# [MS-ODRAWXML]:
# Office Drawing Extensions to Office Open XML Structure Specification

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## Revision Summary

| Date | Revision History | Revision Class | Comments |
|---|---|---|---|
| 07/13/2009 | 0.1 | Major | Initial Availability |
| 08/28/2009 | 0.2 | Major | Updated and revised the technical content |
| 11/06/2009 | 0.3 | Editorial | Revised and edited the technical content |
| 02/19/2010 | 1.0 | Major | Updated and revised the technical content |
| 03/31/2010 | 1.01 | Editorial | Revised and edited the technical content |
| 04/30/2010 | 1.02 | Editorial | Revised and edited the technical content |
| 06/07/2010 | 1.03 | Editorial | Revised and edited the technical content |
| 06/29/2010 | 1.04 | Editorial | Changed language and formatting in the technical content. |
| 07/23/2010 | 1.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 09/27/2010 | 1.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 11/15/2010 | 1.04 | No change | No changes to the meaning, language, or formatting of the technical content. |
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| 06/10/2011 | 1.04 | No change | No changes to the meaning, language, or formatting of the technical content. |

# Table of Contents

*Release: Wednesday, June 8, 2011*

# 1   Introduction

This document specifies extensions to the DrawingML ([ISO/IEC-29500:2008]) Office Open XML File Formats structure, which is used in WordprocessingML, SpreadsheetML, and PresentationML ([ISO/IEC-29500:2008]) documents.

## 1.1   Glossary

The following terms are defined in [MS-GLOS]:

> **GUID**
> **XML**

The following terms are defined in [MS-OFCGLOS]:

> **ActiveX control**
> **binary large image or picture (BLIP)**
> **comment**
> **control**
> **drawing canvas**
> **group shape**
> **hyperlink**
> **ink**
> **Object Linking and Embedding (OLE)**
> **shape**
> **style**
> **text box story**

The following terms are specific to this document:

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

## 1.2   References

### 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. Please check the archive site, http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624, as an additional source.

[EMMA] Baggia, P. et al., "EMMA: Extensible MultiModal Annotation markup language", February 2009, http://www.w3.org/TR/2009/REC-emma-20090210/

[InkML] Chee, Y. et al., "Ink Markup Language (InkML)", Working Draft, October 2006, http://www.w3.org/TR/2006/WD-InkML-20061023/

[ISO/IEC-29500:2008] International Organization for Standardization, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Parts 1-4", Publicly Available Standards, http://standards.iso.org/ittf/PubliclyAvailableStandards/index.html

[ISO/IEC-29500-1] International Organization for Standardization, "Information Technology - Document description and processing languages - Office Open XML File Formats - Part 1: Fundamentals and Markup Language Reference", ISO/IEC PRF 29500-1, 2008, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=51463

[ISO/IEC-29500-3] International Organization for Standardization, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 3: Markup Compatibility and Extensibility", 2008, http://www.iso.org/iso/catalogue_detail?csnumber=51461

[ISO/IEC-29500-4] International Organization for Standardization, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 4: Transitional Migration Features", ISO/IEC 29500-4:2008, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=51462

[MathML2.0] Ausbrooks, R., et al., "Mathematical Markup Language (MathML) Version 2.0 (Second Edition)", W3C Recommendation, October 2003, http://www.w3.org/TR/2003/REC-MathML2-20031021/

[MS-DOCX] Microsoft Corporation, "Word Extensions to the Office Open XML File Format (.docx) Specification"

[MS-ODRAW] Microsoft Corporation, "Office Drawing Binary File Format Structure Specification"

[MS-PPTX] Microsoft Corporation, "PowerPoint Extensions to the Office Open XML File Format (.pptx) Specification"

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

[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

[RFC4122] Leach, P., Mealling, M., and Salz, R., "A Universally Unique Identifier (UUID) URN Namespace", RFC 4122, July 2005, http://www.ietf.org/rfc/rfc4122.txt

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/

## 1.2.2  Informative References

[ISO/IEC-29500-2] International Organization for Standardization, "Information technology -- Document description and processing languages -- Office Open XML File Formats -- Part 2: Open Packaging Conventions", ISO/IEC 29500-2:2008, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=51459

[MS-GLOS] Microsoft Corporation, "Windows Protocols Master Glossary".

[MS-OFCGLOS] Microsoft Corporation, "Microsoft Office Master Glossary".

## 1.3  Structure Overview (Synopsis)

The structures specified in this format provide an extended XML vocabulary for the DrawingML file format structure. The extended elements and attributes enable the format to indicate further

information about a document, or content and formatting of parts of the document beyond the elements and attributes of the Office Open XML File Formats as described in [ISO/IEC-29500:2008]. Because these elements and attributes are meant as extensions, their intent and usage varies.

The extensions specified in this format are integrated into Office Open XML file formats by means of the Markup Compatibility and Extensibility features described in [ISO/IEC-29500-3]. Specifically, the **Ignorable** attribute, the **AlternateContent** element, and application-defined extension elements maintain compatibility with Office Open XML File Formats implementations when integrating the extensions from this format. Using these extensions as specified in this document results in Office Open XML file formats conformance.

The following sections provide an overview of the functionality supported by these extensions.

### 1.3.1  Charts

Chart extensions add a number of features to charts ([ISO/IEC-29500-1] section 21.2). Following are the new extensions:

- The **invertSolidFillFmt** extension for the **ser** element described in [ISO/IEC-29500-1] section 21.2.2.170 and the **ser** element described in [ISO/IEC-29500-1] section 21.2.2.174 specify the color of the negative data points of the chart series ([ISO/IEC-29500-1] section 21.2).

- The **pivotOptions** extension for the **chartspace** element ([ISO/IEC-29500-1] section 21.2.2.29) specifies which pivot controls appear on the chart ([ISO/IEC-29500-1] section 21.2).

- The **style** extension for the **chartspace** element ([ISO/IEC-29500-1] section 21.2.2.29) specifies the new styles of the chart ([ISO/IEC-29500-1] section 21.2).

### 1.3.2  Content Parts and Ink

Ink is stored in documents as an extension by using a part referenced by the relationship **id** attribute of a content part element. Some content part elements are described in [ISO/IEC-29500-1] section 17.3.3.2, 19.3.1.14, and 20.5.2.12. Other content part elements are themselves extensions (2.2.2). The content of the part contains XML that conforms to a subset of the syntax and semantics for the Ink Markup Language as described in [InkML], the W3C EMMA recommendation specification [EMMA], and other extended elements (2.1.2).

### 1.3.3  Pictures

Embedded raster images (bitmaps) can be edited and replaced by the processed results. Unless the document author disables storing image editing data, the original bitmap and the processing parameters applied are stored in the **imgProps** extension (2.3.3) to enable non-destructive editing of the bitmap. For backward compatibility and performance, applications do not display changes made to the image-editing data for the embedded bitmaps unless the user edits them with the application UI or through the Object Model.

Bitmap pictures are resampled and compressed when inserted and saved based on document DPI. Individual bitmaps can be set to override the default document compression setting by using the **useLocalDpi** extension (2.3.4).

### 1.3.4  Diagrams

The last successful layout for a diagram is stored in documents as an extension by using a Diagram Layout part. The part is referenced by the relationship **id** attribute of a **DataModelExt** extension to the Data Model. For more information, see [ISO/IEC-29500-1] section 21.4.2.10. The content of the part contains XML as defined by Diagram Layout (section 2.1.1).

The **DataModelExt** contains a version URI that represents the minimum version required to run the layout. If an application version is insufficient to perform layout, the Diagram Layout can be used to display the diagram.

The **recolorImg** extension specifies recoloring images in the diagram according to the color style currently applied. This gives images a more integrated look.

The **cNvPr** extension adds non-visual drawing properties to points in the diagram. This enables adding **hyperlinks** and alternative text for use by assistive technologies or applications that do not display the diagram shapes.

### 1.3.5  Math

Math extensions represent mathematical expressions in DrawingML content. Mathematical equations in objects represented in DrawingML are stored in **AlternateContent** elements. These **AlternateContent** elements contain DrawingML and the math-specific element, **m**. The expression of mathematical content in DrawingML objects is similar to the representation of math in WordprocessingML ([ISO/IEC-29500-1] section 22.1) with the distinction that the math content in DrawingML is modified by properties specified in the DrawingML namespace, rather than in WordprocessingML.

### 1.3.6  SpreadsheetML Drawing

**ActiveX control** objects, Embedded **OLE** and form **control** embedded objects in SpreadsheetML are each associated with a **shape** in DrawingML. The shape in DrawingML is a placeholder that specifies the position of the embedded object in the worksheet drawing tree that in turn specifies the embedded object z-order and grouping information in relation to other drawing objects.

Visible text and visible text-related properties of form control embedded objects are specified by the **txBody** element of the placeholder shape.  For more information, see [ISO/IEC-29500-1] section 20.5.2.34.

An implementing application can replace this shape with any other placeholder shape when saving.

### 1.3.7  WordprocessingML Drawing

WordprocessingML drawing extensions integrate graphical objects into WordprocessingML documents. See 2.2.7 for a discussion of how these objects are integrated and how interoperation with clients that conform to the Office Open XML file formats, as described in [ISO/IEC-29500:2008], is achieved.

The primary graphical objects introduced are the following:

- Shapes are represented by the wsp element of type CT_WordprocessingShape.

- Groups of graphical objects are represented by the wgp element of type CT_WordprocessingGroup.

- Canvases are represented by the wpc element of type CT_WordprocessingCanvas.

- **Ink** objects are represented by the contentPart element of type CT_WordContentPart.

Groups and canvases are similar in structure, but have different behavior. Both groups and canvases can contain any graphical object as a **graphic** element as described in [ISO/IEC-29500-1] section 20.1.2.2.16 in addition to other shapes, pictures, groups, and ink.

Additionally, the picture type defined for WordprocessingML as described in [ISO/IEC-29500-1] section 20.2.2.5 has been extended to enable styling information to be applied.

## 1.4 Relationship to Protocols and Other Structures

The Office Drawing extensions to Office Open XML file formats as described in [ISO/IEC-29500:2008] are a specified set of extensions to Office Open XML DrawingML, as described in [ISO/IEC-29500-1]. This specification is dependent on the structures and concepts defined in the following references:

- [ISO/IEC-29500-1] for baseline DrawingML persistence format

- [ISO/IEC-29500-2] for open packaging conventions

- [ISO/IEC-29500-3] for markup compatibility and extensibility

- [ISO/IEC-29500-4] for backward-compatibility considerations

- [MS-DOCX] for WordprocessingML extensions

- [MS-XLSX] for SpreadsheetML extensions

- [MS-PPTX] for PresentationML extensions

## 1.5 Applicability Statement

This document specifies a persistence format for extensions, as described in [ISO/IEC-29500-1], to the Office Open XML file formats for DrawingML ([ISO/IEC-29500:2008]) content in WordprocessingML, SpreadsheetML, and PresentationML ([ISO/IEC-29500:2008]) documents. The extensions specified in this document enable expressing additional content and properties, and are not applicable as a stand-alone file format. Each structure specified in this document is integrated with the Office Open XML file formats as described in [ISO/IEC-29500-1] for DrawingML content as specified in the section for that structure. All structures are integrated into DrawingML content to maintain compatibility with implementations of the Office Open XML file formats as described in [ISO/IEC-29500-1].

The extensions specified in this document do not require any other extensions to be used and do not prohibit any other extensions from being used in the same document.

## 1.6 Versioning and Localization

None.

## 1.7 Vendor-Extensible Fields

None.

# 2 Structures

## 2.1 Part Enumerations

The following subsections enumerate the parts, content types, source relationships, and part contents used by extensions specified in this document.

### 2.1.1 Diagram Layout

The following table shows the content type and source relationship of a Diagram Layout part.

| Part components | Value |
|---|---|
| Content Type | application/vnd.ms-office.drawingml.diagramDrawing+xml |
| Source Relationship | http://schemas.microsoft.com/office/2007/relationships/diagramDrawing |

An instance of this part specifies the last successful layout of a diagram.

A Diagram Layout part MUST be the target of an relationship from a WordprocessingML Main Document ([ISO/IEC-29500-1] section 11.3.10); a SpreadsheetML Drawings part ([ISO/IEC-29500-1] section 12.3.8), PresentationML Handout Master ([ISO/IEC-29500-1] section 13.3.3), Notes Master ([ISO/IEC-29500-1] section 13.3.4), Notes Slide ([ISO/IEC-29500-1] section 13.3.5), Slide ([ISO/IEC-29500-1] section 13.3.8), Slide Layout ([ISO/IEC-29500-1] section 13.3.9), or Slide Master ([ISO/IEC-29500-1] section 13.3.10) part.

A Diagram Data part is permitted to have explicit relationships to an Image Part ([ISO/IEC-29500-1] section 15.2.14) and a Hyperlink ([ISO/IEC-29500-1] section 15.3).

The content of the Diagram Layout<1> part is **XML**. The root element of this part is drawing.

### 2.1.2 Ink Content Part

The following table shows the content type and source relationship of an Ink Content part.

| Part components | Value |
|---|---|
| Content Type | application/inkml+xml |
| Source Relationship | http://schemas.openxmlformats.org/officeDocument/2006/relationships/customXml |

An instance of this part specifies an **Ink** object.

An Ink Content part MUST be the target of an explicit relationship with a Document part containing a **contentPart** element ([ISO/IEC-29500-1] section 17.3.3.2), WordprocessingML Drawing **contentPart** (2.3.13) or **lockedCanvas** element ([ISO/IEC-29500-1] section 20.3.2.1) with **contentPart** element (2.3.23), a Slide part containing a **contentPart** element ([ISO/IEC-29500-1] section 19.3.1.14), a Worksheet Drawing part containing a **contentPart** element ([ISO/IEC-29500-1] section 20.5.2.12) or SpreadsheetML group **contentPart** element (2.3.25), or a Chart Drawing part containing a **contentPart** element (2.3.24).

The content of the Ink part is XML as specified by a subset of syntax and semantics for the Ink Markup Language as specified in [InkML]. The following table defines the subset of constructs supported as specified in [InkML]. The sections in the first column are references to the sections of [InkML]. The second column indicates the level of support for the construct.

| InkML Structural Element | Description |
|---|---|
| **ink** | The root element of this part MUST be **ink**, and it MUST be in the http://www.w3.org/2003/InkML namespace. |
| **traceFormat** | MUST be a child of an **inkSource** to be recognized. It MAY<2> be a child of other elements specified in [InkML], but its presence in elements other than **inkSource** is ignored and not persisted. |
| **intermittentChannels** | MAY<3> appear as a child element of **traceFormat** elements, but is ignored and not persisted. |
| **channel** | One or more **channel** elements MUST appear as child elements of a **traceFormat** element.<br><br>The **type** attribute MAY<4> be any string, but strings other than the following strings are ignored: X, Y, Z, S, T, SN, F, TP, BP, OTx, OTy, OA, OE, OR, RP, RR, RY, TW, TH, and TC.  If the channel type "T" is used, the channel values MUST be integers that represent milliseconds.<br><br>The **orientation** attribute MAY<5> be present, but is ignored.<br><br>The **respectTo** attribute MAY<6> be present, but is ignored.<br><br>The **units** attribute MAY<7> be any string, but any value other than the following value is ignored: dev, in, cm, deg, rad, s, lb, and g. |
| **trace** | There MAY<8> be one or more **trace** elements at the root level of the part, or as child elements of **traceGroup** elements.<br><br>The **type** attribute MAY<9> be present, but is ignored and not persisted.<br><br>The **continuation** attribute MAY<10> be present, but is ignored and not persisted.<br><br>The **priorRef** attribute MAY<11> be present, but is ignored and not persisted.<br><br>The **contextRef** attribute MUST be present and MUST reference the **id** of a **context** element defined in this part.<br><br>The **brushRef** attribute MUST be present and MUST reference the **id** of a **brush** element defined in this part.<br><br>The **duration** attribute MAY<12> be present, but is ignored and not persisted.<br><br>The **timeOffset** attribute MAY<13> be present, but is ignored and not persisted.<br><br>The contents of a **trace** element MUST be a string that conforms to the syntax and semantics for the Ink Markup Language as specified in [InkML] section 3.2.1. |
| **traceGroup** | There MAY<14> be one or more **traceGroup** elements at the root level of the part, or as child elements of other **traceGroup** elements.<br><br>The **contextRef** attribute MAY<15> be present, but is ignored and not persisted.<br><br>The **brushRef** attribute MAY<16> be present, but is ignored and not persisted.<br><br>The **annotation** element MAY<17> be present as a child element, but is ignored and not persisted.<br><br>The **annotationXML** element MAY<18> be present as a child element. If present, it MUST contain an **emma:emma** element conforming to the format described in the following section on the Extensible MultiModal Annotation markup language (EMMA) as specified in the [EMMA] specification. Any other content is ignored and not persisted. |
| **traceView** | The **traceView** element MAY<19> be present, but is ignored and not persisted. |

| InkML Structural Element | Description |
|---|---|
| **context** | MUST be a child of a **definitions** element to be recognized. It MAY[20] be a child of other elements, but its presence in elements other than **definitions** is ignored and not persisted.<br><br>The **contextRef** attribute MAY[21] be present, but is ignored and not persisted.<br><br>The **canvasRef** attribute MAY[22] be present, but is ignored and not persisted.<br><br>The **canvasTransformRef** attribute MAY[23] be present, but is ignored and not persisted.<br><br>The **traceFormatRef** attribute MAY[24] be present, but is ignored and not persisted.<br><br>The **inkSourceRef** attribute MAY[25] be present, but is ignored and not persisted.<br><br>The **brushRef** attribute MAY[26] be present, but is ignored and not persisted.<br><br>The **timestampRef** attribute MAY[27] be present, but is ignored and not persisted.<br><br>The **canvas** element MAY[28] be present as a child element, but is ignored and not persisted.<br><br>The **canvasTransform** element MAY[29] be present as a child element, but is ignored and not persisted.<br><br>The **timestamp** element MAY[30] be present as a child element, but is ignored and not persisted. |
| **inkSource** | The **xml:id** attribute MUST be present. |
| **sampleRate** | MAY[31] be present as a child element, but is ignored and not persisted. |
| **latency** | MAY[32] be present as a child element, but is ignored and not persisted. |
| **activeArea** | MAY[33] be present as a child element, but is ignored and not persisted. |
| **srcProperty** | MAY[34] be present as a child element, but is ignored and not persisted. |
| **channelProperties** | MAY[35] be present as a child element. |
| **channelProperty** | MAY[36] appear as a child of **channelProperties** elements.<br><br>The **channel** attribute MUST specify a channel previously defined in a **traceFormat**.<br><br>The **name** attribute MAY[37] contain any name, but only the value "resolution" is regarded and persisted. All other values are ignored and not persisted. |
| **brush** | MAY[38] have a **brushRef** attribute, but it is ignored and not persisted. |
| **brushProperty** | The **brushProperty** element MUST have a **name** attribute. The value of name MAY[39] be any string, but only the values width, height, color, transparency, tip, rasterOp, antiAliased, fitToCurve, and ignorePressure are used.  Any other value causes the **brushProperty** element to be ignored.<br><br>The optional **value** and **units** attributes MUST conform to certain parameters depending on the **name** attribute value.   If the **value** or **units** values do not conform to the following table, then a default value/unit is used. |
| | **Property name** | **Interpretation** |

| InkML Structural Element | Description | |
|---|---|---|
| | width | Width of the brush.<br><br>The **value** attribute MUST be an xsd:decimal, and the **units** attribute MUST be a length unit as specified in [InkML] section 6.4.<br><br>Default is .053 cm. |
| | height | Height of the brush.<br><br>The **value** attribute MUST be an xsd:decimal, and the **units** attribute MUST be a length unit as specified in [InkML] section 6.4.<br><br>Default is .001 cm. |
| | color | Color of brush in RGB.<br><br>The **value** attribute MUST be a string that begins with a '#' character followed by six hexadecimal digits.  The **units** attribute MUST NOT be present.Default is #000000. |
| | transparency | Transparency of brush.<br><br>The **value** attribute MUST be an xsd:int in the range of 0-255.  The **units** attribute MUST NOT be present.Default is 0. |
| | tip | The type of pen tip.<br><br>The **value** attribute MUST be either ellipse or rectangle. The **units** attribute MUST NOT be present.<br><br>Default is **ellipse**. |
| | rasterOp | A value that defines how the colors of the pen and background interact.<br><br>The **value** attribute MUST be noOperation, copyPen, maskPen, black, maskNotPen, maskPenNot, mergeNotPen, mergePen, mergePenNot, not, notCopyPen, notMaskPen, notMergePen, notXOrPen, white, or xOrPen.  The **units** attribute MUST NOT be present.<br><br>The default value is copyPen. |
| | antiAliased | A value that indicates if the drawn ink is anti-aliased.<br><br>The **value** attribute MUST be a xsd:boolean.  The **units** attribute MUST NOT be present.<br><br>Default is true. |
| | fitToCurve | A value that indicates if the ink is rendered as a series of curves versus as lines between pen sample points.<br><br>The **value** attribute MUST be a xsd:boolean.  The **units** attribute MUST NOT be present.<br><br>Default is false. |
| | ignorePressure | A value that indicates if pressure from the pen tip is ignored.The **value** attribute MUST be a xsd:boolean.  The **units** attribute MUST NOT be present.<br><br>Default is false. |
| **timestamp** | MAY<40> be present, but is ignored and not persisted. | |

| InkML Structural Element | Description |
|---|---|
| **canvas** | MAY<41> be present, but is ignored and not persisted. |
| **canvasTransform** | MAY<42> be present, but is ignored and not persisted. |
| **mapping** | MAY<43> be present, but is ignored and not persisted. |
| **bind** | MAY<44> be present, but is ignored and not persisted. |
| **table** | MAY<45> be present, but is ignored and not persisted. |
| **matrix** | MAY<46> be present, but is ignored and not persisted. |
| **definitions** | MAY<47> contain child **trace** elements, but they are ignored and not persisted. The **trace** element is regarded as a child element of only **ink** or **traceGroup** parent elements. |
| | MAY<48> contain child **traceGroup** elements, but they are ignored and not persisted. The **traceGroup** element is regarded as a child element of only **ink** or other **traceGroup** parent elements. |
| | MAY<49> contain child **inkSource** elements, but they are ignored and not persisted. The **inkSource** element is regarded as a child element of only **context** parent elements. |
| | MAY<50> contain child **traceFormat** elements, but they are ignored and not persisted. The **traceFormat** element is regarded as a child element of only **inkSource** parent elements. |
| **annotation** | MAY<51> be present, but is ignored and not persisted. |
| **annotationXML** | If present as a child element of a **traceGroup** element, it MUST contain an **emma:emma** element that conforms to the subset of the EMMA as specified in [EMMA]. Otherwise, it is ignored and not persisted. |

The **annotationXML** elements of a **traceGroup** element if present MUST contain XML that conforms to a subset of the EMMA as specified in [EMMA]. The following table defines the subset of constructs that are supported as specified in [EMMA]. The sections in the first column are references to the sections of [EMMA]. The second column indicates the level of support for the construct.

| EMMA structural element | Description |
|---|---|
| Root element: **emma:emma** | The root element of the part MUST be **emma**, and it MUST be in the http://www.w3.org/2003/04/emma namespace. |
| Interpretation element: **emma:interpretation** | The first child element MUST be an **emma:interpretation** element, and it MUST contain a **context** element. |
| | The **id** attribute of the **emma:interpretation** element MAY<52> be present. If present, this attribute MUST be a **GUID**. |
| | The **emma:mode** attribute MUST be present and MUST be set to "ink". |
| **emma:one-of** element | The second child element of **emma:emma** is an **emma:one-of** element, it MUST contain one or more **emma:interpretation** elements, and the child elements MUST be **emma:literal** elements that contain plain text. The series of literal interpretations specifies the recognized text of the ink object. The order of the **emma:interpretation** elements MUST be sorted in order of confidence, from highest to lowest. |
| | The **disjunction-type** attribute MUST be present and MUST be set to "recognition". |

| EMMA structural element | Description |
|---|---|
| **emma:group** element | The **emma:emma** element MAY<53> contain an **emma:group** element, but its contents are ignored and not persisted. |
| **emma:sequence** element | The **emma:emma** element MAY<54> contain an **emma:sequence** element, but its contents are ignored and not persisted. |
| Lattice markup: **emma:lattice**, **emma:arc**, and **emma:node** elements | The **emma:interpretation** element MAY<55> contain an **emma:lattice** element, but its contents are ignored and not persisted. |

## 2.2 Extensions

This section specifies the elements from the Office Open XML file formats as specified in [ISO/IEC-29500-1] that are extended by this format. Either the **Ignorable** attribute ([ISO/IEC-29500-3] section 10.1.1), the **Alternate-Content** elements ([ISO/IEC-29500-3] section 10.2), or the **extLst** element ([ISO/IEC-29500-1] section 20.1.2.2.15, [ISO/IEC-29500-1] section 21.2.2.64, or [ISO/IEC-29500-1] section 21.4.2.13) MUST be used to maintain compatibility with Office Open XML file formats as specified in [ISO/IEC-29500:2008].

