[MS-OFFMACRO2]:

Office Macro-Enabled File Format Version 2

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation ("this documentation") for protocols, file formats, data portability, computer languages, and standards support. Additionally, overview documents cover inter-protocol relationships and interactions.
- **Copyrights**. This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you can make copies of it in order to develop implementations of the technologies that are described in this documentation and can distribute portions of it in your implementations that use these technologies or in your documentation as necessary to properly document the implementation. You can also distribute in your implementation, with or without modification, any schemas, IDLs, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications documentation.
- **No Trade Secrets**. Microsoft does not claim any trade secret rights in this documentation.
- **Patents**. Microsoft has patents that might cover your implementations of the technologies described in the Open Specifications documentation. Neither this notice nor Microsoft's delivery of this documentation grants any licenses under those patents or any other Microsoft patents. However, a given Open Specifications document might be covered by the Microsoft Open Specifications Promise or the Microsoft Community Promise. If you would prefer a written license, or if the technologies described in this documentation are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **License Programs**. To see all of the protocols in scope under a specific license program and the associated patents, visit the Patent Map.
- **Trademarks**. The names of companies and products contained in this documentation might be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights. For a list of Microsoft trademarks, visit www.microsoft.com/trademarks.
- **Fictitious Names**. The example companies, organizations, products, domain names, email addresses, logos, people, places, and events that are depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than as specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications documentation does not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments, you are free to take advantage of them. Certain Open Specifications documents are intended for use in conjunction with publicly available standards specifications and network programming art and, as such, assume that the reader either is familiar with the aforementioned material or has immediate access to it.

Support. For questions and support, please contact dochelp@microsoft.com.

Preliminary Documentation. This particular Open Specifications document provides documentation for past and current releases and/or for the pre-release version of this technology. This document provides final documentation for past and current releases and preliminary documentation, as applicable and specifically noted in this document, for the pre-release version. Microsoft will release final documentation in connection with the commercial release of the updated or new version of this technology. Because this documentation might change between the pre-release version and the final

Preliminary

version of this technology, there are risks in relying on this preliminary documentation. To the extent that you incur additional development obligations or any other costs as a result of relying on this preliminary documentation, you do so at your own risk.

Preliminary

Copyright © 2021 Microsoft Corporation

Revision Summary

Date	Revision History	Revision Class	Comments
7/13/2009	0.1	Major	Initial Availability
8/28/2009	0.2	Editorial	Revised and edited the technical content
11/6/2009	0.3	Editorial	Revised and edited the technical content
2/19/2010	1.0	Minor	Updated the technical content
3/31/2010	1.01	Editorial	Revised and edited the technical content
4/30/2010	1.02	Editorial	Revised and edited the technical content
6/7/2010	1.03	Editorial	Revised and edited the technical content
6/29/2010	1.04	Editorial	Changed language and formatting in the technical content.
7/23/2010	1.04	None	No changes to the meaning, language, or formatting of the technical content.
9/27/2010	1.04	None	No changes to the meaning, language, or formatting of the technical content.
11/15/2010	1.04	None	No changes to the meaning, language, or formatting of the technical content.
12/17/2010	1.04	None	No changes to the meaning, language, or formatting of the technical content.
3/18/2011	1.04	None	No changes to the meaning, language, or formatting of the technical content.
6/10/2011	1.04	None	No changes to the meaning, language, or formatting of the technical content.
1/20/2012	1.5	Minor	Clarified the meaning of the technical content.
4/11/2012	1.5	None	No changes to the meaning, language, or formatting of the technical content.
7/16/2012	1.6	Minor	Clarified the meaning of the technical content.
10/8/2012	1.7	Minor	Clarified the meaning of the technical content.
2/11/2013	1.7	None	No changes to the meaning, language, or formatting of the technical content.
7/30/2013	1.7	None	No changes to the meaning, language, or formatting of the technical content.
11/18/2013	1.7	None	No changes to the meaning, language, or formatting of the technical content.
2/10/2014	1.7	None	No changes to the meaning, language, or formatting of the technical content.
4/30/2014	1.8	Minor	Clarified the meaning of the technical content.
7/31/2014	1.8	None	No changes to the meaning, language, or formatting of the technical content.

Preliminary

Copyright © 2021 Microsoft Corporation

Date	Revision History	Revision Class	Comments
10/30/2014	1.8	None	No changes to the meaning, language, or formatting of the technical content.
3/16/2015	2.0	Major	Significantly changed the technical content.
9/4/2015	2.1	Minor	Clarified the meaning of the technical content.
7/15/2016	2.2	Minor	Clarified the meaning of the technical content.
9/14/2016	2.2	None	No changes to the meaning, language, or formatting of the technical content.
12/15/2016	2.3	Minor	Clarified the meaning of the technical content.
12/12/2017	2.4	Minor	Clarified the meaning of the technical content.
4/27/2018	3.0	Major	Significantly changed the technical content.
8/28/2018	4.0	Major	Significantly changed the technical content.
4/22/2021	5.0	Major	Significantly changed the technical content.

Preliminary

Table of Contents

1 Introduction 7
1.1 Glossary 7
1.2 References 8
1.2.1 Normative References 8
1.2.2 Informative References 9
1.3 Structure Overview 9
1.4 Relationship to Protocols and Other Structures 9
1.5 Applicability Statement 9
1.6 Versioning and Localization 10
1.7 Vendor-Extensible Fields 10

2 Structures 11
2.1 Macro-enabled WordprocessingML Structures 11
2.1.1 Part Enumeration 11
2.1.1.1 Main Document 11
2.1.1.2 VBA Project 11
2.1.1.3 VBA Supplemental Data 12
2.1.2 Extensions 12
2.1.3 Global Elements 12
2.1.3.1 vbaSuppData 12
2.1.4 Global Attributes 12
2.1.5 Complex Types 12
2.1.5.1 CT_DocEvents 12
2.1.5.2 CT_Mcd 13
2.1.5.3 CT_Mcds 14
2.1.5.4 CT_VbaSuppData 14
2.1.6 Simple Types 15
2.2 Macro-enabled SpreadsheetML structures 15
2.2.1 Part Enumeration 15
2.2.1.1 International Macro Sheet 15
2.2.1.2 Macro Sheet 16
2.2.1.3 VBA Project 16
2.2.1.4 Workbook 17
2.2.2 Excel Extensions 17
2.2.2.1 Extensions by Part 17
2.2.2.1.1 extLst 17
2.2.3 Global Elements 17
2.2.3.1 macrosheet 17
2.2.3.2 definedNames 18
2.2.4 Global Attributes 18
2.2.5 Complex Types 18
2.2.5.1 CT_Worksheet 18
2.2.5.2 CT_DefinedNames 21
2.2.5.3 CT_DefinedName 21
2.2.5.4 CT_DefinedNameArgumentDescriptions 22
2.2.5.5 CT_DefinedNameArgumentDescription 22
2.2.6 Simple Types 23
2.2.7 Formulas 23
2.3 Macro-Enabled PresentationML Structures 23
2.3.1 Part Enumeration 23
2.3.1.1 Presentation 23
2.3.1.2 VBA Project 23
2.3.2 Extensions 24
2.3.3 Global Elements 24
2.3.4 Global Attributes 24

