[MS-EXSPXML3]:

Excel Calculation Version 2 Web Service XML Schema

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Revision Summary

Date	Revision History	Revision Class	Comments
1/20/2012	0.1	New	Released new document.
4/11/2012	0.1	No Change	No changes to the meaning, language, or formatting of the technical content.
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1 Introduction

The Excel Calculation Web Service XML Schema specifies the representation of a workbook passed between a protocol client and a protocol server. For example, the structure can specify the number of sheets in a workbook, the data in each sheet and the formatting of that data.

Sections 1.7 and 2 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in [RFC2119]. All other sections and examples in this specification are informative.

1.1 Glossary

The following terms are specific to this document:

active cell: The cell that is currently selected in a worksheet.

active sheet: The sheet that is currently selected.

adjacent cell: A cell that is in the same row as and adjoins the current cell in a worksheet.

ascending order: A sort order in which text strings are arranged in alphabetical order, numerical values are arranged from smallest to largest, and dates and times are arranged from oldest to newest.

attribute: An identifier for a single or multivalued data element that is associated with a directory object. An object consists of its **attributes** and their values. For example, cn (common name), street (street address), and mail (email addresses) can all be **attributes** of a user object. An **attribute's** schema, including the syntax of its values, is defined in an attributeSchema object.

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

AutoFilter item: A value that is used to populate an **AutoFilter**.

border: A line that can be applied to the outer edge of a cell, shape, object, or chart element. A border can be variously formatted for style, color, and thickness.

border formatting: A set of properties that, as a whole, specify the appearance of a border, such as color, line style, and thickness.

border style: See **border formatting**.

border thickness: A property of a border that specifies how thick a border line is drawn.

bottom N filter: A filter that matches the smallest numerical values or oldest time and date values in a specified range.

bottom N filter by count: A type of **bottom N filter** that matches the N smallest numerical values or the N oldest time and date values.

bottom N filter by percent: A type of **bottom N filter** that matches the N percent smallest numerical values or the N percent oldest time and date values.

caption: One or more characters that can be used as a label for display purposes or as an identifier.

cell: A box that is formed by the intersection of a **row** and a **column (2)** in a worksheet or a table. A cell can contain numbers, strings, and formulas, and various formats can be applied to that data.

cell contents: The data inside a cell, such as text, values, formulas, and cell error values.

cell formatting: The set of properties that, as a whole, specify the appearance of a cell, such as font characteristics and fill color.

cell value: The text or numeric content of a cell, or the results of a formula. A cell value does not include a formula expression, cell formatting, or other metadata.

chart sheet: A single logical container that is used to create and store charts in a workbook.

color stop: A color at a specific position in a color gradient.

column: (1) See **field**.

(2) A single set of data that is displayed vertically in a worksheet or a table.

column chart: A chart that displays data in vertical bars to facilitate data comparison.

column field: A field that is contained in the PivotTable area where the **column (2)** values are shown.

comment: An annotation that is associated with a cell, text, or other object to provide context-specific information or reviewer feedback.

compact axis: A state in which PivotTable members from different levels in a hierarchy are displayed in a single **column (2)**.

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

connection: A link that two physical machines or applications share to pass data back and forth.

custom filter: A filter that contains preconfigured expressions in which users can optionally enter a string to filter data.

data bar: A graphical representation of cell content as a bar graph.

data exploration: The act of navigating through multidimensional data to see values in the next level down or in the preceding level.

default font face color: The font face color that is applied to a cell if no font face color is specified.

default sheet tab color: The color that is used for a worksheet tab if no color is specified.

descending order: A sort order in which text strings are arranged in reverse alphabetical order, numerical values are arranged from largest to smallest, and dates and times are arranged from newest to oldest.

drill indicator: A symbol that indicates whether a PivotTable member can be expanded or collapsed.

external data: Data that is stored in a repository outside a workbook.

field: An element or **attribute** in a data source that can contain data.

fill color: A color that is used to fill the background of a cell, shape, or chart element.

filter: A mechanism by which a set of data is scoped to display only those entries that meet specified logical criteria.

filtering control: A user interface element that contains the filter functions of a PivotTable report.

flow: The direction in which text in a cell is rendered.

font: An object that defines the graphic design, or formatting, of a collection of numbers, symbols, and letters. A font specifies the style (such as bold and strikeout), size, family (a typeface such as Times New Roman), and other qualities to describe how the collection is drawn.

font face color: A property of a cell that specifies the color that is used to render a font.

font face decoration: Any of the set of font properties that specify how to render a font, such as italics and underline.

font face weight: A value that specifies the thickness of a font.

gradient fill: A type of fill that applies gradient formatting to the background of a cell or an object.

gridline: A line that is drawn on a worksheet or table for use as a visual aid to distinguish between cells.

group: A process of combining similar elements into a set in accordance with logical criteria. It is frequently used to combine sets of data from Online Analytical Processing (OLAP) databases or PivotTable reports.

header: A line, or lines, of content in the top margin area of a page in a document or a slide in a presentation. A header typically contains elements such as the title of the chapter, the title of the document, a page number, or the name of the author.

hidden: A condition of an object that prevents it from being displayed in rendered output.

hidden column: A **column (2)** that does not appear in a worksheet view because its width is set to 0 (zero). A column can be hidden if an outline is collapsed.

hidden row: A row that does not appear in a worksheet view because its height is set to "0" (zero). A row can be hidden if the data is filtered or an outline is collapsed.

horizontal alignment: A formatting setting that specifies how content is positioned within the horizontal space of a cell, object, or page. Content can be aligned along the left or right edge, or distributed evenly across the horizontal space.

horizontal indent: An indent that is used in a cell to adjust cell content horizontally.

horizontal text: Text that is rendered horizontally in a cell.

hyperlink: A relationship between two anchors, as described in [RFC1866].

icon: A graphical image used to supplement alphanumeric text in the visual identification of an object on a computer monitor. **Icons** are typically small, relative to the size of the area on which they are displayed.

interactive report: A visualization that has a presentation mode that provides sort, filter, and pivot capabilities for displaying different views of the data. The underlying data can be stored either in the workbook or in an external data source.

key performance indicator (KPI): A predefined measure that is used to track performance against a strategic goal, objective, plan, initiative, or business process. A visual cue is frequently used to communicate performance against the measure.

left-to-right: A reading order in which characters in words are read from left to right, and words are read from left to right in sentences.

line chart: A type of chart in which data points in a series are connected by a line.

manual filter: A filter that lets users select a set of individual data items or dimension hierarchies by using a user interface that displays levels from the hierarchies.

merged range: A **range** that contains one or more merged cells.

named object: A list (2), PivotTable report, chart, or range that can be referenced by name. A sheet is not a type of named object.

named object view: A mode in which only named objects are rendered.

native PivotTable: A PivotTable report that is populated with data from a worksheet in the same workbook.

number format: A property of a cell or other type of object that determines how numerical data is displayed or interpreted. For example, a currency number format affixes the proper currency symbol to the number.

Office Web Extension: See app for Office.

Online Analytical Processing (OLAP): A technology that uses multidimensional structures to provide access to data for analysis. The source data for OLAP is stored in data warehouses in a relational database. See also cube.

outline: A nested grouping of rows or **columns (2)** that are in a worksheet.

outline level: The number of levels that a task is indented from the top level of an outline; the order associated with an outline.

page field parameter: A PivotTable page field that is also a **workbook parameter**.

pattern color: The color of the background pattern that is specified for a cell.

pattern fill: A state of a cell in which a background pattern is specified.

pattern mask: Any of the set of patterns that specify a design for the background of a cell.

patterned overlay mask: See **pattern mask**.

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

PivotChart report: A chart that uses a PivotCache for source data and inherits filtering and sorting functionality from a PivotTable report.

PivotTable: An interactive table that summarizes large amounts of data from various sources by using format and calculation methods. Row and column headings can be rotated to view different summaries of the source data, filter the data, or display detail data for specific areas.

PivotTable page field: A filter in a PivotTable report that applies to all of the data in the report, including any hierarchies.

pixel: A discrete unit of display on a computer display device.

point: A unit of measurement for fonts and spacing. A point is equal to 1/72 of an inch.

published: A condition of portions of a workbook that are marked as being available to the user when that workbook is processed by a protocol server.

published sheet: A **sheet** that is published.

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

reading order: The positioning of characters in words and the positioning of words in sentences. This can be left-to-right or right-to-left.

reference: A means by which cells, objects, and chart elements can be referenced in a formula.

rich text: Text that is formatted in the Rich Text Format, as described in [MSFT-RTF].

right-to-left: A reading and display order that is optimized for right-to-left languages.

row: A single set of data that is displayed horizontally in a worksheet or a table.

row field: A PivotTable field that is contained in the PivotTable area where row values are shown.

scatter chart: A chart that displays values on both the x and y axes to represent two variables as a single data point.

sheet: A part of an Excel workbook. There are four types of sheets: **worksheet**, macro sheet, dialog sheet, and **chart sheet**. Multiple sheets are stored together within a workbook.

sheet tab: A control that is used to select a sheet.

shrink to fit: The process of adjusting the font size of text in a cell to fit the current height and width of the cell.

slicer: A mechanism that is used to filter data in one or more PivotTable reports or cube functions.

sort: A process that arranges cells in ascending or descending order, based on cell content.

sort order: A specific arrangement of cells that is based on cell content. The order can be ascending or descending.

sparkline: A miniature chart that can be inserted into text or embedded in a cell on a worksheet to illustrate highs, lows, and trends in data.

stock chart: A custom chart type that is designed to display stock market data on multiple series; for example, high, low, close, and volume.

style: A set of formatting options that is applied to text, tables, charts, and other objects in a document.

summary: The orientation of outline expand and outline collapse symbols in relation to the data that is outlined.

surface chart: A chart that shows a three-dimensional surface that connects a set of data points. It can be used to determine the optimum combination between two sets of data.

table: A list (2) that is defined in a workbook.

top N filter: A filter that matches the top or bottom N items or N% of items in a specified **column (2)**.

top N filter by count: A type of top N filter that matches the N largest numerical values or the N newest time and date values.

top N filter by percent: A type of top N filter that matches the N percent largest numerical values or the N percent newest time and date values.

Uniform Resource Locator (URL): A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [RFC1738].

vertical alignment: A formatting setting that specifies how content is positioned within the vertical space of a cell, object, or page. Content can be aligned along the top or bottom edge, or distributed evenly across the vertical space.

vertical indent: An indent that is used in a cell to adjust cell content vertically.

vertical text: Text that is rendered vertically in a cell.

visible: A condition of an object that allows it to be displayed in rendered output.

workbook: A container for a collection of **sheets**.

workbook parameter: A single cell that is designated to receive input from users.

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

worksheet header: The row and column headings of a worksheet.

worksheet image: A chart image that is embedded in a worksheet or chart sheet.

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

XML attribute: A name/value pair, separated by an equal sign (=) and included in a tagged element, that modifies features of an element. All XML attribute values are stored as strings enclosed in quotation marks.

XML element: An **XML** structure that typically consists of a start tag, an end tag, and the information between those tags. Elements can have **attributes** and can contain other elements.

XML schema definition (XSD): The World Wide Web Consortium (W3C) standard language that is used in defining XML schemas. Schemas are useful for enforcing structure and constraining the types of data that can be used validly within other XML documents. XML schema definition refers to the fully specified and currently recommended standard for use in authoring XML schemas.

z-order: The rendering order of an object on a z axis.

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

1.2   References

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

1.2.1   Normative References

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

[HTML] World Wide Web Consortium, "HTML 4.01 Specification", December 1999, http://www.w3.org/TR/html4/

[ISO/IEC29500-1:2011] ISO/IEC, "Information Technology -- Document description and processing languages -- Office Open XML File Formats -- Part 1: Fundamentals and Markup Language Reference", ISO/IEC 29500-1:2011, 2011, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=59575

[MS-EXSPWS3] Microsoft Corporation, "Excel Calculation Web Service Version 3 Protocol".

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

[RFC1738] Berners-Lee, T., Masinter, L., and McCahill, M., Eds., "Uniform Resource Locators (URL)", RFC 1738, December 1994, http://www.ietf.org/rfc/rfc1738.txt

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

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

1.2.2 Informative References

[XMLSCHEMA] World Wide Web Consortium, "XML Schema", September 2005, http://www.w3.org/2001/XMLSchema

1.3 Overview (Synopsis)

This schema specifies the representation of a **workbook**. The structure is used as described in [MS-EXSPWS3] to send a workbook definition from the protocol server to the protocol client. The structure can be used to render a workbook as well as enable interactivity with the workbook.

1.4 Relationship to Protocols and Other Structures

The Excel Calculation Web Service XML Schema is an XML format as described in [XMLSCHEMA]. It is dependent on the structures that are defined in the following references:

- [ISO/IEC29500-1:2011] for the specification of formatting information.

- [MS-XLSX] for the specification of **conditional formatting icons**.

The structure defined in this specification is used as described in [MS-EXSPWS3] to specify the representation of a workbook.

1.5 Applicability Statement

The structure is appropriate for serializing portions of a workbook as part of the communication between protocol client and protocol server as described in [MS-EXSPWS3].

This structure is not applicable as a file format for persisting workbook data.

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

2 Structures

The following sections list the data types of the **XML elements** and **XML attributes** in this format, as specified by [XMLSCHEMA1].

2.1 Global Elements

The following section lists the root XML element of this format, as specified by [XMLSCHEMA1].

2.1.1 Workbook

Specifies information about a workbook.

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

```
<xs:element name="Workbook" type="CT_Workbook">
  <xs:key name="styleIDKey">
    <xs:selector xpath="./Styles/Style"/>
    <xs:field xpath="@ID"/>
  </xs:key>
  <xs:keyref name="tableStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table"/>
    <xs:field xpath="@StyleID"/>
  </xs:keyref>
  <xs:keyref name="columnStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Column"/>
    <xs:field xpath="@StyleID"/>
  </xs:keyref>
  <xs:keyref name="columnBorderStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Column"/>
    <xs:field xpath="@BorderID"/>
  </xs:keyref>
  <xs:keyref name="rowStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Row"/>
    <xs:field xpath="@StyleID"/>
  </xs:keyref>
  <xs:keyref name="rowBorderStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Row"/>
    <xs:field xpath="@BorderID"/>
  </xs:keyref>
  <xs:keyref name="cellStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Row/Cell"/>
    <xs:field xpath="@StyleID"/>
  </xs:keyref>
  <xs:keyref name="cellBorderStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Table/Row/Cell"/>
    <xs:field xpath="@BorderID"/>
  </xs:keyref>
  <xs:keyref name="imagesBorderStyleIDKeyRef" refer="styleIDKey">
    <xs:selector xpath="./Worksheet/Images/Image"/>
    <xs:field xpath="@BorderID"/>
  </xs:keyref>
</xs:element>
```

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

2.1.2 ServerEvents

A **CT_ServerEvents** (section 2.3.45) element that specifies a list of server events.

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

```
<xs:element name="ServerEvents" type="CT_ServerEvents"/>
```

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

2.2 Global Attributes

None.

2.3 Complex Types

The following sections list the data types of the XML elements in this format, as specified by [XMLSCHEMA1].

2.3.1 CT_WorkbookOptions

Referenced by: CT_Workbook

A collection of settings for the workbook.

Child Elements:

HideWorkbookTabs: Specifies whether **sheet tabs** are **hidden**. This element MUST be present if the sheet tabs on the workbook are hidden. This element MUST NOT be present if the sheet tabs are not hidden.

HidePivotFieldList: Specifies whether the **PivotTable field** list in the workbook is hidden. This element MUST be present if the field list is hidden for the workbook and MUST NOT be present otherwise.

HideSlicerPane: Specifies whether the **slicer** pane is hidden.

InteractiveReportUsingExternalData: Specifies whether an **interactive report** is using an **external data connection**.

enableRefresh: Indicates whether external data connection in the workbook can be refreshed.

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

```
<xs:complexType name="CT_WorkbookOptions">
  <xs:sequence>
    <xs:element name="HideWorkbookTabs" minOccurs="0" maxOccurs="1"/>
    <xs:element name="HidePivotFieldList" minOccurs="0" maxOccurs="1"/>
    <xs:element name="HideSlicerPane" minOccurs="0" maxOccurs="1"/>
    <xs:element name="InteractiveReportUsingExternalData" minOccurs="0" maxOccurs="1"/>
    <xs:element name="enableRefresh" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.2 CT_Parameter

Referenced by: CT_Parameters

A **workbook parameter**.

Attributes:

Name: The name of a workbook parameter. MUST be unique across the list of workbook parameters in the workbook.

Description: A user-specified description of the parameter. The maximum number of characters MUST be less than or equal to 1024.

IsPivotPageField: MUST be **true** if the workbook parameter is a PivotTable **page field parameter** and MUST NOT be present otherwise.

IsSlicer: MUST be **true** if the workbook parameter is a slicer and MUST NOT be present otherwise.

RequiresConnection: MUST NOT be present if **IsPivotPageField** is not present. If **IsPivotPageField** is present, this attribute MUST be **true** if the workbook parameter requires an external data connection to update the contents of the workbook parameter and MUST NOT be present otherwise.

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

```
<xs:complexType name="CT_Parameter">
  <xs:attribute name="Name" use="required" type="ST_ObjectName"/>
  <xs:attribute name="Description" use="optional" type="ST_Description"/>
  <xs:attribute name="IsPivotPageField" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="IsSlicer" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="RequiresConnection" type="xs:boolean" default="false" use="optional"/>
</xs:complexType>
```

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

2.3.3 CT_Parameters

Referenced by: CT_Workbook

An unordered list of workbook parameters. MUST contain the unordered list of all the workbook parameters in the workbook.

Child Elements:

Parameter: A workbook parameter.

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

```
<xs:complexType name="CT_Parameters">
  <xs:sequence>
    <xs:element name="Parameter" minOccurs="1" maxOccurs="255" type="CT_Parameter"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.4 CT_NamedObject

Referenced by: CT_NamedObjects

A **named object**.

Attributes:

Name: The name of the named object. MUST be unique across the list of named objects in the workbook.

Type: The type of the named object.

SheetName: The name of the **sheet** on which the named object resides.

Width: Specifies the width of the named object in **pixels**.

Height: Specifies the height of the named object in pixels.

DisplayRightToLeft: Specifies whether this named object is displayed in right-to-left format. This attribute (2) MUST be present and equal to **true** if the sheet on which the named object resides is displayed right-to-left. This attribute (2) MUST NOT be present if the sheet on which the named object resides is displayed left-to-right.

LastNonEmptyRow: When present, MUST be the last row (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

LastNonEmptyColumn: When present, MUST be the last column (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

CurrentFirstRow: When present, MUST be the first row (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

FirstVisibleRow: When present, MUST be the first visible row (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

LastVisibleRow: When present, MUST be the last visible row (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

CurrentFirstColumn: When present, MUST be the first column (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

FirstVisibleColumn: When present, MUST be the first visible column (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

LastVisibleColumn: When present, MUST be the last visible column (2) of the named object. This attribute (2) MUST be present if **Type** is "PivotTable", "Table", or "NamedRange". This attribute (2) MUST NOT be present if **Type** is "Chart".

DisplayOutlines: Specifies whether outlines are displayed on the sheet on which the named object resides. This attribute (2) MUST be present and equal to **true** if the sheet on which the named object resides displays **outlines**. This attribute (2) MUST NOT be present if the sheet (1) on which the named object resides does not display outlines.

IsPivot: Specifies whether this named object is a PivotTable or **PivotChart**. This attribute (2) MUST be present and equal to **true** if the named object is a PivotTable or PivotChart. This attribute (2) MUST NOT be present if the named object is not a PivotTable or PivotChart.

ImageId: Specifies the image id when the named object is a chart. This attribute MUST be present if **Type** is "Chart" and MUST NOT be present otherwise.