### 2.2.1 Charts

The **chartspace** element ([ISO/IEC-29500-1] section 21.2.2.29) is extended by the addition of an **AlternateContent** child element ([ISO/IEC-29500-3] section 10.2.1), for which the structure is specified in the following table.

| AlternateContent components | Child element |
|---|---|
| Choice: http://schemas.microsoft.com/office/drawing/2007/8/2/chart | **style** |
| Fallback | **style** ([ISO/IEC-29500-1] section 21.2.2.202) |

The **extLst** child element ([ISO/IEC-29500-1] section 21.2.2.64) of the **ser** element ([ISO/IEC-29500-1] section 21.2.2.170) is extended by the addition of an **ext** child element, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| {6F2FDCE9-48DA-4B69-8628-5D25D57E5C99} | **invertSolidFillFmt** |

The **extLst** child element ([ISO/IEC-29500-1] section 21.2.2.64) of the **ser** element ([ISO/IEC-29500-1] section 21.2.2.174) is extended by the addition of an **ext** child element, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| {6F2FDCE9-48DA-4B69-8628-5D25D57E5C99} | **invertSolidFillFmt** |

The **extLst** child element ([ISO/IEC-29500-1] section 21.2.2.64) of the **chart** element ([ISO/IEC-29500-1] section 21.2.2.27) is extended by the addition of an **ext** child element, for which the structure is specified in the following table:

| Extension URI | Child element |
|---|---|
| {781A3756-C4B2-4CAC-9D66-4F8BD8637D16} | **pivotOptions** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

## 2.2.2 Content Parts and Ink

An ink object can exist as a content part referenced by a **contentPart** element. See 2.1.2 for the syntax of the ink content part.

A **contentPart** element is specified in [ISO/IEC-29500-1] as an element in a WordprocessingML document ([ISO/IEC-29500-1] section 17.3.3.2), an element in a PresentationML slide ([ISO/IEC-29500-1] section 19.3.1.14), or an element in a SpreadsheetML drawing ([ISO/IEC-29500-1] section 20.5.2.12).

The following extensions define additional **contentPart** elements.

The DrawingML **grpSp** element ([ISO/IEC-29500-1] section 20.1.2.2.20) and **lockedCanvas** element ([ISO/IEC-29500-1] section 20.3.2.1) are extended by the addition of **AlternateContent** child elements ([ISO/IEC-29500-3] section 10.2.1), for which the structure is specified in the following table.

| AlternateContent components | Child element |
|---|---|
| Choice:<br>http://schemas.microsoft.com/office/drawing/2010/main | **contentPart** |
| Fallback | **sp** ([ISO/IEC-29500-1] section 20.1.2.2.33) |

The SpreadsheetML **grpSp** element ([ISO/IEC-29500-1] section 20.5.2.17) is extended by the addition of an **AlternateContent** child element, for which the structure is specified in the following table:

| AlternateContent components | Child element |
|---|---|
| Choice:<br>http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing | **contentPart** |
| Fallback | **sp** ([ISO/IEC-29500-1] section 20.5.2.29) |

The WordprocessingML **contentPart** is an optional child of **CT_WordprocessingCanvas** (**wpc**), and **CT_WordprocessingGroup** (**grpSp**, **wgp**), or as a child of **graphicData** ([ISO/IEC-29500-1] section 20.1.2.2.17) as specified in 2.2.7.4.

The PresentationML **contentPart** ([ISO/IEC-29500-1] section 19.3.1.14) is an optional child element of **CT_GroupShape** (**grpSp**, **spTree** ([ISO/IEC-29500-1] sections 19.3.1.22 and 19.3.1.45).

### 2.2.3   Pictures

The **extLst** child element of the **binary large image or picture (BLIP)** element ([ISO/IEC-29500-1] section 20.1.8.13) is extended by the addition of **ext** child elements, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| http://schemas.microsoft.com/office/drawing/2010/main | **imgProps** |
| http://schemas.microsoft.com/office/drawing/2010/main | **useLocalDpi** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

### 2.2.4   Diagrams

#### 2.2.4.1   Diagram Layout

The **extLst** child element of the **dataModel** element ([ISO/IEC-29500-1] section 21.4.2.10) is extended by the addition of **ext** child elements, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| http://schemas.microsoft.com/office/drawing/2008/diagram | **dataModelExt** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

#### 2.2.4.2   Image Recoloring

The **extLst** child element of the **dataModel** element ([ISO/IEC-29500-1] section 21.4.2.10) is extended by the addition of **ext** child elements, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| {C62137D5-CB1D-491b-B009-E17868A290BF} | **recolorImg** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

### 2.2.5   Math

Each of the objects added to DrawingML documents MUST be contained by other instances of extensions or MUST make use of extensibility mechanisms from Office Open XML file formats as specified in [ISO/IEC-29500:2008]. For compatibility with existing Office Open XML file formats implementations, all of the extensions are integrated into DrawingML through the use of **AlternateContent** elements as specified in [ISO/IEC-29500-3] section10.2.1.

| AlternateContent components | Child elements |
|---|---|
| Choice:<br>http://schemas.microsoft.com/office/drawing/2010/main | **m** |
| Fallback | **p:sp**, **p:graphicFrame, xdr:sp**. or **cdr:sp** |

The **p:sp** element is specified in [ISO/IEC-29500-1] section 19.3.1.43, **p:graphicFrame** is specified in [ISO/IEC-29500-1] section 19.3.1.21, **xdr:sp** is specified in [ISO/IEC-29500-1] section 20.5.2.29, and **cdr:sp** is specified in [ISO/IEC-29500-1] section 21.3.2.22.

Content of the **m** element is specified by DrawingML ([ISO/IEC-29500-1] section 20.1) and the mathematics **OMML** ([ISO/IEC-29500-1] section 22.1), except as restricted and modified by the following table.

| Element | Description |
|---|---|
| WordprocessingML child elements | MUST NOT appear in this extension. |
| **cGp** | MUST NOT appear in this extension. |
| **cGpRule** | MUST NOT appear in this extension. |
| **cSp** | MUST NOT appear in this extension. |
| **eqArrPr** | The child elements **rSp** ([ISO/IEC-29500-1] section 22.1.2.92) and **rSpRule** ([ISO/IEC-29500-1] section 22.1.2.93) MUST NOT appear as child elements of **eqArrPr**. |
| **mathFont** | Font substitution in the context of this extension conforms to the Office Open XML file formats as specified in [ISO/IEC-29500-1] section 21.1.2.5. |
| **mathPr** | The direct child element of the **m** element in the context of presentation properties MUST be **mathPr** ([ISO/IEC-29500-1] section 22.1.2.62). Such a **mathPr** MUST only contain **brkBin** ([ISO/IEC-29500-1] section 22.1.2.16) and **brkBinSub** ([ISO/IEC-29500-1] section 22.1.2.17). |
| **mcJc** | MUST NOT appear in this extension. |
| **mcPr** | The **mcJc** element ([ISO/IEC-29500-1] section 22.1.2.65) is not permitted as a child of this element. |
| **mPr** | The following are not permitted as child elements of **mPr** in this extension and MUST NOT appear: **cGp** ([ISO/IEC-29500-1] section 22.1.2.18), **cGpRule** ([ISO/IEC-29500-1] section 22.1.2.19), **cSp** ([ISO/IEC-29500-1] section 22.1.2.22), **rSp** ([ISO/IEC-29500-1] section 22.1.2.92), and **rSpRule** ([ISO/IEC-29500-1] section 22.1.2.93). |
| **oMath** | The direct child element of the **m** element in the context of a paragraph MUST be either **oMath** or **oMathPara**. |
| **oMathPara** | The direct child element of the m element in the context of a paragraph MUST be either **oMath** or **oMathPara**. Only one justification style is permitted per containing text paragraph. All but the first **jc** values of each **oMathPara**, are ignored. |
| **r** | The **rPr** element ([ISO/IEC-29500-1] section 21.1.2.3.9) is not required, and the **t** element ([ISO/IEC-29500-1] section 21.1.2.3.11) MUST appear as child elements of **m:r**. |
| **rSp** | MUST NOT appear in this extension. |
| **rSpRule** | MUST NOT appear in this extension. |

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### 2.2.6 SpreadsheetML Drawing

#### 2.2.6.1 Camera Tool

The **extLst** child element of the **nvPicPr** element ([ISO/IEC-29500-1] section 20.5.2.22) is extended by the addition of **ext** child elements, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| {84589F7E-364E-4c9e-8A38-B11213B215E9} | **cameraTool** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

The **twoCellAnchor** element ([ISO/IEC-29500-1] section 20.5.2.33), **oneCellAnchor** element ([ISO/IEC-29500-1] section 20.5.2.24), **absoluteAnchor** element ([ISO/IEC-29500-1] section 20.5.2.1), **pic** element ([ISO/IEC-29500-1] section 20.5.2.25), or **grpSp** element ([ISO/IEC-29500-1] section 20.5.2.17) are extended by the addition of an **AlternateContent** child element ([ISO/IEC-29500-3] section 10.2.1), for which the structure is specified in the following table.

| AlternateContent components | Child elements |
|---|---|
| Choice:<br><br>http://schemas.microsoft.com/office/drawing/2010/main | **cameraTool** |
| Choice structure:<br><br>`  <wsDr>`<br>`    <twoCellAnchor> or <oneCellAnchor> or <absoluteAnchor>`<br>`      <grpSp> - if inside a group`<br>`        <pic>`<br>`          <nvPicPr>`<br>`            <cNvPicPr>`<br>`              <extLst>`<br>`                <ext>`<br>`                  <cameraTool>`<br>`                    ...` | |
| Fallback | Empty |

The **wsDr** element is specified in [ISO/IEC-29500-1] section 20.5.2.35, **nvPicPr** is specified in [ISO/IEC-29500-1] section 20.5.2.22, and **cNvPicPr** is specified in [ISO/IEC-29500-1] section 20.5.2.7.

#### 2.2.6.2 Legacy Object Wrapper

The **extLst** child element of the **cNvPr** element ([ISO/IEC-29500-1] section 20.5.2.8) is extended by the addition of **ext** child elements, for which the structure is specified in the following table.

| Extension URI | Child element |
|---|---|
| {63B3BB69-23CF-44e3-9099-C40C66FF867C} | **compatExt** |

See [ISO/IEC-29500-1] section 10.1.2 for more details about extension lists.

The **twoCellAnchor** element ([ISO/IEC-29500-1] section 20.5.2.33), **oneCellAnchor** element ([ISO/IEC-29500-1] section 20.5.2.24), **absoluteAnchor** element ([ISO/IEC-29500-1] section 20.5.2.1), **sp** element ([ISO/IEC-29500-1] section 20.5.2.29), or **grpSp** element ([ISO/IEC-29500-1] section 20.5.2.17) are extended by the addition of an **AlternateContent** child element ([ISO/IEC-29500-3] section 10.2.1), for which the structure is specified in the following table.

| AlternateContent components | Child elements |
|---|---|
| Choice:<br><br>http://schemas.microsoft.com/office/drawing/2010/main | **compatExt** |
| Choice structure:<br><br><pre><wsdr><br>  <twoCellAnchor> or <oneCellAnchor> or <absoluteAnchor><br>    <grpSp> - if inside a group<br>      <sp><br>        <nvSpPr><br>          <cNvPr><br>            <extLst><br>              <ext><br>                <compatExt><br>                   ...</pre> | |
| Fallback | Empty |

The **wsDr** element is specified in [ISO/IEC-29500-1] section 20.5.2.35, **nvSpPr** is specified in [ISO/IEC-29500-1] section 20.5.2.23, and **cNvPr** is specified in [ISO/IEC-29500-1] section 20.5.2.8.

## 2.2.7   WordprocessingML Drawing

Each of the objects added to WordprocessingML documents MUST be contained by other instances of extensions or MUST make use of extensibility mechanisms from Office Open XML file formats as specified in [ISO/IEC-29500:2008]. For compatibility with existing Office Open XML file format implementations, all extensions are integrated into WordprocessingML through the use of **AlternateContent** elements as specified in [ISO/IEC-29500-3] section 10.2.1.

In all cases, the **AlternateContent** element MUST have only a single **Choice** element as specified in [ISO/IEC-29500-3] section 10.2.2 and a single **Fallback** element as specified in [ISO/IEC-29500-3] section 10.2.3 as child elements.

The parent element of the **AlternateContent** element MUST be an **r** (Text Run) element as specified in [ISO/IEC-29500-1] section 17.3.2.25.

The following sections associate the URIs used to indicate each **Choice** element with the URIs used in the descendent **graphicData** element, the contents of the **graphicData** (Graphic Object Data) element and the contents of the **Fallback** element as specified in [ISO/IEC-29500-1] section 20.1.2.2.17,. In all cases, the value of the **uri** attribute of the **graphicData** element MUST match the value of the URI of the ancestor **Choice** element.

Although the URI for the **Requires** attributes of the **Choice** element is specified in the following sections, the **Requires** attributes MUST evaluate to a prefix that resolves to the specified URI. The **Requires** attributes MUST NOT evaluate to the URI itself.

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### 2.2.7.1   DrawingML Shapes in WordprocessingML

This section specifies how the **CT_WordprocessingShape** type and **wsp** element are integrated into the Office Open XML file formats as specified in [ISO/IEC-29500:2008].

| AlternateContent components | Child elements |
|---|---|
| Choice:<br><br>http://schemas.microsoft.com/office/word/2010/wordprocessingShape | **wsp** |
| Choice structure:<br><br>```<br>  <drawing><br>    <anchor> or <inline><br>      <graphic><br>        <graphicData<br>uri="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"><br>          <wsp><br>            ...<br>``` | |
| Fallback | **pict** (VML Object) ([ISO/IEC-29500-4])section 9.2.2.2 |

The **drawing** element is specified in [ISO/IEC-29500-1] section 17.3.3.9, **anchor** is specified in [ISO/IEC-29500-1] section 20.4.2.3, **inline** is specified in [ISO/IEC-29500-1] section 20.4.2.8, **graphic** is specified in [ISO/IEC-29500-1] section 20.1.2.2.16, and **graphicData** is specified in [ISO/IEC-29500-1] section 20.1.2.2.17.

### 2.2.7.2   DrawingML Groups in WordprocessingML

This section specifies how the **CT_WordprocessingGroup** type and the **wgp** element are integrated into [ISO/IEC-29500:2008].

| AlternateContent components | Child elements |
|---|---|
| Choice:<br><br>http://schemas.microsoft.com/office/word/2010/wordprocessingGroup | **wgp** |
| Choice structure:<br><br>```<br>  <drawing><br>    <anchor> or <inline><br>      <graphic><br>        <graphicData<br>uri="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"><br>          <wgp><br>            ...<br>``` | |
| Fallback | [ISO/IEC-29500-4]<br>section9.2.2.2 pict (VML Object) |

The **drawing** element is specified in [ISO/IEC-29500-1] section 17.3.3.9, **anchor** is specified in [ISO/IEC-29500-1] section 20.4.2.3, **inline** is specified in [ISO/IEC-29500-1] section 20.4.2.8, **graphic** is specified in [ISO/IEC-29500-1] section 20.1.2.2.16, and **graphicData** is specified in [ISO/IEC-29500-1] section 20.1.2.2.17.

### 2.2.7.3  DrawingML Canvases in WordprocessingML

This section specifies how the **CT_WordprocessingCanvas** type and **wpc** element integrate into the Office Open XML file formats as specified in [ISO/IEC-29500:2008].

| AlternateContent components | Child elements |
|---|---|
| Choice: <br><br> http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas | **wpc** |
| Choice structure: <br><br> ```<drawing>``` <br>   ```<anchor> or <inline>``` <br>     ```<graphic>``` <br>       ```<graphicData``` <br> ```uri="http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas">``` <br>         ```<wpc>``` <br>           ```...``` | |
| Fallback | **pict** (VML Object) ([ISO/IEC-29500-4] section 9.2.2.2) |

The **drawing** element is specified in [ISO/IEC-29500-1] section 17.3.3.9, **anchor** is specified in [ISO/IEC-29500-1] section 20.4.2.3, **inline** is specified in [ISO/IEC-29500-1] section 20.4.2.8, **graphic** is specified in [ISO/IEC-29500-1] section 20.1.2.2.16, and **graphicData** is specified in [ISO/IEC-29500-1] section 20.1.2.2.17.

### 2.2.7.4  DrawingML Content Parts in WordprocessingML

This section specifies how the **CT_WordContentPart** type and **contentPart** element integrate into Office Open XML file formats as specified in [ISO/IEC-29500:2008].

| AlternateContent components | Child elements |
|---|---|
| Choice: <br><br> http://schemas.microsoft.com/office/word/2010/wordprocessingInk | **contentPart** |
| Choice structure: <br><br> ```<drawing>``` <br>   ```<anchor> or <inline>``` <br>     ```<graphic>``` <br>       ```<graphicData``` <br> ```uri="http://schemas.microsoft.com/office/word/2010/wordprocessingInk">``` <br>         ```<contentPart>``` <br>           ```...``` | |
| Fallback | **pict** (VML Object) ([ISO/IEC-29500-4] section 9.2.2.2) |

The **drawing** element is specified in [ISO/IEC-29500-1] section 17.3.3.9, **anchor** is specified in [ISO/IEC-29500-1] section 20.4.2.3, **inline** is specified in [ISO/IEC-29500-1] section 20.4.2.8, **graphic** is specified in [ISO/IEC-29500-1] section 20.1.2.2.16, and **graphicData** is specified in [ISO/IEC-29500-1] section 20.1.2.2.17.

## 2.3 Global Elements

### 2.3.1 cameraTool

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A [CT_CameraTool](#) element that specifies that a picture, as defined by the **pic** element as specified in [ISO/IEC-29500-1] section 20.2.2.5, is a camera object. A camera object is a picture that shows a live view of a cell range in the specified spreadsheet, including any graphic objects contained in the cell range and all formatting applied to the contents of the cell range. Updates to the contents of the cell range are reflected in the camera object. Shape properties, such as the position and size of the camera object, are defined by the parent **pic** element. The view of the cell range MUST be a rectangle. The view of the cell range MUST scale vertically and horizontally to fill the rectangle exactly.

See section [2.2.6.1](#) for information about how this element is integrated with the Open XML file formats as specified in- [ISO/IEC-29500:2008].

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

```
<xsd:element name="cameraTool" type="CT_CameraTool"/>
```

See section [5.1](#) for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.2 compatExt

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A [CT_CompatExt](#) element that specifies a legacy drawing object. The legacy drawing object MUST be a form control or a legacy OLE or ActiveX control object.

The application MAY delete this legacy shape when loading.[<56>](#)

See section 2.2.6 for how this element integrates with the Open XML file formats -as specified in [ISO/IEC-29500-1].

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

```
<xsd:element name="compatExt" type="CT_CompatExt"/>
```

See section [5.1](#) for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.3 imgProps

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Element type:* **CT_Photo**

*An extension list child element of:* binary large image or picture (BLIP) as specified in [ISO/IEC-29500-1] section 20.1.8.13

(For more details, see [ISO/IEC-29500-1] section 10.1.2)

*Extension list Uri attribute:* {BEBA8EAE-BF5A-486c-A8C5-ECC9F3942E4B}

A CT_Photo element that specifies properties that produce the embedded picture in the containing BLIP.

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

```
<xsd:element name="imgProps" type="CT_Photo"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.4   useLocalDpi

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Element type:* **CT_UseLocalDpi**

*An extension list child element of:* BLIP as specified in [ISO/IEC-29500-1] section 20.1.8.13.

For more details, see [ISO/IEC-29500-1] section 10.1.2.

*Extension list URI attribute:* {28A0092B-C50C-407e-A947-70E740481C1C}

A CT_UseLocalDpi element that specifies a flag indicating that the local BLIP compression setting overrides the document default compression setting.

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

```
<xsd:element name="useLocalDpi" type="CT_UseLocalDpi"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.5   shadowObscured

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Element type:* **CT_ShadowObscured**

*An extension list child element of:* [ISO/IEC-29500-1] section 20.2.2.6

For more details, see [ISO/IEC-29500-1] section 10.1.2.

*Extension list URI attribute:* {53640926-AAD7-44d8-BBD7-CCE9431645EC}

A CT_ShadowObscured element that specifies whether a shadow is obscured by a shape with no fill.

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

```
<xsd:element name="shadowObscured" type="CT_ShadowObscured"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.6 hiddenFill

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A **CT_FillProperties** element ([ISO/IEC-29500-1] section A.4.1) that stores the fill information of an object when the shape fill has been set to invisible. If shape fill has been set to visible this element is ignored.

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

```
<xsd:element name="hiddenFill" type="a:CT_FillProperties"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.7 hiddenLine

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A **CT_LineProperties** element ([ISO/IEC-29500-1] section A.4.1) that stores the line information of an object when the line fill has been set to invisible. If line fill has been set to visible this element is ignored.

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

```
<xsd:element name="hiddenLine" type="a:CT_LineProperties"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.8 hiddenEffects

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A **CT_EffectProperties** element ([ISO/IEC-29500-1] section A.4.1) that stores the effect information of an object when the effects have been set to invisible. If effects have been set to visible this element is ignored.

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

```
<xsd:element name="hiddenEffects" type="a:CT_EffectProperties"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.9 hiddenScene3d

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A **CT_Scene3D** element ([ISO/IEC-29500-1] section A.4.1) that stores the 3-D scene information of a scene when the 3-D scene effects have been set to invisible. IF the 3-D scene effects have been set to visible this element is ignored.

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

```
<xsd:element name="hiddenScene3d" type="a:CT_Scene3D"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.10  hiddenSp3d

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A **CT_Shape3D** element ([ISO/IEC-29500-1] section A.4.1) that stores the 3-D shape information of an object when the 3-D shape effects have been set to invisible. If the 3-D shape effects have been set to visible this element is ignored.

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

```
<xsd:element name="hiddenSp3d" type="a:CT_Shape3D"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.11  m

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A CT_TextMath element that specifies either math content in a text paragraph (when such an element is used inside of a text paragraph) or document-level math properties container (when it is used in presentation properties specified by PresentationML). The math content in a text paragraph can be either an inline math zone or a math paragraph.

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

```
<xsd:element name="m" type="CT_TextMath"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.12  wsp

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingShape

*Referenced by:* CT_WordprocessingGroup, CT_WordprocessingCanvas

A CT_WordprocessingShape element that specifies a shape in WordprocessingML. See 2.2.7 for more details about how this element is integrated with the Open XML file formats as specified in [ISO/IEC-29500-1].

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

```
<xsd:element name="wsp" type="CT_WordprocessingShape"/>
```

See section 5.2 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.13 contentPart

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordml

*Referenced by:* CT_WordprocessingGroup, CT_WordprocessingCanvas

A CT_WordContentPart element that specifies a reference to XML content in a format not specified in [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in WordprocessingML ([ISO/IEC-29500-1] section 17.3.3.2), but appears under **graphicData** ([ISO/IEC-29500-1] section 20.1.2.2.17), CT_WordprocessingGroup, and CT_WordprocessingCanvas.

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

```
<xsd:element name="contentPart" type="CT_WordContentPart"/>
```

See section 5.3 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.14 style

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/picture

A **CT_ShapeStyle** element ([ISO/IEC-29500-1] section A.4.1).

Extension attribute on type: [ISO/IEC-29500-1] section 20.2.2.5

To maintain compatibility with Office Open XML file formats as specified in [ISO/IEC-29500:2008], the namespace of this attribute prefix MUST be specified in an **Ignorable** attribute ( [ISO/IEC-29500-3] section 10.1.1).

This element specifies the style information for a picture.

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

```
<xsd:element name="style" type="a:CT_ShapeStyle"/>
```

See section 5.4 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.15 extLst

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/picture

A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1).

Extension attribute on type: **pic** (Picture) as specified in [ISO/IEC-29500-1] section20.2.2.5

To maintain compatibility with Office Open XML implementations as specified in [ISO/IEC-29500:2008], the namespace of this attribute prefix MUST be specified in an **Ignorable** attribute ( [ISO/IEC-29500-3] section 10.1.1).

This element specifies a list of extensions for a picture.

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

```
<xsd:element name="extLst" type="a:CT_OfficeArtExtensionList"/>
```

See section 5.4 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.16   wgp

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingGroup

*Referenced by:* CT_WordprocessingCanvas

A CT_WordprocessingGroup element that specifies a group in WordprocessingML. See 2.2.7 for more details about how this element is integrated with the Open XML file formats as specified in [ISO/IEC-29500-1].

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

```
<xsd:element name="wgp" type="CT_WordprocessingGroup"/>
```

See section 5.5 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.17   wpc

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas

A CT_WordprocessingCanvas element that specifies a **drawing canvas** in WordprocessingML. See section 2.2.7 for more details about how this element is integrated with [ISO/IEC-29500-1].

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

```
<xsd:element name="wpc" type="CT_WordprocessingCanvas"/>
```

See section 5.6 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.18   recolorImg

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/diagram

A CT_Boolean element that specifies that images in the diagram are to be rendered as duotone, and thus rendered with the color specified by the **fillCrlLst** ([ISO/IEC-29500-1] section 21.4.4.8) of the color transform on the diagram.

The following figures demonstrate the effect of this flag on a diagram with images in it.

**Figure 1: recolorImg is set to "false" or not present**



**Figure 2: recolorImg is set to "true"**

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

```
<xsd:element name="recolorImg" type="CT_Boolean"/>
```

See section 5.7 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.19   drawing

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

A CT_Drawing element that specifies the last successful output of diagram layout. This element is the root element of the Diagram Layout part (see 2.1.1).

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

```
<xsd:element name="drawing" type="CT_Drawing"/>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.20   dataModelExt

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Element type:* **CT_DataModelExtBlock**

*An extension list child element of:* **dataModel** as specified in [ISO/IEC-29500-1] section 21.4.2.10

*(*For more details, see [ISO/IEC-29500-1] section 10*.1.2.)*

*Extension list URI attribute:* http://schemas.microsoft.com/office/drawing/2008/diagram

An additional element of a **dataModel** that defines the explicit part location of the Diagram Drawing and the minimum application version required to layout this diagram.

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

```
<xsd:element name="dataModelExt" type="CT_DataModelExtBlock"/>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.21 context

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

A CT_CtxNode element that specifies the context of a set of Ink traces stored in a **traceGroup** element as specified in [InkML].

This element MUST be a child of an **emma:interpretation** element ([EMMA] section 3.2). The **emma:interpretation** element must be a child of an **inkml::annotationXML** element ([InkML] section 6.3.2). The **inkml:annotationXML** element MUST be a child of an **inkml:traceGroup** element ([InkML] section 3.3.1).

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

```
<xsd:element name="context" type="CT_CtxNode"/>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.22 isCanvas

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Element type:* **CT_IsGvmlCanvas**

*An extension list child element of:* **grpSp** (**Group shape**) as specified in [ISO/IEC-29500-1] section 20.1.2.2.20

(For more details, see [ISO/IEC-29500-1] section 10.1.2.)