Preliminary

Copyright © 2021 Microsoft Corporation

2.3.5 Complex Types 24
2.3.5.1 CT_SlideMasterIdListEntry 24
2.3.6 Simple Types 24
3 Structure Examples 25
3.1 VBA Supplemental Data Part 25
3.2 Macro Sheet Part 25
4 Security Considerations 26
4.1 Security Considerations for Implementers 26
4.2 Index of Security Fields 26
5 Appendix A: Full XML Schemas 27
5.1 http://schemas.microsoft.com/office/word/2006/wordml Schema 27
5.2 http://schemas.microsoft.com/office/excel/2006/main Schema 27
5.3 http://schemas.microsoft.com/office/excel/2008/2/main Schema 28
6 Appendix B: Product Behavior 30
7 Change Tracking 31
8 Index 32

Preliminary

Copyright © 2021 Microsoft Corporation

1 Introduction

This document specifies the Office Macro-Enabled File Format Version 2. This file format specifies the structures of macro-enabled WordprocessingML, SpreadsheetML, and PresentationML file formats that are either not present in or modified from non-macro-enabled WordprocessingML, SpreadsheetML, and PresentationML file formats described in [ISO/IEC29500-1:2016]. The macro-enabled file formats consist of the non-macro-enabled file formats described in [ISO/IEC29500-1:2016] and the XML structures, XML, and non-XML parts described in this document.

Sections 1.7 and 2 of this specification are normative. All other sections and examples in this specification are informative.

1.1 Glossary

This document uses the following terms:

AutoFilter: A mechanism that can be used to filter tabular data based on user-defined criteria such as values, strings, and formatting.

conditional formatting: A mechanism that changes the appearance of a user interface element based on the evaluation of a rule or expression.

data consolidation: The process of combining tabular data from various worksheets into a single list.

document: An object in a content database such as a file, folder, list, or site. Each object is identified by a URI.

embedded object: An object that is created by using one application and is hosted in a document that was created by using another application. Embedding an object, rather than inserting or pasting it, ensures that the object retains its original format. Users can double-click an embedded object and edit it with the toolbars and menus from the application that was used to create it. See also Object Linking and Embedding (OLE).

Hypertext Markup Language (HTML): An application of the Standard Generalized Markup Language (SGML) that uses tags to mark elements in a document, as described in [HTML].

locale: A collection of rules and data that are specific to a language and a geographical area. A locale can include information about sorting rules, date and time formatting, numeric and monetary conventions, and character classification.

macro: A set of instructions that are recorded or written, and then typically saved to a file. When a macro is run, all of the instructions are performed automatically.

macro sheet: A single, logical container that is used to store and run Microsoft Excel 4.0 for Windows macro formulas.

page break: A divider that breaks a worksheet into separate pages for printing. Page breaks are inserted automatically based on the paper size, margin settings, scaling options, and the positions of any page breaks that are inserted manually.

page margin: The white space at the top, bottom, and sides of a document when a document is printed.

phonetic information: A series of characters that appear above text in a cell and provide information that helps users pronounce the text.

presentation: A collection of slides that are intended to be viewed by an audience.

Preliminary

Copyright © 2021 Microsoft Corporation

protection: A mechanism that helps restrict users from making unwanted changes to the data or structure of a workbook.

range: An addressable region that is in a workbook. A range typically consists of zero or more cells and represents a single, contiguous rectangle of cells on a single sheet.

sheet: A worksheet. The term sheet frequently refers to a worksheet because worksheets are the most common type of sheet.

sheet view: A collection of display settings, such as which cells are shown, and the zoom level for a sheet window.

sort condition: A condition that determines how to sort cells in a range.

table: A list that is defined in a workbook.

Vector Markup Language (VML): A system of marking up or tagging two-dimensional vector graphics for publication on the World Wide Web. VML graphics are scalable and editable, and typically require less disk space and less time to download.

Visual Basic for Applications (VBA): A macro-based programming language that derives from Microsoft Visual Basic and can be used to customize and extend an application. Unlike Visual Basic, Microsoft Visual Basic for Applications (VBA) code and macros can be run only from within a host application that supports VBA.

workbook: A container for a collection of sheets.

worksheet: A single logical container for a set of tabular data and other objects in a workbook.

XML: The Extensible Markup Language, as described in [XML1.0].

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as defined in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

[ISO/IEC29500-1:2016] ISO/IEC, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 1: Fundamentals and Markup Language Reference", ISO/IEC 29500-1:2016, https://www.iso.org/standard/71691.html

[ISO/IEC29500-3:2015] ISO/IEC, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 3: Markup Compatibility and Extensibility", https://www.iso.org/standard/65533.html

[ISO/IEC29500-4:2016] ISO/IEC, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 4: Transitional Migration Features", https://www.iso.org/standard/71692.html

Preliminary

[MS-OVBA] Microsoft Corporation, "Office VBA File Format Structure".

[MS-XLSB] Microsoft Corporation, "Excel (.xlsb) Binary File Format".

[MS-XLSX] Microsoft Corporation, "Excel (.xlsx) Extensions to the Office Open XML SpreadsheetML File Format".

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, http://www.rfc-editor.org/rfc/rfc2119.txt

[XMLSCHEMA1/2] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures Second Edition", W3C Recommendation, October 2004, http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/

[XMLSCHEMA2/2] Biron, P., and Malhotra, A., Eds., "XML Schema Part 2: Datatypes Second Edition", W3C Recommendation, October 2004, http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/

1.2.2 Informative References

[ISO/IEC29500-2:2012] ISO/IEC, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 2: Open Packaging Conventions", ISO/IEC 29500-2:2012, http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=61796

1.3 Structure Overview

This file format specifies structures of macro-enabled WordprocessingML, SpreadsheetML, and PresentationML file formats that are either not present in or modified from non-macro-enabled WordprocessingML, SpreadsheetML, and PresentationML file formats described in [ISO/IEC29500-1:2016]. **Document**, **Workbook**, and **Presentation** data are each contained in a compressed file (.zip) package conforming to the Open Packaging Conventions as described in [ISO/IEC29500-2:2012]. Individual files stored in a ZIP package, called parts ([ISO/IEC29500-1:2016]), contain information about the content and structure of a document, workbook, or presentation. Some parts store information using **XML** and other parts store information by using binary data.

1.4 Relationship to Protocols and Other Structures

The structures specified in section 2 are dependent on the structures and concepts defined in the following references:

- [ISO/IEC29500-1:2016] for baseline WordprocessingML, SpreadsheetML, and PresentationML persistence formats.
- [ISO/IEC29500-2:2012] for open packaging conventions.
- [ISO/IEC29500-3:2015] for markup compatibility and extensibility.
- [ISO/IEC29500-4:2016] for backward compatibility considerations.

1.5 Applicability Statement

This document specifies a persistence format for structures either not present in or modified from the structures described in [ISO/IEC29500-1:2016] for WordprocessingML, SpreadsheetML, and PresentationML documents. The structures specified in this document are not applicable as a stand-alone file format. Each structure specified in this document is integrated with [ISO/IEC29500-1:2016] WordprocessingML, SpreadsheetML, or PresentationML documents in a particular way, as specified in the section for that structure.