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

```
<xs:complexType name="CT_NamedObject">
  <xs:attribute name="Name" type="ST_ObjectName" use="required"/>
  <xs:attribute name="Type" type="ST_enmNamedObjectType" use="required"/>
  <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
  <xs:attribute name="Width" type="ST_nonNegativeInteger" use="required"/>
  <xs:attribute name="Height" type="ST_nonNegativeInteger" use="required"/>
  <xs:attribute name="DisplayRightToLeft" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="LastNonEmptyRow" type="ST_excelRowNumber1Based" use="optional"/>
  <xs:attribute name="LastNonEmptyColumn" type="ST_excelColNumber1Based" use="optional"/>
  <xs:attribute name="CurrentFirstRow" type="ST_excelRowNumber1Based" use="optional"/>
  <xs:attribute name="FirstVisibleRow" type="ST_excelRowNumber1Based" use="optional"/>
  <xs:attribute name="LastVisibleRow" type="ST_excelRowNumber1Based" use="optional"/>
  <xs:attribute name="CurrentFirstColumn" type="ST_excelColNumber1Based" use="optional"/>
  <xs:attribute name="FirstVisibleColumn" type="ST_excelColNumber1Based" use="optional"/>
  <xs:attribute name="LastVisibleColumn" type="ST_excelColNumber1Based" use="optional"/>
  <xs:attribute name="DisplayOutlines" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="IsPivot" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="ImageId" type="ST_nonEmptyString" use="optional"/>
</xs:complexType>
```

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

2.3.5 CT_NamedObjects

Referenced by: CT_Workbook

An unordered list of named objects. MUST contain all the **published visible** named objects in the workbook.

Child Elements:

NamedObject: A named object.

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

```
<xs:complexType name="CT_NamedObjects">
  <xs:sequence>
    <xs:element name="NamedObject" minOccurs="1" maxOccurs="unbounded"
type="CT_NamedObject"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.6 CT_Font

Referenced by: CT_Style

The **font** specification for a **worksheet cell** or **worksheet header**.

Attributes:

Size: Font size in **points**.

FontName: Font name.

Color: Font face color. This attribute MUST be omitted when the **default font face color** is set.

Bold: Font face weight. This attribute MUST be set to true when the font face weight is greater than 600.

Italic: Font face decoration. If set to true, the font is italic.

StrikeThrough: Font face decoration. If set to true, the font is strikethrough.

VerticalAlign: Vertical alignment of the text.

Underline: Font face decoration.

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

```
<xs:complexType name="CT_Font">
  <xs:attribute name="Size" default="11" use="optional" type="ST_Size"/>
  <xs:attribute name="FontName" type="xs:string" use="required"/>
  <xs:attribute name="Color" type="ST_rgbTuple" default="#000000" use="optional"/>
  <xs:attribute name="Bold" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="Italic" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="StrikeThrough" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="VerticalAlign" type="ST_enmFontVerticalAlignment" default="None"
use="optional"/>
  <xs:attribute name="Underline" type="ST_enmFontUnderline" default="None" use="optional"/>
</xs:complexType>
```

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

2.3.7 CT_Alignment

Referenced by: CT_Style

The alignment and flow of text and conditional formatting within a worksheet cell.

Attributes:

Horizontal: Horizontal alignment of text. Equivalent to the **horizontal** attribute (2) of the **CT_CellAlignment** element specified in [ISO/IEC29500-1:2011]

WrapText: Specifies whether text wraps at whitespace. Equivalent to the **wrapText** attribute (2) of the **CT_CellAlignment** element specified in [ISO/IEC29500-1:2011].

Rotate: Angle of rotation in degrees, where the first character in the worksheet cell is the center of rotation.
- A positive number indicates that the text is rotated counter-clockwise from the 0 position.
- 0 indicates the text is not rotated.
- A negative number indicates that the text is rotated by the absolute value of the number clockwise from the 0 position.

VerticalText: Specifies whether the text is **vertical text**. If set to true, the text is vertical text.

Vertical: Vertical alignment of text. Equivalent to the **vertical** attribute (2) of the **CT_CellAlignment** element specified in [ISO/IEC29500-1:2011].

ReadingOrder: The **reading order** of the worksheet cell.

ShrinkToFit: Specifies whether to **shrink to fit**. If set to true, the font size is shrunk so that the contents fit the worksheet cell. Equivalent to the **shrinkToFit** attribute (2) of the **CT_CellAlignment** element specified in [ISO/IEC29500-1:2011].

Indent: A scaling factor used in conjunction with the **DefaultIndentSize** attribute (2) on the CT_Table element to create a margin in points. Equivalent to the **indent** attribute (2) of the **CT_CellAlignment** element specified in [ISO/IEC29500-1:2011].

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

```
<xs:complexType name="CT_Alignment">
  <xs:attribute name="Horizontal" type="ST_enmHorizontalAlignment" default="Automatic"
use="optional"/>
  <xs:attribute name="WrapText" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="Rotate" default="0" use="optional" type="ST_Rotate"/>
  <xs:attribute name="VerticalText" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="Vertical" type="ST_enmVerticalAlignment" default="Bottom"
use="optional"/>
  <xs:attribute name="ReadingOrder" type="ST enmReadOrder" default="Context" use="optional"/>
  <xs:attribute name="ShrinkToFit" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="Indent" type="xs:unsignedInt" default="0" use="optional"/>
</xs:complexType>
```

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

2.3.8 CT_Interior

Referenced by: CT_Style

The worksheet cell **fill color** or **pattern mask** and **pattern color**.

Attributes:

Color: The background fill color.

Pattern: The foreground pattern mask. This attribute (2) MUST be present when a **pattern fill** is present; otherwise, MUST be omitted.

PatternColor: The foreground pattern color. This attribute (2) MUST be present when the **Pattern** attribute (2) is present and not equal to "Solid"; otherwise, MUST be omitted.

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

```
<xs:complexType name="CT_Interior">
  <xs:attribute name="Color" type="ST rgbTuple"/>
  <xs:attribute name="Pattern" type="ST_enmPattern" use="optional"/>
  <xs:attribute name="PatternColor" type="ST rgbTuple" use="optional"/>
</xs:complexType>
```

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

2.3.9 CT_stop

Referenced by: CT_gradient

A **color stop** for a gradient.

Attributes:

position: The starting position for the gradient.

Color: The color of the color stop.

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

```
<xs:complexType name="CT_stop">
  <xs:attribute name="position" type="ST_percentage" use="required"/>
  <xs:attribute name="Color" type="ST_rgbTuple" use="required"/>
</xs:complexType>
```

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

2.3.10 CT_gradient

Referenced by: CT_Style

The **gradient fill** for a worksheet cell.

Child Elements:

stop: A color stop for the gradient. Each CT_stop element in the sequence other than the first one MUST have the value of its **position** attribute (2) greater than the value of the **position** attribute (2) of the preceding CT_stop element.

Attributes:

degree: The angle of rotation of the gradient **stop**. 0 degrees is horizontal from left to right with clockwise rotation from the bottom left corner of the worksheet cell.

type: The type of gradient.

left: The left edge of the color stop as a percentage of the containing worksheet cell.

right: The right edge of the color stop as a percentage of the containing worksheet cell.

top: The top edge of the color stop as a percentage of the containing worksheet cell.

bottom: The bottom edge of the color stop as a percentage of the containing worksheet cell.

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

```
<xs:complexType name="CT_gradient">
  <xs:sequence>
    <xs:element name="stop" minOccurs="2" maxOccurs="3" type="CT_stop"/>
  </xs:sequence>
  <xs:attribute name="degree" default="0.0" use="optional" type="ST_degree"/>
  <xs:attribute name="type" type="ST_enmGradientType" default="Linear" use="optional"/>
  <xs:attribute name="left" type="ST_percentage" default="0" use="optional"/>
  <xs:attribute name="right" type="ST_percentage" default="0" use="optional"/>
  <xs:attribute name="top" type="ST_percentage" default="0" use="optional"/>
  <xs:attribute name="bottom" type="ST_percentage" default="0" use="optional"/>
</xs:complexType>
```

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

2.3.11 CT_Border

Referenced by: CT_Borders

A **border**.

Attributes:

Position: The edge to which the border information applies.

LineStyle: The border line style.

Weight: The **border thickness** in pixels.

Color: The border color.

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

```
<xs:complexType name="CT_Border">
  <xs:attribute name="Position" type="ST_enmBorderPosition" use="required"/>
  <xs:attribute name="LineStyle" type="ST_enmBorderLineStyle" default="None" use="optional"/>
  <xs:attribute name="Weight" use="required" type="ST_Weight"/>
  <xs:attribute name="Color" type="ST_rgbTuple" use="required"/>
</xs:complexType>
```

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

2.3.12 CT_Borders

Referenced by: CT_Style

An unordered collection of **CT_Border** elements (section 2.3.11).

Child Elements:

Border: Specifies a border. There MUST be an element for every value of **ST_enmBorderPosition** (section 2.4.29) for which the border is present.

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

```
<xs:complexType name="CT_Borders">
  <xs:sequence>
    <xs:element name="Border" minOccurs="0" maxOccurs="4" type="CT_Border"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.13 CT_Style

Referenced by: CT_Styles

Cell formatting or **border formatting**.

Child Elements:

Font: The font specification for one or more worksheet cells or worksheet headers.

Alignment: The alignment and **flow** of text and conditional formatting within a worksheet cell. This element MUST be present when one or more attributes do not equal their respective default **XSD** values and MUST NOT be present otherwise.

Interior: The fill color or pattern mask and pattern color. This element MUST be present when a solid or pattern fill is present and MUST NOT be present otherwise.

gradient: The gradient fill style and color. This element MUST be present when a gradient fill is present and MUST NOT be present otherwise.

Borders: An unordered collection of CT_Border elements (section 2.3.11).

Attributes:

ID: A **ST_cellStyleID** (section 2.4.26) MUST be present when a **cellStyle** group (4) is present. A **ST_borderStyleID** (section 2.4.27) MUST be present when a **borderStyle** group (4) is present.

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

```
<xs:complexType name="CT_Style">
  <xs:sequence>
    <xs:element name="Font" minOccurs="0" maxOccurs="1" type="CT_Font"/>
    <xs:element name="Alignment" minOccurs="0" maxOccurs="1" type="CT_Alignment"/>
    <xs:choice minOccurs="0" maxOccurs="1">
      <xs:element name="Interior" type="CT_Interior"/>
      <xs:element name="gradient" type="CT_gradient"/>
    </xs:choice>
    <xs:element name="Borders" minOccurs="0" maxOccurs="1" type="CT_Borders"/>
  </xs:sequence>
  <xs:attribute name="ID" use="required" type="ST_ID"/>
</xs:complexType>
```

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

2.3.14 CT_Styles

Referenced by: CT_Workbook

An unordered collection of **CT_Style** elements (section 2.3.13). For a worksheet or a named object containing a **range** within a worksheet, this collection MUST contain the default style **ST_cellStyleID** (section 2.4.26).

Child Elements:

Style: Cell formatting or border formatting applied to one or more worksheet cells, worksheet header cells, or charts.

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

```
<xs:complexType name="CT_Styles">
  <xs:sequence>
    <xs:element name="Style" minOccurs="1" maxOccurs="unbounded" type="CT_Style"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.15 CT_WorksheetOptions

Referenced by: CT_Worksheet

A collection of settings and options for the sheet (1).

Attributes:

DoNotDisplayGridlines: Specifies whether the **gridlines** are visible.
- This attribute MUST be present if the **Chartsheet** attribute of the CT_Worksheet element is false and there are no gridlines present on the worksheet.
- This attribute MUST NOT be present if the **Chartsheet** attribute of the CT_Worksheet element is true.

- This attribute MUST NOT be present if the **Chartsheet** attribute of the CT_Worksheet element is false and there are gridlines present on the worksheet.

DoNotDisplayHeadings: Specifies whether **row** and **column (2) headers** are visible.
- This attribute MUST be present if the **Chartsheet** attribute of the CT_Worksheet element is false and row and column (2) headers are not visible.
- This attribute MUST NOT be present if the **Chartsheet** attribute of the CT_Worksheet element is true.

- This attribute MUST NOT be present if the **Chartsheet** attribute of the CT_Worksheet element is false and row and column (2) headers are visible.

DisplayRightToLeft: Specifies whether the sheet or named object is displayed in **right-to-left** format. This attribute MUST be present if the sheet or named object represented by the CT_Worksheet element is displayed right-to-left. This attribute MUST NOT be present if the sheet or named object is displayed **left-to-right**.

TabColor: The color of the sheet tab for the sheet represented by the CT_Worksheet element, or the color of the sheet tab for the sheet on which the named object represented by the CT_Worksheet element resides. This attribute MUST be present if the **default sheet tab color** is not set, and MUST NOT be present otherwise.

DisplayOutlines: Specifies whether outlines are displayed on the sheet. This attribute MUST be present and equal to true if the sheet displays outlines and MUST NOT be present otherwise.

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

```
<xs:complexType name="CT_WorksheetOptions">
  <xs:attribute name="DoNotDisplayGridlines" type="xs:boolean" default="false"
use="optional"/>
  <xs:attribute name="DoNotDisplayHeadings" type="xs:boolean" use="optional"/>
  <xs:attribute name="DisplayRightToLeft" type="xs:boolean" use="optional"/>
  <xs:attribute name="TabColor" type="ST_rgbTuple" use="optional"/>
  <xs:attribute name="DisplayOutlines" type="xs:boolean" default="false" use="optional"/>
</xs:complexType>
```

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

2.3.16 CT_Criteria

Referenced by: CT_item

Criteria applied in a **custom filter**.

Attributes:

Type: Specifies the comparison operator applied between **cell contents** and the value attribute (2) during filtering.

Relation: If there are two criteria in the custom filter, the logical operator applied between them. If the parent CT_item element has two CT_Criteria elements, this attribute (2) MUST be set on the first CT_Criteria element in the CT_item. This attribute (2) MUST NOT be present on the last CT_Criteria element in the parent CT_item.

value: The value that is used with the relational operator defined in the **Type** attribute (2) for filtering.

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

```
<xs:complexType name="CT_Criteria">
  <xs:attribute name="Type" type="ST_enmAutoFilterCriteriaOperationType" default="EQ"
use="optional"/>
  <xs:attribute name="Relation" type="ST enmAutoFilterCriteriaRelationOperator" default="Nil"
use="optional"/>
  <xs:attribute name="value" use="required" type="ST value"/>
</xs:complexType>
```

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

2.3.17 CT_top10

Referenced by: CT_item

A **top N filter** or a **bottom N filter** applied to a CT_item.

Attributes:

percent: Specifies whether the top N filter or bottom N filter is based on percentage of the total sum of values in the column (2) or not. This attribute (2) MUST be true when a **top N filter by percent** or a **bottom N filter by percent** is applied. It MUST be false when a **top N filter by count** or a **bottom N filter by count** is applied.

top: Specifies whether a top N filter or a bottom N filter is applied. This attribute (2) MUST be true when a top N filter is applied. It MUST be false when a bottom N filter is applied.

value: Value based on which the top N filter or bottom N filter is applied.
- If **percent** is true**,** the value of this attribute (2) MUST be greater than or equal to 0 and less than or equal to 100.

- If **percent** is false**,** the value of this attribute (2) MUST be greater than or equal to 0 and less than or equal to 500.

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

```
<xs:complexType name="CT top10">
  <xs:attribute name="percent" type="xs:boolean" use="required"/>
  <xs:attribute name="top" type="xs:boolean" use="required"/>
  <xs:attribute name="value" use="required" type="ST_value1"/>
</xs:complexType>
```

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

2.3.18 CT_item

Referenced by: CT_autofilter

An **AutoFilter item** in an **AutoFilter**.

Child Elements:

Criteria: The rule defined in a custom filter. This element MUST be present if a custom filter is applied to the AutoFilter item and MUST NOT be present otherwise. If the custom filter contains two rules, then there MUST be two CT_Criteria elements present; if the custom filter contains a single rule, then there MUST be one CT_Criteria element present.

top10: This element holds information pertaining to the top N filter or bottom N filter applied to a CT_item. This element MUST be present if the **Top10** attribute (2) is true and it MUST NOT be present otherwise.

Attributes:

Index: The column (2) number on which the AutoFilter item exists.

Name: The name of the AutoFilter item in the AutoFilter. Its value MUST be equal to the value of the CT_Data element nested under the CT_Cell element that represent the worksheet cell on which the AutoFilter item is present.

Top10: Specifies whether a top N filter is applied to the AutoFilter item. This attribute (2) MUST NOT be true if the **Custom** attribute (2) is true, or the **Filter** attribute (2) is true or the **CriteriaType** attribute (2) is present. This attribute (2) MUST be present and set to true when a top N filter is applied to the AutoFilter item.

Type: This attribute (2) denotes the type of sorting or filtering applied to the AutoFilter item.

CriteriaType: A specific date or number **filter** that is applied to the AutoFilter item. This attribute (2) MUST NOT be present if the **Top10** attribute (2) is true, or the **Filter** attribute (2) is true or the **Custom** attribute (2) is true.

DataType: The type of data in the underlying worksheet cells of the AutoFilter item.

Filter: Specifies whether a **manual filter** is applied to the AutoFilter item. This attribute (2) MUST be present and set to true when a manual filter is applied to the AutoFilter item. This attribute (2) MUST NOT be true if the **Top10** attribute (2) is true or the **Custom** attribute (2) is true or the **CriteriaType** attribute (2) is present.

Custom: Specifies whether a filter that is not supported on the protocol server is applied to the AutoFilter item. This attribute (2) MUST be present and set to true when the AutoFilter item has a filter that is not supported on the protocol server applied to it. This attribute (2) MUST NOT be true if the **Top10** attribute (2) is true or the **Filter** attribute (2) is true or the **CriteriaType** attribute (2) is present.

Hidden: Specifies whether filter drop down for this item is hidden.

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

```
<xs:complexType name="CT_item">
  <xs:sequence>
    <xs:element name="Criteria" minOccurs="0" maxOccurs="2" type="CT_Criteria"/>
    <xs:element name="top10" minOccurs="0" maxOccurs="1" type="CT_top10"/>
```

```
    </xs:sequence>
    <xs:attribute name="Index" type="ST_excelColNumber" default="0" use="optional"/>
    <xs:attribute name="Name" type="xs:string" use="optional"/>
    <xs:attribute name="Top10" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Type" type="ST_enmFilterItemType" default="None" use="optional"/>
    <xs:attribute name="CriteriaType" type="ST enmAutoFilterItemCriteriaType" default="Nil"
use="optional"/>
    <xs:attribute name="DataType" type="ST_enmAutoFilterItemType" default="Number"
use="optional"/>
    <xs:attribute name="Filter" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Custom" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Hidden" type="xs:boolean" default="false" use="optional"/>
  </xs:complexType>
```

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

2.3.19 CT_autofilter

Referenced by: CT_autofilters

An AutoFilter in a worksheet.

Child Elements:

item: A column (2) in the AutoFilter.

Attributes:

ID: If the AutoFilter is part of a **table**, this attribute denotes the identifier of the table. This attribute MUST be present when the **Type** is "Table". It MUST NOT be present otherwise.

Row: The row number on which the AutoFilter exists.

ColFirst: The column (2) number of the first visible column (2) in the AutoFilter.

Type: Specifies whether the AutoFilter is part of a table. If the AutoFilter is part of a table, this attribute MUST have a value of "Table"; otherwise, it MUST have a value of "Sheet".

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

```
  <xs:complexType name="CT_autofilter">
    <xs:sequence>
      <xs:element name="item" minOccurs="0" maxOccurs="16384" type="CT item"/>
    </xs:sequence>
    <xs:attribute name="ID" type="xs:int" default="0" use="optional"/>
    <xs:attribute name="Row" type="ST_excelRowNumber" default="0" use="optional"/>
    <xs:attribute name="ColFirst" type="ST excelColNumber" default="0" use="optional"/>
    <xs:attribute name="Type" use="required" type="ST_Type"/>
  </xs:complexType>
```

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

2.3.20 CT_autofilters

Referenced by: CT_Worksheet

A list of AutoFilters. This element MUST contain the collection of all AutoFilters that are contained within the range defined in the CT_Table element. An AutoFilter is considered to be contained within a range if one or more worksheet cells defined in a nested CT_item element lie within the range. If an

AutoFilter is defined on a **hidden row** (2) within the range defined in the CT_Table element, that AutoFilter MUST NOT be included in this collection. If all the worksheet cells defined in the nested CT_item elements that lie within the range defined in the CT_Table element are present on **hidden columns**, that AutoFilter MUST NOT be included in this collection. This element MUST have zero or one AutoFilter elements having the **Type** attribute (2) set to "Sheet".

Child Elements:

autofilter: An AutoFilter that lies within the range defined in the CT_Table element.

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

```
<xs:complexType name="CT_autofilters">
  <xs:sequence>
    <xs:element name="autofilter" minOccurs="1" maxOccurs="unbounded" type="CT autofilter"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.21 CT_Operation

Referenced by: CT_Operations

An operation that is allowed on a range.