*Extension list URI attribute:* {42C33886-CC25-47f2-ACA8-312CCD89CECE}

The **val** attribute of this element MUST be set to TRUE if the containing **grpSp** is a GVML representation of a drawing canvas from a word processing application.

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

```
<xsd:element name="isCanvas" type="CT_IsGvmlCanvas"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.23 contentPart

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

A CT_GvmlContentPart element that specifies a reference to XML content in a format not specified by [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in PresentationML ([ISO/IEC-29500-1] section 19.3.1.14), but appears as an element in **CT_GvmlGroupShape** ([ISO/IEC-29500-1] section A.4.1).

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

```
<xsd:element name="contentPart" type="CT_GvmlContentPart"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.24 contentPart

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/chartDrawing

A CT_ContentPart element that specifies a reference to XML content in a format not specified in [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in SpreadsheetML Drawing ([ISO/IEC-29500-1] section 20.5.2.12), but appears under **CT_GroupShape** and **EG_ObjectChoices** ([ISO/IEC-29500-1] section A.5.1) to enable content parts in charts.

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

```
<xsd:element name="contentPart" type="CT_ContentPart"/>
```

See section 5.10 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.25 contentPart

*Target namespace:* http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing

A CT_ContentPart element that specifies a reference to XML content in a format not specified by [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in SpreadsheetML Drawing ([ISO/IEC-29500-1] section 20.5.2.12), but appears as an element in **CT_GroupShape** ([ISO/IEC-29500-1] section A.4.5).

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

```
<xsd:element name="contentPart" type="CT_ContentPart"/>
```

See section 5.11 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.26 pivotOptions

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

A **CT_PivotOptions** element that specifies the pivot controls that appear on the chart ([ISO/IEC-29500-1] section 21.2).

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

```
<xsd:element name="pivotOptions" type="CT_PivotOptions"/>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.27 invertSolidFillFmt

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

A **CT_InvertSolidFillFmt** element that specifies the color of the negative data points of the chart ([ISO/IEC-29500-1] section 21.2) series.

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

```
<xsd:element name="invertSolidFillFmt" type="CT_InvertSolidFillFmt"/>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.28 style

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

A **CT_Style** element that specifies a chart **style** ([ISO/IEC-29500-1] section 21.2).

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

```
<xsd:element name="style" type="CT_Style"/>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.29 pctPosHOffset

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Child element of:* positionH (Horizontal positioning) as specified in [ISO/IEC-29500-1] section 20.4.2.10.

An **ST_Percentage** element as specified in [ISO/IEC-29500-4] section 12.1.2.2 and [ISO/IEC-29500-1] section 20.1.10.40 that specifies the horizontal offset.

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

```
<xsd:element name="pctPosHOffset" type="a:ST_Percentage"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.3.30 pctPosVOffset

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Child element of:* **positionV** (Vertical positioning) as specified in [ISO/IEC-29500-1] section 20.4.2.11.

An **ST_Percentage** element as specified in [ISO/IEC-29500-4] section 12.1.2.2 and [ISO/IEC-29500-1] section 20.1.10.40 that specifies the vertical offset.

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

```
<xsd:element name="pctPosVOffset" type="a:ST_Percentage"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.3.31 sizeRelH

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Optional child element of:* **anchor** as specified in [ISO/IEC-29500-1] section 20.4.2.3.

If present, this element specifies that the horizontal size (width) is relative. If absent, the horizontal size is absolute.

A **CT_SizeRelH** element that specifies the relative width of a floating DrawingML object in a WordprocessingML document.

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

```
<xsd:element name="sizeRelH" type="CT_SizeRelH"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.3.32 sizeRelV

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Optional child element of:* **anchor** as specified in [ISO/IEC-29500-1] section 20.4.2.3.

If present, this element specifies that the vertical size (height) is relative. If absent, the vertical size is absolute.

A **CT_SizeRelV** element that specifies the relative height of a floating DrawingML object in a WordprocessingML document.

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

```
<xsd:element name="sizeRelV" type="CT_SizeRelV"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.3.33  cNvPr

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/diagram

A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual drawing properties of a point in the data model. This enables additional information that does not affect the appearance of the point to be stored.<57>

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

```
<xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps"/>
```

See section 5.7 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.4  Global Attributes

### 2.4.1  legacySpreadsheetColorIndex

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Attribute type:* ST_LegacySpreadsheetColorIndex

*Extension attribute on type:* **srgbClr** (RGB Color Model - Hex Variant) as specified in [ISO/IEC-29500-1] section 20.1.2.3.32

To maintain compatibility with implementations of Office Open XML file formats as specified in [ISO/IEC-29500:2008], the namespace prefix of this attribute MUST be specified in an **Ignorable** attribute ( [ISO/IEC-29500-3] section 10.1.1).

This attribute is an index into a color table specified by the **indexedColors** element ([ISO/IEC-29500-1] section 18.8.27) defined in a SpreadsheetML document.

When present in the context of a spreadsheet application, this attribute overrides any other color information present under its parent **CT_SRgbColor** element. This attribute is ignored in all other contexts.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this attribute.

```
<xsd:attribute name="legacySpreadsheetColorIndex" type="ST_LegacySpreadsheetColorIndex"/>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.4.2  anchorId

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

An optional ST_EditId attribute that specifies an identifier for the element this attribute is applied to. Values MUST be greater than 0 and less than 0x80000000. See [MS-DOCX] section 2.2.6 for how this attribute integrates with [ISO/IEC-29500-1].

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this attribute.

```
<xsd:attribute name="anchorId" type="ST_EditId"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.4.3  editId

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

An optional **ST_EditId** attribute of an anchor or inline element as specified in [ISO/IEC-29500-1] section 20.4.2.3 and [ISO/IEC-29500-1] section 20.4.2.8. If present, this attribute specifies whether the object has been edited relative to the corresponding object in another version of the same document. If this attribute is present on an anchor or inline element and that element is edited in a way other than editing the contents of any nested **txbxContent** element ([ISO/IEC-29500-4] section 9.8.1.1), the application MUST either change the value of this attribute or remove it. If present, the value of this attribute MUST be greater than zero and less than 0x80000000.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this attribute.

```
<xsd:attribute name="editId" type="ST_EditId"/>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5  Complex Types

### 2.5.1  CT_CameraTool

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* cameraTool

A complex type that specifies camera tool properties.

*Attributes:*

**cellRange:** An **xsd:string** ([XMLSCHEMA2] section 3.2.1) that uses standard cell reference syntax as specified in [ISO/IEC-29500-1] section 18.17.2.3. This specifies the cell range of the camera tool. The cell range MUST use the A1 style reference, instead of the R1C1 reference. The cell range MUST be used when defining the camera tool.

**spid:** An **xsd:string** ([XMLSCHEMA2] section 3.2.1) that specifies the shape identifier of a legacy drawing object. If string is "0" there is no legacy shape. However the legacy drawing object MUST be deleted if the current drawing element is to be used. Otherwise, two camera tool objects are present.

This string has the following characteristics:

- If string is not the default value it MUST begin with "_x0000_" followed by one character and a number that specifies the identifier: _x0000_[c]<shape id>

    - The character [c] MUST be set to 's'.

    - Shape identifiers MUST be in the range from 1025 through 268435456.

    - Shape identifiers are clustered, and each cluster has 1024 values. The first cluster ranges from 1025 through 2048.

    - Shape identifiers in the same cluster SHOULD only exist in one worksheet.

- It MUST NOT contain Numeric Character Reference (NCR) characters.

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

```
<xsd:complexType name="CT_CameraTool">
  <xsd:attribute name="cellRange" type="xsd:string"/>
  <xsd:attribute name="spid" use="optional" default="0" type="xsd:string"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.2 CT_CompatExt

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* compatExt

A complex type that specifies a legacy drawing object.

*Attributes:*

**spid:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies the shape identifier of a legacy drawing object.

This string has the following characteristics:

- It begins with "_x0000_" followed by one character and a number that specifies the identifier: _x0000_[c]<shape id>

    - The character [c] MUST be set to 's'.

    - Shape identifiers MUST be in the range from 1025 through 268435456.

    - Shape identifiers are clustered, and each cluster has 1024 values. The first cluster ranges from 1025 through 2048.

    - Shape identifiers in the same cluster exist in only one worksheet.

- It MUST NOT contain NCR characters.

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

```
<xsd:complexType name="CT_CompatExt">
```

```
    <xsd:attribute name="spid" type="xsd:string"/>
  </xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.3   CT_PictureEffectBlur

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a blur effect applied to a picture.

The following figure demonstrates the effect applied to a picture with radius values of zero, 5, 10, 20, and 40, respectively.



**Figure 3: Effect of changes to blur radius**

*Attributes:*

**radius:** An **ST_ArtisticEffectParam100** attribute that specifies the blur radius.

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

```
  <xsd:complexType name="CT_PictureEffectBlur">
    <xsd:attribute name="radius" type="ST_ArtisticEffectParam100" use="optional" default="10"/>
  </xsd:complexType>
```

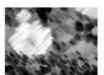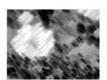See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.4   CT_PictureEffectCement

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a cement effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **crackSpacing** values of zero, 25, 50, 75, and 100, respectively.



**Figure 4: Effect of changes to crackSpacing**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**crackSpacing:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectCement">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="crackSpacing" type="ST_ArtisticEffectParam100" use="optional"
default="24"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.5   CT_PictureEffectChalkSketch

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:*  CT_PictureEffect

A complex type that specifies a chalk sketch effect applied to a picture.

The following figure demonstrates the effect applied to a picture with pressure values of zero, 1, 2, 3, and 4 respectively.



**Figure 5: Effect of changes to pressure**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pressure:** An **ST_ArtisticEffectParam4** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectChalkSketch">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam4" use="optional" default="0"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.6  CT_PictureEffectCrisscrossEtching

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a crisscross etching effect applied to a picture.

The following figure demonstrates the effect applied to a picture with pressure values of zero, 25, 50, 75, and 100, respectively.



**Figure 6: Effect of changes to pressure**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pressure:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectCrisscrossEtching">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="75"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="30"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.7  CT_PictureEffectCutout

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a cutout effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **numberOfShades** values of zero, 2, 3, 4, and 6, respectively.

**Figure 7: Effect of changes to numberOfShades**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**numberOfShades:** An **ST_ArtisticEffectParam6** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectCutout">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="numberOfShades" type="ST_ArtisticEffectParam6" use="optional"
default="2"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.8   CT_PictureEffectFilmGrain

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a film grain effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **grainSize** values of zero, 25, 50, 75, and 100, respectively.



**Figure 8: Effect of changes to grainSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**grainSize:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectFilmGrain">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
```

```
    <xsd:attribute name="grainSize" type="ST_ArtisticEffectParam100" use="optional"
default="40"/>
  </xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.9  CT_PictureEffectGlass

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a glass effect applied to a picture.

The following figure demonstrates the effect applied to a picture with scaling values of zero, 25, 50, 75, and 100, respectively.



**Figure 9: Effect of changes to scaling**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**scaling:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
  <xsd:complexType name="CT_PictureEffectGlass">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
  </xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.10  CT_PictureEffectGlowDiffused

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a glow diffused effect applied to a picture.

The following figure demonstrates the effect applied to a picture with intensity values of zero, 2, 5, 7, and 10, respectively.

**Figure 10: Effect of changes to intensity**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**intensity:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectGlowDiffused">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="intensity" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.11   CT_PictureEffectGlowEdges

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a glow edges effect applied to a picture.

The following figure demonstrates the effect applied to a picture with smoothness values of zero, 2, 5, 7, and 10, respectively.



**Figure 11: Effect of changes to smoothness**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**smoothness:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectGlowEdges">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="15"/>
  <xsd:attribute name="smoothness" type="ST_ArtisticEffectParam10" use="optional"
default="3"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.12   CT_PictureEffectLightScreen

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a light screen effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **gridSize** values of zero, 2, 5, 7, and 10, respectively.



**Figure 12: Effect of changes to gridSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**gridSize:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectLightScreen">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="gridSize" type="ST_ArtisticEffectParam10" use="optional" default="4"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.13   CT_PictureEffectLineDrawing

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a line drawing effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **pencilSize** values of zero, 25, 50, 75, and 100, respectively.



**Figure 13: Effect of changes to pencilSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pencilSize:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectLineDrawing">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="25"/>
  <xsd:attribute name="pencilSize" type="ST_ArtisticEffectParam100" use="optional"
default="0"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.14   CT_PictureEffectMarker

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a marker effect applied to a picture.

The following figure demonstrates the effect applied to a picture with size values of zero, 25, 50, 75, and 100, respectively.



**Figure 14: Effect of changes to size**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**size:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectMarker">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="size" type="ST_ArtisticEffectParam100" use="optional" default="97"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.15 CT_PictureEffectMosiaicBubbles

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a mosaic bubbles effect applied to a picture.

The following figure demonstrates the effect applied to a picture with pressure values of zero, 25, 50, 75, and 100, respectively.



**Figure 15: Effect of changes to pressure**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pressure:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectMosiaicBubbles">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="14"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.16 CT_PictureEffectPaintBrush

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a paint brush effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **brushSize** values of zero, 2, 5, 7, and 10, respectively.



**Figure 16: Effect of changes to brushSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**brushSize:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPaintBrush">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="brushSize" type="ST_ArtisticEffectParam10" use="optional"
default="2"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.17   CT_PictureEffectPaintStrokes

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a paint strokes effect applied to a picture.

The following figure demonstrates the effect applied to a picture with intensity values of zero, 2, 5, 7, and 10, respectively.



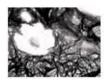*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**intensity:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPaintStrokes">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="intensity" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.18 CT_PictureEffectPastelsSmooth

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a pastel smooth effect applied to a picture.

The following figure demonstrates the effect applied to a picture with scaling values of zero, 25, 50, 75, and 100, respectively.



**Figure 17: Effect of changes to scaling**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**scaling:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPastelsSmooth">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.19 CT_PictureEffectPencilGrayscale

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a pencil grayscale effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **pencilSize** values of zero, 25, 50, 75, and 100, respectively.



**Figure 18: Effect of changes to pencilSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pencilSize:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPencilGrayscale">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pencilSize" type="ST_ArtisticEffectParam100" use="optional"
default="27"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.20   CT_PictureEffectPencilSketch

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a pencil sketch effect applied to a picture.

The following figure demonstrates the effect applied to a picture with pressure values of zero, 25, 50, 75, and 100, respectively.



**Figure 19: Effect of changes to pressure**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**pressure:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPencilSketch">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="22"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.21   CT_PictureEffectPhotocopy

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a photocopy effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **detail** values of zero, 2, 5, 7, and 10, respectively.



**Figure 20: Effect of changes to detail**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**detail:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPhotocopy">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="30"/>
  <xsd:attribute name="detail" type="ST_ArtisticEffectParam10" use="optional" default="3"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.22   CT_PictureEffectPlasticWrap

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a plastic wrap effect applied to a picture.

The following figure demonstrates the effect applied to a picture with smoothness values of zero, 2, 5, 7, and 10, respectively.



**Figure 21: Effect of changes to smoothness**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**smoothness:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectPlasticWrap">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="smoothness" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.23 CT_PictureEffectTexturizer

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a texture effect applied to a picture.

The following figure demonstrates the effect applied to a picture with scaling values of zero, 25, 50, 75, and 100, respectively.



**Figure 22: Effect of changes to scaling**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**scaling:** An **ST_ArtisticEffectParam100** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectTexturizer">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.24   CT_PictureEffectWatercolorSponge

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a watercolor sponge effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **brushSize** values of zero, 2, 5, 7, and 10, respectively.



**Figure 23: Effect of changes to brushSize**

*Attributes:*

**trans:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the transparency of the effect. A value of zero percent specifies that the effect is applied fully. A value of 100 percent specifies that the effect is not applied.

**brushSize:** An **ST_ArtisticEffectParam10** attribute that specifies the appearance of the effect.

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

```
<xsd:complexType name="CT_PictureEffectWatercolorSponge">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="brushSize" type="ST_ArtisticEffectParam10" use="optional"
default="2"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.25 CT_PictureEffectBackgroundRemovalForegroundMark

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectBackgroundRemoval

A complex type that specifies a line segment that marks a region to include in a picture.

*Attributes:*

**x1:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the first x coordinate of the foreground mark, relative to the width of a picture.

**y1:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the first y coordinate of the foreground mark, relative to the height of a picture.

**x2:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the second x coordinate of the foreground mark, relative to the width of a picture.

**y2:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the second y coordinate of the foreground mark, relative to the height of a picture.

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

```
<xsd:complexType name="CT_PictureEffectBackgroundRemovalForegroundMark">
  <xsd:attribute name="x1" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="y1" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="x2" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="y2" type="a:ST_PositiveFixedPercentage" use="required"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.26 CT_PictureEffectBackgroundRemovalBackgroundMark

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectBackgroundRemoval

A complex type that specifies a line segment that marks a region to exclude from a picture.

*Attributes:*

**x1:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the first x coordinate of the background mark, relative to the width of a picture.

**y1:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the first y coordinate of the background mark, relative to the height of a picture**.**

**x2:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the second x coordinate of the background mark, relative to the width of a picture**.**

**y2:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the second y coordinate of the background mark, relative to the height of a picture.

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

```
<xsd:complexType name="CT_PictureEffectBackgroundRemovalBackgroundMark">
  <xsd:attribute name="x1" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="y1" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="x2" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="y2" type="a:ST_PositiveFixedPercentage" use="required"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.27   CT_PictureEffectBackgroundRemoval

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a background removal effect applied to a picture. A marquee defines the rectangular region limiting the pixels that are considered to be in the foreground of a picture. Foreground and background marks further specify regions to include and exclude.

*Child Elements:*

**foregroundMark:** A **CT_PictureEffectBackgroundRemovalForegroundMark** element that specifies a line segment that marks a region to include in a picture.

**backgroundMark:** A **CT_PictureEffectBackgroundRemovalBackgroundMark** element that specifies a line segment that marks a region to exclude from a picture.

*Attributes:*

**t:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the top position of the marquee, relative to the height of a picture.

**b:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the bottom position of the marquee, relative to the height of a picture.

**l:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the left position of the marquee, relative to the width of a picture.

**r:** An **ST_PositiveFixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the right position of the marquee, relative to the width of a picture.

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

```
<xsd:complexType name="CT_PictureEffectBackgroundRemoval">
  <xsd:sequence>
    <xsd:element name="foregroundMark" type="CT_PictureEffectBackgroundRemovalForegroundMark"
minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="backgroundMark" type="CT_PictureEffectBackgroundRemovalBackgroundMark"
minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="t" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="b" type="a:ST_PositiveFixedPercentage" use="required"/>
  <xsd:attribute name="l" type="a:ST_PositiveFixedPercentage" use="required"/>
```

```
    <xsd:attribute name="r" type="a:ST_PositiveFixedPercentage" use="required"/>
  </xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.28   CT_PictureEffectBrightnessContrast

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a brightness and contrast effect applied to a picture.

The following figure demonstrates the effect applied to a picture with brightness values of −40 percent, −20 percent, zero percent, +20 percent, and +40 percent, respectively.



**Figure 24: Effect of changes to brightness**

The following figure demonstrates the effect applied to a picture with contrast values of −40 percent, −20 percent, zero percent, +20 percent, and +40 percent, respectively.



**Figure 25: Effect of changes to contrast**

*Attributes:*

**bright:** An **ST_FixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the percent to change the brightness**.**

**contrast:** An **ST_FixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the percent to change the contrast.

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

```
  <xsd:complexType name="CT_PictureEffectBrightnessContrast">
    <xsd:attribute name="bright" type="a:ST_FixedPercentage" use="optional" default="0"/>
    <xsd:attribute name="contrast" type="a:ST_FixedPercentage" use="optional" default="0"/>
  </xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.29 CT_PictureEffectColorTemperature

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a color temperature effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **colorTemperature** values of 3500, 4500, 6500, 8500, and 10500, respectively.



**Figure 26: Effect of changes to colorTemperature**

*Attributes:*

**colorTemp:** An **ST_ColorTemperature** attribute that specifies the color temperature of the light source in a picture.

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

```
<xsd:complexType name="CT_PictureEffectColorTemperature">
  <xsd:attribute name="colorTemp" type="ST_ColorTemperature" use="optional" default="6500"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.30 CT_PictureEffectSaturation

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a saturation effect applied to a picture.

The following figure demonstrates the effect applied to a picture with saturation values of zero percent, 50 percent, 100 percent, 200 percent, and 400 percent, respectively.



**Figure 27: Effect of changes to saturation**

*Attributes:*

**sat:** An **ST_SaturationAmount** attribute that specifies the amount of saturation applied to a picture.

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

```
<xsd:complexType name="CT_PictureEffectSaturation">
  <xsd:attribute name="sat" type="ST_SaturationAmount" use="optional" default="100"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.31 CT_PictureEffectSharpenSoften

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffect

A complex type that specifies a sharpen and soften effect applied to a picture.

The following figure demonstrates the effect applied to a picture with **sharpenSoften** values of –100 percent, –50 percent, zero percent, +50 percent, and +100 percent, respectively.



**Figure 28: Effect of changes to sharpenSoften**

*Attributes:*

**amount:** An **ST_FixedPercentage** attribute ([ISO/IEC-29500-1] section A.4.1) that specifies the amount to sharpen (if positive) or the amount to blur (if negative).

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

```
<xsd:complexType name="CT_PictureEffectSharpenSoften">
  <xsd:attribute name="amount" type="a:ST_FixedPercentage" use="optional" default="0"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.32 CT_PictureEffect

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureLayer

A complex type that specifies an effect applied to a picture. Exactly one child element MUST exist to specify the type of effect.

*Child Elements:*

**artisticBlur:** A **CT_PictureEffectBlur** element that specifies the blur picture effect.

**artisticCement:** A **CT_PictureEffectCement** element that specifies the cement picture effect.

**artisticChalkSketch:** A **CT_PictureEffectChalkSketch** element that specifies the chalk sketch picture effect.

**artisticCrisscrossEtching:** A **CT_PictureEffectCrisscrossEtching** element that specifies the crisscross etching picture effect.

**artisticCutout:** A **CT_PictureEffectCutout** element that specifies the cutout picture effect.

**artisticFilmGrain:** A **CT_PictureEffectFilmGrain** element that specifies the film grain picture effect.

**artisticGlass:** A **CT_PictureEffectGlass** element that specifies the glass picture effect.

**artisticGlowDiffused:** A **CT_PictureEffectGlowDiffused** element that specifies the glow diffused picture effect.

**artisticGlowEdges:** A **CT_PictureEffectGlowEdges** element that specifies the glow edges picture effect.

**artisticLightScreen:** A **CT_PictureEffectLightScreen** element that specifies the light screen picture effect.

**artisticLineDrawing:** A **CT_PictureEffectLineDrawing** element that specifies the line-drawing picture effect.

**artisticMarker:** A **CT_PictureEffectMarker** element that specifies the marker picture effect.

**artisticMosiaicBubbles:** A **CT_PictureEffectMosiaicBubbles** element that specifies the mosaic bubbles picture effect.

**artisticPaintStrokes:** A **CT_PictureEffectPaintStrokes** element that specifies the paint strokes picture effect.

**artisticPaintBrush:** A **CT_PictureEffectPaintBrush** element that specifies the paint-brush picture effect.

**artisticPastelsSmooth:** A **CT_PictureEffectPastelsSmooth** element that specifies the pastel smooth picture effect.

**artisticPencilGrayscale:** A **CT_PictureEffectPencilGrayscale** element that specifies the pencil grayscale picture effect.

**artisticPencilSketch:** A **CT_PictureEffectPencilSketch** element that specifies the pencil-sketch picture effect.

**artisticPhotocopy:** A **CT_PictureEffectPhotocopy** element that specifies the photocopy picture effect.

**artisticPlasticWrap:** A **CT_PictureEffectPlasticWrap** element that specifies the plastic wrap picture effect.

**artisticTexturizer:** A **CT_PictureEffectTexturizer** element that specifies the texture picture effect.

**artisticWatercolorSponge:** A **CT_PictureEffectWatercolorSponge** element that specifies the watercolor-sponge picture effect.

**backgroundRemoval:** A **CT_PictureEffectBackgroundRemoval** element that specifies the background-removal picture effect.

**brightnessContrast:** A **CT_PictureEffectBrightnessContrast** element that specifies the brightness and contrast picture effect.