Preliminary

Copyright © 2021 Microsoft Corporation

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

Preliminary

Copyright © 2021 Microsoft Corporation

2 Structures

All global elements, global attributes, complex types, and simple types not defined in [ISO/IEC29500-1:2016] and not defined in the following target namespaces are extensions that use conventions specified in [ISO/IEC29500-3:2015]:

- http://schemas.microsoft.com/office/word/2006/wordml
- http://schemas.microsoft.com/office/excel/2006/main
- http://schemas.openxmlformats.org/presentationml/2006/main
- http://schemas.microsoft.com/office/excel/2008/2/main

2.1 Macro-enabled WordprocessingML Structures

2.1.1 Part Enumeration

This section specifies the parts ([ISO/IEC29500-1:2016]) of the macro-enabled WordprocessingML file format that are different from the parts of the non-macro-enabled WordprocessingML file format specified in [ISO/IEC29500-1:2016] section 11.3. These parts and their relationships are summarized in the following table.

Part	Relationship target
Main Document (section 2.1.1.1)	WordprocessingML Package ([ISO/IEC29500-1:2016] section 11.2)
VBA Project (section 2.1.1.2)	Main Document (section 2.1.1.1)
VBA Supplemental Data (section 2.1.1.3)	VBA Project (section 2.1.1.2)

2.1.1.1 Main Document

Content Types:

- application/vnd.ms-word.document.macroEnabled.main+xml
- application/vnd.ms-word.template.macroEnabledTemplate.main+xml

Root Namespace: http://schemas.openxmlformats.org/wordprocessingml/2006/main

Source Relationship:
http://schemas.openxmlformats.org/officeDocument/2006/relationships/officeDocument

The part is modified from the Main Document specified in [ISO/IEC29500-1:2016], section 11.3.10.

A Main Document part is permitted to have an implicit relationship to the VBA Project part.

2.1.1.2 VBA Project

Content Type: application/vnd.ms-office.vbaProject

Root Namespace: Not applicable

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/vbaProject

Preliminary

Copyright © 2021 Microsoft Corporation

This part is specified in [MS-OVBA].

A package MUST contain at most one VBA Project part, which MUST be the target of an implicit relationship from the **Main Document** part (section 2.1.1.1).

A VBA Project part MUST have an implicit relationship to the **VBA Supplemental Data** part (section 2.1.1.3).

A VBA Project part MUST NOT have implicit or explicit relationships to any other part specified by this document or any part specified in [ISO/IEC29500-1:2016].

2.1.1.3 VBA Supplemental Data

Content Type: application/vnd.ms-word.vbaData+xml

Root Namespace: http://schemas.microsoft.com/office/word/2006/wordml

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/wordVbaData

An instance of this part type specifies **Visual Basic for Applications (VBA)** supplemental Data.

A VBA Supplemental Data part MUST be the target of an implicit relationship from the **VBA Project** part (section 2.1.1.2).

A VBA Supplemental Data part MUST NOT have implicit or explicit relationships to any other part specified by this document or any part specified in [ISO/IEC29500-1:2016].

The root element for a part of this content type MUST be **vbaSuppData** (section 2.1.3.1).

2.1.2 Extensions

None.

2.1.3 Global Elements

2.1.3.1 vbaSuppData

Target namespace: http://schemas.microsoft.com/office/word/2006/wordml

A **CT_VbaSuppData** element (section 2.1.5.4) that specifies supplemental **Visual Basic for Applications (VBA)** data.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this element.

```
<xsd:element name="vbaSuppData" type="CT_VbaSuppData"/>
```

2.1.4 Global Attributes

None.

2.1.5 Complex Types

2.1.5.1 CT_DocEvents

Target namespace: http://schemas.microsoft.com/office/word/2006/wordml

Preliminary

Copyright © 2021 Microsoft Corporation

Referenced by: CT_VbaSuppData

A complex type that specifies a container of **document** events that are active for this document.

Child Elements:

eventDocNew: An element that specifies that the **New** event is active.

eventDocOpen: An element that specifies that the **Open** event is active.

eventDocClose: An element that specifies that the **Close** event is active.

eventDocSync: An element that specifies that the **Sync** event is active.

eventDocXmlAfterInsert: An element that specifies that the **XmlAfterInsert** event is active.

eventDocXmlBeforeDelete: An element that specifies that the **XmlBeforeDelete** event is active.

eventDocContentControlAfterInsert: An element that specifies that the **ContentControlAfterInsert** event is active.

eventDocContentControlBeforeDelete: An element that specifies that the **ContentControlBeforeDelete** event is active.

eventDocContentControlOnExit: An element that specifies that the **ContentControlOnExit** event is active.

eventDocContentControlOnEnter: An element that specifies that the **ContentControlOnEnter** event is active.

eventDocStoreUpdate: An element that specifies that the **StoreUpdate** event is active.

eventDocContentControlContentUpdate: An element that specifies that the **ContentControlContentUpdate** event is active.

eventDocBuildingBlockAfterInsert: An element that specifies that the **BuildingBlockAfterInsert** event is active.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_DocEvents">
  <xsd:sequence>
    <xsd:element name="eventDocNew" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocOpen" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocClose" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocSync" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocXmlAfterInsert" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocXmlBeforeDelete" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocContentControlAfterInsert" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocContentControlBeforeDelete" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocContentControlOnExit" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocContentControlOnEnter" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocStoreUpdate" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocContentControlContentUpdate" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="eventDocBuildingBlockAfterInsert" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

2.1.5.2 CT_Mcd

Target namespace: http://schemas.microsoft.com/office/word/2006/wordml

preliminary

Referenced by: CT_Mcds

A complex type that specifies a macro.

Attributes:

macroName: An **ST_String** attribute ([ISO/IEC29500-1:2016] section 22.9.2.13) that MUST equal the **name** attribute with every character set to uppercase.

name: An **ST_String** attribute ([ISO/IEC29500-1:2016] section 22.9.2.13) that specifies the name of the **macro**. This attribute MUST NOT exceed 255 characters.

menuHelp: An **ST_String** attribute ([ISO/IEC29500-1:2016] section 22.9.2.13) that MUST be ignored.

bEncrypt: An **ST_UcharHexNumber** attribute ([ISO/IEC29500-1:2016] section 17.18.98) that MUST be 0.