Attributes:

Type: The type of range operation.

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

```
<xs:complexType name="CT Operation">
  <xs:attribute name="Type" type="ST_enmPivotRangeOperation"/>
</xs:complexType>
```

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

2.3.22 CT_Operations

Referenced by: CT_range

A list of all the operations that are allowed on the range.

Child Elements:

Operation: Specifies an operation that is allowed on the range.

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

```
<xs:complexType name="CT_Operations">
  <xs:sequence>
    <xs:element name="Operation" minOccurs="1" maxOccurs="unbounded" type="CT_Operation"/>
  </xs:sequence>
```

```
    </xs:complexType>
```

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

2.3.23 CT_range

Referenced by: CT_Ranges, CT_PivotTable

A range of a PivotTable.

Child Elements:

Operations: The list of all the operations that are allowed on the range.

Attributes:

FirstColumn: When present, MUST be either the first column (2) of the PivotTable or the first column (2) of the requested range, whichever is greater.

FirstRow: When present, MUST be either the first row of the PivotTable or the first row of the requested range, whichever is greater.

LastColumn: When present, MUST be either the last column (2) of the PivotTable or the last column (2) of the requested range, whichever is less.

LastRow: When present, MUST be either the last row (2) of the PivotTable or the last row (2) of the requested range, whichever is less.

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

```
    <xs:complexType name="CT range">
      <xs:sequence>
        <xs:element name="Operations" minOccurs="1" maxOccurs="1" type="CT_Operations"/>
      </xs:sequence>
      <xs:attribute name="FirstColumn" type="ST excelColNumber" use="optional" default="0"/>
      <xs:attribute name="FirstRow" type="ST excelRowNumber" use="optional" default="0"/>
      <xs:attribute name="LastColumn" type="ST_excelColNumber" use="optional" default="0"/>
      <xs:attribute name="LastRow" type="ST_excelRowNumber" use="optional" default="0"/>
    </xs:complexType>
```

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

2.3.24 CT_Ranges

Referenced by: CT_PivotTable

An unordered list of ranges.

Child Elements:

range: A range of the PivotTable that intersects with the returned range. MUST NOT be present if the range is hidden.

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

```
    <xs:complexType name="CT_Ranges">
```

```
  <xs:sequence>
    <xs:element name="range" minOccurs="0" maxOccurs="unbounded" type="CT_range"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.25 CT_DataField

Referenced by: CT_DataFields

A PivotTable data field.

Attributes:

Name: The PivotTable data field **caption**.

Id: An identifier for the PivotTable data field.

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

```
<xs:complexType name="CT_DataField">
  <xs:attribute name="Name" type="ST_nonEmptyString"/>
  <xs:attribute name="Id" type="ST_nonEmptyString"/>
</xs:complexType>
```

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

2.3.26 CT_DataFields

Referenced by: CT_PivotTable

A list of PivotTable data fields.

Child Elements:

DataField: A PivotTable data field.

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

```
<xs:complexType name="CT_DataFields">
  <xs:sequence>
    <xs:element name="DataField" minOccurs="1" maxOccurs="unbounded" type="CT_DataField"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.27 CT_PivotTable

Referenced by: CT_PivotTables

A PivotTable.

Child Elements:

Ranges: MUST contain the unordered list of all the ranges where the range of the PivotTable intersects with the returned range.

DataFields: MUST contain the list of all the PivotTable data fields of the PivotTable represented by the parent element.

RowHeaderRange: Specifies the range of cells that comprise the row headers.

ColumnHeaderRange: Specifies the range of cells that comprise the column headers in the PivotTable.

RowAreaCaptions: Specifies the cell values from the inner-most row header for the displayed range.

Attributes:

ExternalSourceIndex: An identifier that the protocol server uses to identify a connected data. MUST be 0 if **LocalSource** attribute is **true**.

AdvancedFilters: MUST be ignored on receipt by the protocol client.

LocalSource: Specifies whether the PivotTable is a **native PivotTable**. MUST be **true** if the PivotTable is a native PivotTable.

Name: The identifier of a PivotTable.

DataConnectionName: An identifier that the protocol server uses to identify the data connection.

ShowDrillIndicators: Specifies whether the PivotTable allows displaying drill indicators. MUST be false if the PivotTable does not allow displaying **drill indicators**.

RequiresConnection: Specifies whether the PivotTable requires an external data connection to update the contents of the PivotTable. MUST be **true** if the PivotTable requires an external data connection to update the contents of the PivotTable.

FieldListVersion: A unique identifier for the state of the PivotTable fields on the protocol server.

FieldWellVersion: A unique identifier for the state of the PivotTable on the protocol server.

IsActionable: Specifies whether the PivotTable supports interactivity. MUST be **true** if the PivotTable supports interactivity.

IsOlap: Specifies whether the PivotTable represents **OLAP** data. MUST be **true** if the PivotTable represents OLAP data.

SupportsBIExplore: Specifies whether the PivotTable supports **data exploration**. MUST be **true** if the PivotTable supports data exploration.

HideGridLines: Specifies whether the gridlines inside a pivot table are hidden. MUST be **true** if the gridlines inside a pivot table are hidden. Otherwise MUST be false.

RowTotalIndexes: Specifies which rows of a pivot table range contain values that are totals. Each bit represents a row in the range being rendered (bit 1 = row 1). If the bit has a value of 1, that row contains totals.

ColumnTotalIndexes: Specifies which columns of a pivot table range contain values that are totals. Each bit represents a column in the range being rendered (bit 1 = column 1). If the bit has a value of 1, that column contains totals.

RowMemberPropIndexes: Specifies which rows of a pivot table range contain member properties. Each bit represents a row in the range being rendered (bit 1 = row 1). If the bit has a value of 1, that row contains member properties.

ColumnMemberPropIndexes: Specifies which columns of a pivot table contain member properties. Each bit represents a column in the range being rendered (bit 1 = column 1). If the bit has a value of 1, that column contains member properties.

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

```
<xs:complexType name="CT_PivotTable">
  <xs:sequence>
    <xs:element name="Ranges" minOccurs="1" maxOccurs="1" type="CT_Ranges"/>
    <xs:element name="DataFields" minOccurs="0" maxOccurs="1" type="CT_DataFields"/>
    <xs:element name="RowHeaderRange" minOccurs="0" maxOccurs="1" type="CT_range"/>
    <xs:element name="ColumnHeaderRange" minOccurs="0" maxOccurs="1" type="CT_range"/>
    <xs:element name="RowAreaCaptions" minOccurs="0" maxOccurs="1" type="CT_CellValues"/>
  </xs:sequence>
  <xs:attribute name="ExternalSourceIndex" type="ST_nonNegativeInteger" default="0"
use="optional"/>
  <xs:attribute name="AdvancedFilters" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="LocalSource" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="Name" type="ST_nonEmptyString"/>
  <xs:attribute name="DataConnectionName" type="ST_nonEmptyString"/>
  <xs:attribute name="ShowDrillIndicators" type="xs:boolean" default="true" use="optional"/>
  <xs:attribute name="RequiresConnection" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="FieldListVersion" type="xs:int"/>
  <xs:attribute name="FieldWellVersion" type="xs:int"/>
  <xs:attribute name="IsActionable" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="IsOlap" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="SupportsBIExplore" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="HideGridLines" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="RowTotalIndexes" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="ColumnTotalIndexes" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="RowMemberPropIndexes" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="ColumnMemberPropIndexes" type="xs:int" default="0" use="optional"/>
</xs:complexType>
```

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

2.3.28 CT_PivotTables

Referenced by: CT_Worksheet

An unordered list of PivotTables.

Child Elements:

PivotTable: A PivotTable where the range of the PivotTable intersects with the returned range.

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

```
<xs:complexType name="CT_PivotTables">
  <xs:sequence>
    <xs:element name="PivotTable" minOccurs="1" maxOccurs="unbounded" type="CT_PivotTable"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.29 CT_Location

Referenced by: CT_Hyperlink

A named object or range specifying the target location of a CT_Hyperlink element.

Attributes:

top: The first row to which the location information applies.

left: The first column (2) to which the location information applies.

bottom: The last row (2) to which the location information applies.

right: The last column (2) to which the location information applies.

SheetName: The name of the sheet on which the location resides.

Display: Specifies the **reference** to the target location. MUST be present if the **location** element does NOT refer to a named object.

Type: The type of named object to which the location information applies. This attribute (2) MUST be present if the location element refers to a named object and MUST NOT be present otherwise.

ObjectName: The named object to which this location element refers. This attribute (2) MUST be present if this location element refers to a named object and MUST NOT be present otherwise.

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

```
<xs:complexType name="CT_Location">
  <xs:attribute name="top" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="left" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="bottom" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="right" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
  <xs:attribute name="Display" type="ST_nonEmptyString" use="optional"/>
  <xs:attribute name="Type" type="ST_enmNamedObjectType" use="optional"
default="InvalidNamedObjectType"/>
  <xs:attribute name="ObjectName" type="ST_ObjectName" use="optional"/>
</xs:complexType>
```

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

2.3.30 CT_Hyperlink

Referenced by: CT_Hyperlinks

A reference to a named object or range within the current workbook, or to an external resource.

Child Elements:

Target: An external resource. The element MAY<1> be a valid [RFC1738] **URL**.

Location: A named object or range that MUST exist within the current workbook and MUST be present when the **Target** element is omitted.

Tooltip: Descriptive text for the hyperlink. This element MUST be omitted when descriptive text is not present; in which case the value of **Target** or **Location** element specifies the **hyperlink**.

Attributes:

top: The first row (2) of the range to which the hyperlink information applies.

left: The first column (2) of the range to which the hyperlink information applies.

bottom: The last row (2) of the range to which the hyperlink information applies.

right: The last column (2) of the range to which the hyperlink information applies.

IsHyperlinkFormula: Indicates whether the hyperlink was created from a HYPERLINK formula.

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

```
<xs:complexType name="CT_Hyperlink">
  <xs:sequence>
    <xs:choice>
      <xs:element name="Target" type="ST_nonEmptyString"/>
      <xs:element name="Location" type="CT_Location"/>
    </xs:choice>
    <xs:element name="Tooltip" type="xs:string" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
  <xs:attribute name="top" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="left" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="bottom" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="right" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="IsHyperlinkFormula" type="xs:boolean" use="required"/>
</xs:complexType>
```

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

2.3.31 CT_Hyperlinks

Referenced by: CT_Worksheet

Unordered collection of CT_Hyperlink elements that intersect the result range.

Child Elements:

Hyperlink: A CT_Hyperlink for each unique hyperlink that intersects the returned range defined in the CT_Table element. Worksheet cells which contain hyperlinks and intersect a PivotTable, or reference workbooks other than the current workbook MUST be omitted.

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

```
<xs:complexType name="CT_Hyperlinks">
  <xs:sequence>
    <xs:element name="Hyperlink" minOccurs="0" maxOccurs="unbounded" type="CT_Hyperlink"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.32 CT_ChartMetaData

Referenced by: CT_Image

Additional data pertaining to **worksheet images** that have Type chart.

Attributes:

ChartCategory: Specifies the category of the chart.

IsStackedType: Specifies whether the chart is a stacked type.

Is100PercentStackedType: Specifies whether the chart is a 100% stacked type of chart.

HasSimpleDataRange: Specifies whether the chart data table corresponds to a rectangular range of cells in the worksheet.

DataRangeForDisplay: Text representing the chart data table.

IsPivotChart: Specifies whether the chart data table overlaps a PivotTable.

RequiresConnection: Specifies whether the PivotTable, which overlaps the chart data table, requires an external data connection (2) to update the contents of that PivotTable. MUST be **true** if the PivotTable requires an external data connection (2) to update the contents of the PivotTable.

ExternalSourceIndex: An identifier that the protocol server uses to identify the data connection (2) used to update the contents of the PivotTable which overlaps the chart data table.

FieldListVersion: A unique identifier for the state of the fields of the PivotTable, which overlaps the chart data table, on the protocol server.

FieldWellVersion: A unique identifier for the state of the PivotTable, which overlaps the chart data table, on the protocol server.

DataSourceEmpty: Specifies whether the chart data table has no cells in it.

HasNoVisibleSeries: Specifies whether the chart data table contains no visible series.

IsActionable: Specifies whether the chart contains interactive elements. MUST be **true** if the chart contains interactive elements.

IsOlap: Specifies whether the chart represents OLAP data. MUST be **true** if the chart represents OLAP data.

SupportsBIExplore: Specifies whether the chart supports data exploration. MUST be **true** if the chart support data exploration.

DataConnectionName: Specifies the connection name of the data connection (2) used to update the contents of the PivotTable which overlaps the chart data table.

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

```
<xs:complexType name="CT_ChartMetaData">
  <xs:sequence/>
  <xs:attribute name="ChartCategory" type="ST_enmChartCategory" use="required"/>
  <xs:attribute name="IsStackedType" type="xs:boolean" use="required"/>
  <xs:attribute name="Is100PercentStackedType" type="xs:boolean" use="required"/>
  <xs:attribute name="HasSimpleDataRange" type="xs:boolean" use="optional"/>
  <xs:attribute name="DataRangeForDisplay" type="xs:string" use="optional"/>
  <xs:attribute name="IsPivotChart" type="xs:boolean" use="optional"/>
  <xs:attribute name="RequiresConnection" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="ExternalSourceIndex" type="ST nonNegativeInteger" default="0"
use="optional"/>
  <xs:attribute name="FieldListVersion" type="xs:int" use="optional"/>
  <xs:attribute name="FieldWellVersion" type="xs:int" use="optional"/>
  <xs:attribute name="DataSourceEmpty" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="HasNoVisibleSeries" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="IsActionable" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="IsOlap" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="SupportsBIExplore" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="DataConnectionName" type="xs:string" use="optional"/>
</xs:complexType>
```

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

2.3.33 CT_Image

Referenced by: CT_Images

A worksheet image.

Child Elements:

ChartMetaData: A CT_ChartMetaData element that specifies information about the chart.

This element MUST be present when the **Type** is chart and MUST NOT be present otherwise.

Attributes:

Id: An identifier for the worksheet image. MUST be unique across all the worksheet images of the workbook.

ImageName: The name of the worksheet image.

Type: The type of worksheet image.

Version: A unique identifier for the state of the image on the protocol server.

Width: The width of the image in points.

Height: The height of the image in points.

BorderID: A CT_Style describing any borders applied to the worksheet image. If the **NamedRange** attribute (2) on the CT_Worksheet element is true or if the **ChartSheet** attribute (2) on the CT_Worksheet element is true, this attribute (2) MUST NOT be present.

ZOrder: The **z-order** for the worksheet image.

XOriginDelta: The X coordinate in points of the offset of the origin of the worksheet image from the starting column (2) of the requested range.

YOriginDelta: The Y coordinate in points of the offset of the origin of the worksheet image from the starting row of the requested range.

AbsoluteLeft: The X coordinate in points of the offset of the origin of the worksheet image from the origin of the worksheet.

AbsoluteTop: The Y coordinate in points of the offset of the origin of the worksheet image from the origin of the worksheet.

AbsoluteRight: The X coordinate in points of the offset of the rightmost edge of the worksheet image from the origin of the worksheet. In a worksheet with right-to-left reading order, this corresponds to the leftmost edge of the worksheet image.

AbsoluteBottom: The Y coordinate in points of the offset of the bottom of the worksheet image from the origin of the worksheet.

ClippedWidth: The width in points of the portion of the image that intersects the requested range.

ClippedHeight: The height in points of the portion of the image that intersects the requested range.

Visible: Specifies whether the worksheet image is a visible worksheet image.

AltText: An alternative text used by the protocol server to provide an error message when the worksheet image is not supported.

LockAspectRatio: Specifies whether the worksheet image ought to maintain the aspect ratio when resized.

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

```
<xs:complexType name="CT_Image">
  <xs:sequence>
    <xs:element name="ChartMetaData" minOccurs="0" maxOccurs="1" type="CT_ChartMetaData"/>
  </xs:sequence>
  <xs:attribute name="Id" type="ST_nonEmptyString" use="required"/>
  <xs:attribute name="ImageName" type="xs:string" use="required"/>
  <xs:attribute name="Type" type="ST_enmImageType" use="optional" default="chart"/>
  <xs:attribute name="Version" type="xs:int" use="required"/>
  <xs:attribute name="Width" type="ST_nonNegativeDouble" use="required"/>
  <xs:attribute name="Height" type="ST_nonNegativeDouble" use="required"/>
  <xs:attribute name="BorderID" type="ST_borderStyleID" use="optional"/>
  <xs:attribute name="ZOrder" type="xs:int" use="required"/>
  <xs:attribute name="XOriginDelta" type="xs:double" default="0" use="optional"/>
  <xs:attribute name="YOriginDelta" type="xs:double" default="0" use="optional"/>
  <xs:attribute name="AbsoluteLeft" type="xs:double" use="required"/>
  <xs:attribute name="AbsoluteTop" type="xs:double" use="required"/>
  <xs:attribute name="AbsoluteRight" type="xs:double" use="required"/>
  <xs:attribute name="AbsoluteBottom" type="xs:double" use="required"/>
  <xs:attribute name="ClippedWidth" type="ST_nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="ClippedHeight" type="ST_nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="Visible" type="xs:boolean" default="true" use="optional"/>
  <xs:attribute name="AltText" type="xs:string" use="optional"/>
  <xs:attribute name="LockAspectRatio" type="xs:boolean" default="false" use="optional"/>
</xs:complexType>
```

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

2.3.34 CT_Images

Referenced by: CT_Worksheet

A list of worksheet images.

Child Elements:

Image: A worksheet image.