**colorTemperature:** A **CT_PictureEffectColorTemperature** element that specifies the color-tone picture effect.

**saturation:** A **CT_PictureEffectSaturation** element that specifies the color-saturation picture effect.

**sharpenSoften:** A **CT_PictureEffectSharpenSoften** element that specifies the sharpen and soften picture effect.

*Attributes:*

**visible:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether this picture effect is rendered.

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

```
<xsd:complexType name="CT_PictureEffect">
  <xsd:choice minOccurs="1" maxOccurs="1">
    <xsd:element name="artisticBlur" type="CT_PictureEffectBlur" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticCement" type="CT_PictureEffectCement" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticChalkSketch" type="CT_PictureEffectChalkSketch" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticCrisscrossEtching" type="CT_PictureEffectCrisscrossEtching"
minOccurs="1" maxOccurs="1"/>
    <xsd:element name="artisticCutout" type="CT_PictureEffectCutout" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticFilmGrain" type="CT_PictureEffectFilmGrain" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticGlass" type="CT_PictureEffectGlass" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticGlowDiffused" type="CT_PictureEffectGlowDiffused"
minOccurs="1" maxOccurs="1"/>
    <xsd:element name="artisticGlowEdges" type="CT_PictureEffectGlowEdges" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticLightScreen" type="CT_PictureEffectLightScreen" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticLineDrawing" type="CT_PictureEffectLineDrawing" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticMarker" type="CT_PictureEffectMarker" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticMosiaicBubbles" type="CT_PictureEffectMosiaicBubbles"
minOccurs="1" maxOccurs="1"/>
    <xsd:element name="artisticPaintStrokes" type="CT_PictureEffectPaintStrokes"
minOccurs="1" maxOccurs="1"/>
    <xsd:element name="artisticPaintBrush" type="CT_PictureEffectPaintBrush" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="artisticPastelsSmooth" type="CT_PictureEffectPastelsSmooth"
minOccurs="1" maxOccurs="1"/>
    <xsd:element name="artisticPencilGrayscale" type="CT_PictureEffectPencilGrayscale"
minOccurs="1" maxOccurs="1"/>
```

```
        <xsd:element name="artisticPencilSketch" type="CT_PictureEffectPencilSketch"
minOccurs="1" maxOccurs="1"/>
        <xsd:element name="artisticPhotocopy" type="CT_PictureEffectPhotocopy" minOccurs="1"
maxOccurs="1"/>
        <xsd:element name="artisticPlasticWrap" type="CT_PictureEffectPlasticWrap" minOccurs="1"
maxOccurs="1"/>
        <xsd:element name="artisticTexturizer" type="CT_PictureEffectTexturizer" minOccurs="1"
maxOccurs="1"/>
        <xsd:element name="artisticWatercolorSponge" type="CT_PictureEffectWatercolorSponge"
minOccurs="1" maxOccurs="1"/>
        <xsd:element name="backgroundRemoval" type="CT_PictureEffectBackgroundRemoval"
minOccurs="1" maxOccurs="1"/>
        <xsd:element name="brightnessContrast" type="CT_PictureEffectBrightnessContrast"
minOccurs="1" maxOccurs="1"/>
        <xsd:element name="colorTemperature" type="CT_PictureEffectColorTemperature"
minOccurs="1" maxOccurs="1"/>
        <xsd:element name="saturation" type="CT_PictureEffectSaturation" minOccurs="1"
maxOccurs="1"/>
        <xsd:element name="sharpenSoften" type="CT_PictureEffectSharpenSoften" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
    <xsd:attribute name="visible" type="xsd:boolean" use="optional" default="true"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.33  CT_PictureLayer

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_Photo

A complex type that specifies a relationship to an original picture and contains optional effects applied to the picture in the order applied.

*Child Elements:*

**imgEffect:** A **CT_PictureEffect** element that specifies an effect applied to the picture.

*Attributes:*

**r:embed:** An **ST_RelationshipId** attribute ([ISO/IEC-29500-1] section 22.8.2.1) that specifies the relationship identifier that is used to determine the location of the picture.

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

```
<xsd:complexType name="CT_PictureLayer">
  <xsd:sequence>
    <xsd:element name="imgEffect" type="CT_PictureEffect" minOccurs="0"
maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute ref="r:embed" use="optional" default=""/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.34   CT_Photo

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* imgProps

A complex type that specifies properties used to produce the embedded picture in the containing binary large image or picture (BLIP).

*Child Elements:*

**imgLayer:** A **CT_PictureLayer** element that specifies a relationship to an original picture and contains optional effects applied to the picture in the order applied.

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

```
<xsd:complexType name="CT_Photo">
  <xsd:sequence>
    <xsd:element name="imgLayer" type="CT_PictureLayer" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.35   CT_UseLocalDpi

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* useLocalDpi

A complex type that specifies a flag indicating that the local BLIP compression setting overrides the document default compression setting.

*Attributes:*

**val:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether the **cstate** attribute ([ISO/IEC-29500-1] section 20.1.10.12) of the containing BLIP overrides the document default compression setting as specified in [MS-PPTX] section 2.3.28, [MS-DOCX] section 2.3.24, and [MS-XLSX] section 2.6.10.

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

```
<xsd:complexType name="CT_UseLocalDpi">
  <xsd:attribute name="val" type="xsd:boolean" use="optional" default="true"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.36   CT_ShadowObscured

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* shadowObscured

A complex type that specifies whether the shadow is obscured by a shape with no fill.

*Attributes:*

**val:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether the shadow is fully obscured by the shape when the containing shape has no fill. For more details, see [MS-ODRAW] section 2.3.13.22 and [ISO/IEC-29500-1] section 19.3.1.44.

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

```
<xsd:complexType name="CT_ShadowObscured">
  <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.37   CT_TextMath

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* m

This type contains either a math zone or document-level math properties. Math zone content can be either an inline math zone or a math paragraph.

*Child Elements:*

**m:oMath:** A CT_OMath ([ISO/IEC-29500-1] section 22.1.2.77) element that specifies an inline math zone.

**m:oMathPara:** A CT_OMathPara ([ISO/IEC-29500-1] section 22.1.2.78) element that specifies a math paragraph.

**m:mathPr:** A CT_MathPr ([ISO/IEC-29500-1] section 22.1.2.62) element that specifies document-level math properties.

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

```
<xsd:complexType name="CT_TextMath">
  <xsd:choice>
    <xsd:element ref="m:oMath"/>
    <xsd:element ref="m:oMathPara"/>
    <xsd:element ref="m:mathPr"/>
  </xsd:choice>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.38   CT_TextboxInfo

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingShape

*Referenced by:* CT_WordprocessingShape

This type contains all the text contents of a CT_WordprocessingShape and associates that textual information, referred to as a **text box story**, with a story identifier. An element of this type MUST be present only in the CT_WordprocessingShape element that is the first in a series of CT_WordprocessingShape elements that refer to the same text box story.

*Child Elements:*

**w12:txbxContent:** A **CT_TxbxContent** ([ISO/IEC-29500-4] section A.1) element. This element specifies the text contents.

**extLst:** A **CT_OfficeArtExtensionList** ([ISO/IEC-29500-1] section A.4.1) element to hold future extensions to the parent element of this **extLst** element

*Attributes:*

**id:** An **unsignedShort** ([XMLSCHEMA2] section 3.3.23) attribute that specifies the identity of the text box story begun by a **CT_TextboxInfo** element. This value MUST be unique across a document for each instance of **CT_TextboxInfo**.

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

```
<xsd:complexType name="CT_TextboxInfo">
  <xsd:sequence>
    <xsd:element ref="w12:txbxContent" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="xsd:unsignedShort" use="optional" default="0"/>
</xsd:complexType>
```

See section 5.2 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.39   CT_LinkedTextboxInformation

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingShape

*Referenced by:* CT_WordprocessingShape

This type contains all the information necessary for a CT_WordprocessingShape to participate in a text box story. An element of this type MUST NOT be present on the first CT_WordprocessingShape element in a series of CT_WordprocessingShape elements that are part of the same text box story. An element of this type MUST be present on all subsequent CT_WordprocessingShape elements.

*Child Elements:*

**extLst:** A **CT_OfficeArtExtensionList** ([ISO/IEC-29500-1] section A.4.1) element to hold future extensions to the parent element of this **extLst** element

*Attributes:*

**id:** An **unsignedShort** ([XMLSCHEMA2] section 3.3.23) attribute that specifies the text box story to which this text box belongs.

**seq:** An **unsignedShort** ([XMLSCHEMA2] section 3.3.23) attribute that specifies the position of the owning shape in the given text box story.  This value MUST be unique across all

**CT_LinkedTextboxInformation** instances with the same story identifier.  This value MUST be greater than 0.

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

```
<xsd:complexType name="CT_LinkedTextboxInformation">
  <xsd:sequence>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="xsd:unsignedShort" use="required"/>
  <xsd:attribute name="seq" type="xsd:unsignedShort" use="required"/>
</xsd:complexType>
```

See section 5.2 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.40   CT_WordprocessingShape

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingShape

*Referenced by:* wsp, CT_WordprocessingGroup, CT_WordprocessingCanvas

This type defines a shape in a WordprocessingML document.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies non-visual properties. This element MUST NOT be present when the **CT_WordprocessingShape** is contained directly by a **graphicData** (Graphic Object Data) element as specified in [ISO/IEC-29500-1] section 20.1.2.2.17. This element MUST be present when the **CT_WordprocessingShape** is not contained directly by a **graphicData** element as specified in [ISO/IEC-29500-1] section 20.1.2.2.17.<58>

**cNvSpPr:** A **CT_NonVisualDrawingShapeProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies non-visual shape properties.

**cNvCnPr:** A **CT_NonVisualConnectorProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies non-visual connector properties.

**spPr:** A **CT_ShapeProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies the visual shape properties that can be applied to a shape.

**style:** A **CT_ShapeStyle** element ([ISO/IEC-29500-1] section A.4.1) that specifies the style information for a shape.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) to hold future extensions to the parent element of this **extLst** element.

**txbx:** A CT_TextboxInfo element that specifies the textual contents of the shape if the shape is the first in the series of shapes for the same text box story.

**linkedTxbx:** A CT_LinkedTextboxInformation element that specifies the textual contents of the shape if the shape is not the first in the series of shapes for the indicated text box story.

**bodyPr:** A **CT_TextBodyProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies the body properties for the text body in a shape.

*Attributes:*

**normalEastAsianFlow:** A Boolean attribute that specifies whether the text flow of the text contents of the shape ignores the text flow value specified by the **vert** attribute of the **bodyPr** element. If this flag is set to TRUE, the value of the **vert** attribute of the **bodyPr** element on this **CT_WordprocessingShape** MUST be ignored, and text flows in the manner specified by the value "tbV" for an **ST_TextDirection** (Text Flow Direction) type as specified in [ISO/IEC-29500-1] section17.18.93.

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

```
<xsd:complexType name="CT_WordprocessingShape">
  <xsd:sequence minOccurs="1" maxOccurs="1">
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0" maxOccurs="1"/>
    <xsd:choice minOccurs="1" maxOccurs="1">
      <xsd:element name="cNvSpPr" type="a:CT_NonVisualDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="cNvCnPr" type="a:CT_NonVisualConnectorProperties" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
    <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="style" type="a:CT_ShapeStyle" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    <xsd:choice minOccurs="0" maxOccurs="1">
      <xsd:element name="txbx" type="CT_TextboxInfo" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="linkedTxbx" type="CT_LinkedTextboxInformation" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
    <xsd:element name="bodyPr" type="a:CT_TextBodyProperties" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="normalEastAsianFlow" type="xsd:boolean" use="optional"
default="false"/>
</xsd:complexType>
```

See section 5.2 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.41   CT_ContentPartLocking

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_NonVisualInkContentPartProperties

Contains various locking properties that prevent or restrict certain changes to the content part properties or restrict how a content part can be manipulated by the user. Restrictions are enforced only at the UI and Object Model levels.

*Child Elements:*

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that specifies the extension list in which all future extensions of element type **ext** is defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables various types of data to be stored natively in the framework.

*Attributes:*

**noGrp:** A Boolean attribute that specifies that the generating application does not enable shape grouping for the corresponding content part. That is, it cannot be combined with other shapes to form a group of shapes. The default value is FALSE.

**noSelect:** A Boolean attribute that specifies that the generating application does not enable selecting the corresponding content part. No picture, shapes, or text attached to this content part can be selected if this attribute has been specified. The default value is FALSE.

**noRot:** A Boolean attribute that specifies that the corresponding content part cannot be rotated. The default value is FALSE.

**noChangeAspect:** A Boolean attribute that specifies that the generating application does not enable aspect ratio changes for the corresponding content part. The default value is FALSE.

**noMove:** A Boolean attribute that specifies that the generating application does not enable position changes for the corresponding content part. The default value is FALSE.

**noResize:** A Boolean attribute that specifies that the generating application does not enable size changes for the corresponding content part. The default value is FALSE.

**noEditPoints:** A Boolean attribute that specifies that the generating application does not enable shape point changes for the corresponding content part. The default value is FALSE.

**noAdjustHandles:** A Boolean attribute that specifies that the generating application does not show adjust handles for the corresponding content part. The default value is FALSE.

**noChangeArrowheads:** A Boolean attribute that specifies that the generating application does not enable arrowhead changes for the corresponding content part. The default value is FALSE.

**noChangeShapeType:** A Boolean attribute that specifies that the generating application does not enable shape type changes for the corresponding content part. The default value is FALSE.

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

```
<xsd:complexType name="CT_ContentPartLocking">
  <xsd:sequence>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attributeGroup ref="a:AG_Locking"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.42 CT_NonVisualInkContentPartProperties

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_WordContentPartNonVisual, CT_GvmlContentPartNonVisual, CT_ContentPartNonVisual, CT_ContentPartNonVisual

A complex type that specifies non-visual ink properties for a content part. This provides additional information that does not affect the appearance of ink in the content part to be stored.

*Child Elements:*

**cpLocks:** A CT_ContentPartLocking element that specifies various locking properties that prevent or restrict certain changes to the content part properties or restrict how a content part can be manipulated by the user.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that specifies the extension list in which all future extensions of element type **ext** are defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables new types of data to be stored natively within the framework.

*Attributes:*

**isComment:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether the ink shape is a **comment** or an annotation. If true, the ink is a comment; otherwise, it is an annotation.

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

```
<xsd:complexType name="CT_NonVisualInkContentPartProperties">
  <xsd:sequence>
    <xsd:element name="cpLocks" type="CT_ContentPartLocking" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="isComment" type="xsd:boolean" use="optional" default="true"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.43   CT_WordContentPartNonVisual

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordml

*Referenced by:* CT_WordContentPart

A complex type that specifies non-visual properties for CT_WordContentPart.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual drawing properties for the content part. This provides additional information that does not affect the appearance of the content part to be stored.

**cNvContentPartPr:** A CT_NonVisualInkContentPartProperties element that specifies non-visual ink properties for the content part. This provides additional information that does not affect the appearance of ink in the content part to be stored.

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

```
<xsd:complexType name="CT_WordContentPartNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.3 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.44 CT_WordContentPart

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordml

*Referenced by:* contentPart, CT_WordprocessingGroup, CT_WordprocessingCanvas

A complex type that specifies a reference to XML content in a format not specified by [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in WordprocessingML ([ISO/IEC-29500-1] section 17.3.3.2), but appears under **graphicData** ([ISO/IEC-29500-1] section 20.1.2.2.17), **CT_WordprocessingGroup**, and **CT_WordprocessingCanvas**.

*Child Elements:*

**nvContentPartPr:** A CT_WordContentPartNonVisual element that specifies non-visual properties for the content part.

**xfrm:** A **CT_Transform2D** element ([ISO/IEC-29500-1] section A.4.1) that specifies the 2-D transform for the content part.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that specifies the extension list in which all future extensions of element type **ext** is defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables various new types of data to be stored natively in the framework.

*Attributes:*

**bwMode:** An **ST_BlackWhiteMode** attribute ([ISO/IEC-29500-1] section 20.1.10.10)

that specifies how to interpret color information contained within a content part to achieve a color, black and white, or grayscale rendering of the content part. This attribute specifies only the rendering mode applied to the content part; it does not affect how the actual color information is persisted.

**r:id:** An **ST_RelationshipId** ([ISO/IEC-29500-1] section 22.8.2.1) attribute that specifies the relationship identifier to a content part.

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

```
<xsd:complexType name="CT_WordContentPart">
  <xsd:sequence>
    <xsd:element name="nvContentPartPr" type="CT_WordContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional"/>
  <xsd:attribute ref="r:id" use="required"/>
</xsd:complexType>
```

See section 5.3 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.45 CT_GraphicFrame

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingGroup

*Referenced by:* CT_WordprocessingGroup, CT_WordprocessingCanvas

This type defines a container for a graphical object as specified in [ISO/IEC-29500-1] section 20.1.2.2.16 to be integrated in the context of the type defined by a CT_WordprocessingGroup.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual properties of the current **CT_GraphicFrame**.

**cNvFrPr:** A **CT_NonVisualGraphicFrameProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual frame properties of the current **CT_GraphicFrame**.

**xfrm:** A **CT_Transform2D** element ([ISO/IEC-29500-1] section A.4.1) that specifies the transformation of the current **CT_GraphicFrame**.

**a:graphic:** A **CT_GraphicalObject** element ([ISO/IEC-29500-1] section A.4.1) that specifies the graphical object content in the current **CT_GraphicFrame**.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) to hold future extensions to the parent element of this **extLst** element.

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

```
<xsd:complexType name="CT_GraphicFrame">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvFrPr" type="a:CT_NonVisualGraphicFrameProperties" minOccurs="1"
 maxOccurs="1"/>
    <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="1" maxOccurs="1"/>
    <xsd:element ref="a:graphic" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
 maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.5 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.46 CT_WordprocessingGroup

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingGroup

*Referenced by:* CT_WordprocessingGroup, wgp, CT_WordprocessingCanvas

This complex type defines the data that represents a group of graphical objects in WordprocessingML.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual properties of the current **CT_WordprocessingGroup**. This element MUST NOT be present when the **CT_WordprocessingGroup** is contained directly by a **graphicData** (Graphic

Object Data) element as specified in [ISO/IEC-29500-1] section 20.1.2.2.17. This element MUST be present when the **CT_WordprocessingGroup** is not contained directly by a **graphicData** element as specified in [ISO/IEC-29500-1] section 20.1.2.2.17.

**cNvGrpSpPr:** A **CT_NonVisualGroupDrawingShapeProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual group properties of the current **CT_WordprocessingGroup**.

**grpSpPr:** A **CT_GroupShapeProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies the properties that are common across all shapes in the current **CT_WordprocessingGroup**. If there are any conflicting properties between the group shape properties and shape properties, the individual shape properties SHOULD<59> take precedence.

**wps:wsp:** A CT_WordprocessingShape element that specifies a shape that is a child of the current **CT_WordprocessingGroup**.

**grpSp:** A CT_WordprocessingGroup element that specifies a group that is a child of the current **CT_WordprocessingGroup**.

**graphicFrame:** A CT_GraphicFrame element that specifies a graphical object that is a child of the current **CT_WordprocessingGroup**.<60>

**pic:pic:** A **CT_Picture** element ([ISO/IEC-29500-1] section A.4.2) that specifies a picture that is a child of the current **CT_WordprocessingGroup**.

**w14:contentPart:** A CT_WordContentPart element that specifies a content part that is a child of the current **CT_WordprocessingGroup**.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) to hold future extensions to the parent element of this **extLst** element.

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

```
<xsd:complexType name="CT_WordprocessingGroup">
  <xsd:sequence minOccurs="1" maxOccurs="1">
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="cNvGrpSpPr" type="a:CT_NonVisualGroupDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
    <xsd:element name="grpSpPr" type="a:CT_GroupShapeProperties" minOccurs="1"
maxOccurs="1"/>
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
      <xsd:element ref="wps:wsp"/>
      <xsd:element name="grpSp" type="CT_WordprocessingGroup"/>
      <xsd:element name="graphicFrame" type="CT_GraphicFrame"/>
      <xsd:element ref="pic:pic"/>
      <xsd:element ref="w14:contentPart"/>
    </xsd:choice>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.5 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.47   CT_WordprocessingCanvas

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas

*Referenced by:* wpc

This type defines a drawing canvas in a WordprocessingML document.

*Child Elements:*

**bg:** A **CT_BackgroundFormatting** element ([ISO/IEC-29500-1] section A.4.1) that specifies formatting applied to the background of a drawing canvas.

**whole:** A **CT_WholeE2oFormatting** element ([ISO/IEC-29500-1] section A.4.1) that specifies line formatting properties applied to a drawing canvas and any reflection effect applied to a drawing canvas that includes reflection of the objects in the drawing canvas.

**wps:wsp:** A CT_WordprocessingShape element that specifies a shape in a drawing canvas.

**pic:pic:** A **CT_Picture** element ([ISO/IEC-29500-1] section A.4.2) that specifies a picture in a drawing canvas.

**w14:contentPart:** A CT_WordContentPart element that specifies a graphical object represented by arbitrary XML stored in a referenced part.

**wpg:wgp:** A CT_WordprocessingGroup element that specifies a groups of graphical objects.

**graphicFrame:** A CT_GraphicFrame element that specifies a graphical object that is a child of the current **CT_WordprocessingCanvas**.<61>

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) to hold future extensions to the parent element of this **extLst** element.

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

```
<xsd:complexType name="CT_WordprocessingCanvas">
  <xsd:sequence minOccurs="1" maxOccurs="1">
    <xsd:element name="bg" type="a:CT_BackgroundFormatting" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="whole" type="a:CT_WholeE2oFormatting" minOccurs="0" maxOccurs="1"/>
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
      <xsd:element ref="wps:wsp"/>
      <xsd:element ref="pic:pic"/>
      <xsd:element ref="w14:contentPart"/>
      <xsd:element ref="wpg:wgp"/>
      <xsd:element name="graphicFrame" type="wpg:CT_GraphicFrame"/>
    </xsd:choice>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.6 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.48   CT_Boolean

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/diagram

*Referenced by:* recolorImg

Defines a property with a Boolean value.

*Attributes:*

**val:** Specifies a binary value for the property defined by the parent **XML** element. The default is FALSE.

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

```xsd
<xsd:complexType name="CT_Boolean">
  <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

See section 5.7 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.49   CT_ShapeNonVisual

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* CT_Shape

This element specifies all non-visual properties for a shape. This element is a container for the non-visual identification properties, shape properties, and application properties of a shape. This complex type provides additional information that does not affect the appearance of the shape to be stored.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies non-visual drawing properties for the shape.

**cNvSpPr:** A **CT_NonVisualDrawingShapeProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies all non-visual shape drawing properties of the shape.

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

```xsd
<xsd:complexType name="CT_ShapeNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvSpPr" type="a:CT_NonVisualDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.50   CT_Shape

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* CT_GroupShape

This element specifies the existence of a single shape. A shape can use either a preset or a custom geometry, defined by using the DrawingML framework. In addition to a geometry, each shape can have both visual and non-visual properties. Text and corresponding styling information can also be attached to a shape. This shape is specified along with all other shapes in group shape elements.

*Child Elements:*

**nvSpPr:** A **CT_ShapeNonVisual** element that specifies non-visual shape properties associated with the shape.

**spPr:** A **CT_ShapeProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies visual shape properties of the shape

**style:** A **CT_ShapeStyle** element ([ISO/IEC-29500-1] section A.4.1) that specifies the style of the shape.

**txBody:** A **CT_TextBody** element ([ISO/IEC-29500-1] section A.4.1) that specifies the shape text associated with the shape

**txXfrm:** A **CT_Transform2D** element ([ISO/IEC-29500-1] section A.4.1) that specifies a 2-D transform to be applied to the text body of the shape.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that enables future extensions to the shape.

*Attributes:*

**modelId:** An **ST_ModelId** attribute ([ISO/IEC-29500-1] section 21.4.7.43) that specifies the identifier of the **DataModel** element that this shape represents.

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

```
<xsd:complexType name="CT_Shape">
  <xsd:sequence>
    <xsd:element name="nvSpPr" type="CT_ShapeNonVisual" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="style" type="a:CT_ShapeStyle" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="txBody" type="a:CT_TextBody" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="txXfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="modelId" type="d:ST_ModelId" use="required"/>
</xsd:complexType>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.51   CT_GroupShapeNonVisual

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* CT_GroupShape

This element specifies all non-visual properties for a group shape. This element is a container for the non-visual shape properties of a group shape. This provides additional information that does not affect the appearance of the group shape to be stored.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies non-visual drawing properties.

**cNvGrpSpPr:** A **CT_NonVisualGroupDrawingShapeProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies all non-visual group shape drawing properties.

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

```xsd
<xsd:complexType name="CT_GroupShapeNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvGrpSpPr" type="a:CT_NonVisualGroupDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.52   CT_GroupShape

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* CT_GroupShape, CT_Drawing

This element specifies a group shape that represents one or more shapes grouped together. This shape is to be treated as if it were a regular shape, but instead of being described by a single geometry, it is made up of all the shape geometries encompassed within it. Within a group shape, each shape in the group is specified as it normally would be. However, a single transform can apply to the group of shapes as though it were a single shape.

*Child Elements:*

**nvGrpSpPr:** A **CT_GroupShapeNonVisual** element that specifies the non-visual properties of the group shape.

**grpSpPr:** A **CT_GroupShapeProperties** element ([ISO/IEC-29500-1] section A.4.1) that specifies group shape properties.

**sp:** A **CT_Shape** element that specifies a shape that is a child of this group.

**grpSp:** A **CT_GroupShape** element that specifies a group shape that is a child of this group.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that enables future extensions to the group shape.

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

```xsd
<xsd:complexType name="CT_GroupShape">
  <xsd:sequence>
    <xsd:element name="nvGrpSpPr" type="CT_GroupShapeNonVisual" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="grpSpPr" type="a:CT_GroupShapeProperties" minOccurs="1"
maxOccurs="1"/>
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
      <xsd:element name="sp" type="CT_Shape"/>
      <xsd:element name="grpSp" type="CT_GroupShape"/>
    </xsd:choice>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
```

*Release: Wednesday, June 8, 2011*

```
      </xsd:sequence>
   </xsd:complexType>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.53   CT_Drawing

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* drawing

This element specifies a visual representation of the last successful layout for a diagram.

*Child Elements:*

**spTree:** A **CT_GroupShape** element that specifies the top-level group shape that represents the last layout.

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

```
   <xsd:complexType name="CT_Drawing">
     <xsd:sequence>
       <xsd:element name="spTree" type="CT_GroupShape" minOccurs="1" maxOccurs="1"/>
     </xsd:sequence>
   </xsd:complexType>
```

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.54   CT_DataModelExtBlock

*Target namespace:* http://schemas.microsoft.com/office/drawing/2008/diagram

*Referenced by:* dataModelExt

This element specifies a relationship identifier to the Diagram Drawing part, as well as a URI that is used to determine the minimum application version required to run layout on the diagram.

*Attributes:*

**relId:** A **string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies the identifier of the part that contains the Diagram Drawing object.

**minVer:** An **anyURI** attribute ([XMLSCHEMA2] section 3.2.17) that specifies the minimum version required to display the layout.

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

```
   <xsd:complexType name="CT_DataModelExtBlock">
     <xsd:attribute name="relId" type="xsd:string"/>
     <xsd:attribute name="minVer" type="xsd:anyURI"/>
   </xsd:complexType>
```

*Release: Wednesday, June 8, 2011*

See section 5.8 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.55   CT_Property

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxNode

An element of this type stores an arbitrary piece of binary data. The format of the data MUST be represented as an **xsd:hexBinary** ([XMLSCHEMA2] section 3.2.15).

*Attributes:*

**type:** An **ST_Guid** attribute that specifies the moniker of the custom data.

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

```
<xsd:complexType name="CT_Property">
  <xsd:simpleContent>
    <xsd:extension base="xsd:hexBinary">
      <xsd:attribute name="type" type="ST_Guid"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.56   CT_CtxLink

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxNode

An element of this type defines a semantic relationship from one Ink context node to another.