cmg: An **ST_UcharHexNumber** attribute ([ISO/IEC29500-1:2016] section 17.18.98) that MUST be 56.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_Mcd">
  <xsd:attribute name="macroName" type="w:ST_String" use="optional"/>
  <xsd:attribute name="name" type="w:ST String" use="optional"/>
  <xsd:attribute name="menuHelp" type="w:ST_String" use="optional"/>
  <xsd:attribute name="bEncrypt" type="w:ST_UcharHexNumber"/>
  <xsd:attribute name="cmg" type="w:ST_UcharHexNumber"/>
</xsd:complexType>
```

2.1.5.3 CT_Mcds

Target namespace: http://schemas.microsoft.com/office/word/2006/wordml

Referenced by: CT_VbaSuppData

A complex type that specifies a collection of **macros**.

Child Elements:

mcd: A **CT_Mcd** element (section 2.1.5.2) that specifies a macro.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT Mcds">
  <xsd:sequence>
    <xsd:element name="mcd" type="CT_Mcd" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.1.5.4 CT_VbaSuppData

Target namespace: http://schemas.microsoft.com/office/word/2006/wordml

Referenced by: vbaSuppData

Copyright © 2021 Microsoft Corporation

A complex type that specifies document events and **macro** information for the VBA project.

Child Elements:

docEvents: A **CT_DocEvents** element (section 2.1.5.1) that specifies a container of document events that are active for this document.

mcds: A **CT_Mcds** element (section 2.1.5.3) that specifies a collection of macros stored in the VBA project.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_VbaSuppData">
  <xsd:sequence>
    <xsd:element name="docEvents" type="CT_DocEvents" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="mcds" type="CT_Mcds" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

2.1.6 Simple Types

None.

2.2 Macro-enabled SpreadsheetML structures

2.2.1 Part Enumeration

This section specifies the parts ([ISO/IEC29500-1:2016]) of the macro-enabled SpreadsheetML file format that are different from the parts of the non-macro-enabled SpreadsheetML file format specified in [ISO/IEC29500-1:2016] section 12.3. These parts and their relationships are summarized in the following table.

Part	Relationship target
International Macro Sheet (section 2.2.1.1)	Workbook (section 2.2.1.4)
Macro Sheet (section 2.2.1.2)	Workbook (section 2.2.1.4)
VBA Project (section 2.2.1.3)	Workbook (section 2.2.1.4)
Workbook (section 2.2.1.4)	SpreadsheetML Package ([ISO/IEC29500-1:2016] section 12.2)

2.2.1.1 International Macro Sheet

Content Type: application/vnd.ms-excel.intlmacrosheet+xml

Root Namespace: http://schemas.microsoft.com/office/excel/2006/main

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/xlIntlMacrosheet

An instance of this part type specifies the same information as a **Macro Sheet** part type (section 2.2.1.2). When this part type is present, the associated **macro sheet** will display and operate with the US English **locale**, regardless of what the product locale, user locale, or system locale is. This will maximize compatibility when running under various locales.

Copyright © 2021 Microsoft Corporation

2.2.1.2 Macro Sheet

Content Type: application/vnd.ms-excel.macrosheet+xml

Root Namespace: http://schemas.microsoft.com/office/excel/2006/main

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/xlMacrosheet

An instance of this part type specifies a **macro sheet**. References to the macro sheet part in this document include **international macro sheets** (section 2.2.1.1) as well.

A macro sheet part MUST be the target of an explicit relationship from the **Workbook** part (section 2.2.1.4).

The root element for a part of this content type MUST be **macrosheet** (section 2.2.3.1).

A macro sheet part is permitted to have implicit relationships to the following parts specified in [ISO/IEC29500-1:2016]:

- Comments

A macro sheet part is permitted to have implicit relationships to the following parts specified in [MS-XLSB]:

- Macro Sheet Binary Index
- Sort Map

A macro sheet part is permitted to have explicit relationships to the following parts specified in [ISO/IEC29500-1:2016]:

- Custom Property
- Drawings
- OLE Object
- OLE Package
- Images
- Printer Settings
- **VML** Drawing

A macro sheet part MUST NOT have implicit or explicit relationships to any other part specified in [ISO/IEC29500-1:2016].

A formula ([ISO/IEC29500-1:2016] section 18.17) in a macro sheet is specified by **Formulas** (section 2.2.7), which is an extension of the definition in [MS-XLSX] section 2.2.2.

2.2.1.3 VBA Project

Content Type: application/vnd.ms-office.vbaProject

Root Namespace: Not applicable

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/vbaProject

This part is specified in [MS-OVBA].

Preliminary

Copyright © 2021 Microsoft Corporation

A package MUST contain at most one VBA Project part, which MUST be the target of an implicit relationship from the **Workbook** part (section 2.2.1.4).

A VBA Project part MUST NOT have implicit or explicit relationships to any other part specified by this document or any other part specified in [ISO/IEC29500-1:2016].

2.2.1.4 Workbook

Content Types:

- application/vnd.ms-excel.sheet.macroEnabled.main+xml
- application/vnd.ms-excel.template.macroEnabled.main+xml

Root Namespace: http://schemas.openxmlformats.org/spreadsheetml/2006/main

Source Relationship:
http://schemas.openxmlformats.org/officeDocument/2006/relationships/officeDocument

This part is modified from the part specified in [ISO/IEC29500-1:2016] Part1, section 12.3.23.

A Workbook part is permitted to have an implicit relationship to the **VBA Project** (section 2.2.1.3), **Macro Sheet** (section 2.2.1.2), and **International Macro Sheet** (section 2.2.1.1) parts.

2.2.2 Excel Extensions

Extensions are specified by using conventions provided by [ISO/IEC29500-3:2015].

2.2.2.1 Extensions by Part

This section specifies the elements from [ISO/IEC29500-1:2016] that are extended by this format. Either the **Ignorable** attribute ([ISO/IEC29500-3:2015] section 7.2), **AlternateContent** element ([ISO/IEC29500-3:2015] section 7.5), or **extLst** element ([ISO/IEC29500-1:2016] section 18.2.10) MUST be used to maintain compatibility with ISO/IEC 29500 implementations.

2.2.2.1.1 extLst

The **extLst** ([ISO/IEC29500-1:2016] section 18.2.10) child element of the workbook ([ISO/IEC29500-1:2016] section 18.2.27) element is extended by the addition of new child **ext** ([ISO/IEC29500-1:2016] section 18.2.7) elements, whose structure is specified in the following table.

Ext uri	Child element
{8193D73E-4604-4355-AFF4-8A2333D13BE4}	**definedNames** (section 2.2.3.2)

For more information about how extension lists are used, see [ISO/IEC29500-1:2016] section 18.2.10.

2.2.3 Global Elements

2.2.3.1 macrosheet

Target namespace: http://schemas.microsoft.com/office/excel/2006/main

A **CT_Worksheet** element (section 2.2.5.1) that specifies a **macro sheet**.

Copyright © 2021 Microsoft Corporation

Preliminary

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this element.

```
<xsd:element name="macrosheet" type="CT_Worksheet"/>
```

2.2.3.2 definedNames

Target namespace: http://schemas.microsoft.com/office/excel/2008/2/main

A **CT_DefinedNames** element (section 2.2.5.2) that specifies additional properties for **macros**.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this element.