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

```
<xs:complexType name="CT_Images">
  <xs:sequence>
    <xs:element name="Image" minOccurs="1" maxOccurs="unbounded" type="CT_Image"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.35 CT_Table

Referenced by: CT_Worksheet

A range represented in tabular format. This element contains information about the following range:

- If the **NamedRange** attribute (2) on the parent CT_Worksheet element is false, the range represented is the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client.
- If the **NamedRange** attribute (2) on the parent CT_Worksheet element is true, the range represented is the intersection of the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter and the range defined on the named object.

Child Elements:

Column: This element represents one or more columns (2) in the range represented by the CT_Table element. There MUST be one element for every column (2) or collection of contiguous columns (2) that have identical hidden status, **outline level** and width. The entries for this element MUST be ordered according to the column indices.

Row: This element represents one or more rows in the range represented by the CT_Table element. There MUST be one element for every row or collection of contiguous hidden rows. The entries for this element MUST be ordered according to the row (2) indices.

Attributes:

LastNonEmptyRow: The value of this attribute (2) MUST be the greater of the following two values:
- The last visible row in the worksheet or the named object containing a worksheet cell that has data or formatting.

- The last visible row in the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client.

LastNonEmptyColumn: The value of this attribute (2) MUST be the greater of the following two values:
- The last visible column (2) in the worksheet or the named object containing a worksheet cell that has data or formatting.

- The last visible column (2) in the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client.

CurrentFirstRow: The value of this attribute (2) MUST be one of the following values:

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is false, this attribute (2) represents the index of the first visible row in the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client.

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is true, this attribute (2) represents the index of the first visible row in the intersection of the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client and the range defined on the named object.

FirstVisibleRow: The value of this attribute (2) MUST be one of the following values:
- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is false, this attribute (2) represents the index of the first visible row in the worksheet.
- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is true, this attribute (2) represents the index of the first visible row in the range defined on the named object.

CurrentFirstRowVisibleOffset: The number of visible rows between the first row in the worksheet and **CurrentFirstRow**, including the first row in the worksheet if it is visible but not including **CurrentFirstRow**.

LastVisibleRow: The value of this attribute (2) MUST be one of the following values:

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is false, this attribute (2) represents the index of the last visible row in the worksheet.
- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is true, this attribute (2) represents the index of the last visible row in the range defined on the named object.

CurrentFirstColumn: The value of this attribute (2) MUST be one of the following values:
- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is false, this attribute (2) represents the index of the first visible column (2) in the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client.
- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is true, this attribute (2) represents the index of the first visible column (2) in the intersection of the range specified in [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client and the range defined on the named object.

FirstVisibleColumn: The value of this attribute (2) MUST be one of the following values:

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is **false**, this attribute (2) represents the index of the first visible column (2) in the worksheet.

- If the **NamedRang**e attribute (2) in the parent CT_Worksheet element is **true**, this attribute (2) represents the index of the first visible column (2) in the range defined on the named object.

CurrentFirstColumnVisibleOffset: The number of visible columns (2) between the first column in the worksheet and **CurrentFirstColumn**, including the first column (2) in the worksheet if it is visible but not including **CurrentFirstColumn**.

LastVisibleColumn: The value of this attribute (2) MUST be one of the following values:

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is **false**, this attribute (2) represents the index of the last visible column (2) in the worksheet.

- If the **NamedRange** attribute (2) in the parent CT_Worksheet element is **true**, this attribute (2) represents the index of the last visible column (2) in the range defined on the named object.

DefaultRowHeight: The default height of a row in points.

DefaultColumnWidth: The default width of a column (2), in points.

DefaultIndentWidth: The default **vertical indent** or **horizontal indent** used for rendering cell contents for worksheet cells with vertical text or **horizontal text** respectively, in points.

SelectionTop: The index of the row that has the **active cell**. This attribute (2) MUST have a value other than 0 if all the following conditions are true:
- The **NamedRange** attribute (2) in CT_Worksheet is **false**.
- The worksheet has an active cell.

- There are one or more visible rows (2) in the worksheet.

- There are one or more visible columns (2) in the worksheet.

- The row index of the active cell is greater than or equal to the value of the **FirstVisibleRow** attribute (2).

- The row index of the active cell is less than or equal to the value of the **LastVisibleRow** attribute (2).

- The column index of the active cell is greater than or equal to the value of the **FirstVisibleColumn** attribute (2).

- The column index of the active cell is less than or equal to the value of the **LastVisibleColumn** attribute (2).

It MUST NOT be present or have a value of 0 otherwise.

SelectionLeft: The index of the column (2) which has the active cell. This attribute (2) MUST have a value other than 0 if all the following conditions are **true**:
- The **NamedRange** attribute (2) in CT_Worksheet is **false**.
- The worksheet has an active cell.

- There are one or more visible rows (2) in the worksheet.

- There are one or more visible columns (2) in the worksheet.

- The row index of the active cell is greater than or equal to the value of the **FirstVisibleRow** attribute (2).

- The row index of the active cell is less than or equal to the value of the **LastVisibleRow** attribute (2).

- The column index of the active cell is greater than or equal to the value of the **FirstVisibleColumn** attribute (2).

- The column index of the active cell is less than or equal to the value of the **LastVisibleColumn** attribute (2).

It MUST NOT be present or have a value of 0 otherwise.

summaryRight: Specifies whether the **summary** of a set of grouped columns (2) is displayed to the right of the grouped data. When this attribute (2) is set to true, it denotes that the summary of a set of grouped columns (2) is displayed to the right of grouped data. This attribute (2) MUST be present and set to false if outlines are visible on the worksheet and the summary of grouped columns (2) in the worksheet is displayed to the left of the grouped columns (2).

summaryBelow: Specifies whether the summary of a set of grouped rows (2) is displayed below the grouped data. When this attribute (2) is set to true, it denotes that the summary of a set of grouped rows (2) is displayed below the grouped data. This attribute (2) MUST be present and set to false if outlines are visible on the worksheet and the summary of grouped rows (2) in the worksheet is displayed above the grouped rows (2).

outlineLevelCol: The maximum number of outline levels of outlining in a set of grouped columns (2) within the range represented by the **Table** element. This attribute (2) MUST be present if outlines are visible on the worksheet and there are one or more grouped columns (2) in the range represented by the CT_Table element.

outlineLevelRow: The maximum number of outline levels of outlining in a set of grouped rows within the range represented by the **Table** element. This attribute (2) MUST be present if outlines are visible on the worksheet and there are one or more grouped rows in the range represented by the CT_Table element.

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

```
<xs:complexType name="CT_Table">
  <xs:sequence>
    <xs:element name="Column" minOccurs="0" maxOccurs="16384" type="CT_ColumnAxisItem"/>
    <xs:element name="Row" minOccurs="0" maxOccurs="1048576" type="CT_RowAxisItem"/>
  </xs:sequence>
```

```
            <xs:attribute name="LastNonEmptyRow" type="ST_excelRowNumber1Based" use="required"/>
            <xs:attribute name="LastNonEmptyColumn" type="ST_excelColNumber1Based" use="required"/>
            <xs:attribute name="CurrentFirstRow" type="ST_excelRowNumber1Based" use="required"/>
            <xs:attribute name="FirstVisibleRow" type="ST_excelRowNumber1Based" use="required"/>
            <xs:attribute name="CurrentFirstRowVisibleOffset" type="ST_excelRowNumber" default="0"
        use="optional"/>
            <xs:attribute name="LastVisibleRow" type="ST_excelRowNumber1Based" default="1048576"
        use="optional"/>
            <xs:attribute name="CurrentFirstColumn" type="ST_excelColNumber1Based" use="required"/>
            <xs:attribute name="FirstVisibleColumn" type="ST_excelColNumber1Based" use="required"/>
            <xs:attribute name="CurrentFirstColumnVisibleOffset" type="ST excelColNumber" default="0"
        use="optional"/>
            <xs:attribute name="LastVisibleColumn" type="ST_excelColNumber1Based" default="16384"
        use="optional"/>
            <xs:attribute name="DefaultRowHeight" default="12.75" use="optional"
        type="ST_DefaultRowHeight"/>
            <xs:attribute name="DefaultColumnWidth" default="48" use="optional"
        type="ST_DefaultColumnWidth"/>
            <xs:attribute name="DefaultIndentWidth" type="xs:double" default="9" use="optional"/>
            <xs:attribute name="SelectionTop" default="0" use="optional" type="ST_SelectionTop"/>
            <xs:attribute name="SelectionLeft" default="0" use="optional" type="ST_SelectionLeft"/>
            <xs:attribute name="summaryRight" type="xs:boolean" default="true" use="optional"/>
            <xs:attribute name="summaryBelow" type="xs:boolean" default="true" use="optional"/>
            <xs:attribute name="outlineLevelCol" type="ST_excelOutlineLevels" use="optional"
        default="0"/>
            <xs:attribute name="outlineLevelRow" type="ST_excelOutlineLevels" use="optional"
        default="0"/>
        </xs:complexType>
```

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

2.3.36 CT_Slicer

Referenced by: CT_Slicers

A workbook slicer.

Attributes:

Name: The name of the slicer.

Caption: The caption of the slicer.

SlicerCacheId: An identifier that the protocol server uses in combination with **SlicerViewId** to identify a slicer. The combination of the **SlicerCacheId** and **SlicerViewId** attributes MUST be unique in the workbook.

SlicerViewId: An identifier that the protocol server uses in combination with **SlicerCacheId** to identify a slicer. The combination of the **SlicerCacheId** and **SlicerViewId** attributes MUST be unique in the workbook.

ExternalSourceIndex: An identifier that the protocol server uses to identify connected data.

Version: A unique identifier for the state of the slicer on the protocol server.

Width: The width of the slicer in points.

Height: The height of the slicer in points.

ZOrder: The z-order for the slicer.

XOriginDelta: The x-coordinate, in points, of the offset of the origin of the slicer from the starting column (2) of the requested range. If the x-coordinate of the origin of the slicer is less than the x-coordinate of the requested range, this value MUST be negative.

YOriginDelta: The y-coordinate, in points, of the offset of the origin of the slicer from the starting row of the requested range. If the y-coordinate of the origin of the slicer is less than the y-coordinate of the requested range, this value MUST be negative.

ClippedWidth: The width, in points, of the portion of the slicer that intersects with the requested range.

ClippedHeight: The height, in points, of the portion of the slicer that intersects the requested range.

Visible: Specifies whether the slicer is visible. The value MUST be **true** if the slicer is visible and **false** if it is not visible.

HasConnection: Specifies whether the slicer has an active connection to a PivotTable. This attribute MUST be present and set to **true** if one of the following conditions is met:

- The slicer is connected to a native PivotTable.

- The slicer is connected to an external data source and the connection is active.

Otherwise, this attribute MUST NOT be present.

IsTimeline: Specifies whether the slicer is time slicer. This attribute Must be present and set to **true** if the slicer is time slicer. Otherwise, this attribute MUST NOT be present.

SlicerCaptionHeight: The height, in points, of the caption of the slicer.

SlicerFullHeight: The height, in points, of the slicer when all the items in the slicer are visible.

ItemCount: Total number of items in the slicer. MUST be non-negative.

CanExpand: Specifies whether slicer can be expanded when in **named object view** mode. MUST be true if **ItemCount** is greater than zero and the slicer has filtering applied. Otherwise MUST be false.

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

```
<xs:complexType name="CT_Slicer">
  <xs:sequence/>
  <xs:attribute name="Name" type="ST_nonEmptyString" use="required"/>
  <xs:attribute name="Caption" type="xs:string" use="required"/>
  <xs:attribute name="SlicerCacheId" type="xs:int" use="required"/>
  <xs:attribute name="SlicerViewId" type="xs:int" use="required"/>
  <xs:attribute name="ExternalSourceIndex" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="Version" type="xs:int" use="required"/>
  <xs:attribute name="Width" type="ST_nonNegativeDouble" use="required"/>
  <xs:attribute name="Height" type="ST nonNegativeDouble" use="required"/>
  <xs:attribute name="ZOrder" type="xs:int" use="required"/>
  <xs:attribute name="XOriginDelta" type="xs:double" default="0" use="optional"/>
  <xs:attribute name="YOriginDelta" type="xs:double" default="0" use="optional"/>
  <xs:attribute name="ClippedWidth" type="ST nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="ClippedHeight" type="ST_nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="Visible" type="xs:boolean" default="true" use="optional"/>
  <xs:attribute name="HasConnection" type="xs:boolean" default="true" use="optional"/>
  <xs:attribute name="IsTimeline" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="SlicerCaptionHeight" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="SlicerFullHeight" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="ItemCount" type="xs:int" default="0" use="optional"/>
  <xs:attribute name="CanExpand" type="xs:boolean" default="false" use="optional"/>
</xs:complexType>
```

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

2.3.37 CT_Slicers

Referenced by: CT_Worksheet

An unordered list of slicers.

Child Elements:

Slicer: Specifies a slicer.

The slicers included in the unordered list are determined by the **ReturnAllRelatedSlicers** and **ObjectName** elements in the [MS-EXSPWS3] CommandParameter *VisibleSheetRangeRequest* parameter sent by the protocol client. The rules for including slicers in the unordered list are listed in the definition for the [MS-EXSPWS3] VisibleSheetRange **ReturnAllRelatedSlicers** element. The following W3C XML Schema ([XMLSCHEMA1] section 2.1) fragment specifies the contents of this complex type.

```
<xs:complexType name="CT_Slicers">
  <xs:sequence>
    <xs:element name="Slicer" minOccurs="0" maxOccurs="unbounded" type="CT_Slicer"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.38 CT_Worksheet

Referenced by: CT_Workbook

A sheet or a named object in the workbook.

Child Elements:

WorksheetOptions: A collection of settings and options for the sheet (1).

This element MUST be present if any one of the following conditions is **true**:
- The **NamedRange** attribute is **false**.
- The **NamedRange** attribute is **true**, and the **ChartSheet** attribute is **false**.
- The **NamedRange** attribute is **true**, the **ChartSheet** attribute is **true**, and the sheet is displayed right-to-left.

It MUST NOT be present otherwise.

InteractiveReport: A **CT_InteractiveReport** element (section 2.3.59) that specifies information about an interactive report.

autofilters: A list of AutoFilters.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** attribute is **false**, it MUST be present if any one of the following conditions is **true**:
- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and one or more AutoFilters are present in the range defined in the **CT_Table** element (section 2.3.35).
- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter

sent by the protocol client is empty, one or more AutoFilters are present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

- The worksheet represented by this element is the **active sheet** in the workbook, and the worksheet is a visible **published sheet**.

- The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and one or more AutoFilters are present in the range defined in the **CT_Table** element (section 2.3.35).

  It MUST NOT be present otherwise.

PivotTables: A list of PivotTables.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** attribute is **false**, it MUST be present if any one of the following conditions is **true**:

- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and one or more **PivotTable** elements are present in the range defined in the **CT_Table** element (section 2.3.35).

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, one or more **PivotTable** elements are present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.

  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and one or more **PivotTable** elements is present in the range defined in the **CT_Table** element (section 2.3.35).

  It MUST NOT be present otherwise.

Slicers: A list of slicers.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** element is **false**, it MUST be present if any one of the following conditions is **true**:
- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and one or more slicers are present in the range defined in the **CT_Table** element (section 2.3.35).

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, one or more slicers are present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.

  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and one or more slicers are present in the range defined in the CT_Table element.

It MUST NOT be present otherwise.

Hyperlinks: A list of hyperlinks.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** attribute is **false**, it MUST be present if any one of the following conditions is **true**:

- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and there are one or more hyperlinks present in the range defined in the **CT_Table** element (section 2.3.35).

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, there are one or more hyperlinks present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.
  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and there are one or more hyperlinks present in the range defined in the **CT_Table** element (section 2.3.35).

It MUST NOT be present otherwise.
Comments: A list of cell **comments**.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** attribute is **false**, it MUST be present if any one of the following conditions is **true**:

- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and there are one or more cell comments present in the range defined in the **CT_Table** element (section 2.3.35).

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, there are one or more cell comments present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.
  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and there are one or more cell comments present in the range defined in the **CT_Table** element (section 2.3.35).

It MUST NOT be present otherwise.
Images: A list of worksheet images.

This element MUST be present if any one of the following conditions is **true**:

- The **ChartSheet** attribute is **true**, and the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client.

- The **ChartSheet** attribute is **true**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, and one of the following conditions is met:
  - The **chart sheet** represented by this element is the active sheet in the workbook, and the chart sheet is a visible published sheet.
  - The active sheet in the workbook is not visible or not published, and the chart sheet represented by this element is the first visible published sheet in the workbook.
- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and one or more worksheet images are present in the range defined in the **CT_Table** element (section 2.3.35).
- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, one or more worksheet images are present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:
  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.
  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.
- The **NamedRange** attribute is **true**, and one or more worksheet images are present in the range specified in the **CT_Table** element (section 2.3.35).

It MUST NOT be present otherwise.

WebExtensions: A **CT_WebExtensions** element (section 2.3.55) that specifies a list of **Office Web Extensions** present in the range.

This element MUST be present if any one of the following conditions is **true**:
- The **NamedRange** attribute is **false**, the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client, and one or more Office Web Extensions are present in the range defined in the **CT_Table** element (section 2.3.35).

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, one or more Office Web Extensions are present in the range defined in the **CT_Table** element (section 2.3.35), and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.

  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.

- The **NamedRange** attribute is **true**, and one or more Office Web Extensions are present in the range defined in the **CT_Table** element (section 2.3.35).

It MUST NOT be present otherwise.

Table: This element contains information about a range, represented in tabular format.

This element MUST NOT be present if the **ChartSheet** attribute is **true**. If the **ChartSheet** element is **false**, it MUST be present if any one of the following conditions is **true**:
- The **NamedRange** attribute is **false**, and the **Name** attribute is equal to the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client.

- The **NamedRange** attribute is **false**, the **SheetName** element specified in the **CommandParameter** ([MS-EXSPWS3] section 2.2.4.20) *VisibleSheetRangeRequest* parameter sent by the protocol client is empty, and one of the following conditions is met:

  - The worksheet represented by this element is the active sheet in the workbook, and the worksheet is a visible published sheet.
  - The active sheet in the workbook is not visible or not published, and the worksheet represented by this element is the first visible published sheet in the workbook.
- The **NamedRange** attribute is **true**.

It MUST NOT be present otherwise.

Attributes:

ActiveSheet: Specifies whether the **Worksheet** element is the active sheet. This attribute MUST be **true** if this **Worksheet** is the active sheet and MUST NOT be present otherwise. There MUST be only one **Worksheet** element in the workbook in which this attribute is set to **true**, across the list of worksheets.

ChartSheet: Specifies whether the **Worksheet** element is a chart sheet or a named object of type chart. This attribute MUST be set to **true** if the **Worksheet** element represents a chart sheet. If it represents a named object of type chart, this attribute (2) MUST NOT be present.

InteractiveReportSheet: Indicates whether the **Worksheet** element is an interactive report sheet. MUST be **true** if the **Worksheet** element is an interactive report sheet. Otherwise, it MUST be **false**.

ContainsOlapSlicer: Specifies whether the worksheet contains any slicer based on OLAP data.

Name: The name of the sheet or the named object represented by the **Worksheet** element. The type of this attribute MUST be **ST_SheetName** (section 2.4.24) if the **NamedRange** attribute is **false**; it MUST be **ST_ObjectName** (section 2.4.23) if the **NamedRange** attribute is **true**. This attribute (2) MUST be unique across the list of worksheets in the workbook.

NameRTL: Specifies whether the sheet name is in right-to-left format. This attribute MUST be set to **true** when the sheet name is in right-to-left format. This attribute MUST NOT be present if the sheet name is not in right-to-left format.

NamedRange: Specifies whether the **Worksheet** element represents a named object. This attribute MUST be set to **true** if the **Worksheet** element represents a named object. This attribute MUST NOT be present if the **Worksheet** element does not represent a named object.

SheetName: The name of the sheet on which the named object resides, if the **Worksheet** element is a named object. This attribute MUST be present if the **NamedRange** attribute is **true**; otherwise, this attribute (2) MUST NOT be present.

Visible: Specifies whether the worksheet is visible.

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

```
<xs:complexType name="CT_Worksheet">
  <xs:sequence>
    <xs:element name="WorksheetOptions" minOccurs="0" maxOccurs="1"
type="CT_WorksheetOptions"/>
    <xs:element name="InteractiveReport" minOccurs="0" maxOccurs="1"
type="CT_InteractiveReport"/>
    <xs:element name="autofilters" minOccurs="0" maxOccurs="1" type="CT_autofilters"/>
    <xs:element name="PivotTables" minOccurs="0" maxOccurs="1" type="CT_PivotTables"/>
    <xs:element name="Slicers" maxOccurs="1" minOccurs="0" type="CT_Slicers"/>
    <xs:element name="Hyperlinks" minOccurs="0" maxOccurs="1" type="CT_Hyperlinks"/>
    <xs:element name="Comments" minOccurs="0" maxOccurs="1" type="CT_Comments"/>
```

```
          <xs:element name="Images" maxOccurs="1" minOccurs="0" type="CT_Images"/>
          <xs:element name="WebExtensions" maxOccurs="1" minOccurs="0" type="CT_WebExtensions"/>
          <xs:element name="Table" minOccurs="0" maxOccurs="1" type="CT_Table"/>
        </xs:sequence>
        <xs:attribute name="ActiveSheet" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="ChartSheet" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="InteractiveReportSheet" type="xs:boolean" default="false"
    use="optional"/>
        <xs:attribute name="ContainsOlapSlicer" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="Name" type="ST_SheetOrObjectName" use="required"/>
        <xs:attribute name="NameRTL" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="NamedRange" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="SheetName" type="ST_SheetName" use="optional"/>
        <xs:attribute name="Visible" type="ST_enmWorksheetVisibilityState" default="Visible"
    use="optional"/>
      </xs:complexType>
```

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

2.3.39 CT_Data

Referenced by: CT_Cell

The data in the worksheet cell.

Attributes:

RTF: Specifies whether the data in the worksheet cell represented by the parent CT_Cell element has **rich text** formatting.

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

```
    <xs:complexType name="CT_Data">
      <xs:simpleContent>
        <xs:extension base="xs:string">
          <xs:attribute name="RTF" type="xs:boolean" default="false" use="optional"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
```

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

2.3.40 CT_Cell

Referenced by: CT_RowAxisItem

A worksheet cell that is not empty or that has a **border style** or cell style other than the default.