*Attributes:*

**direction:** An **ST_Dir** attribute that specifies the direction of the semantic link: to, from, or with. The "to" or "from" directions apply to ink that represent connectors or arrows, whereas "with" implies no direction, such as an underline on a word.

**ref:** An **ST_Ref** attribute that specifies the identifier of the other context node or shape being linked to, from, or with this context node. If it is an **xsd:int**, it MUST reference a shape identifier elsewhere in the drawing. If it is an **ST_Guid**, it MUST reference another context node in the document.

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

```
<xsd:complexType name="CT_CtxLink">
  <xsd:attribute name="direction" type="ST_Dir"/>
  <xsd:attribute name="ref" type="ST_Ref"/>
</xsd:complexType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.57 CT_CtxNode

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* context

The **CT_CtxNode** defines an Ink context node and its properties. A context node is a logical collection of Ink traces. When Ink is drawn by the user, the Ink traces are analyzed and organized into a hierarchy of context nodes. Each context node has a type (specified by the **type** attribute) and can have zero or more child content nodes. For example, a **writingRegion** content node can have one or more **paragraph** content nodes. In addition, context nodes can have relational links to each other. For example, if a word is underlined, the context node representing the ink word and the context node representing the underline are linked.

For example, the following figure shows ink that is analyzed as shown in the following code example.



**Figure 29: Example ink text**

```
<context type="writingRegion"/>
  ...
  <context type="paragraph"/>
    ...
    <context type="line"/>
      ...
      <context type="inkWord"/>
      ...
      <context type="inkWord">
         <destinationLink direction="with" ref="id of inkDrawing below"/>
      </context>

<context type="inkDrawing" semanticType="underline">
  <sourceLink direction="with" ref="id of inkWord above"/>
<context>
```

*Child Elements:*

**property:** A **CT_Property** element that specifies a user-defined binary data property.

**sourceLink:** A **CT_CtxLink** element that specifies a semantic link from another content node.

**destinationLink:** A **CT_CtxLink** element that specifies a semantic link to another context node.

*Attributes:*

**id:** An **ST_Guid** attribute that specifies a GUID for this context node.

**type:** An **ST_CtxNodeType** attribute that specifies the type of this context node.

**rotatedBoundingBox:** An ST_Points attribute that specifies a rectangular region encompassed by this context node. Applies to all context node types.

**alignmentLevel:** An **xsd:int** attribute ([XMLSCHEMA2] section 3.3.17) that specifies the alignment level of a paragraph type context node. If this attribute is present, the value of the type attribute MUST be set to "paragraph".

**contentType:** An **xsd:int** attribute ([XMLSCHEMA2] section 3.3.17) that specifies the content type of the context node. If this attribute is present, the value of the type attribute MUST be set to "paragraph".

**ascender:** An ST_Points attribute that specifies the ascender. If this attribute is present, the value of the type attribute MUST be set to "line".

**descender:** An ST_Points attribute that specifies the descender. If this attribute is present, the value of the type attribute MUST be set to "line".

**baseline:** An ST_Points attribute that specifies the baseline of a line. If this attribute is present, the value of the type attribute MUST be set to "line".

**midline:** An ST_Points attribute that specifies the midline of a line. If this attribute is present, the value of the type attribute MUST be set to "line".

**customRecognizerId:** An **ST_Guid** attribute that specifies the globally unique identifier (GUID) that represents the custom ink recognizer.  If this attribute is present, the value of the type attribute MUST be set to "customRecognizer".

**mathML:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies a string of Math Markup Language ([MathML2.0]). If this attribute is present, the value of the type attribute MUST be set to "mathEquation".

**mathStruct:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies a math **struct**. If this attribute is present, the value of the type attribute MUST be set to "mathStruct".

**mathSymbol:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies a math symbol. If this attribute is present, the value of the type attribute MUST be set to "mathSymbol".

**beginModifierType:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies the beginning modifier type. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**endModifierType:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies the ending modifier type. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**rotationAngle:** An **xsd:int** attribute ([XMLSCHEMA2] section 3.3.17) that specifies the rotation angle of the drawing, in degrees. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**hotPoints:** An **ST_Points** attribute that specifies coordinates of the hot points of the drawing. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**centroid:** An **ST_Point** attribute that specifies the center point of the drawing. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**semanticType:** An **ST_SemanticType** attribute that specifies the semantic type of the writing region or drawing. If this attribute is present, the value of the type attribute MUST be set to "writingRegion", "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**shapeName:** An **xsd:string** attribute ([XMLSCHEMA2] section 3.2.1) that specifies the shape name. If this attribute is present, the value of the type attribute MUST be set to "inkDrawing", "nonInkDrawing", or "mixedDrawing".

**shapeGeometry:** An **ST_Points** attribute that specifies coordinates of the line segments of a drawing. If this attribute is present, the value of the type attribute MUST be set to "nonInkDrawing".

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

```
<xsd:complexType name="CT_CtxNode">
  <xsd:sequence>
    <xsd:element name="property" type="CT_Property" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="sourceLink" type="CT_CtxLink" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="destinationLink" type="CT_CtxLink" minOccurs="0"
maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="id" type="ST_Guid" use="optional"/>
  <xsd:attribute name="type" type="ST_CtxNodeType" use="required"/>
  <xsd:attribute name="rotatedBoundingBox" type="ST_Points" use="optional"/>
  <xsd:attribute name="alignmentLevel" type="xsd:int" use="optional" default="0"/>
  <xsd:attribute name="contentType" type="xsd:int" use="optional" default="0"/>
  <xsd:attribute name="ascender" type="ST_Points" use="optional" default="0,0"/>
  <xsd:attribute name="descender" type="ST_Points" use="optional" default="0,0"/>
  <xsd:attribute name="baseline" type="ST_Points" use="optional" default="0,0"/>
  <xsd:attribute name="midline" type="ST_Points" use="optional" default="0,0"/>
  <xsd:attribute name="customRecognizerId" type="ST_Guid" use="optional"/>
  <xsd:attribute name="mathML" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="mathStruct" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="mathSymbol" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="beginModifierType" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="endModifierType" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="rotationAngle" type="xsd:int" use="optional" default="0"/>
  <xsd:attribute name="hotPoints" type="ST_Points" use="optional"/>
  <xsd:attribute name="centroid" type="ST_Point" use="optional"/>
  <xsd:attribute name="semanticType" type="ST_SemanticType" use="optional" default="none"/>
  <xsd:attribute name="shapeName" type="xsd:string" use="optional" default=""/>
  <xsd:attribute name="shapeGeometry" type="ST_Points" use="optional"/>
</xsd:complexType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.58  CT_IsGvmlCanvas

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* isCanvas

Defines a property with a Boolean value. This property determines whether the container of an instance of this complex type is a GVML representation of a drawing canvas used in a word processing application**.**

*Attributes:*

**val:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether the container instance of the complex type having this attribute is a GVML representation of a drawing canvas used in a word processing application**.**

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

```
<xsd:complexType name="CT_IsGvmlCanvas">
  <xsd:attribute name="val" type="xsd:boolean" use="required"/>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.59   CT_GvmlContentPartNonVisual

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_GvmlContentPart

A complex type which specifies non-visual properties for a **CT_GvmlContentPart**.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual drawing properties for the content part. This element provides additional information that does not affect the appearance of the content part to be stored.

**cNvContentPartPr:** A CT_NonVisualInkContentPartProperties element that specifies non-visual ink properties for the content part. This provides additional information that does not affect the appearance of ink in the content part to be stored.

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

```
<xsd:complexType name="CT_GvmlContentPartNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvContentPartPr" type="CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.60   CT_GvmlContentPart

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* contentPart

A complex type that specifies a reference to XML content in a format not specified in [ISO/IEC-29500-1].

The relationship type of the explicit relationship specified by this element MUST be of type http://schemas.openxmlformats.org/officeDocument/2006/customXml and have a **TargetMode** attribute set to "Internal". If an application cannot process the content of the content type specified by the targeted part, the application ignores the content and continues to process the file.

*Child Elements:*

**nvContentPartPr:** A [CT_GvmlContentPartNonVisual](#) element that specifies non-visual properties of the content part.

**xfrm:** A **CT_Transform2D** element ([[ISO/IEC-29500-1]](#) section A.4.1) that specifies the 2-D transform for the content part.

**extLst:** A **CT_OfficeArtExtensionList** element ([[ISO/IEC-29500-1]](#) section A.4.1) that specifies the extension list in which all future extensions of element type **ext** are defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables various new types of data to be stored natively in the framework.

*Attributes:*

**bwMode:** An **ST_BlackWhiteMode** attribute ([[ISO/IEC-29500-1]](#) section 20.1.10.10) that specifies how to interpret color information contained within a content part to achieve a color, black and white, or grayscale rendering of the content part. This attribute specifies only the rendering mode applied to the content part; it does not affect how the actual color information is persisted.

**r:id:** An **ST_RelationshipId** attribute ([[ISO/IEC-29500-1]](#) section 22.8.2.1) that specifies the relationship identifier to a content part.

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

```
<xsd:complexType name="CT_GvmlContentPart">
  <xsd:sequence>
    <xsd:element name="nvContentPartPr" type="CT_GvmlContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional"/>
  <xsd:attribute ref="r:id" use="required"/>
</xsd:complexType>
```

See section [5.1](#) for the full W3C XML Schema ([[XMLSCHEMA1]](#) section 2.1).

## 2.5.61   CT_ApplicationNonVisualDrawingProps

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/chartDrawing

*Referenced by:* [CT_ContentPart](#)

A complex type that specifies Chart DrawingML-specific non-visual properties of a content part.

*Attributes:*

**macro:** A string ([[XMLSCHEMA2]](#) section 3.2.1) that specifies the name of the custom function associated with the content part.

The format of this string is application-defined and SHOULD be ignored if not understood.[<62>](#)

**fPublished:** A Boolean attribute ([[XMLSCHEMA2]](#) section 3.2.2) that specifies whether the content part is published with the chart when sent to the server.

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

```
<xsd:complexType name="CT_ApplicationNonVisualDrawingProps">
  <xsd:attribute name="macro" type="xsd:string" use="optional"/>
  <xsd:attribute name="fPublished" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

See section 5.10 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.62  CT_ContentPartNonVisual

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/chartDrawing

*Referenced by:* CT_ContentPart

A complex type that specifies non-visual properties of a CT_ContentPart element.

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** ([ISO/IEC-29500-1] section A.4.1) element that specifies the non-visual drawing properties for the content part. This allows for additional information that does not affect the appearance of the content part to be stored.

**cNvContentPartPr:** A CT_NonVisualInkContentPartProperties element that specifies non-visual ink properties of the content part. This enables additional information that does not affect the appearance of ink in the content part to be stored.

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

```
<xsd:complexType name="CT_ContentPartNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.10 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.63  CT_ContentPart

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/chartDrawing

*Referenced by:* contentPart

A complex type that specifies a reference to XML content in a format not specified in [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in SpreadsheetML Drawing ([ISO/IEC-29500-1] section 20.5.2.12), but appears under **CT_GroupShape** and **EG_ObjectChoices** ([ISO/IEC-29500-1] section A.5.1) to enable content parts in charts.

*Child Elements:*

**nvContentPartPr:** A [CT_ContentPartNonVisual](#) element that specifies non-visual properties of the content part.

**nvPr:** A [CT_ApplicationNonVisualDrawingProps](#) element that specifies non-visual Chart DrawingML-specific properties.

**xfrm:** A CT_Transform2D element ([ISO/IEC-29500-1] section A.4.1) that specifies the 2-D transform for the content part.

**extLst:** A CT_OfficeArtExtensionList element ([ISO/IEC-29500-1] section A.4.1) that specifies the extension list in which all future extensions of element type **ext** are defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables various new types of data to be stored natively in the framework.

*Attributes:*

**r:id:** An ST_RelationshipId attribute ([ISO/IEC-29500-1] section 22.8.2.1) that specifies the relationship identifier to a content part.

**bwMode:** An ST_BlackWhiteMode attribute ([ISO/IEC-29500-1] section 20.1.10.10) that specifies how to interpret color information contained within a content part to achieve a color, black and white, or grayscale rendering of the content part. This attribute specifies only the rendering mode applied to the content part; it does not affect how the actual color information is persisted

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

```
<xsd:complexType name="CT_ContentPart">
  <xsd:sequence>
    <xsd:element name="nvContentPartPr" type="CT_ContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="nvPr" type="CT_ApplicationNonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute ref="r:id" use="required"/>
  <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional" default="auto"/>
</xsd:complexType>
```

See section [5.10](#) for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.64  CT_ApplicationNonVisualDrawingProps

*Target namespace:* http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing

*Referenced by:* [CT_ContentPart](#)

A complex type that specifies SpreadsheetML Drawing-specific non-visual properties of a content part.

*Attributes:*

**macro:** A string ([XMLSCHEMA2] section 3.2.1) that specifies the name of the custom function associated with the content part.

The format of this string is application-defined and SHOULD be ignored if not understood.<63>

**fPublished:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies whether the content part is published with the worksheet when sent to the server.

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

```
<xsd:complexType name="CT_ApplicationNonVisualDrawingProps">
  <xsd:attribute name="macro" type="xsd:string" use="optional"/>
  <xsd:attribute name="fPublished" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

See section 5.11 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.65 CT_ContentPartNonVisual

*Target namespace:* http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing

*Referenced by:* CT_ContentPart

A complex type that specifies non-visual properties of a **contentPart** element ([ISO/IEC-29500-1] section 20.5.2.12).

*Child Elements:*

**cNvPr:** A **CT_NonVisualDrawingProps** element ([ISO/IEC-29500-1] section A.4.1) that specifies the non-visual drawing properties of the content part. This enables additional information that does not affect the appearance of the content part to be stored.

**cNvContentPartPr:** A CT_NonVisualInkContentPartProperties element that specifies non-visual ink properties of the content part. This enables additional information that does not affect the appearance of ink in the content part to be stored.

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

```
<xsd:complexType name="CT_ContentPartNonVisual">
  <xsd:sequence>
    <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.11 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.66 CT_ContentPart

*Target namespace:* http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing

*Referenced by:* contentPart

A complex type that specifies a reference to XML content in a format not specified in [ISO/IEC-29500-1].

This element serves the same purpose as the **contentPart** element in SpreadsheetML Drawing ([ISO/IEC-29500-1] section 20.5.2.12), but appears under **CT_GroupShape** ([ISO/IEC-29500-1] section A.4.5) to enable content parts nested in a group shape.

*Child Elements:*

**nvContentPartPr:** A CT_ContentPartNonVisual element that specifies non-visual properties of the content part.

**nvPr:** A CT_ApplicationNonVisualDrawingProps element that specifies non-visual SpreadsheetML Drawing-specific properties.

**xfrm:** A **CT_Transform2D** element ([ISO/IEC-29500-1] section A.4.1) that specifies the 2-D transform for the content part.

**extLst:** A **CT_OfficeArtExtensionList** element ([ISO/IEC-29500-1] section A.4.1) that specifies the extension list in which all future extensions of element type **ext** are defined. The extension list, along with corresponding future extensions, is used to extend the storage capabilities of the DrawingML framework. This enables various new types of data to be stored natively in the framework.

*Attributes:*

**r:id:** An **ST_RelationshipId** attribute ([ISO/IEC-29500-1] section 22.8.2.1) that specifies the relationship identifier to a content part.

**bwMode:** An **ST_BlackWhiteMode** attribute ([ISO/IEC-29500-1] section 20.1.10.10) that specifies how to interpret color information contained within a content part to achieve a color, black and white, or grayscale rendering of the content part. This attribute specifies only the rendering mode applied to the content part; it does not affect how the actual color information is persisted.

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

```
<xsd:complexType name="CT_ContentPart">
  <xsd:sequence>
    <xsd:element name="nvContentPartPr" type="CT_ContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="nvPr" type="CT_ApplicationNonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
    <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute ref="r:id" use="required"/>
  <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional" default="auto"/>
</xsd:complexType>
```

See section 5.11 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.67   CT_BooleanTrue

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

A complex type that specifies a Boolean value that defaults to TRUE.

*Attributes:*

**val:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies the value for the property. This MUST be set to one of the following: zero, 1, TRUE, or FALSE.

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

```
<xsd:complexType name="CT_BooleanTrue">
  <xsd:attribute name="val" type="xsd:boolean" use="optional" default="true"/>
</xsd:complexType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.68   CT_BooleanFalse

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

*Referenced by:* CT_PivotOptions

A complex type that specifies a Boolean value that defaults to FALSE.

*Attributes:*

**val:** A Boolean attribute ([XMLSCHEMA2] section 3.2.2) that specifies the value for the property. This MUST be set to one of the following: zero, 1, TRUE, or FALSE.

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

```
<xsd:complexType name="CT_BooleanFalse">
  <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
</xsd:complexType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.69   CT_InvertSolidFillFmt

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

*Referenced by:* invertSolidFillFmt

A complex type that specifies the color of the negative data points of the chart series ([ISO/IEC-29500-1] section 21.2).

MUST NOT exist if the parent **CT_BarSer** element ([ISO/IEC-29500-4] section A.5.1) or parent **CT_BubbleSer** element ([ISO/IEC-29500-4] section A.5.1) has a child **CT_ShapeProperties** element ([ISO/IEC-29500-4] section A.4.1) that does not have a child **CT_SolidColorFillProperties** element ([ISO/IEC-29500-4] section A.4.1).

MUST NOT exist if not a descendant of a **CT_BarChart** element ([ISO/IEC-29500-4] section A.5.1), **CT_Bar3DChart** element ([ISO/IEC-29500-4] section A.5.1), or **CT_BubbleChart** element ([ISO/IEC-29500-4] section A.5.1).

MUST NOT exist if the parent **CT_BarSer** element or parent **CT_BubbleSer** element has a child **invertIfNegative**.

*Child Elements:*

**spPr:** A **CT_ShapeProperties** element that specifies the solid color of the negative data points of the chart series ([ISO/IEC-29500-1] section 21.2). MUST have a child **CT_SolidColorFillProperties** element.

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

```
<xsd:complexType name="CT_InvertSolidFillFmt">
  <xsd:sequence>
    <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.70   CT_PivotOptions

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

*Referenced by:* pivotOptions

A complex type that specifies the pivot controls that appear on the chart ([ISO/IEC-29500-1] section 21.2).

*Child Elements:*

**dropZoneFilter:** A **CT_BooleanFalse** element that specifies whether a control for each **PivotTable** field ([ISO/IEC-29500-1] section 18.10) on the **PivotTable** page axis ([ISO/IEC-29500-1] section 18.10) of the source **PivotTable** appears on the chart when **dropZonesVisible** is set to TRUE. MUST NOT exist if the parent **CT_ChartSpace** element ([ISO/IEC-29500-4] section A.5.1) does not have a child **CT_PivotSource** element ([ISO/IEC-29500-4] section A.5.1).

**dropZoneCategories:** A **CT_BooleanFalse** element that specifies whether a control for each **PivotTable** field on the **PivotTable** row axis of the source **PivotTable** appears on the chart when **dropZonesVisible** is set to TRUE. MUST NOT exist if the parent **CT_ChartSpace** element does not have a child **CT_PivotSource** element.

**dropZoneData:** A **CT_BooleanFalse** element that specifies whether a control for each **PivotTable** field on the **PivotTable** data axis of the source **PivotTable** appears on the chart when **dropZonesVisible** is set to TRUE. MUST NOT exist if the parent **CT_ChartSpace** element does not have a child **CT_PivotSource** element.

**dropZoneSeries:** A **CT_BooleanFalse** element that specifies whether a control for each **PivotTable** field on the **PivotTable** column axis of the source **PivotTable** appears on the chart when **dropZonesVisible** is set to TRUE. MUST NOT exist if the parent **CT_ChartSpace** element does not have a child **CT_PivotSource** element.

**dropZonesVisible:** A **CT_BooleanFalse** element that specifies whether any pivot controls can appear on the pivot chart. For example, if **dropZoneFilter** and **dropZoneCategories** are set to TRUE and **dropZoneData** and **dropZoneSeries** are set to FALSE, if **dropZonesVisible** is set to TRUE, controls corresponding to **PivotTable** fields on the **PivotTable** page axis and **PivotTable** row axis appear on the chart, and if **dropZonesVisible** is set to FALSE, no controls appears on the chart. MUST NOT exist if the **parent CT_ChartSpace** element does not have a child **CT_PivotSource** element.

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

```
<xsd:complexType name="CT_PivotOptions">
  <xsd:sequence>
    <xsd:element name="dropZoneFilter" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dropZoneCategories" type="CT_BooleanFalse" minOccurs="0"
 maxOccurs="1"/>
    <xsd:element name="dropZoneData" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dropZoneSeries" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="dropZonesVisible" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.71 CT_Style

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

*Referenced by:* style

A complex type that specifies a chart style ([ISO/IEC-29500-1] section 21.2).

If this element exists, the **CT_Style** element ([ISO/IEC-29500-4] section A.5.1) that is a descendent of the **CT_ChartSpace** element ([ISO/IEC-29500-4] section A.5.1) that is the ancestor of this element MUST exist, SHOULD<64> be ignored, and MUST have a **val** attribute equal to the **val** attribute of this element minus 100.

*Attributes:*

**val:** An **ST_Style** attribute that specifies a chart style.

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

```
<xsd:complexType name="CT_Style">
  <xsd:attribute name="val" type="ST_Style" use="required"/>
</xsd:complexType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.5.72 CT_SizeRelH

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Referenced by:* sizeRelH

Specifies the relative width of a floating DrawingML object in a WordprocessingML document.

*Child Elements:*

**pctWidth:** An **ST_Percentage** element (as specified in [ISO/IEC-29500-4] section 12.1.2.2 and [ISO/IEC-29500-1] section 20.1.10.40) that specifies the width.<65>

*Attributes:*

**relativeFrom:** An **ST_SizeRelFromH** attribute that specifies the base on which the relative width is calculated.

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

```
<xsd:complexType name="CT_SizeRelH">
  <xsd:sequence>
    <xsd:element name="pctWidth" type="a:ST_PositivePercentage" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="relativeFrom" type="ST_SizeRelFromH" use="required"/>
</xsd:complexType>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.5.73   CT_SizeRelV

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Referenced by:* sizeRelV

Specifies the relative height of a floating DrawingML object in a WordprocessingML document.