```
<xsd:element name="definedNames" type="CT_DefinedNames"/>
```

2.2.4 Global Attributes

None.

2.2.5 Complex Types

2.2.5.1 CT_Worksheet

Target namespace: http://schemas.microsoft.com/office/excel/2006/main

Referenced by: macrosheet

A complex type that specifies properties for a **macro sheet**.

Child Elements:

sheetPr: A **CT_SheetPr** element ([ISO/IEC29500-1:2016] section A.2) that specifies sheet-level properties.

dimension: A **CT_SheetDimension** element ([ISO/IEC29500-1:2016] section A.2) that specifies the used **range** of the **worksheet**.

sheetViews: A **CT_SheetViews** element ([ISO/IEC29500-1:2016] section A.2) that specifies **sheet view** information.

sheetFormatPr: A **CT_SheetFormatPr** element ([ISO/IEC29500-1:2016] section A.2) that specifies **sheet** formatting properties.

cols: A **CT_Cols** element ([ISO/IEC29500-1:2016] section A.2) that specifies information about whole columns of the worksheet.

sheetData: A **CT_SheetData** element ([ISO/IEC29500-1:2016] section A.2) that specifies the Worksheet ([ISO/IEC29500-1:2016] section 18.3) cell table.

sheetCalcPr: This element MUST be ignored in a macro sheet.

sheetProtection: A **CT_SheetProtection** element ([ISO/IEC29500-1:2016] section A.2) that specifies sheet **protection** options.

protectedRanges: This element MUST be ignored in a macro sheet.

Preliminary

scenarios: This element MUST be ignored in a macro sheet.

autoFilter: A **CT_AutoFilter** element ([ISO/IEC29500-1:2016] section A.2) that specifies **AutoFilter** settings.

sortState: A **CT_SortState** element ([ISO/IEC29500-1:2016] section A.2) that specifies the different **sort conditions** that apply to a range.

dataConsolidate: A **CT_DataConsolidate** element ([ISO/IEC29500-1:2016] section A.2) that specifies **data consolidation** settings.

customSheetViews: A **CT_CustomSheetViews** element ([ISO/IEC29500-1:2016] section A.2) that specifies custom sheet views.

mergeCells: This element MUST be ignored in a macro sheet.

phoneticPr: A **CT_PhoneticPr** element ([ISO/IEC29500-1:2016] section A.2) that specifies default **phonetic information**.

conditionalFormatting: A **CT_ConditionalFormatting** element ([ISO/IEC29500-1:2016] section A.2) that specifies **conditional formatting** rules.

dataValidations: This element MUST be ignored in a macro sheet.

hyperlinks: This element MUST be ignored in a macro sheet.

printOptions: A **CT_PrintOptions** element ([ISO/IEC29500-1:2016] section A.2) that specifies print options for the sheet.

pageMargins: A **CT_PageMargins** element ([ISO/IEC29500-1:2016] section A.2) that specifies **page margins** for the sheet.

pageSetup: A **CT_PageSetup** element ([ISO/IEC29500-1:2016] section A.2) that specifies page setup settings for the sheet.

headerFooter: A **CT_HeaderFooter** element ([ISO/IEC29500-1:2016] section A.2) that specifies header and footer settings.

rowBreaks: A **CT_PageBreak** element ([ISO/IEC29500-1:2016] section A.2) that specifies horizontal **page break** information.

colBreaks: A **CT_PageBreak** element ([ISO/IEC29500-1:2016] section A.2) that specifies vertical page break information.

customProperties: A **CT_CustomProperties** element ([ISO/IEC29500-1:2016] section A.2) that specifies references to binary parts containing arbitrary user-defined data.

cellWatches: This element MUST be ignored in a macro sheet.

ignoredErrors: This element MUST be ignored in a macro sheet.

smartTags: This element MUST be ignored in a macro sheet.

drawing: A **CT_Drawing** element ([ISO/IEC29500-1:2016] section A.2) that specifies a reference to a drawing part ([ISO/IEC29500-1:2016] section 12.3.8) containing one or more drawing ([ISO/IEC29500-1:2016] section 20.5) elements.

picture: A **CT_SheetBackgroundPicture** element ([ISO/IEC29500-1:2016] section A.2) that specifies a background image of a sheet.

oleObjects: A **CT_OleObjects** element ([ISO/IEC29500-1:2016] section A.2) that specifies **embedded objects** in the sheet.

Preliminary

controls: This element MUST be ignored in a macro sheet.

webPublishItems: A **CT_WebPublishItems** element ([ISO/IEC29500-1:2016] section A.2) that specifies individual objects that have been published to **HTML**.

tableParts: A **CT_TableParts** element ([ISO/IEC29500-1:2016] section A.2) that specifies references to parts specifying every **table** on the sheet.

extLst: A **CT_ExtensionList** element ([ISO/IEC29500-1:2016] section A.2) that specifies future extensions to this format.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_Worksheet">
  <xsd:sequence>
    <xsd:element name="sheetPr" type="x:CT_SheetPr" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dimension" type="x:CT_SheetDimension" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="sheetViews" type="x:CT_SheetViews" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="sheetFormatPr" type="x:CT_SheetFormatPr" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="cols" type="x:CT_Cols" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="sheetData" type="x:CT_SheetData" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="sheetCalcPr" type="x:CT_SheetCalcPr" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="sheetProtection" type="x:CT_SheetProtection" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="protectedRanges" type="x:CT_ProtectedRanges" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="scenarios" type="x:CT_Scenarios" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="autoFilter" type="x:CT_AutoFilter" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="sortState" type="x:CT_SortState" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dataConsolidate" type="x:CT_DataConsolidate" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="customSheetViews" type="x:CT_CustomSheetViews" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="mergeCells" type="x:CT_MergeCells" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="phoneticPr" type="x:CT_PhoneticPr" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="conditionalFormatting" type="x:CT_ConditionalFormatting" minOccurs="0"
maxOccurs="unbounded"/>
    <xsd:element name="dataValidations" type="x:CT_DataValidations" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="hyperlinks" type="x:CT_Hyperlinks" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="printOptions" type="x:CT_PrintOptions" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="pageMargins" type="x:CT_PageMargins" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="pageSetup" type="x:CT_PageSetup" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="headerFooter" type="x:CT_HeaderFooter" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="rowBreaks" type="x:CT_PageBreak" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="colBreaks" type="x:CT_PageBreak" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="customProperties" type="x:CT_CustomProperties" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="cellWatches" type="x:CT_CellWatches" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="ignoredErrors" type="x:CT_IgnoredErrors" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="smartTags" type="x:CT_SmartTags" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="drawing" type="x:CT_Drawing" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="picture" type="x:CT_SheetBackgroundPicture" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="oleObjects" type="x:CT_OleObjects" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="controls" type="x:CT_Controls" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="webPublishItems" type="x:CT_WebPublishItems" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="tableParts" type="x:CT_TableParts" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="x:CT_ExtensionList" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```


Copyright © 2021 Microsoft Corporation

2.2.5.2 CT_DefinedNames

Target namespace: http://schemas.microsoft.com/office/excel/2008/2/main

Referenced by: definedNames

A complex type that specifies a group of additional properties for **macros**.

Child Elements:

definedName: A **CT_DefinedName** element (section 2.2.5.3) that specifies additional properties for a particular macro.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_DefinedNames">
  <xsd:sequence>
    <xsd:element name="definedName" type="CT_DefinedName" minOccurs="1"
maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

2.2.5.3 CT_DefinedName

Target namespace: http://schemas.microsoft.com/office/excel/2008/2/main

Referenced by: CT_DefinedNames

A complex type that specifies additional properties for a **macro** named **name**.

Child Elements:

argumentDescriptions: A **CT_DefinedNameArgumentDescriptions** element (section 2.2.5.4) that specifies a group of descriptions for the macro arguments if the macro has arguments.

Attributes:

name: An **ST_Xstring** attribute ([ISO/IEC29500-1:2016] section 22.9.2.19) that specifies the name of a macro. The **name** attribute value MUST be unique for each **CT_DefinedName** element inside the **CT_DefinedNames** element (section 2.2.5.2). At least one of the following conditions MUST be true: There exists a CT_DefinedName ([ISO/IEC29500-1:2016] section A.2) element with a **name** attribute equal to this value and either the **vbProcedure** attribute or the **xlm** attribute is equal to 1, or there exists a **Visual Basic for Applications (VBA)** macro having a name equal to this value.

The string MUST adhere to the **name** grammar as specified in [MS-XLSX] section 2.2.2.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT DefinedName">
  <xsd:sequence>
    <xsd:element name="argumentDescriptions" type="CT_DefinedNameArgumentDescriptions"
minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="name" type="x:ST Xstring" use="required"/>
</xsd:complexType>
```

Preliminary

Copyright © 2021 Microsoft Corporation

2.2.5.4 CT_DefinedNameArgumentDescriptions

Target namespace: http://schemas.microsoft.com/office/excel/2008/2/main

Referenced by: CT_DefinedName

A complex type that specifies a group of argument descriptions for a particular **macro**.