Child Elements:

Data: Information pertaining to the worksheet cell value. This element MUST be present if the worksheet cell is not empty.

Attributes:

BorderID: The border style associated with the worksheet cell.

Index: The index of the column (2) associated with the worksheet cell. This attribute MUST NOT be present for the first **CT_Cell** (section 2.3.40) in the **CT_RowAxisItem** (section 2.3.57) element,

otherwise this attribute MUST be present when one or more preceding **adjacent cell** **CT_Cell** elements are omitted. **CT_Cell** elements are omitted in the following situations:

- The worksheet cell is hidden.
- The worksheet cell is part of a **merged range** and is not the first worksheet cell in a given merged range.
- The worksheet cell is empty, the default **ST_cellStyleID** (section 2.4.26) is applied, the default **ST_borderStyleID** (section 2.4.27) is applied, and there are neither **filtering control** nor PivotTable drill indicators.

StyleID: The formatting style associated with the worksheet cell.

SpanType: Specifies the reason why the worksheet cell occupies more than one row or column (2). This attribute MUST NOT be present if the cell does not occupy more than one row or column (2).

SpillOrigin: The index of the column (2) associated with the first worksheet cell in a merged range. This attribute MUST be present when **SpanType** is "Spill" and MUST NOT be present otherwise.

DatabarLength: The percentage of the worksheet cell width used by the **data bar**. This attribute MUST be present when the worksheet cell contains a data bar and MUST NOT be present otherwise. If present, the value of this attribute MUST be positive when **DatabarAxisPosition** is not present.

If present, the value of this attribute (2) MUST be positive when any of the following conditions are met:

- **DatabarDirection** is "LeftToRight", and the data bar is to the right of the data bar axis.

- **DatabarDirection** is "Context", and the CT_WorksheetOptions **DisplayRightToLeft** attribute is false and the data bar is to the right of the data bar axis.

- **DatabarDirection** is "RightToLeft", and the data bar is to the left of the data bar axis.

- **DatabarDirection** is "Context", and the CT_WorksheetOptions **DisplayRightToLeft** attribute is true and the data bar is to the left of the data bar axis.

If **DatabarLength** is present and the aforementioned conditions are not met, the value of this attribute MUST be negative.

DatabarColor: The color of the data bar in the worksheet cell. This attribute MUST be present when **DatabarLength** is present and MUST NOT be present otherwise.

DatabarStyle: The type of fill color effect for the data bar in the worksheet cell. This attribute MUST be present when **DatabarLength** is present and MUST NOT be present otherwise.

DatabarBorderColor: The color of the data bar border. This attribute MUST be present when **DatabarLength** is present and there is a border on the data bar and MUST NOT be present otherwise.

DatabarDirection: The direction of the data bar in the worksheet cell. This attribute MUST be present when **DatabarLength** is present and MUST NOT be present otherwise.

DatabarAxisPosition: The percentage of the worksheet cell width where the data bar axis is located from the left edge of the worksheet cell. This attribute MUST be present when **DatabarLength** is present and there is a data bar axis and MUST NOT be present otherwise.

If **DatabarAxisPosition** is present, the position of the data bar within the worksheet cell MUST be to the right of the data bar axis when any of the following conditions are met:

- **DatabarDirection** is "LeftToRight", and the value of **DatabarLength** is positive.

- **DatabarDirection** is "RightToLeft", and the value of **DatabarLength** is negative.

- **DatabarDirection** is "Context", the CT_WorksheetOptions **DisplayRightToLeft** attribute is **false**, and the value of **DatabarLength** is positive.

- **DatabarDirection** is "Context", the CT_WorksheetOptions **DisplayRightToLeft** attribute is **true**, and the value of **DatabarLength** is negative.

If **DatabarAxisPosition** is present and the aforementioned conditions are not met, the position of the data bar within the worksheet cell MUST be to the left of the data bar axis.

DatabarAxisColor: The color of the data bar axis line. This attribute MUST be present when **DatabarLength** is present and there is a data bar axis and MUST NOT be present otherwise.

HasDropDown: Specifies whether a PivotTable filtering control is associated with the worksheet cell.

KpiSet: Mapping to a particular set of **key performance indicator (KPI)** to use for conditional formatting in the worksheet cell. If this attribute is present, it MUST have one of the values described in the following table.

Value	Meaning	KpiIcon range
-1	No key performance indicators.	N/A
0	Equivalent to the [MS-XLSX] ST_IconSetType **3Arrows** enumeration value.	0 to 2
1	Equivalent to the [MS-XLSX] ST_IconSetType **3ArrowsGray** enumeration value.	0 to 2
2	Equivalent to the [MS-XLSX] ST_IconSetType **3Flags** enumeration value.	0 to 2
3	Equivalent to the [MS-XLSX] ST_IconSetType **3TrafficLights1** enumeration value.	0 to 2
4	Equivalent to the [MS-XLSX] ST_IconSetType **3TrafficLights2** enumeration value.	0 to 2
5	Equivalent to the [MS-XLSX] ST_IconSetType **3Signs** enumeration value.	0 to 2
6	Equivalent to the [MS-XLSX] ST_IconSetType **3Symbols** enumeration value.	0 to 2
7	Equivalent to the [MS-XLSX] ST_IconSetType **3Symbols2** enumeration value.	0 to 2
8	Equivalent to the [MS-XLSX] ST_IconSetType **4Arrows** enumeration value.	0 to 3
9	Equivalent to the [MS-XLSX] ST_IconSetType **4ArrowsGray** enumeration value.	0 to 3
10	Equivalent to the [MS-XLSX] ST_IconSetType **4RedToBlack** enumeration value.	0 to 3
11	Equivalent to the [MS-XLSX] ST_IconSetType **4Rating** enumeration value.	0 to 3
12	Equivalent to the [MS-XLSX] ST_IconSetType **4TrafficLights** enumeration value.	0 to 3

Value	Meaning	KpiIcon range
13	Equivalent to the [MS-XLSX] ST_IconSetType **5Arrows** enumeration value.	0 to 4
14	Equivalent to the [MS-XLSX] ST_IconSetType **5ArrowsGray** enumeration value.	0 to 4
15	Equivalent to the [MS-XLSX] ST_IconSetType **5Ratings** enumeration value.	0 to 4
16	Equivalent to the [MS-XLSX] ST_IconSetType **5Quarters** enumeration value.	0 to 4
17	Equivalent to the [MS-XLSX] ST_IconSetType **3Stars** enumeration value.	0 to 2
18	Equivalent to the [MS-XLSX] ST_IconSetType **3Triangles** enumeration value.	0 to 2
19	Equivalent to the [MS-XLSX] ST_IconSetType **5Boxes** enumeration value.	0 to 4

KpiIcon: Mapping to an icon within the set of key performance indicator (KPI) icons specified by the **KpiSet** attribute. This attribute MUST be present when the **KpiSet** attribute is present and has a value other than -1 and MUST have a value within the range specified in the "KpiIcon Range" column (2) in the previous table for the row corresponding to the value of **KpiSet**. It MUST NOT be present otherwise.

KpiSize: The size of the KPI icon to use. This attribute MUST be present when the **KpiSet** attribute is present and has a value other than -1. It otherwise MUST be omitted.

MergeDown: The number of additional rows in the merged range excluding the current worksheet cell. This attribute MUST be present if any one of the following conditions is **true**:
- The CT_WorksheetOptions **DisplayRightToLeft** attribute is false and the worksheet cell is the upper-left visible worksheet cell in a merged range.
- The CT_WorksheetOptions **DisplayRightToLeft** attribute is true and the worksheet cell is the upper-right visible worksheet cell in a merged range.

It MUST NOT be present otherwise.

MergeAcross: The number of additional columns (2) in the merged range excluding the current worksheet cell. This attribute (2) MUST be present if any one of the following conditions is true:
- The CT_WorksheetOptions **DisplayRightToLeft** attribute is false and the worksheet cell is the upper-left visible worksheet cell in a merged range.
- The CT_WorksheetOptions **DisplayRightToLeft** attribute is true and the worksheet cell is the upper-right visible worksheet cell in a merged range.

It MUST NOT be present otherwise.

FirstRow: The first row of the merged range to which the worksheet cell belongs. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

FirstColumn: The first column (2) of the merged range to which the worksheet cell belongs. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

LastRow: The last row of the merged range to which the worksheet cell belongs. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

LastColumn: The last column (2) of the merged range to which the worksheet cell belongs. This attribute (2) MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

XOriginDelta: This attribute (2) MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise. If present, the value of this attribute (2) MUST be one of the following:

- If the CT_WorksheetOptions **DisplayRightToLeft** attribute is **false**, the X coordinate in points of the left edge of the first column (2) in the merged range relative to the left edge of the worksheet cell.

- If the CT_WorksheetOptions **DisplayRightToLeft** attribute is **true**, the X coordinate in points of the right edge of the worksheet cell relative to the right edge of the first column (2) in the merged range.

YOriginDelta: The Y coordinate in points of the top edge of the first row in the merged range relative to the top edge of the worksheet cell. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

Width: The total width in points of the merged range to which the worksheet cell belongs. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

Height: The total height in points of the merged range to which the worksheet cell belongs. This attribute MUST be present if the worksheet cell is part of a merged range and the merged range is not completely contained within the requested range, and MUST NOT be present otherwise.

OriginalText: The contents of a worksheet cell as it is displayed to the user. This attribute MUST be present when the worksheet cell has a tool tip, rich text formatting, or the worksheet cell value is clipped, and MUST NOT be present otherwise.

DropDownType: The filter applied to the filtering control. This attribute MUST NOT be present when the **HasDropDown** attribute is false or not present.

IsPivotPageField: Specifies whether the worksheet cell is a **PivotTable page field**. This attribute MUST be omitted if the **HasDropDown** attribute is **false**.

PageFieldID: The identifier for the PivotTable page field filter associated with the worksheet cell. This attribute MUST be omitted if the **IsPivotPageField** attribute is false.

Drillable: Specifies whether the worksheet cell is a **row field** or a **column field** in an OLAP PivotTable. This attribute MUST be present and set to true for all worksheet cells that are row fields or column fields in an OLAP PivotTable. It MUST NOT be present otherwise.

HasDrillIndicator: Specifies whether there is a PivotTable drill indicator present in the worksheet cell. This attribute MUST be present and set to **true** for all worksheet cells that are row fields or column fields in a PivotTable and have a drill indicator. It MUST NOT be present otherwise.

CompactAxis: Specifies whether the row field has a **compact axis**. This attribute MUST be present and set to **true** if the **HasDrillIndicator** attribute is **true** and the row field represented by the worksheet cell has a compact axis. It MUST NOT be present otherwise.

ExtraIndentSpace: Specifies whether the cell contents require additional indentation. This attribute MUST be present and set to true if any one of the following conditions is **true**:

- The **HasDrillIndicator** attribute is true and the **CompactAxis** attribute is not true.
- The worksheet cell represents a row (2) field in a PivotTable and the row (2) field has a compact axis and the row (2) field has child items.

It MUST NOT be present otherwise.

WideIndent: Specifies whether indentation for the cell contents is incremented during rendering. This attribute (2) MUST be present and set to true if the worksheet cell represents a row (2)field in a PivotTable and if the row (2) field has a compact axis and the indentation for row (2) captions is set to 1 character in the worksheet. It MUST NOT be present otherwise.

Expanded: Specifies whether the drill indicator is in an expanded or collapsed state when the worksheet cell has a PivotTable drill indicator. This attribute MUST be present and set to **true** if the **HasDrillIndicator** attribute is **true** and the PivotTable drill indicator in the worksheet cell is in an expanded state. It MUST NOT be present otherwise.

Horizontal: The type of horizontal alignment applied to the key performance indicator (KPI) icon in a worksheet cell with conditional formatting. This attribute MUST NOT be present if the **iconOnly** attribute is not **true**. If the **iconOnly** attribute is true, this attribute MUST be present if horizontal alignment is applied. It MUST NOT be present otherwise.

iconOnly: Specifies whether only the key performance indicator (KPI) icon is shown in the worksheet cell, without the data in the worksheet cell. This attribute (2) MUST be present and set to true if a key performance indicator (KPI) icon is present in the worksheet cell, without the data in the worksheet cell. It MUST NOT be present otherwise.

FormulaError: Specifies whether the worksheet cell contents contains an invalid formula. MUST be present and set to true if the cell contents contains an invalid formula. It MUST NOT be present otherwise.

HasPhonInfo: Specifies whether the worksheet cell contains **phonetic information**. MUST be present and set to true if the cell contents contains phonetic information. It MUST NOT be present otherwise.

FormulaBarText: The cell contents of a worksheet cell.

HasSparkline: Specifies whether there is a **sparkline** present in the worksheet cell. This attribute MUST be present and set to true for all worksheet cells that contain sparklines. It MUST NOT be present otherwise.

SparklineClusterOffsetTop: The Y coordinate in pixels of the offset of the origin of the sparkline for the worksheet cell relative to the top edge of the sparkline image. This attribute MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineClusterOffsetLeft: The X coordinate in pixels of the offset of the origin of the sparkline for the worksheet cell relative to the left edge of the sparkline image. This attribute MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineClusterFirstRow: The first row of the requested range. MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineClusterLastRow: The last row of the requested range. MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineClusterFirstColumn: The first column (2) of the requested range. MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineClusterLastColumn: The last column (2) of the requested range. MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

SparklineVersion: A unique identifier for the state of the sparkline on the protocol server. MUST be present if **HasSparkline** is present and MUST NOT be present otherwise.

IsTooLargeOrNegativeDate: Specifies whether the numerical data contained in the **cell value** is invalid for the **number format** of the cell, as determined by the protocol server. This attribute MUST be present and set to **true** if all of the following conditions are **true**:

- The cell value contains numerical data;

- The number format applied to the cell is either time-based or date-based;

- The numerical data of the cell value is invalid for the number format of the cell, as determined by the protocol server;

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

```
<xs:complexType name="CT Cell">
  <xs:sequence>
    <xs:element name="Data" minOccurs="0" maxOccurs="1" type="CT_Data"/>
  </xs:sequence>
  <xs:attribute name="BorderID" type="ST_borderStyleID" default="bD" use="optional"/>
  <xs:attribute name="Index" type="ST excelColNumber1Based" use="optional"/>
  <xs:attribute name="StyleID" type="ST_cellStyleID" default="sD" use="optional"/>
  <xs:attribute name="SpanType" type="ST_enmCellSpanType" use="optional" default="None"/>
  <xs:attribute name="SpillOrigin" type="ST_excelColNumber1Based" use="optional"/>
  <xs:attribute name="DatabarLength" type="ST_databarLengthPercentage" default="0"
use="optional"/>
  <xs:attribute name="DatabarColor" type="ST rgbTuple" use="optional"/>
  <xs:attribute name="DatabarStyle" type="ST_enmDatabarStyle" use="optional"
default="Gradient"/>
  <xs:attribute name="DatabarBorderColor" type="ST_rgbTuple" use="optional"/>
  <xs:attribute name="DatabarDirection" type="ST_enmReadOrder" use="optional"
default="Context"/>
  <xs:attribute name="DatabarAxisPosition" type="ST databarLengthPercentage" default="0"
use="optional"/>
  <xs:attribute name="DatabarAxisColor" type="ST_rgbTuple" use="optional"/>
  <xs:attribute name="HasDropDown" type="xs:boolean" use="optional"/>
  <xs:attribute name="KpiSet" use="optional" default="-1" type="ST_KpiSet"/>
  <xs:attribute name="KpiIcon" use="optional" type="ST_KpiIcon"/>
  <xs:attribute name="KpiSize" use="optional" type="ST KpiSize"/>
  <xs:attribute name="MergeDown" use="optional" type="ST_MergeDown"/>
  <xs:attribute name="MergeAcross" use="optional" type="ST_MergeAcross"/>
  <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="optional" default="0"/>
  <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="optional" default="0"/>
  <xs:attribute name="LastRow" type="ST excelRowNumber" use="optional" default="0"/>
  <xs:attribute name="LastColumn" type="ST_excelColNumber" use="optional" default="0"/>
  <xs:attribute name="XOriginDelta" type="ST nonPositiveDouble" default="0" use="optional"/>
  <xs:attribute name="YOriginDelta" type="ST_nonPositiveDouble" default="0" use="optional"/>
  <xs:attribute name="Width" type="ST_nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="Height" type="ST_nonNegativeDouble" default="0" use="optional"/>
  <xs:attribute name="OriginalText" use="optional" type="xs:string"/>
  <xs:attribute name="DropDownType" type="ST_enmFilterItemType" use="optional"
default="None"/>
  <xs:attribute name="IsPivotPageField" type="xs:boolean" use="optional"/>
  <xs:attribute name="PageFieldID" type="xs:string" use="optional"/>
  <xs:attribute name="Drillable" type="xs:boolean" use="optional"/>
  <xs:attribute name="HasDrillIndicator" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="CompactAxis" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="ExtraIndentSpace" type="xs:boolean" use="optional"/>
  <xs:attribute name="WideIndent" type="xs:boolean" use="optional"/>
  <xs:attribute name="Expanded" type="xs:boolean" use="optional"/>
  <xs:attribute name="Horizontal" type="ST_enmHorizontalAlignment" default="Automatic"
use="optional"/>
  <xs:attribute name="iconOnly" type="xs:boolean" use="optional"/>
  <xs:attribute name="FormulaError" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="HasPhonInfo" type="xs:boolean" default="false" use="optional"/>
```

```
        <xs:attribute name="FormulaBarText" type="xs:string" use="optional"/>
        <xs:attribute name="HasSparkline" type="xs:boolean" default="false" use="optional"/>
        <xs:attribute name="SparklineClusterOffsetTop" type="ST_nonNegativeInteger" default="0"
    use="optional"/>
        <xs:attribute name="SparklineClusterOffsetLeft" type="ST_nonNegativeInteger" use="optional"
    default="0"/>
        <xs:attribute name="SparklineClusterFirstRow" type="ST_excelRowNumber" use="optional"/>
        <xs:attribute name="SparklineClusterLastRow" type="ST_excelRowNumber" use="optional"/>
        <xs:attribute name="SparklineClusterFirstColumn" type="ST_excelColNumber" use="optional"/>
        <xs:attribute name="SparklineClusterLastColumn" type="ST_excelColNumber" use="optional"/>
        <xs:attribute name="SparklineVersion" type="xs:int" use="optional" default="0"/>
        <xs:attribute name="IsTooLargeOrNegativeDate" type="xs:boolean" default="false"
    use="optional"/>
    </xs:complexType>
```

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

2.3.41 CT_RowValues

Referenced by: CT_RangeValues

Collection of cell values that represent a contiguous range of columns within in a single row within a single sheet.

Child Elements:

Column: Specifies the value contained in the cell.

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

```
    <xs:complexType name="CT_RowValues">
      <xs:sequence>
        <xs:element name="Column" minOccurs="0" maxOccurs="unbounded" type="xs:string"/>
      </xs:sequence>
    </xs:complexType>
```

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

2.3.42 CT_RangeValues

Referenced by: CT_ServerEventDataEntered

Collection of rows that form a contiguous range within a single sheet. The location of the range is specified by the **SheetName**, **FirstColumn**, **FirstRow**, **LastColumn**, **LastRow** attributes as defined in CT_ServerEventDataEntered (section 2.3.44).

Child Elements:

Row: Collection of contiguous cells within a row.

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

```
    <xs:complexType name="CT_RangeValues">
      <xs:sequence>
        <xs:element name="Row" minOccurs="0" maxOccurs="unbounded" type="CT_RowValues"/>
      </xs:sequence>
    </xs:complexType>
```

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

2.3.43 CT_ServerEvent

Referenced by: CT_ServerEventDataEntered, CT_ServerEventOsfBinding, CT_ServerEventOsfSettingsChanged, CT_ServerEvents

A server event of a particular type that occurred with no associated information.

Attributes:

ServerEventType: An ST_enmServerEventType attribute that specifies type of server event that occurred.