*Child Elements:*

**pctHeight:** An **ST_Percentage** element (as specified in [ISO/IEC-29500-4] section 12.1.2.2 and [ISO/IEC-29500-1] section 20.1.10.40) that specifies the height.<66>

*Attributes:*

**relativeFrom:** An **ST_SizeRelFromV** attribute that specifies the base on which the relative height is calculated.

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

```
<xsd:complexType name="CT_SizeRelV">
  <xsd:sequence>
    <xsd:element name="pctHeight" type="a:ST_PositivePercentage" minOccurs="1"
maxOccurs="1"/>
  </xsd:sequence>
  <xsd:attribute name="relativeFrom" type="ST_SizeRelFromV" use="required"/>
</xsd:complexType>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6   Simple Types

### 2.6.1   ST_LegacySpreadsheetColorIndex

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* legacySpreadsheetColorIndex

This type MUST be used only to define a **legacySpreadsheetColorIndex**.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_LegacySpreadsheetColorIndex">
  <xsd:restriction base="xsd:int">
    <xsd:minInclusive value="0"/>
    <xsd:maxInclusive value="80"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.2 ST_ArtisticEffectParam100

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectBlur, CT_PictureEffectCement, CT_PictureEffectCrisscrossEtching, CT_PictureEffectFilmGrain, CT_PictureEffectGlass, CT_PictureEffectLineDrawing, CT_PictureEffectMarker, CT_PictureEffectMosiaicBubbles, CT_PictureEffectPastelsSmooth, CT_PictureEffectPencilGrayscale, CT_PictureEffectPencilSketch, CT_PictureEffectTexturizer

A simple type that specifies a parameter value for an artistic picture effect in the range from zero through 100.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_ArtisticEffectParam100">
  <xsd:restriction base="xsd:int">
    <xsd:minInclusive value="0"/>
    <xsd:maxInclusive value="100"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.3 ST_ArtisticEffectParam10

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectGlowDiffused, CT_PictureEffectGlowEdges, CT_PictureEffectLightScreen, CT_PictureEffectPaintBrush, CT_PictureEffectPaintStrokes, CT_PictureEffectPhotocopy, CT_PictureEffectPlasticWrap, CT_PictureEffectWatercolorSponge

A simple type that specifies a parameter value for an artistic picture effect in the range from zero through 10.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_ArtisticEffectParam10">
  <xsd:restriction base="xsd:int">
    <xsd:minInclusive value="0"/>
    <xsd:maxInclusive value="10"/>
  </xsd:restriction>
```

```
    </xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.4 ST_ArtisticEffectParam6

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectCutout

A simple type that specifies a parameter value for an artistic picture effect in the range from zero through 6.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
  <xsd:simpleType name="ST_ArtisticEffectParam6">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="6"/>
    </xsd:restriction>
  </xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.5 ST_ArtisticEffectParam4

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectChalkSketch

A simple type that specifies a parameter value for an artistic picture effect in the range from zero through 4.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
  <xsd:simpleType name="ST_ArtisticEffectParam4">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="4"/>
    </xsd:restriction>
  </xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.6 ST_ColorTemperature

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectColorTemperature

A simple type that specifies a color temperature value in the range from 1500 through 11500.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_ColorTemperature">
  <xsd:restriction base="xsd:int">
    <xsd:minInclusive value="1500"/>
    <xsd:maxInclusive value="11500"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.7 ST_SaturationAmount

*Target namespace:* http://schemas.microsoft.com/office/drawing/2010/main

*Referenced by:* CT_PictureEffectSaturation

A simple type that specifies the amount of saturation in the range from zero percent through 400 percent, in one-thousandths of a percent. For more details, see [ISO/IEC-29500-1] section 20.1.10.40.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_SaturationAmount">
  <xsd:restriction base="a:ST_Percentage"/>
</xsd:simpleType>
```

See section 5.1 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.8 ST_KnownCtxNodeType

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* ST_CtxNodeType

This type specifies an enumeration of Ink content node types. Possible values are described in the following table.

| Value | Meaning |
|---|---|
| root | A root-level content node. This can be used as the parent of all other context nodes in a collection of ink traces. |
| unclassifiedInk | The ink of this context node cannot be identified as a particular type. |
| writingRegion | A context node that is the parent of **paragraph** context nodes. |
| analysisHint | A context node that contains analysis hint information. |
| object | A context node that might contain non-ink data of an unknown type. |
| inkDrawing | A context node that contains ink strokes that make up an arbitrary drawing and does not contain writing. |

| Value | Meaning |
|---|---|
| image | A context node that contains non-ink image data. |
| paragraph | A context node that is the parent of **line** context nodes and the child of **writingRegion** context nodes. |
| line | A context node that is the parent of **inkWord** or **inkBullet** context nodes and the child of **paragraph** context nodes. |
| inkBullet | A context node that is the child of a **line** context node and contains ink traces that represent bullet symbols in a bulleted list. |
| inkWord | A context node that is the child of a **line** context node and contains ink traces that represent written words. |
| textWord | A context node that is the child of a **line** context node and contains textual words, rather than ink-based words. |
| customRecognizer | A context node that uses a custom recognizer. |
| mathRegion | A context node that is the parent of **mathEquation** context nodes. |
| mathEquation | A context node that contains ink traces that represent a mathematical equation. It has child context nodes of type **mathStruct**. |
| mathStruct | A context node that contains portions of a mathematical equations. Supported child context nodes are **mathSymbol**, **mathIndentifier**, **mathOperator**, and **mathNumber** elements. |
| mathSymbol | A context node that represents a mathematical symbol, such as a degree symbol (°). |
| mathIdentifier | A context node that represents a mathematical identifier such as a function name. |
| mathOperator | A context node that represents a mathematical operator such as a plus sign. |
| mathNumber | A context node that represents a number in a mathematical equation. |
| nonInkDrawing | A context node that represents an arbitrary drawing made up of non-ink geometry. |
| groupNode | A context node that represents an arbitrary group of other context nodes. |
| mixedDrawing | A context node that represents a mixture of ink and non-ink drawing traces. |

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```xsd
<xsd:simpleType name="ST_KnownCtxNodeType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="root"/>
    <xsd:enumeration value="unclassifiedInk"/>
    <xsd:enumeration value="writingRegion"/>
    <xsd:enumeration value="analysisHint"/>
    <xsd:enumeration value="object"/>
    <xsd:enumeration value="inkDrawing"/>
    <xsd:enumeration value="image"/>
    <xsd:enumeration value="paragraph"/>
    <xsd:enumeration value="line"/>
    <xsd:enumeration value="inkBullet"/>
    <xsd:enumeration value="inkWord"/>
```

```
      <xsd:enumeration value="textWord"/>
      <xsd:enumeration value="customRecognizer"/>
      <xsd:enumeration value="mathRegion"/>
      <xsd:enumeration value="mathEquation"/>
      <xsd:enumeration value="mathStruct"/>
      <xsd:enumeration value="mathSymbol"/>
      <xsd:enumeration value="mathIdentifier"/>
      <xsd:enumeration value="mathOperator"/>
      <xsd:enumeration value="mathNumber"/>
      <xsd:enumeration value="nonInkDrawing"/>
      <xsd:enumeration value="groupNode"/>
      <xsd:enumeration value="mixedDrawing"/>
    </xsd:restriction>
  </xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.9   ST_Guid

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_Property, ST_Ref, CT_CtxNode, ST_CtxNodeType

This type specifies the format of a 128-bit GUID. Values of this type MUST begin with an opening curly bracket character ({), followed by a string that conforms to the Internet standards track protocol as specified in [RFC4122], and end with a closing curly bracket (}).

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Guid">
  <xsd:restriction base="xsd:token">
    <xsd:pattern value="\{[0-9A-F]{8}-[0-9A-F]{4}-[0-9A-F]{4}-[0-9A-F]{4}-[0-9A-F]{12}\}"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.10   ST_Ref

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxLink

This type defines a reference id used by context node links. MUST be either an **xsd:int** ([XMLSCHEMA2] section 3.3.17) or an **ST_Guid**.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Ref">
  <xsd:union memberTypes="msink:ST_Guid xsd:unsignedInt"/>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.11 ST_CtxNodeType

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxNode

This type defines a moniker of a context node type. MUST be either an **ST_KnownCtxNodeType** or an **ST_Guid**.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_CtxNodeType">
  <xsd:union memberTypes="msink:ST_KnownCtxNodeType msink:ST_Guid"/>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.12 ST_Dir

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxLink

This type is an enumeration of context node link directions. Possible values are described in the following table.

| Value | Meaning |
|-------|---------|
| to | The link is the source of a "to" directional link, such as the beginning of an arrow. |
| from | This link is the destination of a "from" directional link, such as the head of an arrow. |
| with | This is a link with no implied direction, such as the underlining of a word. |

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Dir">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="to"/>
    <xsd:enumeration value="from"/>
    <xsd:enumeration value="with"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.13 ST_KnownSemanticType

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* ST_SemanticType

This type specifies the semantic type of an Ink context node. Possible values are described in the following table.

| Value | Meaning |
|-------|---------|
| none | The context node does not have a semantic type. |
| underline | The context node represents a straight line segment used for annotation to mark text that appears with a horizontal line under it. |
| strikethrough | The context node represents a straight line segment used for annotation to mark text that appears with a line through it. |
| highlight | The context node represents a highlight demarcating the underlying object to bring it to the attention of the reader. |
| scratchOut | The context node represents a wavy line segment used for erasing content. |
| verticalRange | The context node represents a vertical range consisting of one or more ink strokes that span multiple lines. |
| callout | The context node represents a callout consisting of one or more ink strokes connecting two objects to draw attention to a portion of a text or drawing. |
| enclosure | The context node represents one or more ink strokes that encircle a text, an image or an ink area for emphasis. |
| comment | The context node represents a comment. |
| container | The context node represents a container consisting of one or more ink strokes that make up a standard shape. |
| connector | The context node represents a connector consisting of one or more ink strokes used to connect two objects. |

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_KnownSemanticType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="none"/>
    <xsd:enumeration value="underline"/>
    <xsd:enumeration value="strikethrough"/>
    <xsd:enumeration value="highlight"/>
    <xsd:enumeration value="scratchOut"/>
    <xsd:enumeration value="verticalRange"/>
    <xsd:enumeration value="callout"/>
    <xsd:enumeration value="enclosure"/>
    <xsd:enumeration value="comment"/>
    <xsd:enumeration value="container"/>
    <xsd:enumeration value="connector"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.14 ST_SemanticType

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxNode

This type defines a moniker that identifies the semantic type of an Ink context node. MUST be either an **ST_KnownSemanticType** or an **xsd:unsignedInt** ([XMLSCHEMA2] section 3.3.22).

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_SemanticType">
  <xsd:union memberTypes="ST_KnownSemanticType xsd:unsignedInt"/>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.15 ST_Point

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* ST_Points, CT_CtxNode

This type defines a single coordinate. The coordinate space of both the x and y values is 1/1000 of 1 centimeter. The format of this value MUST be one or more numeric characters optionally preceded by a minus sign, followed by a comma, then one or more numeric characters optionally preceded by a minus sign.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Point">
  <xsd:restriction base="xsd:string">
    <xsd:pattern value="-?[0-9]+,-?[0-9]+"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.16 ST_Points

*Target namespace:* http://schemas.microsoft.com/ink/2010/main

*Referenced by:* CT_CtxNode

This value defines a series of zero or more coordinates. Each coordinate MUST conform to the **ST_Point** format and be delimited by white space characters.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Points">
  <xsd:list itemType="msink:ST_Point"/>
```

```
        </xsd:simpleType>
```

See section 5.9 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.17   ST_Style

*Target namespace:* http://schemas.microsoft.com/office/drawing/2007/8/2/chart

*Referenced by:* CT_Style

A simple type that specifies a chart style ([ISO/IEC-29500-1] section 21.2).

The style definitions for this simple type are identical to the corresponding **ST_Style** style definitions ([ISO/IEC-29500-1] section 21.2.3.46), with the following exceptions:

- The number for each style in this simple type is 100 plus the corresponding style number in **ST_Style** ([ISO/IEC-29500-1] section 21.2.3.46).

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46) states, "If the chart does not have a font size set, then the default font size is 10." This is changed in this simple type to the following: If the chart does not have a font size set, the default font size for the chart is 10 points, and the default font size for the chart title is 18 points.

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 2, column Axis & Major Gridlines has a value of "tx1" for styles 1 to 32. This is changed in this simple type to specify that styles 101 to 132 have a value of "75% tint of tx1".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 2, column Axis & Major Gridlines has a value of "dk1" for styles 33 to 48. This is changed in this simple type to specify that styles 133 to 148 have a value of "75% tint of dk1".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 2, column Minor Gridlines has a value of "50% tint of tx1" for styles 33 to 40. This is changed in this simple type to specify that styles 133 to 140 have a value of "50% tint of dk1".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 2, column Minor Gridlines has a value of "90% tint of tx1" for styles 41 to 48. This is changed in this simple type to specify that styles 141 to 148 have a value of "90% tint of dk1".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 2, column Other Lines has a value of "25% shade of dk1" for styles 35 to 40. This is changed in this simple type to specify that styles 135 to 140 have a value of "dk1".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 3, column Floor, Walls & Plot Area (2-D) has a value of "accent1-6" for styles 35 to 40. This is changed in this simple type to specify that styles 135 to 140 have a value of "20% tint of accent1-6".

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), tables 4 and 5 do not specify the color of the effect. This is changed in this simple type to specify in tables 4 and 5 that the effect color is "dk1" if the style has an effect applied.

- The **ST_Style** simple type ([ISO/IEC-29500-1] section 21.2.3.46), table 5, column Line Color or Pattern has a value of "50% shade of dk1" for style 33. This is changed in this simple type to specify that style 133 has a value of "92.5% tint of dk1".

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The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_Style">
  <xsd:restriction base="xsd:unsignedByte">
    <xsd:minInclusive value="101"/>
    <xsd:maxInclusive value="148"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.12 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.18 ST_SizeRelFromH

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Referenced by:* CT_SizeRelH

A simple type that specifies the base on which the relative width is calculated. Possible values are described in the following table.

| Value | Meaning |
|---|---|
| margin | Relative to margins of the current page. |
| page | Relative to edges of the current page. |
| leftMargin | Relative to the left margin of the current page. |
| rightMargin | Relative to the right margin of the current page. |
| insideMargin | Relative to the inside margin of the current page. |
| outsideMargin | Relative to the outside margin of the current page. |

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_SizeRelFromH">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="margin"/>
    <xsd:enumeration value="page"/>
    <xsd:enumeration value="leftMargin"/>
    <xsd:enumeration value="rightMargin"/>
    <xsd:enumeration value="insideMargin"/>
    <xsd:enumeration value="outsideMargin"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

## 2.6.19 ST_SizeRelFromV

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Referenced by:* CT_SizeRelV

A simple type that specifies the base on which the relative height is calculated. Possible values are described in the following table.

| Value | Meaning |
|---|---|
| margin | Relative to margins of the current page. |
| page | Relative to edges of the current page. |
| topMargin | Relative to the top margin of the current page. |
| bottomMargin | Relative to the bottom margin of the current page. |
| insideMargin | Relative to the inside margin of the current page. |
| outsideMargin | Relative to the outside margin of the current page. |

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_SizeRelFromV">
  <xsd:restriction base="xsd:token">
    <xsd:enumeration value="margin"/>
    <xsd:enumeration value="page"/>
    <xsd:enumeration value="topMargin"/>
    <xsd:enumeration value="bottomMargin"/>
    <xsd:enumeration value="insideMargin"/>
    <xsd:enumeration value="outsideMargin"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

### 2.6.20   ST_EditId

*Target namespace:* http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

*Referenced by:* anchorId, editId

This simple type specifies a number value specified as a four-octet (eight-digit) hexadecimal number.

The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this simple type.

```
<xsd:simpleType name="ST_EditId">
  <xsd:restriction base="xsd:hexBinary">
    <xsd:length value="4"/>
  </xsd:restriction>
</xsd:simpleType>
```

See section 5.13 for the full W3C XML Schema ([XMLSCHEMA1] section 2.1).

# 3   Structure Examples

## 3.1   Content Parts and Ink



**Figure 30: Sample ink shape**

The following code example represents the Ink content part that describes the example ink shown in the preceding figure. The **brush** definitions specify its size, shape, color, and coordinate space. Traces are gathered into a **traceGroup** hierarchy of **writingRegion**, **paragraph**, **line**, and **inkWord**, with the **inkWord** containing the results of ink recognition that was generated at runtime.

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<inkml:ink xmlns:inkml="http://www.w3.org/2003/InkML">
  <inkml:definitions>
    <inkml:context xml:id="ctx0">
      <inkml:inkSource xml:id="inkSrc0">
        <inkml:traceFormat>
          <inkml:channel name="X" type="integer" max="9600" units="cm"/>
          <inkml:channel name="Y" type="integer" max="7200" units="cm"/>
          <inkml:channel name="F" type="integer" max="256" units="dev"/>
        </inkml:traceFormat>
        <inkml:channelProperties>
          <inkml:channelProperty channel="X" name="resolution" value="367.8161"
units="1/cm"/>
          <inkml:channelProperty channel="Y" name="resolution" value="440.36697"
units="1/cm"/>
          <inkml:channelProperty channel="F" name="resolution" value="0" units="1/dev"/>
        </inkml:channelProperties>
      </inkml:inkSource>
      <inkml:timestamp xml:id="ts0" timeString="2010-01-10T13:10:12.822"/>
    </inkml:context>
    <inkml:brush xml:id="br0">
      <inkml:brushProperty name="width" value="0.06667" units="cm"/>
      <inkml:brushProperty name="height" value="0.06667" units="cm"/>
      <inkml:brushProperty name="color" value="#FF0000"/>
      <inkml:brushProperty name="fitToCurve" value="1"/>
    </inkml:brush>
  </inkml:definitions>
  <inkml:traceGroup>
    <inkml:annotationXML>
      <emma:emma xmlns:emma="http://www.w3.org/2003/04/emma" version="1.0">
        <emma:interpretation id="{8646EB18-6E67-4FFA-8739-E20C3C1A0F80}"
emma:medium="tactile" emma:mode="ink">
          <msink:context xmlns:msink="http://schemas.microsoft.com/ink/2010/main"
type="writingRegion" rotatedBoundingBox="4334,2653 13237,2575 13262,5384 4359,5462"/>
        </emma:interpretation>
      </emma:emma>
    </inkml:annotationXML>
    <inkml:traceGroup>
      <inkml:annotationXML>
```

```xml
<emma:emma xmlns:emma="http://www.w3.org/2003/04/emma" version="1.0">
  <emma:interpretation id="{4A0797F9-1386-486A-B2BA-709708E24147}"
emma:medium="tactile" emma:mode="ink">
    <msink:context xmlns:msink="http://schemas.microsoft.com/ink/2010/main"
type="paragraph" rotatedBoundingBox="4334,2653 13237,2575 13262,5384 4359,5462"
alignmentLevel="1"/>
  </emma:interpretation>
</emma:emma>
</inkml:annotationXML>
<inkml:traceGroup>
  <inkml:annotationXML>
    <emma:emma xmlns:emma="http://www.w3.org/2003/04/emma" version="1.0">
      <emma:interpretation id="{0430FEDC-2E4E-4A32-91D8-87424D412245}"
emma:medium="tactile" emma:mode="ink">
        <msink:context xmlns:msink="http://schemas.microsoft.com/ink/2010/main"
type="line" rotatedBoundingBox="4334,2653 13237,2575 13262,5384 4359,5462"/>
      </emma:interpretation>
    </emma:emma>
  </inkml:annotationXML>
  <inkml:traceGroup>
    <inkml:annotationXML>
      <emma:emma xmlns:emma="http://www.w3.org/2003/04/emma" version="1.0">
        <emma:interpretation id="{583A8050-3462-4BC6-915B-A797D921D61F}"
emma:medium="tactile" emma:mode="ink">
          <msink:context xmlns:msink="http://schemas.microsoft.com/ink/2010/main"
type="inkWord" rotatedBoundingBox="4334,2653 13237,2575 13262,5384 4359,5462"/>
        </emma:interpretation>
        <emma:one-of disjunction-type="recognition" id="oneOf0">
          <emma:interpretation id="interp0" emma:lang="en-US" emma:confidence="1">
            <emma:literal>hello</emma:literal>
          </emma:interpretation>
          <emma:interpretation id="interp1" emma:lang="en-US" emma:confidence="0.5">
            <emma:literal>hello </emma:literal>
          </emma:interpretation>
          <emma:interpretation id="interp2" emma:lang="en-US" emma:confidence="0.5">
            <emma:literal> hello</emma:literal>
          </emma:interpretation>
          <emma:interpretation id="interp3" emma:lang="en-US" emma:confidence="0.5">
            <emma:literal>he 11 o</emma:literal>
          </emma:interpretation>
          <emma:interpretation id="interp4" emma:lang="en-US" emma:confidence="0.5">
            <emma:literal>he 110</emma:literal>
          </emma:interpretation>
        </emma:one-of>
      </emma:emma>
    </inkml:annotationXML>
    <inkml:trace contextRef="#ctx0" brushRef="#br0">-2 0 43,'0'0'14,"0"0"-6,0 0 1,8 23
2,-16 12-3,16 7 3,17 18-4,9 28-7,-9 0 4,8 14 3,-8 10 3,25 18-2,-17 18-1,1-18-1,6 18-2,18 24
0,-16 6-1,-9-1 0,-8 1 0,0-19-1,0-17 0,0-5 0,-8-8-1,0-16 0,8-30 0,-17 5 0,-8-34-1,0-12 1,0-25-
1,8 13 0,-8-36 0,9-30 0,-1-17 1,-16-6 0,8-24 1,8 6-1,-16 6 0,16-1 0,9-5-1,-1-17 1,9 0 0,16 4-
1,17 2 2,17 5 1,8 12-3,9 12 1,-17 18 0,7 5 0,1 12 1,9 24-1,-17 19 0,0 15 0,-10 32 0,2 22 0,-
25 13 0,-1 0 0,1-6 0,-9-13 0,9 1-1,-17-6-1,0-12-7,-8 7-10</inkml:trace>
    <inkml:trace contextRef="#ctx0" brushRef="#br0">2375 1858 106,'0'0'0,"0"0"4,0 0
4,48 11-1,-15 2 0,26 4-1,-1 7-1,17 5 0,9-11-1,7 5-1,-9-4-1,10 4 0,-17-11-2,0-12 0,0-18-2,-10-
11 0,2-13 0,-17-11-1,8 0 1,-25 6 0,1-19 1,-26 14 0,-8-2 1,-25 1-2,0 6 0,-17 5 1,1 18 0,-1-6
0,-8 30 1,8 6-1,-23 24 1,7 6 0,0 16 0,-9 2 0,-17 18 0,1 3 2,1 15 2,-1 10 1,33-5 0,17-12 1,7
0-1,10 0-2,32-1 0,35 1 1,24-17 1,25-1 0,23-12-2,-6-17-1,25-14-3,23-9-4,1-31-6,25-35-
9</inkml:trace>
    <inkml:trace contextRef="#ctx0" brushRef="#br0">4591 295 72,'0'0'4,"0"0"5,0 0-1,0 0
0,-8 6 0,8-6 1,8 24 1,1 23-1,7 7 0,9 22 0,-16 19 0,24 24 0,0 11-2,1-6-1,16 24-1,0 12-1,8-18-
1,-1 12-1,1-13 0,-8 2 0,0-19 0,0-36-1,0 2 2-,-8-7-5,0-19-7,-9-4-12</inkml:trace>
```

```
            <inkml:trace contextRef="#ctx0" brushRef="#br0">5730 212 81,'0'0'1,"0"0"8,0 0 4,9
42-1,7 18-1,1 10 1,0 19 0,-1 30-1,16 16-2,-7 8 0,25-2-1,0 19-2,9-6-1,7 0-1,9-6-1,7 0-1,-7-7-
1,-8-28-2,0-12-5,-9-18-6,9-18-14</inkml:trace>
            <inkml:trace contextRef="#ctx0" brushRef="#br0">8281 1189 93,'0'0'3,"0"0"5,0 0 2,-
25-6-1,0-6-1,25 19-2,-34-7-1,9-19-1,8 31-1,-8-24 0,-41 12-1,16 12 0,-9 12-1,-6 11 1,15 13 1,0
6 0,-8 4 3,-1 8 0,9 11-1,-8 0 0,16 5-1,11 7 0,14 5-1,17 7 0,25-7 0,7-4-1,26 4 0,9 13-2,25-13
0,24-11 0,-1-12 0,2-18 0,0-12 0,-25-11-1,-19-30 0,10-23 0,9-31-1,0-28 0,-17-18 1,-2-13-1,-6-
18 1,-34-4 1,-8 5 0,-25 4 2,-16 8 0,-18 24 0,-24-7 1,1 12 0,-18 12 0,0 24-1,0 6-1,-17 12-3,-6
23-5,-36 12-16</inkml:trace>
          </inkml:traceGroup>
        </inkml:traceGroup>
      </inkml:traceGroup>
    </inkml:traceGroup>
  </inkml:ink>
```

The following example shows a Document Part reference to the previous content part as used in a **PresentationML** slide.

```
<mc:AlternateContent xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006">
  <mc:Choice xmlns:p14="http://schemas.microsoft.com/office/powerpoint/2010/main"
Requires="p14">
    <p:contentPart p14:bwMode="auto" r:id="rId2">
      <p14:nvContentPartPr>
        <p14:cNvPr id="8" name="Ink 7"/>
        <p14:cNvContentPartPr/>
        <p14:nvPr/>
      </p14:nvContentPartPr>
      <p14:xfrm>
        <a:off x="1561526" y="971040"/>
        <a:ext cx="3210480" cy="1010160"/>
      </p14:xfrm>
    </p:contentPart>
  </mc:Choice>
  <mc:Fallback>
    <p:pic>
      <p:nvPicPr>
        <p:cNvPr id="8" name="Ink 7"/>
        <p:cNvPicPr/>
        <p:nvPr/>
      </p:nvPicPr>
      <p:blipFill>
        <a:blip r:embed="rId3"/>
        <a:stretch>
          <a:fillRect/>
        </a:stretch>
      </p:blipFill>
      <p:spPr>
        <a:xfrm>
          <a:off x="1561526" y="971040"/>
          <a:ext cx="3210480" cy="1010160"/>
        </a:xfrm>
        <a:prstGeom prst="rect">
          <a:avLst/>
        </a:prstGeom>
      </p:spPr>
    </p:pic>
  </mc:Fallback>
</mc:AlternateContent>
```

...

## 3.2  Pictures

In the binary large image or picture (BLIP) element ( [ISO/IEC-29500-1] section 20.1.8.13) is an extension list that enables applications to store the original image and processing parameters for corrections and artistic effects applied to a picture. The following code example shows  the XML specifying that an artistic effect, sharpen and soften effect, color temperature effect, saturation effect, and brightness and contrast effect are applied to a picture.