Child Elements:

argumentDescription: A **CT_DefinedNameArgumentDescription** element (section 2.2.5.5) that specifies an argument description for a particular macro. Each **index** attribute of these child elements MUST be unique for all **CT_DefinedNameArgumentDescription** elements (section 2.2.5.5) within this **CT_DefinedNameArgumentDescriptions** element.

Attributes:

count: An **unsignedInt** attribute ([XMLSCHEMA2/2] section 3.3.22) that specifies the number of **CT_DefinedNameArgumentDescription** child elements (section 2.2.5.5) of this element and specifies the number of argument descriptions of the associated macro. MUST be greater than or equal to 1 and MUST be less than or equal to 60.

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_DefinedNameArgumentDescriptions">
  <xsd:sequence>
    <xsd:element name="argumentDescription" type="CT_DefinedNameArgumentDescription"
minOccurs="1" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="count" type="xsd:unsignedInt" use="optional"/>
</xsd:complexType>
```

2.2.5.5 CT_DefinedNameArgumentDescription

Target namespace: http://schemas.microsoft.com/office/excel/2008/2/main

Referenced by: CT_DefinedNameArgumentDescriptions

A complex type that specifies an argument description for a particular argument of a **macro**. The length of the ST_Xstring ([ISO/IEC29500-1:2016] section 22.9.2.19) MUST be less than or equal to 255.

Attributes:

index: An **unsignedInt** attribute ([XMLSCHEMA2/2] section 3.3.22) that specifies the zero-based index referring to the argument at position **index** of the associated macro. MUST be less than the **count** attribute value in the parent **CT_DefinedNameArgumentDescription** element (section 2.2.5.5).

The following W3C XML Schema ([XMLSCHEMA1/2] section 2.1) fragment defines the contents of this complex type.

```
<xsd:complexType name="CT_DefinedNameArgumentDescription">
  <xsd:simpleContent>
    <xsd:extension base="x:ST_Xstring">
      <xsd:attribute name="index" type="xsd:unsignedInt" use="required"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
```


Copyright © 2021 Microsoft Corporation

2.2.6 Simple Types

None.

2.2.7 Formulas

```
function-call =/ (macro-function-call / command-function-call)
```

2.3 Macro-Enabled PresentationML Structures

2.3.1 Part Enumeration

This section specifies the parts ([ISO/IEC29500-1:2016]) of the macro-enabled PresentationML file format that are different from the parts of the non-macro-enabled PresentationML file format specified in [ISO/IEC29500-1:2016] section 13.3. These parts and their relationships are summarized in the following table.

Part	Relationship target
Presentation (section 2.3.1.1)	PresentationML Package ([ISO/IEC29500-1:2016] section 13.2)
VBA Project (section 2.3.1.2)	Presentation (section 2.3.1.1)

2.3.1.1 Presentation

Content Types:

- application/vnd.ms-powerpoint.presentation.macroEnabled.main+xml
- application/vnd.ms-powerpoint.slideshow.macroEnabled.main+xml
- application/vnd.ms-powerpoint.template.macroEnabled.main+xml

Root Namespace: http://schemas.openxmlformats.org/presentationml/2006/main

Source Relationship:
http://schemas.openxmlformats.org/officeDocument/2006/relationships/officeDocument

This part is modified from the **presentation** part specified in [ISO/IEC29500-1:2016] Part 1, section 13.3.6.presentation part is permitted to have an implicit relationship to the VBA Project part.

2.3.1.2 VBA Project

Content Type: application/vnd.ms-office.vbaProject

Root Namespace: Not applicable

Source Relationship: http://schemas.microsoft.com/office/2006/relationships/vbaProject

This part is specified in [MS-OVBA].

Preliminary

Copyright © 2021 Microsoft Corporation

A package MUST contain at most one VBA Project part, which MUST be the target of an implicit relationship from the **presentation** part (section 2.3.1.1).

A VBA Project part MUST NOT have implicit or explicit relationships to any other part specified by this document or any part specified in [ISO/IEC29500-1:2016].

2.3.2 Extensions

None.

2.3.3 Global Elements

None.

2.3.4 Global Attributes

None.

2.3.5 Complex Types

2.3.5.1 CT_SlideMasterIdListEntry

Target namespace: http://schemas.openxmlformats.org/presentationml/2006/main

This element specifies a slide master that is available within the corresponding presentation. A slide master is a slide that is specifically designed to be a template for all related child layout slides.

This complex type is modified from the sldMasterId specified in [ISO/IEC29500-1:2016], section 19.2.1.36.

The id attribute of this part MUST be present in the macro-enabled PresentationML format.

2.3.6 Simple Types

None.

Preliminary

Copyright © 2021 Microsoft Corporation

3 Structure Examples

3.1 VBA Supplemental Data Part

This example shows a usage of a Word **VBA Supplemental Data** part (section 2.1.1.3). Consider the following XML, showing the complete contents of the **VBA Supplemental Data** part (section 2.1.1.3) of a word-processing **document**.

```
<wne:vbaSuppData
  xmlns:ve="http://schemas.openxmlformats.org/markup-compatibility/2006"
  xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
  xmlns:m="http://schemas.openxmlformats.org/officeDocument/2006/math"
  xmlns:v="urn:schemas-microsoft-com:vml"
  xmlns:wp="http://schemas.openxmlformats.org/drawingml/2006/wordprocessingDrawing"
  xmlns:w10="urn:schemas-microsoft-com:office:word"
  xmlns:w="http://schemas.openxmlformats.org/wordprocessingml/2006/main"
  xmlns:wne="http://schemas.microsoft.com/office/word/2006/wordml">
  <wne:docEvents>
    <wne:eventDocOpen/>
    <wne:eventDocXmlAfterInsert/>
  </wne:docEvents>
  <wne:mcds>
    <wne:mcd wne:macroName="PROJECT.NEWMACROS.MACRO1" wne:name="Project.NewMacros.Macro1"
wne:bEncrypt="00" wne:cmg="56"/>
  </wne:mcds>
</wne:vbaSuppData>
```

The **docEvents** child of the **vbaSuppData** element (section 2.1.3.1) specifies that both the Open event and the XMLAfterInsert event are active for this document. The **mcds** element of the **vbaSuppData** element (section 2.1.3.1) contains an **mcd** element that specifies **macro** information for the "Project.NewMacros.Macro1" macro.

3.2 Macro Sheet Part

This example shows a usage of an Excel **macro sheet** part (section 2.2.1.2). Consider the following **XML**, showing the complete contents of a **macro sheet** part (section 2.2.1.2) of a workbook.