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

```
<xs:complexType name="CT_ServerEvent">
  <xs:attribute name="ServerEventType" type="ST enmServerEventType" use="required"/>
</xs:complexType>
```

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

2.3.44 CT_ServerEventDataEntered

Referenced by: CT_ServerEvents

A server event of type **DataEntered**, as defined in **ST_enmServerEventType** (section 2.4.20), with associated data about the event.

Child Elements:

FormattedValues: Specifies formatted values contained in the range associated with the **DataEntered** event, as defined in **ST_enmServerEventType** (section 2.4.20).

Attributes:

SheetName: Specifies the name of the sheet that contains the range.

FirstColumn: Specifies the column (2) of the first cell in the range.

FirstRow: Specifies the row of the first cell in the range.

LastColumn: Specifies the column (2) of the last cell in the range.

LastRow: Specifies the row of the last cell in the range.

ServerEventType: An ST_enmServerEventType attribute that specifies type of server event that occurred.

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

```
<xs:complexType name="CT_ServerEventDataEntered">
  <xs:complexContent>
    <xs:extension base="CT_ServerEvent">
      <xs:sequence>
        <xs:element name="FormattedValues" type="CT_RangeValues"/>
      </xs:sequence>
      <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
```

```
            <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="required"/>
            <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="required"/>
            <xs:attribute name="LastColumn" type="ST_excelColNumber" use="required"/>
            <xs:attribute name="LastRow" type="ST_excelRowNumber" use="required"/>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
```

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

2.3.45 CT_ServerEvents

Referenced by: ServerEvents

A list of server events of any type.

Child Elements:

ServerEvent: Specifies a server event of a given type.

ServerEventDataEntered: Specifies a server event of type DataEntered, as defined in **ST_enmServerEventType** (section 2.4.20).

ServerEventOsfBinding: Specifies a server event of type OsfBinding, as defined in **ST_enmServerEventType** (section 2.4.20).

ServerEventOsfSettingsChanged: Specifies a server event of type OsfSettingsChanged, as defined in **ST_enmServerEventType** (section 2.4.20)..

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

```
<xs:complexType name="CT_ServerEvents">
    <xs:sequence minOccurs="1" maxOccurs="unbounded">
        <xs:choice>
            <xs:element name="ServerEvent" type="CT_ServerEvent"/>
            <xs:element name="ServerEventDataEntered" type="CT_ServerEventDataEntered"/>
            <xs:element name="ServerEventOsfBinding" type="CT_ServerEventOsfBinding"/>
            <xs:element name="ServerEventOsfSettingsChanged"
type="CT_ServerEventOsfSettingsChanged"/>
        </xs:choice>
    </xs:sequence>
</xs:complexType>
```

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

2.3.46 CT_CellValues

Referenced by: CT_PivotTable

Specifies the values from a range of cells in a PivotTable.

Child Elements:

CellValue: An ST_value element that specifies the value of a cell.

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

```
<xs:complexType name="CT_CellValues">
  <xs:sequence>
    <xs:element name="CellValue" minOccurs="0" maxOccurs="1048575" type="ST_value"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.47 CT_ServerEventOsfBinding

Referenced by: CT_ServerEvents

A server event of type OsfBinding, as defined in **ST_enmServerEventType** (section 2.4.20).

Child Elements:

Name: Specifies the Office Web Extension defined name for the binding.

BindingType: Specifies the type of binding.

ColCount: Specifies the number of columns (1) in the binding.

RowCount: Specifies the number of rows in the binding.

InstanceId: Uniquely identifies the Office Web Extension.

Attributes:

ServerEventType: An ST_enmServerEventType attribute that specifies type of server event that occurred.

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

```
<xs:complexType name="CT_ServerEventOsfBinding">
  <xs:complexContent>
    <xs:extension base="CT ServerEvent">
      <xs:sequence>
        <xs:element name="Name" minOccurs="1" maxOccurs="1" type="xs:string"/>
        <xs:element name="BindingType" minOccurs="1" maxOccurs="1" type="ST_osfBindingType"/>
        <xs:element name="ColCount" minOccurs="1" maxOccurs="1" type="ST_excelColNumber"/>
        <xs:element name="RowCount" minOccurs="1" maxOccurs="1" type="ST_excelRowNumber"/>
        <xs:element name="InstanceId" minOccurs="1" maxOccurs="1" type="xs:string"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

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

2.3.48 CT_ServerEventOsfSettingsChanged

Referenced by: CT_ServerEvents

A server event of type OsfSettingsChanged, as defined in **ST_enmServerEventType** (section 2.4.20).

Child Elements:

InstanceId: Uniquely identifies the Office Web Extension.

Attributes:

ServerEventType: An ST_enmServerEventType attribute that specifies type of server event that occurred.

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

```
<xs:complexType name="CT_ServerEventOsfSettingsChanged">
  <xs:complexContent>
    <xs:extension base="CT_ServerEvent">
      <xs:sequence>
        <xs:element name="InstanceId" minOccurs="1" maxOccurs="1" type="xs:string"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

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

2.3.49 CT_WebExtensionBinding

Referenced by: CT_WebExtensionBindings

An Office Web Extension binding that is a range in a worksheet associated with the Office Web Extension.

Attributes:

BindingName: Specifies the Office Web Extension defined name for the binding.

BindingVersion: Specifies the version of the binding.

BindingType: Specifies the type of binding.

IsValidRef: Specifies whether the binding refers to a valid range. If this is false, then the **SheetName**, **FirstColumn**, **FirstRow**, **LastColumn**, and **LastRow** fields MUST NOT be used.

SheetName: Specifies the name of the sheet that contains the binding.

FirstColumn: Specifies the first column (1) of the binding.

FirstRow: Specifies the first row of the binding.

LastColumn: Specifies the last column (1) of the binding.

LastRow: Specifies last row of the binding.

HasHeaders: Specifies whether the binding has a header row. MUST be true if it does and false otherwise.

HasTotals: Specifies whether the binding has a totals row. MUST be true if it does and false otherwise.

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

```
<xs:complexType name="CT_WebExtensionBinding">
  <xs:attribute name="BindingName" type="ST_nonEmptyString" use="required"/>
  <xs:attribute name="BindingVersion" type="ST nonNegativeInteger" use="required"/>
  <xs:attribute name="BindingType" type="ST_osfBindingType" use="required"/>
```

```
      <xs:attribute name="IsValidRef" type="xs:boolean" use="required"/>
      <xs:attribute name="SheetName" type="ST_SheetName" use="optional"/>
      <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="optional"/>
      <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="optional"/>
      <xs:attribute name="LastColumn" type="ST_excelColNumber" use="optional"/>
      <xs:attribute name="LastRow" type="ST_excelRowNumber" use="optional"/>
      <xs:attribute name="HasHeaders" type="xs:boolean" use="required"/>
      <xs:attribute name="HasTotals" type="xs:boolean" use="required"/>
  </xs:complexType>
```

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

2.3.50 CT_WebExtensionBindings

Referenced by: CT_WebExtension, CT_WebExtensionContent, CT_WebExtensionTaskpane

List of bindings associated with an Office Web Extension.

Child Elements:

WebExtensionBinding: Specifies a binding associated with an Office Web Extension.

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

```
  <xs:complexType name="CT_WebExtensionBindings">
    <xs:sequence>
      <xs:element name="WebExtensionBinding" minOccurs="1" maxOccurs="unbounded"
  type="CT_WebExtensionBinding"/>
    </xs:sequence>
  </xs:complexType>
```

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

2.3.51 CT_WebExtensionProperty

Referenced by: CT_WebExtensionProperties

An extension-defined property of an instance of an Office Web Extension in the workbook.

Attributes:

WebExtensionPropertyName: An ST_nonEmptyString attribute that specifies the name of the property.

WebExtensionPropertyValue: A string attribute that specifies the value of the property.

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

```
  <xs:complexType name="CT_WebExtensionProperty">
    <xs:attribute name="WebExtensionPropertyName" type="ST_nonEmptyString" use="required"/>
    <xs:attribute name="WebExtensionPropertyValue" type="xs:string" use="required"/>
  </xs:complexType>
```

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

2.3.52 CT_WebExtensionProperties

Referenced by: CT_WebExtension, CT_WebExtensionContent, CT_WebExtensionTaskpane

Contains one or more extension-defined properties for an instance of an Office Web Extension in the workbook.

Child Elements:

WebExtensionProperty: A **CT_WebExtensionProperty** element (section 2.3.51) that specifies a single property for this instance.

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

```
<xs:complexType name="CT_WebExtensionProperties">
  <xs:sequence>
    <xs:element name="WebExtensionProperty" minOccurs="1" maxOccurs="unbounded"
type="CT_WebExtensionProperty"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.53 CT_WebExtensionMarketplace

Referenced by: CT_WebExtension, CT_WebExtensionContent, CT_WebExtensionTaskpane

Describes the Office Web Extension and provides the location of its manifest.

Attributes:

SolutionId: A non-empty string that is unique for every type of Office Web Extension.

SolutionVersion: Specifies the version of the Office Web Extension.

MarketplaceRef: An identifier of the Office Web Extension marketplace that hosts the application manifest**.**

MarketplaceType: Specifies the type of the Office Web Extension marketplace that hosts the application manifest.

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

```
<xs:complexType name="CT_WebExtensionMarketplace">
  <xs:attribute name="SolutionId" type="xs:string" use="required"/>
  <xs:attribute name="SolutionVersion" type="xs:string" use="required"/>
  <xs:attribute name="MarketplaceRef" type="xs:string" use="optional"/>
  <xs:attribute name="MarketplaceType" type="xs:string" use="optional"/>
</xs:complexType>
```

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

2.3.54 CT_WebExtension

Referenced by: CT_WebExtensionContent, CT_WebExtensionTaskpane, CT_WebExtensions

Describes an instance of an Office Web Extension in the workbook.

Child Elements:

InstanceId: An ST_nonEmptyString element that specifies a unique identifier for this instance of the Office Web Extension.

PrimaryMarketplace: A CT_WebExtensionMarketplace element that specifies the preferred location of the manifest for this instance.

AssetMarketplace: An optional CT_WebExtensionMarketplace element that specifies a fallback location of the manifest for this instance.

WebExtensionProperties: A CT_WebExtensionProperties element that specifies properties for this instance.

WebExtensionBindings: A CT_WebExtensionBindings element that specifies bindings associated with this instance.

Attributes:

WebExtensionType: An ST_enmWebExtensionType attribute that specifies the type of web extension for this instance.

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

```
<xs:complexType name="CT_WebExtension">
  <xs:sequence>
    <xs:element name="InstanceId" minOccurs="1" maxOccurs="1" type="ST_nonEmptyString"/>
    <xs:element name="PrimaryMarketplace" maxOccurs="1" minOccurs="1"
type="CT_WebExtensionMarketplace"/>
    <xs:element name="AssetMarketplace" maxOccurs="1" minOccurs="0"
type="CT WebExtensionMarketplace"/>
    <xs:element name="WebExtensionProperties" maxOccurs="1" minOccurs="0"
type="CT_WebExtensionProperties"/>
    <xs:element name="WebExtensionBindings" maxOccurs="1" minOccurs="0"
type="CT_WebExtensionBindings"/>
  </xs:sequence>
  <xs:attribute name="WebExtensionType" type="ST_enmWebExtensionType" use="required"/>
</xs:complexType>
```

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

2.3.55 CT_WebExtensions

Referenced by: CT_Worksheet, CT_Workbook

A collection of zero or more Office Web Extension instances in the workbook.

Child Elements:

WebExtension: MUST not be used.

WebExtensionContent: A CT_WebExtensionContent element that specifies metadata regarding an instance of a content type Office Web Extension.

WebExtensionTaskpane: A CT_WebExtensionTaskpane element that specifies metadata regarding an instance of a taskpane type Office Web Extension.

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

```
<xs:complexType name="CT_WebExtensions">
  <xs:sequence minOccurs="0" maxOccurs="unbounded">
    <xs:choice>
      <xs:element name="WebExtension" type="CT_WebExtension"/>
      <xs:element name="WebExtensionContent" type="CT_WebExtensionContent"/>
      <xs:element name="WebExtensionTaskpane" type="CT_WebExtensionTaskpane"/>
    </xs:choice>
  </xs:sequence>
</xs:complexType>
```

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

2.3.56 CT_Workbook

Referenced by: Workbook

Specifies a workbook.

Child Elements:

WorkbookOptions: A collection of settings for the workbook.

Parameters: List of workbook parameters as specified in CT_Parameters. If there are no workbook parameters, this element MUST NOT be present.

NamedObjects: List of named objects as specified in CT_NamedObjects. If there are no named objects, this element MUST NOT be present

Styles: An unordered collection of CT_Style elements as specified in CT_Styles. MUST NOT be present when one of the following conditions is **true**:

- The requested range is a chart sheet.

- The requested range is a named object containing a single chart, and a border is not specified.

Worksheet: A sheet or a named object in the workbook. When this element represents a sheet, there MUST be an entry for every published sheet in the workbook and the order of entries MUST be the same as in the workbook. In named object view mode, there MUST be a single **Worksheet** element representing the named object.

WebExtensions: Specifies all active Office Web Extensions in the workbook.

SurveyInformation: A CT_SurveyInformation element that specifies information about a survey in this workbook. If there are no surveys in this workbook, this element MUST NOT be present.

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

```
<xs:complexType name="CT_Workbook" final="restriction">
  <xs:sequence>
    <xs:element name="WorkbookOptions" type="CT_WorkbookOptions"/>
    <xs:element name="Parameters" maxOccurs="1" minOccurs="0" type="CT_Parameters"/>
    <xs:element name="NamedObjects" minOccurs="0" maxOccurs="1" type="CT_NamedObjects"/>
    <xs:element name="Styles" minOccurs="0" maxOccurs="1" type="CT_Styles"/>
    <xs:element name="Worksheet" minOccurs="1" maxOccurs="unbounded" type="CT_Worksheet"/>
    <xs:element name="WebExtensions" maxOccurs="1" minOccurs="0" type="CT_WebExtensions"/>
    <xs:element name="SurveyInformation" type="CT_SurveyInformation" minOccurs="0"
maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.57 CT_RowAxisItem

Referenced by: CT_Table

Represents a single row or multiple contiguous hidden rows from the range defined in the parent **CT_Table** element (section 2.3.35).

Child Elements:

Cell: A worksheet cell that has data or that has formatting applied to it. This element MUST NOT be present if the **Hidden** attribute is true. If the **Hidden** attribute is not true, there MUST be an element for every worksheet cell in the row that has data or that has formatting applied to it.

Attributes:

Span: If the element represents more than one row, this attribute denotes the additional number of rows represented by the element. This attribute MUST be present if the **Hidden** attribute is true and there are more than one contiguous hidden rows. It MUST NOT be present otherwise.

Hidden: Specifies whether the rows are hidden. This attribute MUST be present and set to true if the rows represented by the element are hidden.

NextHidden: Specifies whether the next row is hidden. This attribute MUST be present and set to **true** if the row immediately following the rows represented by the current **CT_RowAxisItem** element is hidden.

PrevHidden: Specifies whether the previous row is hidden. This attribute MUST be present and set to **true** if the row immediately preceding the row(s) represented by the current **CT_RowAxisItem** element is hidden.

collapsed: If the row represented by this element is part of a **group**, this attribute denotes whether the outlining at the current outline level is collapsed. This attribute MUST be present and set to true if the **Hidden** attribute is not true and the row is part of a group and outlining for the outline level of the row is collapsed. It MUST NOT be present otherwise.

outlineLevel: The outline level of the row represented by the current element. This attribute MUST be present if the **Hidden** attribute is not true and the row is part of a group. It MUST NOT be present otherwise.

adjacentOutlineLevel: The outline level of a row adjacent to the row represented by the current element. This attribute MUST be present and set to the outline level of the previous row if all of the following conditions are met:

- The current element is the first **CT_RowAxisItem** (section 2.3.57) element in the parent **CT_Table** (section 2.3.35) element.

- The row is not the first row in the worksheet.

- The **Hidden** attribute is false and the row is part of a group.

This attribute MUST be present and set to the outlining level of the next row if all of the following conditions are met:

- The current element is the last **CT_RowAxisItem** element in the parent **CT_Table** element.

- The row is not the last row in the worksheet.

- The **Hidden** attribute is false and the row is part of a group.

It MUST NOT be present otherwise.

Index: Index of the row represented by the element. This attribute MUST NOT be present for the first **CT_RowAxisItem** element in the parent **CT_Table** element. If it is not the first **CT_RowAxisItem** element, it MUST be present if the previous **CT_RowAxisItem** element has a **Hidden** attribute set to true. It MUST NOT be present otherwise.

Height: Height of the row in points. This attribute MUST be present if the **Hidden** attribute is not true. It MUST NOT be present otherwise.

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

```
<xs:complexType name="CT_RowAxisItem">
  <xs:sequence>
    <xs:element name="Cell" minOccurs="0" maxOccurs="16384" type="CT Cell"/>
  </xs:sequence>
  <xs:attribute name="Span" use="optional" default="0" type="ST_excelRowNumber"/>
  <xs:attribute name="Hidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="NextHidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="PrevHidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="collapsed" type="xs:boolean" default="false" use="optional"/>
  <xs:attribute name="outlineLevel" type="ST_excelOutlineLevels" use="optional" default="0"/>
  <xs:attribute name="adjacentOutlineLevel" type="ST_excelOutlineLevels" use="optional"
default="0"/>
  <xs:attribute name="Index" type="ST excelRowNumber1Based" use="optional"/>
  <xs:attribute name="Height" type="ST rowHeight" use="optional"/>
</xs:complexType>
```

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

2.3.58 CT_ColumnAxisItem

Referenced by: CT_Table

Represents one or more contiguous columns (2) having identical hidden status, **style**, outline level and width, from the range defined in the parent **CT_Table** (section 2.3.35) element.

Attributes:

Span: If the element represents more than one column, this attribute denotes the additional number of columns represented by the element. This attribute MUST be present if the element represents more than one column; it MUST NOT be present otherwise. This attribute MUST NOT be present if the **collapsed** attribute is present and set to **true**.

Hidden: Specifies whether the columns are hidden. This attribute MUST be present and set to **true** if the columns represented by the element are hidden.

NextHidden: Specifies whether the next column is hidden. This attribute MUST be present and set to **true** if the column immediately following the columns represented by the current **CT_ColumnAxisItem** element is hidden.

PrevHidden: Specifies whether the previous column is hidden. This attribute MUST be present and set to **true** if the column immediately preceding the columns represented by the current **CT_ColumnAxisItem** element is hidden.

collapsed: If the column represented by this element is part of a group, this attribute denotes whether the outlining at the current outline level is collapsed. This attribute MUST be present and set to **true** if the column is part of a group and outlining for the outline level of the column is collapsed

and the **Hidden** attribute is **false**. This attribute MUST NOT be present if the **Span** attribute is present.

outlineLevel: The outline level of the columns represented by the current element. This attribute MUST be present if the columns are part of a group and the **Hidden** attribute is **false**; it MUST NOT be present otherwise

adjacentOutlineLevel: The outline level of an adjacent column to the column represented by the current element. This attribute MUST be present and set to the outline level of the previous column if all of the following conditions are met:

- The current element is the first **CT_ColumnAxisItem** element in the parent **CT_Table** element.

- The column is not the first column in the worksheet.

- The **Hidden** attribute is **false**, and the row (2) is part of a group.

This attribute MUST be present and set to the outline level of the next column if all of the following conditions are met:

- The current element is the last **CT_ColumnAxisItem** element in the parent **CT_Table** element.

- The column is not the last column in the worksheet.

- The **Hidden** attribute is **false**, and the row (2) is part of a group.

It MUST NOT be present otherwise.

Index: Index of the first column in the set of columns represented by the element. This attribute MUST NOT be present for the first **CT_ColumnAxisItem** element in the parent **CT_Table** element. If it is not the first **CT_ColumnAxisItem** element, it MUST be present if either of the following conditions is **true**:
- The previous **CT_ColumnAxisItem** element has a **Span** attribute.
- The previous **CT_ColumnAxisItem** element has a **Hidden** attribute set to **true**.

It MUST NOT be present otherwise.

Width: The width of the columns, in points. This attribute MUST NOT be present if the **Hidden** attribute is present and set to true. If the **Hidden** attribute is set to **false**, it MUST be present if any one of the following conditions is **true**:
- The value of the **Width** attribute in the previous **CT_ColumnAxisItem** element is different from the width of the columns represented by this element.
- The **Hidden** attribute in the previous **CT_ColumnAxisItem** element is **true**.
- The value of the **collapsed** or **outlineLevel** attributes are true on the element or the preceding sibling **CT_ColumnAxisItem** element.
- The **collapsed** or the **outlineLevel** attribute is present on the element.
- This is first **CT_ColumnAxisItem** child element of the **CT_Table** element.
- This is the last **CT_ColumnAxisItem** child element of the **CT_Table** element.

It MUST NOT be present otherwise.

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

```
<xs:complexType name="CT ColumnAxisItem">
  <xs:attribute name="Span" use="optional" default="0" type="ST_excelColNumber"/>
  <xs:attribute name="Hidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="NextHidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="PrevHidden" type="xs:boolean" use="optional" default="false"/>
  <xs:attribute name="collapsed" type="xs:boolean" default="false" use="optional"/>
```

```
    <xs:attribute name="outlineLevel" type="ST_excelOutlineLevels" use="optional" default="0"/>
    <xs:attribute name="adjacentOutlineLevel" type="ST_excelOutlineLevels" use="optional"
default="0"/>
    <xs:attribute name="Index" type="ST_excelColNumber1Based" use="optional"/>
    <xs:attribute name="Width" type="ST_columnWidth" use="optional"/>
</xs:complexType>
```

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

2.3.59 CT_InteractiveReport

Referenced by: CT_Worksheet

Specifies information about an interactive report.

Child Elements:

SlideId: An identifier for the visible slide in the interactive report.

FallbackImage: An image, encoded as a string, to display if the interactive report cannot be displayed.

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

```
<xs:complexType name="CT_InteractiveReport">
  <xs:sequence>
    <xs:element name="SlideId" minOccurs="1" maxOccurs="1" type="xs:string"/>
    <xs:element name="FallbackImage" minOccurs="0" maxOccurs="1" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.60 CT_Comment

Referenced by: CT_Comments

A comment written by an author associated with a single anchor cell.

