.197cm" svg:height="4.605cm"
svg:x="5.098cm" svg:y="5.124cm">
    <svg:desc>Rectangle Shape</svg:desc>
</draw:rect>
```

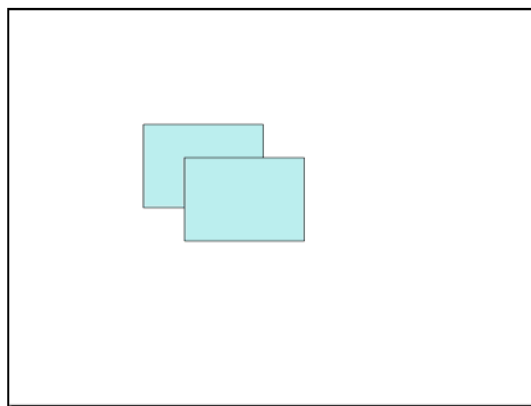


## Example: Alternative Texts for Grouped Objects (1)

ODF v1.0 **does not** support alternative texts for grouped objects.

	MS Office (Word, PowerPoint, Excel)	ODF (Text, Presentation, Spreadsheet, Drawing)	ODF Element Names
Grouped Object	Yes	No	draw:g

### MS Office



Screen capture of tested slide

```
<v:group id="_x0000_s2054" alt="Grouped Rectangles"
style='position:absolute;left:184.25pt;top:156.625pt;width:221pt;height:158.75pt'coordorigin="1474,
1253" coordsize="1768,1270">
  <v:rect id="_x0000_s2052" alt="Rectangle Shape 1"
style='position:absolute;left:1474;top:1253;width:1315;height:907;mso-wrap-style:none;v-text-
anchor:middle' fillcolor="#bbe0e3 [4]" strokecolor="black [1]">
    <v:fill color2="white [0]"/>
    <v:shadow color="gray [2]"/>
  </v:rect>
  <v:rect id="_x0000_s2053" alt="Rectangle Shape 2"
style='position:absolute;left:1927;top:1616;width:1315;height:907;mso-wrap-style:none;v-text-
anchor:middle' fillcolor="#bbe0e3 [4]" strokecolor="black [1]">
    <v:fill color2="white [0]"/>
    <v:shadow color="gray [2]"/>
  </v:rect>
</v:group>
```



## Example: Alternative Texts for Grouped Objects (2)

### ODF v1.0

```
<draw:g>
    <draw:rect draw:style-name="gr1" draw:text-style-name="P1" draw:layer="layout" svg:width="5.8cm" svg:height="4.001cm"
svg:x="6.5cm" svg:y="5.525cm"/>
    <draw:rect draw:style-name="gr1" draw:text-style-name="P1" draw:layer="layout" svg:width="5.799cm" svg:height="4.001cm"
svg:x="8.498cm" svg:y="7.126cm"/>
</draw:g>
```

### Suggestion

```
<draw:g>
    <draw:rect draw:style-name="gr1" draw:text-style-name="P1" draw:layer="layout" svg:width="5.8cm" svg:height="4.001cm"
svg:x="6.5cm" svg:y="5.525cm">
        <svg:desc>Rectangle Shape 1</svg:desc>
    </draw:rect>
    <draw:rect draw:style-name="gr1" draw:text-style-name="P1" draw:layer="layout" svg:width="5.799cm" svg:height="4.001cm"
svg:x="8.498cm" svg:y="7.126cm">
        <svg:desc>Rectangle Shape 2</svg:desc>
    </draw:rect>
    <svg:desc>Grouped Rectangles</svg:desc>
</draw:g>
```



## Summary of Alternative Text Issue

- It is suggested to allow the use of <svg:desc> element for following ODF elements.

	MS Office (Word, PowerPoint, Excel)	ODF v1.0 (Text, Presentation, Spreadsheet, Drawing)	ODF Element Names
Line and Arrow	Yes	No	<b>draw:line, draw:connector, draw:polyline, draw:path</b>
Auto Shape	Yes	No	<b>draw:rect, draw:circle, draw:polygone, draw:regular-polygon, draw:ellipse, draw:custom-shape</b>
3D Shape	Not supported	No	<b>dr3d:scene</b>
Grouped Object	Yes	No	<b>draw:g</b>



## Example of Schema Modification for Alternative Text Support

```
<define name="draw-rect">
  <element name="draw:rect">
    <ref name="draw-rect-attlist"/>
    <ref name="common-draw-position-attlist"/>
    <ref name="common-draw-size-attlist"/>
    <ref name="common-draw-shape-with-text-and-styles-attlist"/>
    <optional>
      <ref name="office-event-listeners"/>
    </optional>
    <zeroOrMore>
      <ref name="draw-glue-point"/>
    </zeroOrMore>
    <ref name="draw-text"/>
    <optional>
      <ref name="svg-desc"/>
    </optional>
  </element>
</define>
```

OpenDocument-schema-v1.0-os.rng  
Line number: 5947

- Other drawing shapes should be modified in same way.  
<draw:line>, <draw:polyline>, <draw:polygon>, <draw:regular-polygon>, <draw:path>, <draw:circle>,  
<draw:ellipse>, <draw:g>, <draw:page-thumbnail>, <draw:frame>, <draw:measure>, <draw:caption>,  
<draw:connector>, <draw:control>, <dr3d:scene>, <draw:custom-shape>



## Comparison of Tables between MS Office and ODF v1.0

WCAG 1.0	Microsoft Office	ODF
5. Use Table tags for data tables	Yes (including PowerPoint)	Insufficient (Presentation, Drawings)
5.1 Table header	No	Insufficient (Presentation, Drawings)

Current spec: (ODF v1.0 Spec., Chapter 8 “Tables”)

*“This chapter describes the table structure that is used for tables that are **embedded within text documents and for spreadsheets.**”*

Suggestion

*“This chapter describes the table structure that is used for tables that are **embedded within text documents, spreadsheets and for presentation documents.**”*





## Example: Tables in Presentation (1)

There is no definition of native tables for Presentation documents in ODF v1.0. So, PowerPoint tables are converted into a set of rectangles.

	June	July
Boston	120	170
New York	150	130

Screen capture of tested slide

### ODF v1.0