```
<xm:macrosheet
  xmlns="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
  xmlns:xm="http://schemas.microsoft.com/office/excel/2006/main"
  xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships">
  <dimension ref="A1"/>
  <sheetViews>
    <sheetView showFormulas="1" tabSelected="1" workbookViewId="0">
      <selection activeCell="A2" sqref="A2"/>
    </sheetView>
  </sheetViews>
  <sheetFormatPr defaultRowHeight="15"/>
  <sheetData>
    <row r="1" spans="1:1">
      <c r="A1" t="b">
        <f>ACTIVATE()</f>
        <v>0</v>
      </c>
    </row>
  </sheetData>
  <pageMargins left="0.7" right="0.7" top="0.75" bottom="0.75" header="0.3" footer="0.3"/>
</xm:macrosheet>
```

The **macrosheet** element (section 2.2.3.1) specifies the **macro sheet**. A formula following the grammar specified in section 2.2.7 is specified by the **f** element ([ISO/IEC29500-1:2016] section 18.17).

Copyright © 2021 Microsoft Corporation

4 Security Considerations

4.1 Security Considerations for Implementers

None.

4.2 Index of Security Fields

None.

Preliminary

Copyright © 2021 Microsoft Corporation

5 Appendix A: Full XML Schemas

For ease of implementation, this section provides the full W3C XML Schemas for the new elements, attributes, complex types, and simple types specified in the preceding sections. Any schema references to namespaces included in [ISO/IEC29500-1:2016] refer specifically to the transitional schemas as specified in [ISO/IEC29500-4:2016].

5.1 http://schemas.microsoft.com/office/word/2006/wordml Schema

```
<xsd:schema elementFormDefault="qualified"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns:w="http://schemas.openxmlformats.org/wordprocessingml/2006/main"
xmlns="http://schemas.microsoft.com/office/word/2006/wordml"
targetNamespace="http://schemas.microsoft.com/office/word/2006/wordml">
  <xsd:import namespace="http://schemas.openxmlformats.org/wordprocessingml/2006/main"
schemaLocation="word12.xsd" />
  <xsd:import id="rel"
namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="orel.xsd" />
  <xsd:element name="vbaSuppData" type="CT_VbaSuppData"/>
  <xsd:complexType name="CT_DocEvents">
    <xsd:sequence>
      <xsd:element name="eventDocNew" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocOpen" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocClose" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocSync" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocXmlAfterInsert" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocXmlBeforeDelete" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocContentControlAfterInsert" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocContentControlBeforeDelete" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocContentControlOnExit" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocContentControlOnEnter" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocStoreUpdate" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocContentControlContentUpdate" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="eventDocBuildingBlockAfterInsert" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_Mcd">
    <xsd:attribute name="macroName" type="w:ST_String" use="optional"/>
    <xsd:attribute name="name" type="w:ST String" use="optional"/>
    <xsd:attribute name="menuHelp" type="w:ST_String" use="optional"/>
    <xsd:attribute name="bEncrypt" type="w:ST UcharHexNumber"/>
    <xsd:attribute name="cmg" type="w:ST_UcharHexNumber"/>
  </xsd:complexType>
  <xsd:complexType name="CT_Mcds">
    <xsd:sequence>
      <xsd:element name="mcd" type="CT_Mcd" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_VbaSuppData">
    <xsd:sequence>
      <xsd:element name="docEvents" type="CT DocEvents" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="mcds" type="CT Mcds" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

5.2 http://schemas.microsoft.com/office/excel/2006/main Schema

```
<xsd:schema elementFormDefault="qualified" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.microsoft.com/office/excel/2006/main"
xmlns:x="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
```


Copyright © 2021 Microsoft Corporation

```
targetNamespace="http://schemas.microsoft.com/office/excel/2006/main"
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlsheet.xsd" />
  <xsd:import
namespace="http://schemas.microsoft.com/office/excel/2006/main"
schemaLocation="xlmacrosheet.xsd" />
  <xsd:element name="macrosheet" type="CT_Worksheet"/>
  <xsd:complexType name="CT_Worksheet">
    <xsd:sequence>
      <xsd:element name="sheetPr" type="x:CT_SheetPr" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="dimension" type="x:CT SheetDimension" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="sheetViews" type="x:CT_SheetViews" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="sheetFormatPr" type="x:CT_SheetFormatPr" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="cols" type="x:CT_Cols" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="sheetData" type="x:CT_SheetData" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="sheetCalcPr" type="x:CT SheetCalcPr" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="sheetProtection" type="x:CT_SheetProtection" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="protectedRanges" type="x:CT_ProtectedRanges" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="scenarios" type="x:CT_Scenarios" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="autoFilter" type="x:CT AutoFilter" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="sortState" type="x:CT_SortState" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="dataConsolidate" type="x:CT_DataConsolidate" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="customSheetViews" type="x:CT_CustomSheetViews" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="mergeCells" type="x:CT MergeCells" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="phoneticPr" type="x:CT_PhoneticPr" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="conditionalFormatting" type="x:CT ConditionalFormatting"
minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="dataValidations" type="x:CT_DataValidations" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="hyperlinks" type="x:CT_Hyperlinks" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="printOptions" type="x:CT PrintOptions" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="pageMargins" type="x:CT_PageMargins" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="pageSetup" type="x:CT_PageSetup" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="headerFooter" type="x:CT_HeaderFooter" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="rowBreaks" type="x:CT PageBreak" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="colBreaks" type="x:CT_PageBreak" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="customProperties" type="x:CT CustomProperties" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="cellWatches" type="x:CT_CellWatches" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="ignoredErrors" type="x:CT_IgnoredErrors" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="smartTags" type="x:CT_SmartTags" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="drawing" type="x:CT Drawing" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="picture" type="x:CT_SheetBackgroundPicture" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="oleObjects" type="x:CT_OleObjects" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="controls" type="x:CT Controls" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="webPublishItems" type="x:CT_WebPublishItems" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="tableParts" type="x:CT_TableParts" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="extLst" type="x:CT_ExtensionList" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

5.3 http://schemas.microsoft.com/office/excel/2008/2/main Schema

```
<xsd:schema elementFormDefault="qualified"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns="http://schemas.microsoft.com/office/excel/2008/2/main"
xmlns:x="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
```


Copyright © 2021 Microsoft Corporation

```
xmlns:xm="http://schemas.microsoft.com/office/excel/2006/main"
targetNamespace="http://schemas.microsoft.com/office/excel/2008/2/main">
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlbasictypes.xsd" />
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlsheet.xsd" />
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlpivot.xsd" />
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="orel.xsd" />
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlworkbook.xsd" />
  <xsd:import namespace="http://schemas.openxmlformats.org/spreadsheetml/2006/main"
schemaLocation="xlsupbook.xsd" />
  <xsd:element name="macrosheet" type="CT_Worksheet"/>
  <xsd:element name="definedNames" type="CT DefinedNames"/>
  <xsd:complexType name="CT_DefinedName">
    <xsd:sequence>
      <xsd:element name="argumentDescriptions" type="CT_DefinedNameArgumentDescriptions"
minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
    <xsd:attribute name="name" type="x:ST Xstring" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_DefinedNameArgumentDescription">
    <xsd:simpleContent>
      <xsd:extension base="x:ST_Xstring">
        <xsd:attribute name="index" type="xsd:unsignedInt" use="required"/>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
  <xsd:complexType name="CT_DefinedNameArgumentDescriptions">
    <xsd:sequence>
      <xsd:element name="argumentDescription" type="CT DefinedNameArgumentDescription"
minOccurs="1" maxOccurs="unbounded"/>
    </xsd:sequence>
    <xsd:attribute name="count" type="xsd:unsignedInt" use="optional"/>
  </xsd:complexType>
  <xsd:complexType name="CT_DefinedNames">
    <xsd:sequence>
      <xsd:element name="definedName" type="CT_DefinedName" minOccurs="1"
maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

Pre

Copyright © 2021 Microsoft Corporation

6 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Microsoft Office 2010 suites
- Microsoft Office 2013
- Microsoft Visual Basic for Applications 6.0 (VBA 6.0)
- Microsoft Visual Basic for Applications 7.0 (VBA 7.0)
- Microsoft Office 2016
- Microsoft Office 2019
- Microsoft Office 2021

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms "SHOULD" or "SHOULD NOT" implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term "MAY" implies that the product does not follow the prescription.