Attributes:

FirstRow: An ST_excelRowNumber attribute that specifies the first row of the comment's anchor cell.

FirstColumn: An ST_excelColNumber attribute that specifies the first column (2) of the comment's anchor cell.

LastRow: An ST_excelRowNumber attribute that specifies the last row of the comment's anchor cell.

LastColumn: An ST_excelColNumber attribute that specifies the last column (2) of the comment's anchor cell.

Author: A string attribute that specifies the name of the comment's author.

Text: A string attribute that specifies the text to be displayed inside of the comment.

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

```
<xs:complexType name="CT_Comment">
  <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="LastRow" type="ST_excelRowNumber" use="required"/>
  <xs:attribute name="LastColumn" type="ST_excelColNumber" use="required"/>
  <xs:attribute name="Author" type="xs:string" use="optional"/>
  <xs:attribute name="Text" type="xs:string" use="optional"/>
</xs:complexType>
```

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

2.3.61 CT_Comments

Referenced by: CT_Worksheet

A list of worksheet comments.

Child Elements:

Comment: A CT_Comment element that represents a comment on the worksheet.

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

```
<xs:complexType name="CT_Comments">
  <xs:sequence>
    <xs:element name="Comment" minOccurs="1" maxOccurs="unbounded" type="CT_Comment"/>
  </xs:sequence>
</xs:complexType>
```

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

2.3.62 CT_SurveyInformation

Referenced by: CT_Workbook

Information about a survey in this workbook.

Attributes:

Title: The title of a survey in this workbook.

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

```
<xs:complexType name="CT_SurveyInformation">
  <xs:attribute name="Title" type="xs:string" use="optional"/>
</xs:complexType>
```

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

2.3.63 CT_WebExtensionContent

Referenced by: CT_WebExtensions

Metadata associated with an instance of a content type Office Web Extension in this workbook.

Child Elements:

InstanceId: An [ST_nonEmptyString](#) element that specifies a unique identifier for this instance of the Office Web Extension.

PrimaryMarketplace: A [CT_WebExtensionMarketplace](#) element that specifies the preferred location of the manifest for this instance.

AssetMarketplace: An optional CT_WebExtensionMarketplace element that specifies a fallback location of the manifest for this instance.

WebExtensionProperties: A [CT_WebExtensionProperties](#) element that specifies properties for this instance.

WebExtensionBindings: A [CT_WebExtensionBindings](#) element that specifies bindings associated with this instance.

Attributes:

AbsoluteLeft: The X coordinate in points of the offset of the origin of the Office Web Extension from the origin of the worksheet.

AbsoluteTop: The Y coordinate in points of the offset of the origin of the Office Web Extension from the origin of the worksheet.

AbsoluteRight: The X coordinate in points of the offset of the rightmost edge of the Office Web Extension from the origin of the worksheet. In a worksheet with right-to-left reading order, this corresponds to the leftmost edge of the Office Web Extension.

AbsoluteBottom: The Y coordinate in points of the offset of the bottom of the Office Web Extension from the origin of the worksheet.

Width: The width of the Office Web Extension in points.

Height: The height of the Office Web Extension in points.

ZOrder: The z-order for the Office Web Extension.

XOriginDelta: The X coordinate in points of the offset of the origin of the Office Web Extension from the starting column (2) of the requested range.

YOriginDelta: The Y coordinate in points of the offset of the origin of the Office Web Extension from the starting row of the requested range.

WebExtensionType: An [ST_enmWebExtensionType](#) attribute that specifies the type of web extension for this instance.

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

```
<xs:complexType name="CT_WebExtensionContent">
  <xs:complexContent>
    <xs:extension base="CT_WebExtension">
      <xs:attribute name="AbsoluteLeft" type="xs:double" use="required"/>
      <xs:attribute name="AbsoluteTop" type="xs:double" use="required"/>
      <xs:attribute name="AbsoluteRight" type="xs:double" use="required"/>
      <xs:attribute name="AbsoluteBottom" type="xs:double" use="required"/>
      <xs:attribute name="Width" type="ST_nonNegativeDouble" use="required"/>
      <xs:attribute name="Height" type="ST_nonNegativeDouble" use="required"/>
      <xs:attribute name="ZOrder" type="xs:int" use="required"/>
      <xs:attribute name="XOriginDelta" type="xs:double" default="0" use="optional"/>
      <xs:attribute name="YOriginDelta" type="xs:double" default="0" use="optional"/>
    </xs:extension>
```

```
      </xs:complexContent>
    </xs:complexType>
```

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

2.3.64 CT_WebExtensionTaskpane

Referenced by: CT_WebExtensions

Metadata associated with an instance of a taskpane type Office Web Extension in this workbook.

Child Elements:

InstanceId: An ST_nonEmptyString element that specifies a unique identifier for this instance of the Office Web Extension.

PrimaryMarketplace: A CT_WebExtensionMarketplace element that specifies the preferred location of the manifest for this instance.

AssetMarketplace: An optional CT_WebExtensionMarketplace element that specifies a fallback location of the manifest for this instance.

WebExtensionProperties: A CT_WebExtensionProperties element that specifies properties for this instance.

WebExtensionBindings: A CT_WebExtensionBindings element that specifies bindings associated with this instance.

Attributes:

Width: The width of the Office Web Extension taskpane in points.

Visibility: A boolean attribute that specifies whether the Office Web Extension is visible and active.

WebExtensionType: An ST_enmWebExtensionType attribute that specifies the type of web extension for this instance.

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

```
    <xs:complexType name="CT_WebExtensionTaskpane">
      <xs:complexContent>
        <xs:extension base="CT_WebExtension">
          <xs:attribute name="Width" type="ST nonNegativeDouble" use="required"/>
          <xs:attribute name="Visibility" type="xs:boolean" use="required"/>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
```

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

2.3.65 CT_DataValidation

2.3.66 CT_DataValidationRange

2.3.67 CT_DataValidationRanges

2.3.68 CT_DataValidationSets

2.3.69 CT_ListItems

2.3.70 CT_Panes

2.4 Simple Types

The following sections list the data types of the **XML attributes** in this format, as specified by [XMLSCHEMA1].

2.4.1 ST_Comment

2.4.2 ST_Size

Referenced by: CT_Font

Font size in points.

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

```
<xs:simpleType name="ST_Size">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="1.0"/>
    <xs:maxInclusive value="409.0"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.3 ST_Rotate

Referenced by: CT_Alignment

Angle of rotation in degrees.

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

```
<xs:simpleType name="ST_Rotate">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="-90"/>
    <xs:maxInclusive value="90"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.4 ST_degree

Referenced by: CT_gradient

The angle of rotation in degrees of the gradient CT_stop.

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

```
<xs:simpleType name="ST degree">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="0.0"/>
    <xs:maxExclusive value="360.0"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.5 ST_Weight

Referenced by: CT_Border

A border thickness, in pixels.

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

```
<xs:simpleType name="ST_Weight">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="3"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.6 ST_ID

Referenced by: CT_Style

A unique identifier for either a cell or border CT_Style element within the CT_Styles collection.

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

```
<xs:simpleType name="ST ID">
  <xs:union memberTypes="ST_cellStyleID ST_borderStyleID"/>
</xs:simpleType>
```

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

2.4.7 ST_value

Referenced by: CT_Criteria, CT_CellValues

A criteria value.

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

```
<xs:simpleType name="ST_value">
  <xs:restriction base="xs:string">
    <xs:maxLength value="32767"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.8 ST_value1

Referenced by: CT_top10

A top N filter or a bottom N filter value.

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

```
<xs:simpleType name="ST_value1">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="500"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.9 ST_Type

Referenced by: CT_autofilter

Specifies whether an AutoFilter is part of a table. The following table describes possible values.

Value	Meaning
Sheet	The AutoFilter is not a part of a table.
Table	The AutoFilter is a part of a table.

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

```
<xs:simpleType name="ST Type">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Sheet"/>
    <xs:enumeration value="Table"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.10 ST_DefaultRowHeight

Referenced by: CT_Table

The range of sizes in points for the default row height.

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

```
<xs:simpleType name="ST_DefaultRowHeight">
  <xs:union>
    <xs:simpleType>
      <xs:restriction base="ST rowHeight"/>
    </xs:simpleType>
    <xs:simpleType>
      <xs:restriction base="xs:double">
        <xs:enumeration value="0"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:union>
</xs:simpleType>
```

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

2.4.11 ST_DefaultColumnWidth

Referenced by: CT_Table

The range of sizes in points for the default column (2) width.

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

```
<xs:simpleType name="ST_DefaultColumnWidth">
  <xs:union>
    <xs:simpleType>
      <xs:restriction base="ST_columnWidth"/>
    </xs:simpleType>
    <xs:simpleType>
      <xs:restriction base="xs:double">
        <xs:enumeration value="0"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:union>
</xs:simpleType>
```

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

2.4.12 ST_SelectionTop

Referenced by: CT_Table

The range of values for a selection's row number.

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

```
<xs:simpleType name="ST_SelectionTop">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
```

```
      <xs:maxInclusive value="1048576"/>
    </xs:restriction>
  </xs:simpleType>
```

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

2.4.13 ST_SelectionLeft

Referenced by: CT_Table

The range of values for a selection's column (2) number.

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

```
<xs:simpleType name="ST_SelectionLeft">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="16384"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.14 ST_enmChartCategory

Referenced by: CT_ChartMetaData

Specifies the category of a chart.

The following table shows the enumeration values for this type.

Value	Meaning
Unsupported	A chart that does not fit into any of the other categories in this table.
Combo	A chart with different chart types for different series.
Surface	A **surface chart**.
Column	A **column chart**.
Column3D	A 3D column chart.
Bar	A chart with horizontally oriented bars used to compare multiple values.
Bar3D	A 3D chart with horizontally oriented bars used to compare multiple values.
Line	A **line chart**.
Line3D	A 3D line chart.
Pie	A chart that shows the contribution of each value to the total in a circular shape.
Scatter	A **scatter chart**.
Bubble	A chart that compares sets of three values, with the third value determining the size of the bubble.

Value	Meaning
Area	A chart that shows the area under each point as filled in.
Doughnut	A chart that shows the contribution of each value to the total while allowing for multiple series.
Radar	A chart that displays points relative to a center.
Stock	A **stock chart**.

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

```
<xs:simpleType name="ST enmChartCategory">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Unsupported"/>
    <xs:enumeration value="Combo"/>
    <xs:enumeration value="Surface"/>
    <xs:enumeration value="Column"/>
    <xs:enumeration value="Column3D"/>
    <xs:enumeration value="Bar"/>
    <xs:enumeration value="Bar3D"/>
    <xs:enumeration value="Line"/>
    <xs:enumeration value="Line3D"/>
    <xs:enumeration value="Pie"/>
    <xs:enumeration value="Scatter"/>
    <xs:enumeration value="Bubble"/>
    <xs:enumeration value="Area"/>
    <xs:enumeration value="Doughnut"/>
    <xs:enumeration value="Radar"/>
    <xs:enumeration value="Stock"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.15 ST_KpiSet

Referenced by: CT_Cell

The set of key performance indicator (KPI) to use for conditional formatting in a worksheet cell.

The following table shows the values for this type.

Value	Meaning
-1	No key performance indicators.
0	Equivalent to the [MS-XLSX] ST_IconSetType 3Arrows enumeration value.
1	Equivalent to the [MS-XLSX] ST_IconSetType 3ArrowsGray enumeration value.
2	Equivalent to the [MS-XLSX] ST_IconSetType 3Flags enumeration value.
3	Equivalent to the [MS-XLSX] ST_IconSetType 3TrafficLights1 enumeration value.
4	Equivalent to the [MS-XLSX] ST_IconSetType 3TrafficLights2 enumeration value.
5	Equivalent to the [MS-XLSX] ST_IconSetType 3Signs enumeration value.

Value	Meaning
6	Equivalent to the [MS-XLSX] ST_IconSetType 3Symbols enumeration value.
7	Equivalent to the [MS-XLSX] ST_IconSetType 3Symbols2 enumeration value.
8	Equivalent to the [MS-XLSX] ST_IconSetType 4Arrows enumeration value.
9	Equivalent to the [MS-XLSX] ST_IconSetType 4ArrowsGray enumeration value.
10	Equivalent to the [MS-XLSX] ST_IconSetType 4RedToBlack enumeration value.
11	Equivalent to the [MS-XLSX] ST_IconSetType 4Rating enumeration value.
12	Equivalent to the [MS-XLSX] ST_IconSetType 4TrafficLights enumeration value.
13	Equivalent to the [MS-XLSX] ST_IconSetType 5Arrows enumeration value.
14	Equivalent to the [MS-XLSX] ST_IconSetType 5ArrowsGray enumeration value.
15	Equivalent to the [MS-XLSX] ST_IconSetType 5Ratings enumeration value.
16	Equivalent to the [MS-XLSX] ST_IconSetType 5Quarters enumeration value.
17	Equivalent to the [MS-XLSX] ST_IconSetType 3Stars enumeration value.
18	Equivalent to the [MS-XLSX] ST_IconSetType 3Triangles enumeration value.
19	Equivalent to the [MS-XLSX] ST_IconSetType 5Boxes enumeration value.

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

```
<xs:simpleType name="ST KpiSet">
  <xs:restriction base="xs:short">
    <xs:enumeration value="-1"/>
    <xs:enumeration value="0"/>
    <xs:enumeration value="1"/>
    <xs:enumeration value="2"/>
    <xs:enumeration value="3"/>
    <xs:enumeration value="4"/>
    <xs:enumeration value="5"/>
    <xs:enumeration value="6"/>
    <xs:enumeration value="7"/>
    <xs:enumeration value="8"/>
    <xs:enumeration value="9"/>
    <xs:enumeration value="10"/>
    <xs:enumeration value="11"/>
    <xs:enumeration value="12"/>
    <xs:enumeration value="13"/>
    <xs:enumeration value="14"/>
    <xs:enumeration value="15"/>
    <xs:enumeration value="16"/>
    <xs:enumeration value="17"/>
    <xs:enumeration value="18"/>
    <xs:enumeration value="19"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.16 ST_KpiIcon

Referenced by: CT_Cell

Specifies a specific icon within the set of key performance indicator (KPI) icons specified in ST_KpiSet.

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

```
<xs:simpleType name="ST_KpiIcon">
  <xs:restriction base="xs:short">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="4"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.17 ST_KpiSize

Referenced by: CT_Cell

The size of a key performance indicator (KPI) icon to use for conditional formatting in a worksheet cell.

The following table shows the values for this type.

Value	Meaning
0	Large icon.
1	Medium icon.
2	Small icon.

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

```
<xs:simpleType name="ST_KpiSize">
  <xs:restriction base="xs:short">
    <xs:enumeration value="0"/>
    <xs:enumeration value="1"/>
    <xs:enumeration value="2"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.18 ST_MergeDown

Referenced by: CT_Cell

The number of rows in a merged range.

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

```
<xs:simpleType name="ST_MergeDown">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="1048575"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.19 ST_MergeAcross

Referenced by: CT_Cell

The number of columns (2) in a merged range.

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

```
<xs:simpleType name="ST_MergeAcross">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="16383"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.20 ST_enmServerEventType

Referenced by: CT_ServerEvent, CT_ServerEventDataEntered, CT_ServerEventOsfBinding, CT_ServerEventOsfSettingsChanged

Type of Server Event that occurred.

Value	Meaning
DataEntered	Server Event indicating that data had been entered into the workbook at the range indicated.
OsfBinding	Server Event indicating that data associated with a binding has changed.
OsfSettingsChanged	Server Event indicating that settings associated with an Office Web Extension have changed.

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

```
<xs:simpleType name="ST_enmServerEventType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DataEntered"/>
    <xs:enumeration value="OsfBinding"/>
    <xs:enumeration value="OsfSettingsChanged"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.21 ST_enmWorksheetVisibilityState

Referenced by: CT_Worksheet

Indicates the visibility state of a worksheet.

Value	Meaning
Visible	Worksheet is visible to the user.
Hidden	Worksheet is not visible to the user, but can be unhidden by the user.
VeryHidden	Worksheet is not visible to the user and cannot be unhidden by the user.

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

```
<xs:simpleType name="ST_enmWorksheetVisibilityState">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Visible"/>
    <xs:enumeration value="Hidden"/>
    <xs:enumeration value="VeryHidden"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.22 ST_osfBindingType

Referenced by: CT_ServerEventOsfBinding, CT_WebExtensionBinding

Type of Office Web Extension binding.

Value	Meaning
unknown	The type of the Office Web Extension is not specified.
text	Represents a single cell's value.
table	Represents a table object.
matrix	Represents a range in a worksheet.

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

```
<xs:simpleType name="ST_osfBindingType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="unknown"/>
    <xs:enumeration value="text"/>
    <xs:enumeration value="table"/>
    <xs:enumeration value="matrix"/>
  </xs:restriction>
```

```
</xs:simpleType>
```

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

2.4.23 ST_ObjectName

Referenced by: CT_Parameter, CT_NamedObject, CT_Location, ST_SheetOrObjectName

The name of a named object or workbook parameter.

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

```
<xs:simpleType name="ST_ObjectName">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="255"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.24 ST_SheetName

Referenced by: CT_ServerEventDataEntered, CT_NamedObject, CT_Location, CT_WebExtensionBinding, ST_SheetOrObjectName, CT_Worksheet

 The name of a sheet.

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

```
<xs:simpleType name="ST_SheetName">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
    <xs:maxLength value="31"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.25 ST_SheetOrObjectName

Referenced by: CT_Worksheet

The name of a named object, workbook parameter, or sheet.

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

```
<xs:simpleType name="ST_SheetOrObjectName">
  <xs:union memberTypes="ST_SheetName ST_ObjectName"/>
</xs:simpleType>
```

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

2.4.26 ST_cellStyleID

Referenced by: ST_ID, CT_Cell

A unique identifier for a cell CT_Style element within the CT_Styles collection.

The default worksheet cell and worksheet header style is 'sD'.