```
<draw:g>
  <draw:custom-shape draw:style-name="gr1" draw:text-style-name="P2"
draw:layer="layout" svg:width="5.2cm" svg:height="1.933cm"
svg:x="15.498cm" svg:y="11.19cm">
  <text:p text:style-name="P1">
    <text:span text:style-name="T1">130</text:span>
  </text:p>
  <draw:enhanced-geometry svg:viewBox="0 0 21600 21600"
draw:type="rectangle"
draw:enhanced-path="M 0 0 L 21600 0 21600 21600 0 21600 0 0 Z N" />
</draw:custom-shape>
```

```
<draw:line draw:style-name="gr3" draw:text-style-name="P3"
draw:layer="layout" svg:x1="20.699cm" svg:y1="7.325cm"
svg:x2="20.699cm" svg:y2="13.123cm">
  <text:p />
</draw:line>
</draw:g>
```

## Example: Tables in Presentation (2)

For Text documents, ODF v1.0 has elements for tables, such as cells, rows, and headers.

So, it is suggested to allow table elements in Presentation documents.

This improvement will allow screen readers to provide table navigation function in Presentation.

	June	July
Boston	120	170
New York	150	130

Screen capture of tested slide

### Suggestion

```

<table:table table:name="Table1" table:style-name="Table1">
  <table:table-header-columns>
    <table:table-column>
      <table:table-column table:style-name="Table1.A" />
    </table:table-column>
  </table:table-header-columns>
  <table:table-header-rows>
    <table:table-row table:style-name="Table1.1">
      <table:table-cell table:style-name="Table1.A1"
office:value-type="string">
        <text:p text:style-name="P1" />
      </table:table-cell>
      <table:table-cell table:style-name="Table1.A1"
office:value-type="string">
        <text:p text:style-name="P1">June</text:p>
      </table:table-cell>
    </table:table-row>
  </table:table-header-rows>
  <table:table-cell table:style-name="Table1.C2" office:value-type="string">
    <text:p text:style-name="P1">130</text:p>
  </table:table-cell>
</table:table-row>
</table:table>

```

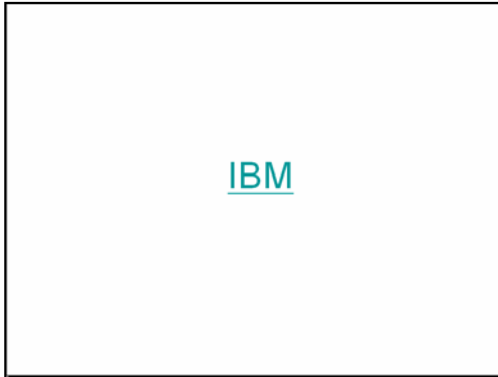


## Link Identification (1)

ODF v1.0 **does not** support the additional description for the link.

WCAG 1.0	Microsoft Office	ODF v1.0
13.1 Clearly identify the target of each link.	Yes	No

### MS Office



Screen capture of tested slide

```
<span lang=EN-US style='font-size:
300%;mso-fareast-language:JA'>
<p:onclick hyperlinktype="url"
href="http://www.ibm.com/" tips="Jump to IBM Home"/>
<a
title="Jump to IBM Home" href="http://www.ibm.com/" target="_blank"
onclick="window.event.cancelBubble=true;">IBM</a>
</span>
```



## Link Identification (2)

### ODF v1.0

```
<draw:frame draw:style-name="gr1" draw:text-style-name="P2" draw:layer="layout" svg:width="5.804cm"
svg:height="2.541cm" svg:x="11.099cm" svg:y="7.523cm">
  <draw:text-box>
    <text:p text:style-name="P1">
      <text:span text:style-name="T1">
        <text:a xlink:href="http://www.ibm.com/">IBM</text:a>
      </text:span>
    </text:p>
  </draw:text-box>
</draw:frame>
```

### Suggestion

```
<draw:frame draw:style-name="gr1" draw:text-style-name="P2" draw:layer="layout" svg:width="5.804cm"
svg:height="2.541cm" svg:x="11.099cm" svg:y="7.523cm">
  <draw:text-box>
    <text:p text:style-name="P1">
      <text:span text:style-name="T1">
        <text:a text:desc="Jump to IBM Home" xlink:href="http://www.ibm.com/">IBM</text:a>
      </text:span>
    </text:p>
  </draw:text-box>
</draw:frame>
```



## References

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- OASIS Open Document Format for Office Applications (OpenDocument) v1.0
- OASIS OpenDocument v1.0 Relax-NG Schema
  
- OASIS OpenDocument Essentials
  - <http://books.evc-cit.info/>
- OpenDocument fellowship
  - <http://opendocumentfellowship.org/Main/HomePage>
  
- Microsoft Office Assistance: About creating accessible Office documents
  - <http://office.microsoft.com/en-us/assistance/HP030734311033.aspx>
- Office XP: Microsoft Desktop Accessibility
  - <http://www.microsoft.com/office/previous/xp/accessibility.asp>
  
- Office Open XML Specification – submitted to ECMA by Microsoft
  - <http://www.ecma-international.org/activities/Office%20Open%20XML%20Formats/>