Preliminary

Copyright © 2021 Microsoft Corporation

7 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

The changes made to this document are listed in the following table. For more information, please contact dochelp@microsoft.com.

Section	Description	Revision class
6 Appendix B: Product Behavior	Updated list of supported products.	major

Preliminary

Copyright © 2021 Microsoft Corporation

8 Index

A

Applicability 9

C

Change tracking 31
Common data types and fields 11
Complex types
  CT_DefinedName 21
  CT_DefinedNameArgumentDescription 22
  CT_DefinedNameArgumentDescriptions 22
  CT_DefinedNames 21
  CT_DocEvents 12
  CT_Mcd 13
  CT_Mcds 14
  CT_SlideMasterIdListEntry 24
  CT_VbaSuppData 14
  CT_Worksheet 18
CT_DefinedName – complex type 21
CT_DefinedNameArgumentDescription – complex type 22
CT_DefinedNameArgumentDescriptions – complex type 22
CT_DefinedNames – complex type 21
CT_DocEvents – complex type 12
CT_Mcd – complex type 13
CT_Mcds – complex type 14
CT_SlideMasterIdListEntry – complex type 24
CT_VbaSuppData – complex type 14
CT_Worksheet – complex type 18

D

Data types and fields - common 11
definedNames – global element 18
Details
  common data types and fields 11
  CT_DefinedName – complex type 21
  CT_DefinedNameArgumentDescription – complex type 22
  CT_DefinedNameArgumentDescriptions – complex type 22
  CT_DefinedNames – complex type 21
  CT_DocEvents – complex type 12
  CT_Mcd – complex type 13
  CT_Mcds – complex type 14
  CT_SlideMasterIdListEntry – complex type 24
  CT_VbaSuppData – complex type 14
  CT_Worksheet – complex type 18
  definedNames – global element 18
  Excel extensions - macro-enabled SpreadsheetML structures 17
  extensions - macro-enabled PresentationML structures 24
  extensions - macro-enabled WordprocessingML structures 12
  extensions by part – Excel extensions 17
  global attributes - macro-enabled PresentationML structures 24
  global attributes - macro-enabled SpreadsheetML structures 18
  global attributes - macro-enabled WordprocessingML structures 12
  global elements - macro-enabled PresentationML structures 24
  International Macro Sheet - part enumeration 15
  Macro Sheet - part enumeration 16
  macrosheet – global element 17
  main document - part enumeration 11
  part enumeration - macro-enabled PresentationML structures 23
  part enumeration - macro-enabled SpreadsheetML structures 15
  part enumeration - macro-enabled WordprocessingML structures 11
  Presentation - part enumeration 23
  simple types - macro-enabled PresentationML structures 24
  simple types - macro-enabled SpreadsheetML structures 23
  simple types - macro-enabled WordprocessingML structures 15
  VBA Project - part enumeration (section 2.1.1.2 11, section 2.2.1.3 16, section 2.3.1.2 23)
  VBA Supplemental Data - part enumeration 12
  vbaSuppData – global element 12
  Workbook - part enumeration 17

E

Examples
  Macro Sheet Part 25
  VBA Supplemental Data Part 25
Excel extensions
  extensions by part 17
Excel extensions – macro-enabled SpreadsheetML structures 17
Extensions – macro-enabled PresentationML structures 24
Extensions – macro-enabled WordprocessingML structures 12
Extensions by part - Excel extensions 17

F

Fields - vendor-extensible 10
Full XML schema 27

G

Global attributes – macro-enabled PresentationML structures 24
Global attributes – macro-enabled SpreadsheetML structures 18
Global attributes – macro-enabled WordprocessingML structures 12
Global elements
  definedNames 18
  macrosheet 17
  vbaSuppData 12

Preliminary

Copyright © 2021 Microsoft Corporation

Global elements – macro-enabled PresentationML structures 24
Glossary 7

I

Implementer - security considerations 26
Informative references 9
International Macro Sheet - part enumeration 15
Introduction 7

L

Localization 10

M

Macro Sheet - part enumeration 16
Macro Sheet Part example 25
macrosheet – global element 17
Main document - part enumeration 11

N

Normative references 8

O

Overview (synopsis) 9

P

Part enumeration
  International Macro Sheet 15
  Macro Sheet 16
  main document 11
  Presentation 23
  VBA Project (section 2.1.1.2 11, section 2.2.1.3 16, section 2.3.1.2 23)
  VBA Supplemental Data 12
  Workbook 17
Part enumeration – macro-enabled PresentationML structures 23
Part enumeration – macro-enabled SpreadsheetML structures 15
Part enumeration – macro-enabled WordprocessingML structures 11
Presentation - part enumeration 23
Product behavior 30

R

References 8
  informative 9
  normative 8
Relationship to protocols and other structures 9

S

Security
  implementer considerations 26
  index of security fields 26
Simple types – macro-enabled PresentationML structures 24
Simple types – macro-enabled SpreadsheetML structures 23
Simple types – macro-enabled WordprocessingML structures 15
Structures
  overview 11
Structures – macro-enabled PresentationML
  CT_SlideMasterIdListEntry – complex type 24
  extensions 24
  global attributes 24
  global elements 24
  part enumeration 23
  Presentation - part enumeration 23
  simple types 24
  VBA Project - part enumeration 23
Structures – macro-enabled SpreadsheetML
  CT_DefinedName – complex type 21
  CT_DefinedNameArgumentDescription – complex type 22
  CT_DefinedNameArgumentDescriptions – complex type 22
  CT_DefinedNames – complex type 21
  CT_Worksheet – complex type 18
  definedNames – global element 18
  Excel extensions 17
  extensions by part - Excel extensions 17
  global attributes 18
  International Macro Sheet - part enumeration 15
  Macro Sheet - part enumeration 16
  macrosheet – global element 17
  part enumeration 15
  simple types 23
  VBA Project - part enumeration 16
  Workbook - part enumeration 17
Structures – macro-enabled WordprocessingML
  CT_DocEvents – complex type 12
  CT_Mcd – complex type 13
  CT_Mcds – complex type 14
  CT_VbaSuppData – complex type 14
  extensions 12
  global attributes 12
  main document - part enumeration 11
  part enumeration 11
  simple types 15
  VBA Project - part enumeration 11
  VBA Supplemental Data - part enumeration 12
  vbaSuppData – global element 12

T

Tracking changes 31

V

VBA Project - part enumeration (section 2.1.1.2 11, section 2.2.1.3 16, section 2.3.1.2 23)
VBA Supplemental Data - part enumeration 12
VBA Supplemental Data Part example 25
vbaSuppData – global element 12
Vendor-extensible fields 10
Versioning 10

W

Workbook - part enumeration 17

Preliminary

Copyright © 2021 Microsoft Corporation

x

XML schema 27

Preliminary

Copyright © 2021 Microsoft Corporation