The part specified by the relationship **rId2** of the **blip** element is embedded. (This does not apply to linked BLIPs.) This bitmap is the result of performing operations on the original image specified by the related part **rId3** in JPEG XR format. (This does not apply to metafile BLIPs.)

```
<a:blip r:embed="rId2">
    <a:extLst>
        <a:ext uri="BEBA8EAE-BF5A-486c-A8C5-ECC9F3942E4B">
            <a14:imgProps xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main">
                <a14:imgLayer r:embed="rId3">
                    <a14:imgEffect>
                        <a14:artisticLineDrawing trans="75000" pencilSize="15"/>
                    </a14:imgEffect>
                    <a14:imgEffect>
                        <a14:sharpenSoften amount="25000"/>
                    </a14:imgEffect>
                    <a14:imgEffect>
                        <a14:colorTemperature colorTemp="7200"/>
                    </a14:imgEffect>
                    <a14:imgEffect>
                        <a14:saturation sat="200000"/>
                    </a14:imgEffect>
                    <a14:imgEffect>
                        <a14:brightnessContrast bright="20000" contrast="-20000"/>
                    </a14:imgEffect>
                </a14:imgLayer>
            </a14:imgProps>
        </a:ext>
        <a:ext uri="28A0092B-C50C-407e-A947-70E740481C1C">
            <a14:useLocalDpi
xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main" val="0"/>
        </a:ext>
    </a:extLst>
</a:blip>
```

## 3.3  Diagrams

### 3.3.1  Diagram Layout

The **spTree** element is comprised of multiple pieces. The **nvGrpSpPr** element defines non-visual shape properties that are applied to the entire group. The **grpSpPr** element defines visual shape properties that are applied to the group. The individual shapes and their properties are defined in the **sp** element.

```
<dsp:drawing xmlns:dsp="http://schemas.microsoft.com/office/drawing/2008/diagram"
```

```
<dsp:spTree>
  <dsp:nvGrpSpPr>
    ...
  </dsp:nvGrpSpPr>
  <dsp:grpSpPr/>
  <dsp:sp modelId="{9DA1CD8D-C37F-4B77-84FB-F4D9D8E23A09}">
    ...
  </dsp:sp>
  <dsp:sp modelId="{8B78E849-5558-46E7-8E95-CEE131C38F3A}">
    ...
  </dsp:sp>
  <dsp:sp modelId="{8539B2C2-4636-4F97-BB0D-CD82F4D09B18}">
    ...
  </dsp:sp>
</dsp:spTree>
</dsp:drawing>
```

### 3.3.2  Image Recoloring

The following code example demonstrates the structure of the data model for a **SmartArt** diagram. The **recolorImg** element is set to TRUE and causes the images associated with the **SmartArt** diagram to be recolored according to the assigned color scheme and theme.

```
<dgm:dataModel xmlns:dgm="http://schemas.openxmlformats.org/drawingml/2006/diagram"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
  <dgm:ptLst>
...
  </dgm:ptLst>
...
  <dgm:whole/>
  <dgm:extLst>
    <a:ext uri="http://schemas.microsoft.com/office/drawing/2008/diagram">
      <dsp:dataModelExt xmlns:dsp="http://schemas.microsoft.com/office/drawing/2008/diagram"
relId="rId6" minVer="http://schemas.openxmlformats.org/drawingml/2006/diagram"/>
    </a:ext>
    <a:ext uri="C62137D5-CB1D-491b-B009-E17868A290BF">
      <dgm14:recolorImg
xmlns:dgm14="http://schemas.microsoft.com/office/drawing/2010/diagram" val="1"/>
    </a:ext>
  </dgm:extLst>
</dgm:dataModel>
```

## 3.4  Math

The following code example demonstrates the use of an **AlternateContent** element ([ISO/IEC-29500-3] section 10.2.1) to wrap an equation and the fallback image of that equation. The following XML shows the contents of a shape containing an equation that is the letter pi:

```
<p:cSld>
    <p:spTree>
  ...
        <mc:AlternateContent xmlns:mc="http://schemas.openxmlformats.org/markup-
compatibility/2006">
          <mc:Choice xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main"
Requires="a14">
            <p:sp>
```

```
                ...
                <p:txBody>
                    ...
                    <a:p>
                        <a14:m>
                            <m:oMathPara
    xmlns:m="http://schemas.openxmlformats.org/officeDocument/2006/math">
                                <m:oMath
    xmlns:m="http://schemas.openxmlformats.org/officeDocument/2006/math">
                                    <m:r>
                                        <a:rPr>
                                            <a:latin typeface="Cambria Math"/>
                                        </a:rPr>
                                        <m:t>□</m:t>
                                    </m:r>
                                </m:oMath>
                            </m:oMathPara>
                        </a14:m>
                    </a:p>
                </p:txBody>
            </p:sp>
        </mc:Choice>
        <mc:Fallback>
            <p:sp>
                ...
                <p:spPr>
                    ...
                    <a:blipFill>
                        <a:blip r:embed="rId2"/>
                    </a:blipFill>
                </p:spPr>
            </p:sp>
        </mc:Fallback>
    </mc:AlternateContent>
  </p:spTree>
 </p:cSld>
</p:sld>
```

## 3.5   SpreadsheetML Drawing

### 3.5.1   Camera Tool

The following code example shows usage of an extended element to specify that a picture is a
camera tool and is linked to a cell range. See 2.2.6.1 for more information. The following XML shows
the contents of a camera tool object specified by a **pic** element ([ISO/IEC-29500-1] section
20.5.2.25).

```
<xdr:pic>
  <xdr:nvPicPr>
    <xdr:cNvPr id="1025" name="Picture 1"/>
    <xdr:cNvPicPr>
      <a:picLocks noChangeAspect="1" noChangeArrowheads="1"/>
      <a:extLst>
        <a:ext uri="84589F7E-364E-4c9e-8A38-B11213B215E9">
          <a14:cameraTool cellRange="$A$1:$E$12" spid="_x0000_s1026"/>
        </a:ext>
      </a:extLst>
```

```
        </xdr:cNvPicPr>
    </xdr:nvPicPr>
    <xdr:blipFill>
        …
    </xdr:blipFill>
    <xdr:spPr bwMode="auto">
        …
    </xdr:spPr>
</xdr:pic>
```

The camera tool properties are specified by the **cameraTool** element as an extension of the **nvPicPr** element ([ISO/IEC-29500-1] section 20.5.2.22). The value of the **cellRange** attribute in the **cameraTool** element is in the A1 cell range reference style, not the R1C1 cell range reference style.

## 3.5.2   Legacy Object Wrapper

The following code example shows usage of an extended element to specify a legacy VML drawing object. See 2.2.6.2 for more information. The following XML shows the contents of a legacy object wrapper specified by an **sp** element ([ISO/IEC-29500-1] section 20.5.2.29).

```
<xdr:sp macro="" textlink="">
  <xdr:nvSpPr>
    <xdr:cNvPr id="1025" name="Button 1" hidden="1">
      <a:extLst>
        <a:ext uri="63B3BB69-23CF-44e3-9099-C40C66FF867C">
          <a14:compatExt spid="_x0000_s1025"/>
        </a:ext>
      </a:extLst>
    </xdr:cNvPr>
    <xdr:cNvSpPr/>
  </xdr:nvSpPr>
  <xdr:spPr>
  …
  </xdr:spPr>
  <xdr:txBody>
  …
  </xdr:txBody>
</xdr:sp>
```

The linked legacy object is specified by the **compatExt** element as an extension of the **cNvPr** element ([ISO/IEC-29500-1] section 20.5.2.8).

## 3.6   WordprocessingML Drawing

## 3.6.1   Grouped Graphical Objects

The following code example illustrates a **SmartArt** diagram grouped with a picture.

```
<a:graphic xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
    <a:graphicData uri="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup">
        <wpg:wgp>
            <wpg:cNvGrpSpPr/>
            <wpg:grpSpPr>
                …
```

```
            </wpg:grpSpPr>
            <pic:pic xmlns:pic="http://schemas.openxmlformats.org/drawingml/2006/picture">
                <pic:nvPicPr>
                    <pic:cNvPr id="7" name="Picture 7"/>
                    …
                </pic:nvPicPr>
                …
            </pic:pic>
            <wpg:graphicFrame>
                <wpg:cNvPr id="6" name="Diagram 6"/>
                <wpg:cNvFrPr/>
                …
                <a:graphic>
                    <a:graphicData
 uri="http://schemas.openxmlformats.org/drawingml/2006/diagram">
                        <dgm:relIds
 xmlns:dgm="http://schemas.openxmlformats.org/drawingml/2006/diagram"
 xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships" r:dm="rId8"
 r:lo="rId9" r:qs="rId10" r:cs="rId11"/>
                    </a:graphicData>
                </a:graphic>
            </wpg:graphicFrame>
        </wpg:wgp>
    </a:graphicData>
</a:graphic>
```

## 3.6.2 Group and Linked Shapes within a Canvas

The following code example illustrates a drawing canvas that contains a shape and a group, which contains a picture and a shape. The two shapes are linked and share a text box story.

```
<a:graphic xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
    <a:graphicData uri="http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas">
        <wpc:wpc>
            <wpc:bg/>
            <wpc:whole/>
            <wps:wsp>
                <wps:cNvPr id="3" name="Text Box 3"/>
                <wps:cNvSpPr txBox="1"/>
                <wps:spPr>
                    …
                </wps:spPr>
                <wps:style>
                    …
                </wps:style>
                <wps:txbx id="1">
                    <w:txbxContent>
                        …
                    </w:txbxContent>
                </wps:txbx>
                <wps:bodyPr … >
                    …
                </wps:bodyPr>
            </wps:wsp>
            <wpg:wgp>
                <wpg:cNvPr id="5" name="Group 5"/>
                <wpg:cNvGrpSpPr/>
```

```
                            <wpg:grpSpPr>
                            </wpg:grpSpPr>
                            <pic:pic
 xmlns:pic="http://schemas.openxmlformats.org/drawingml/2006/picture">
                                    <pic:nvPicPr>
                                        <pic:cNvPr id="2" name="Picture 2"/>

                                        …
                                    </pic:nvPicPr>

                                    …
                            </pic:pic>
                            <wps:wsp>
                                <wps:cNvPr id="4" name="Text Box 4"/>
                                <wps:cNvSpPr txBox="1"/>
                                <wps:spPr>

                                    …
                                </wps:spPr>
                                <wps:style>

                                    …
                                </wps:style>
                                <wps:linkedTxbx id="1" seq="1"/>
                                <wps:bodyPr … >

                                    …
                                </wps:bodyPr>
                            </wps:wsp>
                        </wpg:wgp>
                    </wpc:wpc>
                </a:graphicData>
        </a:graphic>
```

## 3.7  Chart

### 3.7.1  Chart Style

The following code example illustrates the relationship between **CT_Style** and **CT_Style** ([ISO/IEC-29500-1] section A.5.1), in particular how the **val** (in the example: 102) of the **CT_Style** must be set to 100 plus the **val** (in the example: 2) of the **CT_Style** ([ISO/IEC-29500-1] section A.5.1).

```
<mc:AlternateContent
  xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006">
  <mc:Choice
    xmlns:c14="http://schemas.microsoft.com/office/drawing/2007/8/2/chart"
    Requires="c14">
    <c14:style val="102"/>
  </mc:Choice>
  <mc:Fallback>
    <c:style val="2"/>
  </mc:Fallback>
</mc:AlternateContent>
```

# 4 Security Considerations

None.

*Release: Wednesday, June 8, 2011*

# 5   Appendix A: Full XML Schemas

For ease of implementation, this section provides the full 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/IEC-29500:2008] refer specifically to the transitional schemas as described in [ISO/IEC-29500-4].

## 5.1   http://schemas.microsoft.com/office/drawing/2010/main

```
<xsd:schema targetNamespace="http://schemas.microsoft.com/office/drawing/2010/main"
elementFormDefault="qualified" xmlns="http://schemas.microsoft.com/office/drawing/2010/main"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns:m="http://schemas.openxmlformats.org/officeDocument/2006/math"
xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main">
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="shared-relationshipReference.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/math"
schemaLocation="shared-math.xsd"/>
  <xsd:simpleType name="ST_LegacySpreadsheetColorIndex">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="80"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:attribute name="legacySpreadsheetColorIndex" type="ST_LegacySpreadsheetColorIndex"/>
  <xsd:complexType name="CT_CameraTool">
    <xsd:attribute name="cellRange" type="xsd:string"/>
    <xsd:attribute name="spid" use="optional" default="0" type="xsd:string"/>
  </xsd:complexType>
  <xsd:element name="cameraTool" type="CT_CameraTool"/>
  <xsd:complexType name="CT_CompatExt">
    <xsd:attribute name="spid" type="xsd:string"/>
  </xsd:complexType>
  <xsd:element name="compatExt" type="CT_CompatExt"/>
  <xsd:simpleType name="ST_ArtisticEffectParam100">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="100"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="ST_ArtisticEffectParam10">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="10"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="ST_ArtisticEffectParam6">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
      <xsd:maxInclusive value="6"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:simpleType name="ST_ArtisticEffectParam4">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="0"/>
```

*Release: Wednesday, June 8, 2011*

```
      <xsd:maxInclusive value="4"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:complexType name="CT_PictureEffectBlur">
    <xsd:attribute name="radius" type="ST_ArtisticEffectParam100" use="optional"
default="10"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectCement">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="crackSpacing" type="ST_ArtisticEffectParam100" use="optional"
default="24"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectChalkSketch">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="pressure" type="ST_ArtisticEffectParam4" use="optional"
default="0"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectCrisscrossEtching">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="75"/>
    <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="30"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectCutout">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="numberOfShades" type="ST_ArtisticEffectParam6" use="optional"
default="2"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectFilmGrain">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="grainSize" type="ST_ArtisticEffectParam100" use="optional"
default="40"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectGlass">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectGlowDiffused">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="intensity" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectGlowEdges">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="15"/>
    <xsd:attribute name="smoothness" type="ST_ArtisticEffectParam10" use="optional"
default="3"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectLightScreen">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="gridSize" type="ST_ArtisticEffectParam10" use="optional"
default="4"/>
  </xsd:complexType>
```

```xsd
<xsd:complexType name="CT_PictureEffectLineDrawing">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="25"/>
  <xsd:attribute name="pencilSize" type="ST_ArtisticEffectParam100" use="optional"
default="0"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectMarker">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="size" type="ST_ArtisticEffectParam100" use="optional" default="97"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectMosiaicBubbles">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="14"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPaintBrush">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="brushSize" type="ST_ArtisticEffectParam10" use="optional"
default="2"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPaintStrokes">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="intensity" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPastelsSmooth">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPencilGrayscale">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pencilSize" type="ST_ArtisticEffectParam100" use="optional"
default="27"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPencilSketch">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="pressure" type="ST_ArtisticEffectParam100" use="optional"
default="22"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPhotocopy">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="30"/>
  <xsd:attribute name="detail" type="ST_ArtisticEffectParam10" use="optional" default="3"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectPlasticWrap">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
  <xsd:attribute name="smoothness" type="ST_ArtisticEffectParam10" use="optional"
default="5"/>
</xsd:complexType>
<xsd:complexType name="CT_PictureEffectTexturizer">
  <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
```

```
      <xsd:attribute name="scaling" type="ST_ArtisticEffectParam100" use="optional"
default="34"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectWatercolorSponge">
    <xsd:attribute name="trans" type="a:ST_PositiveFixedPercentage" use="optional"
default="0"/>
    <xsd:attribute name="brushSize" type="ST_ArtisticEffectParam10" use="optional"
default="2"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectBackgroundRemovalForegroundMark">
    <xsd:attribute name="x1" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="y1" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="x2" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="y2" type="a:ST_PositiveFixedPercentage" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectBackgroundRemovalBackgroundMark">
    <xsd:attribute name="x1" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="y1" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="x2" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="y2" type="a:ST_PositiveFixedPercentage" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectBackgroundRemoval">
    <xsd:sequence>
      <xsd:element name="foregroundMark"
type="CT_PictureEffectBackgroundRemovalForegroundMark" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="backgroundMark"
type="CT_PictureEffectBackgroundRemovalBackgroundMark" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
    <xsd:attribute name="t" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="b" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="l" type="a:ST_PositiveFixedPercentage" use="required"/>
    <xsd:attribute name="r" type="a:ST_PositiveFixedPercentage" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectBrightnessContrast">
    <xsd:attribute name="bright" type="a:ST_FixedPercentage" use="optional" default="0"/>
    <xsd:attribute name="contrast" type="a:ST_FixedPercentage" use="optional" default="0"/>
  </xsd:complexType>
  <xsd:simpleType name="ST_ColorTemperature">
    <xsd:restriction base="xsd:int">
      <xsd:minInclusive value="1500"/>
      <xsd:maxInclusive value="11500"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:complexType name="CT_PictureEffectColorTemperature">
    <xsd:attribute name="colorTemp" type="ST_ColorTemperature" use="optional"
default="6500"/>
  </xsd:complexType>
  <xsd:simpleType name="ST_SaturationAmount">
    <xsd:restriction base="a:ST_Percentage"/>
  </xsd:simpleType>
  <xsd:complexType name="CT_PictureEffectSaturation">
    <xsd:attribute name="sat" type="ST_SaturationAmount" use="optional" default="100"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffectSharpenSoften">
    <xsd:attribute name="amount" type="a:ST_FixedPercentage" use="optional" default="0"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureEffect">
    <xsd:choice minOccurs="1" maxOccurs="1">
```

```xsd
      <xsd:element name="artisticBlur" type="CT_PictureEffectBlur" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticCement" type="CT_PictureEffectCement" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticChalkSketch" type="CT_PictureEffectChalkSketch"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticCrisscrossEtching" type="CT_PictureEffectCrisscrossEtching"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticCutout" type="CT_PictureEffectCutout" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticFilmGrain" type="CT_PictureEffectFilmGrain" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticGlass" type="CT_PictureEffectGlass" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticGlowDiffused" type="CT_PictureEffectGlowDiffused"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticGlowEdges" type="CT_PictureEffectGlowEdges" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticLightScreen" type="CT_PictureEffectLightScreen"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticLineDrawing" type="CT_PictureEffectLineDrawing"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticMarker" type="CT_PictureEffectMarker" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticMosiaicBubbles" type="CT_PictureEffectMosiaicBubbles"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticPaintStrokes" type="CT_PictureEffectPaintStrokes"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticPaintBrush" type="CT_PictureEffectPaintBrush" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticPastelsSmooth" type="CT_PictureEffectPastelsSmooth"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticPencilGrayscale" type="CT_PictureEffectPencilGrayscale"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticPencilSketch" type="CT_PictureEffectPencilSketch"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticPhotocopy" type="CT_PictureEffectPhotocopy" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticPlasticWrap" type="CT_PictureEffectPlasticWrap"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="artisticTexturizer" type="CT_PictureEffectTexturizer" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="artisticWatercolorSponge" type="CT_PictureEffectWatercolorSponge"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="backgroundRemoval" type="CT_PictureEffectBackgroundRemoval"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="brightnessContrast" type="CT_PictureEffectBrightnessContrast"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="colorTemperature" type="CT_PictureEffectColorTemperature"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="saturation" type="CT_PictureEffectSaturation" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="sharpenSoften" type="CT_PictureEffectSharpenSoften" minOccurs="1"
maxOccurs="1"/>
    </xsd:choice>
    <xsd:attribute name="visible" type="xsd:boolean" use="optional" default="true"/>
  </xsd:complexType>
  <xsd:complexType name="CT_PictureLayer">
    <xsd:sequence>
      <xsd:element name="imgEffect" type="CT_PictureEffect" minOccurs="0"
maxOccurs="unbounded"/>
    </xsd:sequence>
```

```xsd
        <xsd:attribute ref="r:embed" use="optional" default=""/>
      </xsd:complexType>
      <xsd:complexType name="CT_Photo">
        <xsd:sequence>
          <xsd:element name="imgLayer" type="CT_PictureLayer" minOccurs="1" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
      <xsd:element name="imgProps" type="CT_Photo"/>
      <xsd:complexType name="CT_UseLocalDpi">
        <xsd:attribute name="val" type="xsd:boolean" use="optional" default="true"/>
      </xsd:complexType>
      <xsd:element name="useLocalDpi" type="CT_UseLocalDpi"/>
      <xsd:complexType name="CT_ShadowObscured">
        <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
      </xsd:complexType>
      <xsd:element name="shadowObscured" type="CT_ShadowObscured"/>
      <xsd:element name="hiddenFill" type="a:CT_FillProperties"/>
      <xsd:element name="hiddenLine" type="a:CT_LineProperties"/>
      <xsd:element name="hiddenEffects" type="a:CT_EffectProperties"/>
      <xsd:element name="hiddenScene3d" type="a:CT_Scene3D"/>
      <xsd:element name="hiddenSp3d" type="a:CT_Shape3D"/>
      <xsd:complexType name="CT_TextMath">
        <xsd:choice>
          <xsd:element ref="m:oMath"/>
          <xsd:element ref="m:oMathPara"/>
          <xsd:element ref="m:mathPr"/>
        </xsd:choice>
      </xsd:complexType>
      <xsd:element name="m" type="CT_TextMath"/>
      <xsd:complexType name="CT_ContentPartLocking">
        <xsd:sequence>
          <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
  maxOccurs="1"/>
        </xsd:sequence>
        <xsd:attributeGroup ref="a:AG_Locking"/>
      </xsd:complexType>
      <xsd:complexType name="CT_NonVisualInkContentPartProperties">
        <xsd:sequence>
          <xsd:element name="cpLocks" type="CT_ContentPartLocking" minOccurs="0" maxOccurs="1"/>
          <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
  maxOccurs="1"/>
        </xsd:sequence>
        <xsd:attribute name="isComment" type="xsd:boolean" use="optional" default="true"/>
      </xsd:complexType>
      <xsd:complexType name="CT_IsGvmlCanvas">
        <xsd:attribute name="val" type="xsd:boolean" use="required"/>
      </xsd:complexType>
      <xsd:complexType name="CT_GvmlContentPartNonVisual">
        <xsd:sequence>
          <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
  maxOccurs="1"/>
          <xsd:element name="cNvContentPartPr" type="CT_NonVisualInkContentPartProperties"
  minOccurs="0" maxOccurs="1"/>
        </xsd:sequence>
      </xsd:complexType>
      <xsd:complexType name="CT_GvmlContentPart">
        <xsd:sequence>
          <xsd:element name="nvContentPartPr" type="CT_GvmlContentPartNonVisual" minOccurs="0"
  maxOccurs="1"/>
```

```
        <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional"/>
      <xsd:attribute ref="r:id" use="required"/>
    </xsd:complexType>
    <xsd:element name="isCanvas" type="CT_IsGvmlCanvas"/>
    <xsd:element name="contentPart" type="CT_GvmlContentPart"/>
</xsd:schema>
```

## 5.2   http://schemas.microsoft.com/office/word/2010/wordprocessingShape

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"
xmlns="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:w12="http://schemas.openxmlformats.org/wordprocessingml/2006/main"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rel="http://schemas.openxmlformats.org/officeDocument/2006/relationships">
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:import schemaLocation="shared-relationshipReference.xsd"
namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"/>
  <xsd:import schemaLocation="wml.xsd"
namespace="http://schemas.openxmlformats.org/wordprocessingml/2006/main"/>
  <xsd:complexType name="CT_TextboxInfo">
    <xsd:sequence>
      <xsd:element ref="w12:txbxContent" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="id" type="xsd:unsignedShort" use="optional" default="0"/>
  </xsd:complexType>
  <xsd:complexType name="CT_LinkedTextboxInformation">
    <xsd:sequence>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="id" type="xsd:unsignedShort" use="required"/>
    <xsd:attribute name="seq" type="xsd:unsignedShort" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_WordprocessingShape">
    <xsd:sequence minOccurs="1" maxOccurs="1">
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="1" maxOccurs="1">
        <xsd:element name="cNvSpPr" type="a:CT_NonVisualDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
        <xsd:element name="cNvCnPr" type="a:CT_NonVisualConnectorProperties" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
      <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="style" type="a:CT_ShapeStyle" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="1">
        <xsd:element name="txbx" type="CT_TextboxInfo" minOccurs="1" maxOccurs="1"/>
```

```
            <xsd:element name="linkedTxbx" type="CT_LinkedTextboxInformation" minOccurs="1"
maxOccurs="1"/>
      </xsd:choice>
      <xsd:element name="bodyPr" type="a:CT_TextBodyProperties" minOccurs="1" maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="normalEastAsianFlow" type="xsd:boolean" use="optional"
default="false"/>
  </xsd:complexType>
  <xsd:element name="wsp" type="CT_WordprocessingShape"/>
</xsd:schema>
```

## 5.3  http://schemas.microsoft.com/office/word/2010/wordml

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/word/2010/wordml"
xmlns="http://schemas.microsoft.com/office/word/2010/wordml"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships">
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="shared-relationshipReference.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
  <xsd:import namespace="http://schemas.microsoft.com/office/drawing/2010/main"
schemaLocation="dml-mainExt.xsd"/>
  <xsd:complexType name="CT_WordContentPartNonVisual">
    <xsd:sequence>
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_WordContentPart">
    <xsd:sequence>
      <xsd:element name="nvContentPartPr" type="CT_WordContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional"/>
    <xsd:attribute ref="r:id" use="required"/>
  </xsd:complexType>
  <xsd:element name="contentPart" type="CT_WordContentPart"/>
</xsd:schema>
```

## 5.4  http://schemas.microsoft.com/office/drawing/2010/picture

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/drawing/2010/picture"
xmlns="http://schemas.microsoft.com/office/drawing/2010/picture"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:element name="style" type="a:CT_ShapeStyle"/>
```

```
    <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList"/>
  </xsd:schema>
```

## 5.5  http://schemas.microsoft.com/office/word/2010/wordprocessingGroup

```
    <xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"
xmlns="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wps="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"
xmlns:pic="http://schemas.openxmlformats.org/drawingml/2006/picture"
xmlns:w14="http://schemas.microsoft.com/office/word/2010/wordml">
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:import schemaLocation="dml-wordprocessingShape.xsd"
namespace="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"/>
  <xsd:import schemaLocation="dml-picture.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/picture"/>
  <xsd:import schemaLocation="dml-wordprocessingDrawingContentPart.xsd"
namespace="http://schemas.microsoft.com/office/word/2010/wordml"/>
  <xsd:complexType name="CT_GraphicFrame">
    <xsd:sequence>
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="cNvFrPr" type="a:CT_NonVisualGraphicFrameProperties" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="1" maxOccurs="1"/>
      <xsd:element ref="a:graphic" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_WordprocessingGroup">
    <xsd:sequence minOccurs="1" maxOccurs="1">
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="cNvGrpSpPr" type="a:CT_NonVisualGroupDrawingShapeProps"
minOccurs="1" maxOccurs="1"/>
      <xsd:element name="grpSpPr" type="a:CT_GroupShapeProperties" minOccurs="1"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="wps:wsp"/>
        <xsd:element name="grpSp" type="CT_WordprocessingGroup"/>
        <xsd:element name="graphicFrame" type="CT_GraphicFrame"/>
        <xsd:element ref="pic:pic"/>
        <xsd:element ref="w14:contentPart"/>
      </xsd:choice>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:element name="wgp" type="CT_WordprocessingGroup"/>
</xsd:schema>
```

## 5.6  http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas"
xmlns="http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:w14="http://schemas.microsoft.com/office/word/2010/wordml"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wpg="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"
xmlns:wps="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"
xmlns:pic="http://schemas.openxmlformats.org/drawingml/2006/picture">
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:import schemaLocation="dml-wordprocessingGroup.xsd"
namespace="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"/>
  <xsd:import schemaLocation="dml-wordprocessingShape.xsd"
namespace="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"/>
  <xsd:import schemaLocation="dml-wordprocessingDrawingContentPart.xsd"
namespace="http://schemas.microsoft.com/office/word/2010/wordml"/>
  <xsd:import schemaLocation="dml-picture.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/picture"/>
  <xsd:complexType name="CT_WordprocessingCanvas">
    <xsd:sequence minOccurs="1" maxOccurs="1">
      <xsd:element name="bg" type="a:CT_BackgroundFormatting" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="whole" type="a:CT_WholeE2oFormatting" minOccurs="0" maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="wps:wsp"/>
        <xsd:element ref="pic:pic"/>
        <xsd:element ref="w14:contentPart"/>
        <xsd:element ref="wpg:wgp"/>
        <xsd:element name="graphicFrame" type="wpg:CT_GraphicFrame"/>
      </xsd:choice>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:element name="wpc" type="CT_WordprocessingCanvas"/>
</xsd:schema>
```

## 5.7  http://schemas.microsoft.com/office/drawing/2010/diagram

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:o="http://oxsdSchemaUri"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns="http://schemas.microsoft.com/office/drawing/2010/diagram"
targetNamespace="http://schemas.microsoft.com/office/drawing/2010/diagram"
elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
  <xsd:complexType name="CT_Boolean">
    <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
  </xsd:complexType>
  <xsd:element name="recolorImg" type="CT_Boolean"/>
  <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps"/>
</xsd:schema>
```

## 5.8  http://schemas.microsoft.com/office/drawing/2008/diagram

```xsd
<xsd:schema targetNamespace="http://schemas.microsoft.com/office/drawing/2008/diagram"
elementFormDefault="qualified" attributeFormDefault="unqualified"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:d="http://schemas.openxmlformats.org/drawingml/2006/diagram"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns="http://schemas.microsoft.com/office/drawing/2008/diagram">
  <xsd:import schemaLocation="shared-relationshipReference.xsd"
namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"/>
  <xsd:import schemaLocation="dml-diagram.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/diagram"/>
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:complexType name="CT_ShapeNonVisual">
    <xsd:sequence>
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="cNvSpPr" type="a:CT_NonVisualDrawingShapeProps" minOccurs="1"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_Shape">
    <xsd:sequence>
      <xsd:element name="nvSpPr" type="CT_ShapeNonVisual" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="style" type="a:CT_ShapeStyle" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="txBody" type="a:CT_TextBody" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="txXfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute name="modelId" type="d:ST_ModelId" use="required"/>
  </xsd:complexType>
  <xsd:complexType name="CT_GroupShapeNonVisual">
    <xsd:sequence>
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="cNvGrpSpPr" type="a:CT_NonVisualGroupDrawingShapeProps"
minOccurs="1" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_GroupShape">
    <xsd:sequence>
      <xsd:element name="nvGrpSpPr" type="CT_GroupShapeNonVisual" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="grpSpPr" type="a:CT_GroupShapeProperties" minOccurs="1"
maxOccurs="1"/>
      <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element name="sp" type="CT_Shape"/>
        <xsd:element name="grpSp" type="CT_GroupShape"/>
      </xsd:choice>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_Drawing">
    <xsd:sequence>
      <xsd:element name="spTree" type="CT_GroupShape" minOccurs="1" maxOccurs="1"/>
    </xsd:sequence>
```

```
      </xsd:complexType>
      <xsd:element name="drawing" type="CT_Drawing"/>
      <xsd:complexType name="CT_DataModelExtBlock">
        <xsd:attribute name="relId" type="xsd:string"/>
        <xsd:attribute name="minVer" type="xsd:anyURI"/>
      </xsd:complexType>
      <xsd:element name="dataModelExt" type="CT_DataModelExtBlock"/>
    </xsd:schema>
```

## 5.9  http://schemas.microsoft.com/ink/2010/main

```
    <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" attributeFormDefault="unqualified"
    elementFormDefault="qualified" targetNamespace="http://schemas.microsoft.com/ink/2010/main"
    xmlns="http://schemas.microsoft.com/ink/2010/main"
    xmlns:msink="http://schemas.microsoft.com/ink/2010/main">
      <xsd:simpleType name="ST_KnownCtxNodeType">
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="root"/>
          <xsd:enumeration value="unclassifiedInk"/>
          <xsd:enumeration value="writingRegion"/>
          <xsd:enumeration value="analysisHint"/>
          <xsd:enumeration value="object"/>
          <xsd:enumeration value="inkDrawing"/>
          <xsd:enumeration value="image"/>
          <xsd:enumeration value="paragraph"/>
          <xsd:enumeration value="line"/>
          <xsd:enumeration value="inkBullet"/>
          <xsd:enumeration value="inkWord"/>
          <xsd:enumeration value="textWord"/>
          <xsd:enumeration value="customRecognizer"/>
          <xsd:enumeration value="mathRegion"/>
          <xsd:enumeration value="mathEquation"/>
          <xsd:enumeration value="mathStruct"/>
          <xsd:enumeration value="mathSymbol"/>
          <xsd:enumeration value="mathIdentifier"/>
          <xsd:enumeration value="mathOperator"/>
          <xsd:enumeration value="mathNumber"/>
          <xsd:enumeration value="nonInkDrawing"/>
          <xsd:enumeration value="groupNode"/>
          <xsd:enumeration value="mixedDrawing"/>
        </xsd:restriction>
      </xsd:simpleType>
      <xsd:simpleType name="ST_Guid">
        <xsd:restriction base="xsd:token">
          <xsd:pattern value="\{[0-9A-F]{8}-[0-9A-F]{4}-[0-9A-F]{4}-[0-9A-F]{4}-[0-9A-F]{12}\}"/>
        </xsd:restriction>
      </xsd:simpleType>
      <xsd:simpleType name="ST_Ref">
        <xsd:union memberTypes="msink:ST_Guid xsd:unsignedInt"/>
      </xsd:simpleType>
      <xsd:simpleType name="ST_CtxNodeType">
        <xsd:union memberTypes="msink:ST_KnownCtxNodeType msink:ST_Guid"/>
      </xsd:simpleType>
      <xsd:simpleType name="ST_Dir">
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="to"/>
          <xsd:enumeration value="from"/>
          <xsd:enumeration value="with"/>
```

```xml
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:simpleType name="ST_KnownSemanticType">
      <xsd:restriction base="xsd:string">
        <xsd:enumeration value="none"/>
        <xsd:enumeration value="underline"/>
        <xsd:enumeration value="strikethrough"/>
        <xsd:enumeration value="highlight"/>
        <xsd:enumeration value="scratchOut"/>
        <xsd:enumeration value="verticalRange"/>
        <xsd:enumeration value="callout"/>
        <xsd:enumeration value="enclosure"/>
        <xsd:enumeration value="comment"/>
        <xsd:enumeration value="container"/>
        <xsd:enumeration value="connector"/>
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:simpleType name="ST_SemanticType">
      <xsd:union memberTypes="ST_KnownSemanticType xsd:unsignedInt"/>
    </xsd:simpleType>
    <xsd:simpleType name="ST_Point">
      <xsd:restriction base="xsd:string">
        <xsd:pattern value="-?[0-9]+,-?[0-9]+"/>
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:simpleType name="ST_Points">
      <xsd:list itemType="msink:ST_Point"/>
    </xsd:simpleType>
    <xsd:complexType name="CT_Property">
      <xsd:simpleContent>
        <xsd:extension base="xsd:hexBinary">
          <xsd:attribute name="type" type="ST_Guid"/>
        </xsd:extension>
      </xsd:simpleContent>
    </xsd:complexType>
    <xsd:complexType name="CT_CtxLink">
      <xsd:attribute name="direction" type="ST_Dir"/>
      <xsd:attribute name="ref" type="ST_Ref"/>
    </xsd:complexType>
    <xsd:complexType name="CT_CtxNode">
      <xsd:sequence>
        <xsd:element name="property" type="CT_Property" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="sourceLink" type="CT_CtxLink" minOccurs="0" maxOccurs="unbounded"/>
        <xsd:element name="destinationLink" type="CT_CtxLink" minOccurs="0"
 maxOccurs="unbounded"/>
      </xsd:sequence>
      <xsd:attribute name="id" type="ST_Guid" use="optional"/>
      <xsd:attribute name="type" type="ST_CtxNodeType" use="required"/>
      <xsd:attribute name="rotatedBoundingBox" type="ST_Points" use="optional"/>
      <xsd:attribute name="alignmentLevel" type="xsd:int" use="optional" default="0"/>
      <xsd:attribute name="contentType" type="xsd:int" use="optional" default="0"/>
      <xsd:attribute name="ascender" type="ST_Points" use="optional" default="0,0"/>
      <xsd:attribute name="descender" type="ST_Points" use="optional" default="0,0"/>
      <xsd:attribute name="baseline" type="ST_Points" use="optional" default="0,0"/>
      <xsd:attribute name="midline" type="ST_Points" use="optional" default="0,0"/>
      <xsd:attribute name="customRecognizerId" type="ST_Guid" use="optional"/>
      <xsd:attribute name="mathML" type="xsd:string" use="optional" default=""/>
      <xsd:attribute name="mathStruct" type="xsd:string" use="optional" default=""/>
      <xsd:attribute name="mathSymbol" type="xsd:string" use="optional" default=""/>
```

```
        <xsd:attribute name="beginModifierType" type="xsd:string" use="optional" default=""/>
        <xsd:attribute name="endModifierType" type="xsd:string" use="optional" default=""/>
        <xsd:attribute name="rotationAngle" type="xsd:int" use="optional" default="0"/>
        <xsd:attribute name="hotPoints" type="ST_Points" use="optional"/>
        <xsd:attribute name="centroid" type="ST_Point" use="optional"/>
        <xsd:attribute name="semanticType" type="ST_SemanticType" use="optional" default="none"/>
        <xsd:attribute name="shapeName" type="xsd:string" use="optional" default=""/>
        <xsd:attribute name="shapeGeometry" type="ST_Points" use="optional"/>
    </xsd:complexType>
    <xsd:element name="context" type="CT_CtxNode"/>
</xsd:schema>
```

## 5.10   http://schemas.microsoft.com/office/drawing/2010/chartDrawing

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/drawing/2010/chartDrawing"
xmlns="http://schemas.microsoft.com/office/drawing/2010/chartDrawing"
xmlns:xdr="http://schemas.openxmlformats.org/drawingml/2006/spreadsheetDrawing"
xmlns:xdr14="http://xldr14SchemaUri"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
   <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="shared-relationshipReference.xsd"/>
   <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
   <xsd:import namespace="http://schemas.microsoft.com/office/drawing/2010/main"
schemaLocation="dml-mainExt.xsd"/>
   <xsd:complexType name="CT_ApplicationNonVisualDrawingProps">
      <xsd:attribute name="macro" type="xsd:string" use="optional"/>
      <xsd:attribute name="fPublished" type="xsd:boolean" use="optional" default="false"/>
   </xsd:complexType>
   <xsd:complexType name="CT_ContentPartNonVisual">
      <xsd:sequence>
         <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
maxOccurs="1"/>
         <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
      </xsd:sequence>
   </xsd:complexType>
   <xsd:complexType name="CT_ContentPart">
      <xsd:sequence>
         <xsd:element name="nvContentPartPr" type="CT_ContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
         <xsd:element name="nvPr" type="CT_ApplicationNonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
         <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
         <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute ref="r:id" use="required"/>
      <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional" default="auto"/>
   </xsd:complexType>
   <xsd:element name="contentPart" type="CT_ContentPart"/>
</xsd:schema>
```

## 5.11  http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing"
xmlns="http://schemas.microsoft.com/office/excel/2010/spreadsheetDrawing"
xmlns:xdr="http://schemas.openxmlformats.org/drawingml/2006/spreadsheetDrawing"
xmlns:xdr14="http://xldr14SchemaUri"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="shared-relationshipReference.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
  <xsd:import namespace="http://schemas.microsoft.com/office/drawing/2010/main"
schemaLocation="dml-mainExt.xsd"/>
  <xsd:complexType name="CT_ApplicationNonVisualDrawingProps">
    <xsd:attribute name="macro" type="xsd:string" use="optional"/>
    <xsd:attribute name="fPublished" type="xsd:boolean" use="optional" default="false"/>
  </xsd:complexType>
  <xsd:complexType name="CT_ContentPartNonVisual">
    <xsd:sequence>
      <xsd:element name="cNvPr" type="a:CT_NonVisualDrawingProps" minOccurs="1"
maxOccurs="1"/>
      <xsd:element name="cNvContentPartPr" type="a14:CT_NonVisualInkContentPartProperties"
minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_ContentPart">
    <xsd:sequence>
      <xsd:element name="nvContentPartPr" type="CT_ContentPartNonVisual" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="nvPr" type="CT_ApplicationNonVisualDrawingProps" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="xfrm" type="a:CT_Transform2D" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="extLst" type="a:CT_OfficeArtExtensionList" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
    <xsd:attribute ref="r:id" use="required"/>
    <xsd:attribute name="bwMode" type="a:ST_BlackWhiteMode" use="optional" default="auto"/>
  </xsd:complexType>
  <xsd:element name="contentPart" type="CT_ContentPart"/>
</xsd:schema>
```

## 5.12  http://schemas.microsoft.com/office/drawing/2007/8/2/chart

```
<xsd:schema targetNamespace="http://schemas.microsoft.com/office/drawing/2007/8/2/chart"
elementFormDefault="qualified" attributeFormDefault="unqualified"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns="http://schemas.microsoft.com/office/drawing/2007/8/2/chart" blockDefault="#all"
xmlns:cdr="http://schemas.openxmlformats.org/drawingml/2006/chartDrawing"
xmlns:c="http://schemas.openxmlformats.org/drawingml/2006/chart">
  <xsd:import namespace="http://schemas.openxmlformats.org/officeDocument/2006/relationships"
schemaLocation="shared-relationshipReference.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/main"
schemaLocation="dml-main.xsd"/>
```

```
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/chartDrawing"
schemaLocation="dml-chartDrawing.xsd"/>
  <xsd:import namespace="http://schemas.openxmlformats.org/drawingml/2006/chart"
schemaLocation="dml-chart.xsd"/>
  <xsd:complexType name="CT_BooleanTrue">
    <xsd:attribute name="val" type="xsd:boolean" use="optional" default="true"/>
  </xsd:complexType>
  <xsd:complexType name="CT_BooleanFalse">
    <xsd:attribute name="val" type="xsd:boolean" use="optional" default="false"/>
  </xsd:complexType>
  <xsd:complexType name="CT_InvertSolidFillFmt">
    <xsd:sequence>
      <xsd:element name="spPr" type="a:CT_ShapeProperties" minOccurs="1" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:complexType name="CT_PivotOptions">
    <xsd:sequence>
      <xsd:element name="dropZoneFilter" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="dropZoneCategories" type="CT_BooleanFalse" minOccurs="0"
maxOccurs="1"/>
      <xsd:element name="dropZoneData" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="dropZoneSeries" type="CT_BooleanFalse" minOccurs="0" maxOccurs="1"/>
      <xsd:element name="dropZonesVisible" type="CT_BooleanFalse" minOccurs="0"
maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
  <xsd:simpleType name="ST_Style">
    <xsd:restriction base="xsd:unsignedByte">
      <xsd:minInclusive value="101"/>
      <xsd:maxInclusive value="148"/>
    </xsd:restriction>
  </xsd:simpleType>
  <xsd:complexType name="CT_Style">
    <xsd:attribute name="val" type="ST_Style" use="required"/>
  </xsd:complexType>
  <xsd:element name="pivotOptions" type="CT_PivotOptions"/>
  <xsd:element name="invertSolidFillFmt" type="CT_InvertSolidFillFmt"/>
  <xsd:element name="style" type="CT_Style"/>
</xsd:schema>
```

## 5.13   http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing

```
<xsd:schema
targetNamespace="http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing"
elementFormDefault="qualified" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"
xmlns="http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing">
  <xsd:import schemaLocation="dml-main.xsd"
namespace="http://schemas.openxmlformats.org/drawingml/2006/main"/>
  <xsd:simpleType name="ST_SizeRelFromH">
    <xsd:restriction base="xsd:token">
      <xsd:enumeration value="margin"/>
      <xsd:enumeration value="page"/>
      <xsd:enumeration value="leftMargin"/>
      <xsd:enumeration value="rightMargin"/>
      <xsd:enumeration value="insideMargin"/>
      <xsd:enumeration value="outsideMargin"/>
    </xsd:restriction>
```

```
    </xsd:simpleType>
    <xsd:simpleType name="ST_SizeRelFromV">
      <xsd:restriction base="xsd:token">
        <xsd:enumeration value="margin"/>
        <xsd:enumeration value="page"/>
        <xsd:enumeration value="topMargin"/>
        <xsd:enumeration value="bottomMargin"/>
        <xsd:enumeration value="insideMargin"/>
        <xsd:enumeration value="outsideMargin"/>
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:complexType name="CT_SizeRelH">
      <xsd:sequence>
        <xsd:element name="pctWidth" type="a:ST_PositivePercentage" minOccurs="1"
  maxOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute name="relativeFrom" type="ST_SizeRelFromH" use="required"/>
    </xsd:complexType>
    <xsd:complexType name="CT_SizeRelV">
      <xsd:sequence>
        <xsd:element name="pctHeight" type="a:ST_PositivePercentage" minOccurs="1"
  maxOccurs="1"/>
      </xsd:sequence>
      <xsd:attribute name="relativeFrom" type="ST_SizeRelFromV" use="required"/>
    </xsd:complexType>
    <xsd:element name="pctPosHOffset" type="a:ST_Percentage"/>
    <xsd:element name="pctPosVOffset" type="a:ST_Percentage"/>
    <xsd:element name="sizeRelH" type="CT_SizeRelH"/>
    <xsd:element name="sizeRelV" type="CT_SizeRelV"/>
    <xsd:simpleType name="ST_EditId">
      <xsd:restriction base="xsd:hexBinary">
        <xsd:length value="4"/>
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:attribute name="anchorId" type="ST_EditId"/>
    <xsd:attribute name="editId" type="ST_EditId"/>
  </xsd:schema>
```

# 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 released service packs:

- The 2007 Microsoft® Office system

- Microsoft® Office 2010 suites

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product 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.

<1> Section 2.1.1: The Diagram Layout extension is also present in the 2007 Office system Service Pack 2.

<2> Section 2.1.2: The presence of the **traceFormat** element anywhere other than **inkSource** is ignored by Office 2010.

<3> Section 2.1.2: The **intermittentChannels** element is ignored by Office 2010.

<4> Section 2.1.2: Any values other than X, Y, Z, S, T, SN, F, TP, BP, OTx, OTy, OA, OE, OR, RP, RR, RY, TW, TH, and TC are ignored by Office 2010.

<5> Section 2.1.2: The **orientation** attribute is ignored by Office 2010.

<6> Section 2.1.2: The **respectTo** attribute is ignored by Office 2010.

<7> Section 2.1.2: Any values other than dev, in, cm, deg, rad, s, lb, and g are ignored by Office 2010.

<8> Section 2.1.2:  Office 2010 will read **trace** elements that are child elements of the **ink** elements or child elements of **traceGroup** elements, but it will always write trace elements as child elements of **traceGroup** elements.

<9> Section 2.1.2: The **type** attribute is ignored by Office 2010.

<10> Section 2.1.2: The **continuation** attribute is ignored by Office 2010.

<11> Section 2.1.2: The **priorRef** attribute is ignored by Office 2010.

<12> Section 2.1.2: The **duration** attribute is ignored by Office 2010.

<13> Section 2.1.2: The **timeOffset** attribute is ignored by Office 2010.

<14> Section 2.1.2:  Office 2010 will read any arbitrary hierarchy of **traceGroup** elements. However, after loading an InkML Content Part, it is not guaranteed that the same hierarchy of traceGroup elements will be written when re-saved.  The exact hierarchy of **traceGroup** elements is determined by Office 2010's proprietary ink analysis algorithms.

<15> Section 2.1.2: The **contextRef** attribute is ignored by Office 2010.

<16> Section 2.1.2: The **brushRef** attribute is ignored by Office 2010.

<17> Section 2.1.2: The **annotation** element is ignored by Office 2010.

<18> Section 2.1.2: The **annotationXML** element is optional, but if present it must contain an emma:emma element as described below.

<19> Section 2.1.2: The **traceView** element is ignored by Office 2010.

<20> Section 2.1.2: The **context** element is ignored unless it is a child element of the **definitions** element.

<21> Section 2.1.2: The **contextRef** attribute is ignored by Office 2010.

<22> Section 2.1.2: The **canvasRef** attribute is ignored by Office 2010.

<23> Section 2.1.2: The **canvasTransformRef** attribute is ignored by Office 2010.

<24> Section 2.1.2: The **traceFormatRef** attribute is ignored by Office 2010.

<25> Section 2.1.2: The **inkSourceRef** attribute is ignored by Office 2010.

<26> Section 2.1.2: The **brushRef** attribute is ignored by Office 2010.

<27> Section 2.1.2: The **timestampRef** attribute is ignored by Office 2010.

<28> Section 2.1.2: The **canvas** element is ignored by Office 2010.

<29> Section 2.1.2: The **canvasTransform** element is ignored by Office 2010.

<30> Section 2.1.2: The **timestamp** element is ignored by Office 2010.

<31> Section 2.1.2: The **sampleRate** element is ignored by Office 2010.

<32> Section 2.1.2: The **latency** element is ignored by Office 2010.

<33> Section 2.1.2: The **activeArea** element is ignored by Office 2010.

<34> Section 2.1.2: The **srcProperty** element is ignored by Office 2010.

<35> Section 2.1.2: The **channelProperties** element is optional and may contain zero or more **channelProperty** elements.  If absent, default properties are used that vary depending on the operating system and device drivers present.

<36> Section 2.1.2: The **channelProperty** element is optional and specifies properties of a given channel. If absent, default properties are used that vary depending on the operating system and device drivers present.

<37> Section 2.1.2: Only the property name "resolution" is used by Office 2010.  All other property names are ignored.

<38> Section 2.1.2: The **brushRef** attribute is ignored by Office 2010.

<39> Section 2.1.2: Only the values width, height, color, transparency, tip, rasterOp, antiAliased, fitToCurve, and ignorePressure are recognized by Office 2010.  Any other value causes the brushProperty element to be ignored.

<40> Section 2.1.2: The **timestamp** element is ignored by Office 2010.

*Release: Wednesday, June 8, 2011*

<41> Section 2.1.2: The **canvas** element is ignored by Office 2010.

<42> Section 2.1.2: The **canvasTransform** element is ignored by Office 2010.

<43> Section 2.1.2: The **mapping** element is ignored by Office 2010.

<44> Section 2.1.2: The **bind** element is ignored by Office 2010.

<45> Section 2.1.2: The **table** element is ignored by Office 2010.

<46> Section 2.1.2: The **matrix** element is ignored by Office 2010.

<47> Section 2.1.2: The **trace** element as a child element of **definitions** is ignored by Office 2010.

<48> Section 2.1.2: The **traceGroup** element as a child element of **definitions** is ignored by Office 2010.

<49> Section 2.1.2: The **inkSource** element as a child element of **definitions** is ignored by Office 2010.

<50> Section 2.1.2: The **traceFormat** element as a child element of **definitions** is ignored by Office 2010.

<51> Section 2.1.2: The **annotation** element is ignored by Office 2010.

<52> Section 2.1.2: If the **id** attribute is present but the value is not a GUID, then the attribute is ignored and not round-tripped.

<53> Section 2.1.2: The **emma:group** element is ignored by Office 2010.

<54> Section 2.1.2: The **emma:sequence** element is ignored by Office 2010.

<55> Section 2.1.2: The **emma:lattice** element is ignored by Office 2010.

<56> Section 2.3.2:  Excel 2010 does not delete this shape when loading.

<57> Section 2.3.33:  **CT_NonVisualDrawingProps** ([ISO/IEC-29500-1] section A.4.1) contains attributes **id** and **hidden**, which are ignored by Microsoft Office 2010 for diagram shapes.

<58> Section 2.5.40: In Word 2010 a **CT_WordprocessingShape** that is directly contained by a **wpc** element and does not have a **cNvPr** child element.

<59> Section 2.5.46: In Word 2010, an instantiation of the **scene3D** element ([ISO/IEC-29500-1] section 20.1.4.1.26) in an outer group takes precedence over **scene3D** instantiated in any inner shapes or groups.

<60> Section 2.5.46:  Word 2010 does not support this child element on a **CT_WordprocessingGroup** if the group contains a **CT_WordprocessingCanvas** as an ancestor.

<61> Section 2.5.47:  Word 2010 does not support this child element on a **CT_WordprocessingCanvas**.

<62> Section 2.5.61:  Microsoft Office 2010 requires that the **macro** attribute follow the same grammar as name references ([ISO/IEC-29500-1] section M.2.16.6), with a minimum length of zero characters and a maximum length of 256 characters.

<63> Section 2.5.64:  Microsoft Office 2010 requires that the **macro** attribute follow the same grammar as name references ([ISO/IEC-29500-1] section M.2.16.6), with a minimum length of zero characters and a maximum length of 256 characters.

<64> Section 2.5.71:  Office Excel 2007 does not ignore the **CT_Style** element([ISO/IEC-29500-4] section A.5.1).

<65> Section 2.5.72:  Word 2010 supports only positive values for this element.

<66> Section 2.5.73:  Word 2010 supports only positive values for this element.

# 7 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

# 8 Index

*Release: Wednesday, June 8, 2011*