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

```
<xs:simpleType name="ST_cellStyleID" final="restriction">
  <xs:restriction base="xs:string">
    <xs:pattern value="sD|hD|0|[1-9][0-9]*"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.27 ST_borderStyleID

Referenced by: ST_ID, CT_Image, CT_Cell

A unique identifier for a border CT_Style element within the CT_Styles collection.

The default worksheet cell border style is "bD".

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

```
<xs:simpleType name="ST_borderStyleID" final="restriction">
  <xs:restriction base="xs:string">
    <xs:pattern value="bD|\-[1-9][0-9]*"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.28 ST_rgbTuple

Referenced by: CT_Font, CT_Interior, CT_stop, CT_Border, CT_WorksheetOptions, CT_Cell

A color as specified in [HTML] section 6.5, in unabbreviated form.

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

```
<xs:simpleType name="ST_rgbTuple" final="restriction">
  <xs:restriction base="xs:string">
    <xs:pattern value="#[0-9|A-F|a-f]{6}"/>
    <xs:length value="7"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.29 ST_enmBorderPosition

Referenced by: CT_Border

Specifies the position to which border information is applied.

The following table shows the enumeration values for this type.

Value	Meaning
None	Border position undefined. MUST NOT be used.
Left	Border information for left edge. In sheets with a right-to-left reading order this position corresponds to the right-most side of the element on the screen.
Right	Border information for right edge. In sheets with a right-to-left reading order this position corresponds to the left-most side of the element on the screen.
Top	Border information for top edge.
Bottom	Border information for bottom edge.

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

```
<xs:simpleType name="ST enmBorderPosition">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Left"/>
    <xs:enumeration value="Right"/>
    <xs:enumeration value="Top"/>
    <xs:enumeration value="Bottom"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.30 ST_enmBorderLineStyle

Referenced by: CT_Border

The visual appearance of a border line.

The following table shows the enumeration values for this type.

Value	Meaning
None	No border.
Continuous	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** medium enumeration value.
Dash	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** dash enumeration value.
Dot	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** dot enumeration value.
DashDot	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** dashDot enumeration value.
DashDotDot	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** dashDotDot enumeration value.

Value	Meaning
SlantDashDot	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** slantDashDot enumeration value.
Double	Equivalent to the [ISO/IEC29500-1:2011] **ST_BorderStyle** double enumeration value.

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

```
<xs:simpleType name="ST_enmBorderLineStyle">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Continuous"/>
    <xs:enumeration value="Dash"/>
    <xs:enumeration value="Dot"/>
    <xs:enumeration value="DashDot"/>
    <xs:enumeration value="DashDotDot"/>
    <xs:enumeration value="SlantDashDot"/>
    <xs:enumeration value="Double"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.31 ST_enmHorizontalAlignment

Referenced by: CT_Alignment, CT_Cell

The horizontal alignment and internal spacing of the worksheet cell value or conditional formatting.

The following table shows the enumeration values for this type.

Value	Meaning
Automatic	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** general enumeration value.
Center	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** center enumeration value.
Left	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** left enumeration value.
Right	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** right enumeration value.
Fill	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** fill enumeration value.
Justify	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** justify enumeration value.
CenterAcrossSelection	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** centerContinuous enumeration value.
Distributed	Equivalent to the [ISO/IEC29500-1:2011] **ST_HorizontalAlignment** distributed enumeration value.
JustifyDistributed	Combination of **Justify** and **Distributed** enumeration values.

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

```
<xs:simpleType name="ST_enmHorizontalAlignment">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Automatic"/>
    <xs:enumeration value="Center"/>
    <xs:enumeration value="Left"/>
    <xs:enumeration value="Right"/>
    <xs:enumeration value="Fill"/>
    <xs:enumeration value="Justify"/>
    <xs:enumeration value="CenterAcrossSelection"/>
    <xs:enumeration value="Distributed"/>
    <xs:enumeration value="JustifyDistributed"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.32 ST_enmVerticalAlignment

Referenced by: CT_Alignment

The vertical alignment and internal spacing of the worksheet cell value or conditional formatting.

The following table shows the enumeration values for this type.

Value	Meaning
Automatic	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** bottom enumeration value.
Top	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** top enumeration value.
Bottom	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** bottom enumeration value.
Center	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** center enumeration value.
Justify	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** justify enumeration value.
Distributed	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignment** distributed enumeration value.
JustifyDistributed	Combination of **Justify** and **Distributed** enumeration values.

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

```
<xs:simpleType name="ST_enmVerticalAlignment">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Automatic"/>
    <xs:enumeration value="Top"/>
    <xs:enumeration value="Bottom"/>
    <xs:enumeration value="Center"/>
    <xs:enumeration value="Justify"/>
    <xs:enumeration value="Distributed"/>
    <xs:enumeration value="JustifyDistributed"/>
```

```
        </xs:restriction>
    </xs:simpleType>
```

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

2.4.33 ST_enmAutoFilterCriteriaOperationType

Referenced by: CT_Criteria

This enumeration defines a set of comparison operators. The operator is applied between cell contents and the value attribute (2) in Criteria.

The following table shows the enumeration values for this type.

Value	Meaning
EQ	Equals comparison operator.
NEQ	Not equals comparison operator.
GT	Greater than comparison operator.
GTEQ	Greater than or equal to comparison operator.
LT	Less than comparison operator.
LTEQ	Less than or equal to comparison operator.

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

```
<xs:simpleType name="ST_enmAutoFilterCriteriaOperationType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="EQ"/>
    <xs:enumeration value="NEQ"/>
    <xs:enumeration value="GT"/>
    <xs:enumeration value="GTEQ"/>
    <xs:enumeration value="LT"/>
    <xs:enumeration value="LTEQ"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.34 ST_enmAutoFilterCriteriaRelationOperator

Referenced by: CT_Criteria

This enumeration defines a set of logical operators. It is applied to the **Relation** attribute (2) of the Criteria element to define the relationship between two Criteria elements.

The following table shows the enumeration values for this type.

Value	Meaning
Nil	Indicates that only one Criteria element is applied and no logical operator is required.

Value	Meaning
And	AND logical operator: The condition in both the Criteria elements needs to be met.
Or	OR logical operator: The condition in either one or both the Criteria elements needs to be met.

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

```
<xs:simpleType name="ST_enmAutoFilterCriteriaRelationOperator">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Nil"/>
    <xs:enumeration value="And"/>
    <xs:enumeration value="Or"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.35 ST_enmAutoFilterItemType

Referenced by: CT_item

This enumeration defines a set of data types. It is applied to the **DataType** attribute (2) of an item to indicate the nature of the underlying worksheet cell values of that item.

The following table shows the enumeration values for this type.

Value	Meaning
Number	Underlying worksheet cell values are numbers, as determined by the protocol server.
Text	Underlying worksheet cell values are strings, as determined by the protocol server.
Date	Underlying worksheet cell values represent dates, as determined by the protocol server.

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

```
<xs:simpleType name="ST_enmAutoFilterItemType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Number"/>
    <xs:enumeration value="Text"/>
    <xs:enumeration value="Date"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.36 ST_enmAutoFilterItemCriteriaType

Referenced by: CT_item

This enumeration defines a set of filters. Each set of filters can be applied to either dates or numbers. It is applied to the **CriteriaType** attribute (2) in an item.

The following table shows the enumeration values for this type.

Value	Meaning
Nil	Default value for no filter applied.
AboveAverage	Number filter in which all worksheet cell values except those above the average of the worksheet cell values being filtered are filtered out.
BelowAverage	Number filter in which all worksheet cell values except those below the average of the worksheet cell values being filtered are filtered out.
Tomorrow	Date filter in which all worksheet cell values except those with the date for the following day are filtered out.
Today	Date filter in which all worksheet cell values except those with the date for today are filtered out.
Yesterday	Date filter in which all worksheet cell values except those with the date for the previous day are filtered out.
NextWeek	Date filter in which all worksheet cell values except those in the following week are filtered out.
ThisWeek	Date filter in which all worksheet cell values except those in the current week are filtered out.
LastWeek	Date filter in which all worksheet cell values except those in the previous week are filtered out.
NextMonth	Date filter in which all worksheet cell values except those in the following month are filtered out.
ThisMonth	Date filter in which all worksheet cell values except those in the current month are filtered out.
LastMonth	Date filter in which all worksheet cell values except those in the previous month are filtered out.
NextQuarter	Date filter in which all worksheet cell values except those in the following quarter are filtered out.
ThisQuarter	Date filter in which all worksheet cell values except those in the current quarter are filtered out.
LastQuarter	Date filter in which all worksheet cell values except those in the previous quarter are filtered out.
NextYear	Date filter in which all worksheet cell values except those in the following year are filtered out.
ThisYear	Date filter in which all worksheet cell values except those in the current year are filtered out.
LastYear	Date filter in which all worksheet cell values except those in the previous year are filtered out.
YearToDate	Date filter in which all worksheet cell values except those in the current year up to and inclusive of the current date are filtered out.
Q1	Date filter in which all worksheet cell values except those in the first quarter of the current year are filtered out.
Q2	Date filter in which all worksheet cell values except those in the second quarter of the current year are filtered out.
Q3	Date filter in which all worksheet cell values except those in the third quarter of the current year are filtered out.
Q4	Date filter in which all worksheet cell values except those in the fourth quarter of the current year are filtered out.
M1	Date filter in which all worksheet cell values except those in the month of January are filtered out.

Value	Meaning
M2	Date filter in which all worksheet cell values except those in the month of February are filtered out.
M3	Date filter in which all worksheet cell values except those in the month of March are filtered out.
M4	Date filter in which all worksheet cell values except those in the month of April are filtered out.
M5	Date filter in which all worksheet cell values except those in the month of May are filtered out.
M6	Date filter in which all worksheet cell values except those in the month of June are filtered out.
M7	Date filter in which all worksheet cell values except those in the month of July are filtered out.
M8	Date filter in which all worksheet cell values except those in the month of August are filtered out.
M9	Date filter in which all worksheet cell values except those in the month of September are filtered out.
M10	Date filter in which all worksheet cell values except those in the month of October are filtered out.
M11	Date filter in which all worksheet cell values except those in the month of November are filtered out.
M12	Date filter in which all worksheet cell values except those in the month of December are filtered out.

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

```
<xs:simpleType name="ST_enmAutoFilterItemCriteriaType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Nil"/>
    <xs:enumeration value="AboveAverage"/>
    <xs:enumeration value="BelowAverage"/>
    <xs:enumeration value="Tomorrow"/>
    <xs:enumeration value="Today"/>
    <xs:enumeration value="Yesterday"/>
    <xs:enumeration value="NextWeek"/>
    <xs:enumeration value="ThisWeek"/>
    <xs:enumeration value="LastWeek"/>
    <xs:enumeration value="NextMonth"/>
    <xs:enumeration value="ThisMonth"/>
    <xs:enumeration value="LastMonth"/>
    <xs:enumeration value="NextQuarter"/>
    <xs:enumeration value="ThisQuarter"/>
    <xs:enumeration value="LastQuarter"/>
    <xs:enumeration value="NextYear"/>
    <xs:enumeration value="ThisYear"/>
    <xs:enumeration value="LastYear"/>
    <xs:enumeration value="YearToDate"/>
    <xs:enumeration value="Q1"/>
    <xs:enumeration value="Q2"/>
    <xs:enumeration value="Q3"/>
    <xs:enumeration value="Q4"/>
    <xs:enumeration value="M1"/>
    <xs:enumeration value="M2"/>
    <xs:enumeration value="M3"/>
    <xs:enumeration value="M4"/>
    <xs:enumeration value="M5"/>
    <xs:enumeration value="M6"/>
    <xs:enumeration value="M7"/>
```

```
            <xs:enumeration value="M8"/>
            <xs:enumeration value="M9"/>
            <xs:enumeration value="M10"/>
            <xs:enumeration value="M11"/>
            <xs:enumeration value="M12"/>
        </xs:restriction>
    </xs:simpleType>
```

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

2.4.37 ST_excelRowNumber

Referenced by: CT_ServerEventDataEntered, CT_ServerEventOsfBinding, CT_autofilter, CT_range, CT_Location, CT_Hyperlink, CT_Comment, CT_Table, CT_RowAxisItem, CT_Cell, CT_WebExtensionBinding

The range of values for a 0-based row number.

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

```
    <xs:simpleType name="ST_excelRowNumber">
      <xs:restriction base="xs:int">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="1048575"/>
      </xs:restriction>
    </xs:simpleType>
```

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

2.4.38 ST_excelColNumber

Referenced by: CT_ServerEventDataEntered, CT_ServerEventOsfBinding, CT_item, CT_autofilter, CT_range, CT_Location, CT_Hyperlink, CT_Comment, CT_Table, CT_ColumnAxisItem, CT_Cell, CT_WebExtensionBinding

The range of values for a 0-based column (2) number.

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

```
    <xs:simpleType name="ST_excelColNumber">
      <xs:restriction base="xs:int">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="16383"/>
      </xs:restriction>
    </xs:simpleType>
```

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

2.4.39 ST_excelRowNumber1Based

Referenced by: CT_NamedObject, CT_Table, CT_RowAxisItem

The range of values for 1-based row number.

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

```
<xs:simpleType name="ST_excelRowNumber1Based">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="1048576"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.40 ST_excelColNumber1Based

Referenced by: CT_NamedObject, CT_Table, CT_ColumnAxisItem, CT_Cell

The range of values for 1-based column (2) number.

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

```
<xs:simpleType name="ST_excelColNumber1Based">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="1"/>
    <xs:maxInclusive value="16384"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.41 ST_excelOutlineLevels

Referenced by: CT_Table, CT_ColumnAxisItem, CT_RowAxisItem

The range of values for defining the outline level (1) in a set of grouped rows or columns (2).

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

```
<xs:simpleType name="ST_excelOutlineLevels">
  <xs:restriction base="xs:short">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="8"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.42 ST_rowHeight

Referenced by: CT_RowAxisItem

The range of sizes in points for row height.

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

```
<xs:simpleType name="ST_rowHeight">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="0.2"/>
    <xs:maxInclusive value="409.6"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.43 ST_columnWidth

Referenced by: CT_ColumnAxisItem

The range of sizes in points for column (2) width.

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

```
<xs:simpleType name="ST columnWidth">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="0.75"/>
    <xs:maxInclusive value="1343"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.44 ST_enmFilterItemType

Referenced by: CT_item, CT_Cell

This enumeration defines whether filtering or sorting is applied as well as the **sort order** if sorting is applied. It is used on the **DropDownType** attribute (2) in a Cell and the **Type** attribute (2) in an item.

The following table shows the enumeration values for this type.

Value	Meaning
None	No filter or **sort** is applied.
Filtered	A filter is applied to the worksheet cells.
SortedAsc	Worksheet cells are sorted in **ascending order**.
SortedDesc	Worksheet cells are sorted in **descending order**.
BothAsc	A filter is applied to the worksheet cells and they are sorted in ascending order.
BothDesc	A filter is applied to the worksheet cells and they are sorted in descending order.
Sorted	Worksheet cells are sorted but the sort order (2) is not known.
Both	A filter is applied to the worksheet cells and they are sorted but the sort order is not known.

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

```
<xs:simpleType name="ST_enmFilterItemType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Filtered"/>
    <xs:enumeration value="SortedAsc"/>
    <xs:enumeration value="SortedDesc"/>
    <xs:enumeration value="BothAsc"/>
    <xs:enumeration value="BothDesc"/>
    <xs:enumeration value="Sorted"/>
    <xs:enumeration value="Both"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.45 ST_enmImageType

Referenced by: CT_Image

Enumerates the different types of worksheet images.

The following table shows the enumeration values for this type.

Value	Meaning
none	Represents an invalid or uninitialized value. MUST NOT be used.
chart	A chart image.
image	A non-chart image.

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

```
<xs:simpleType name="ST_enmImageType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="none"/>
    <xs:enumeration value="chart"/>
    <xs:enumeration value="image"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.46 ST_enmReadOrder

Referenced by: CT_Alignment, CT_Cell

Horizontal text reading order.

The following table shows the enumeration values for this type.

Value	Meaning
Context	Same reading order as the sheet (1).
LeftToRight	Left-to-right reading order.

Value	Meaning
RightToLeft	Right-to-left reading order.

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

```
<xs:simpleType name="ST enmReadOrder">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Context"/>
    <xs:enumeration value="LeftToRight"/>
    <xs:enumeration value="RightToLeft"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.47 ST_enmGradientType

Referenced by: CT_gradient

Background gradient fill effect.

The following table shows the enumeration values for this type.

Value	Meaning
Linear	Equivalent to the **linear** enumeration value of the **ST_GradientType** simple type specified in [ISO/IEC29500-1:2011].
Path	Equivalent to the **path** enumeration value of the **ST_GradientType** simple type specified in [ISO/IEC29500-1:2011].

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

```
<xs:simpleType name="ST_enmGradientType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Linear"/>
    <xs:enumeration value="Path"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.48 ST_enmFontVerticalAlignment

Referenced by: CT_Font

Vertical text position relative to the baseline.

The following table shows the enumeration values for this type.

Value	Meaning
None	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignRun** baseline enumeration value.
Subscript	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignRun** subscript enumeration value.
Superscript	Equivalent to the [ISO/IEC29500-1:2011] **ST_VerticalAlignRun** superscript enumeration value.

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

```
<xs:simpleType name="ST_enmFontVerticalAlignment">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Subscript"/>
    <xs:enumeration value="Superscript"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.49 ST_enmPivotRangeOperation

Referenced by: CT_Operation

Enumerates the types of operations that are allowed on a PivotTable.

The following table shows the enumeration values for this type.

Value	Meaning
Refresh	Indicates that the source of the PivotTable data can be refreshed to retrieve updated data.
TableStructure	Indicates that the range information was included to provide additional details about the structure of the PivotTable.

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

```
<xs:simpleType name="ST enmPivotRangeOperation">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Refresh"/>
    <xs:enumeration value="TableStructure"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.50 ST_enmFontUnderline

Referenced by: CT_Font

Underline style for worksheet cell text.

The following table shows the enumeration values for this type.

Value	Meaning
None	Equivalent to the [ISO/IEC29500-1:2011] **ST_UnderlineValues** none enumeration value.
Single	Equivalent to the [ISO/IEC29500-1:2011] **ST_UnderlineValues** single enumeration value.
Double	Equivalent to the [ISO/IEC29500-1:2011] **ST_UnderlineValues** double enumeration value.
SingleAccounting	Equivalent to the [ISO/IEC29500-1:2011] **ST_UnderlineValues** singleAccounting enumeration value.
DoubleAccounting	Equivalent to the [ISO/IEC29500-1:2011] **ST_UnderlineValues** doubleAccounting enumeration value.

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

```
<xs:simpleType name="ST_enmFontUnderline">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Single"/>
    <xs:enumeration value="Double"/>
    <xs:enumeration value="SingleAccounting"/>
    <xs:enumeration value="DoubleAccounting"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.51 ST_enmNamedObjectType

Referenced by: CT_NamedObject, CT_Location

The type of a named object.

The following table shows the enumeration values for this type.

Value	Meaning
InvalidNamedObjectType	Represents an invalid or uninitialized value. MUST NOT be used.
Chart	The named object is a chart.
PivotTable	The named object is a PivotTable.
Table	The named object is a table.
NamedRange	The named object is a named range.
WebExtension	The named object is an Office Web Extension.

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

```
<xs:simpleType name="ST_enmNamedObjectType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="InvalidNamedObjectType"/>
    <xs:enumeration value="Chart"/>
    <xs:enumeration value="PivotTable"/>
    <xs:enumeration value="Table"/>
    <xs:enumeration value="NamedRange"/>
    <xs:enumeration value="WebExtension"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.52 ST_enmDatabarStyle

Referenced by: CT_Cell

The fill color for a data bar.

The following table shows the enumeration values for this type.

Value	Meaning
Gradient	The data bar has a gradient fill effect.
Solid	The data bar has a solid fill color.

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

```
<xs:simpleType name="ST_enmDatabarStyle">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Gradient"/>
    <xs:enumeration value="Solid"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.53 ST_enmCellSpanType

Referenced by: CT_Cell

Specifies the reason why a worksheet cell occupies more than one row or column (2).

The following table shows the enumeration values for this type.

Value	Meaning
Merge	The worksheet cell is part of a merged range.
Spill	Specified when all of the following conditions are met: ▪ The contents of the worksheet cell do not fit within the bounds specified by its column (2) width. ▪ The adjacent cell is empty.

Value	Meaning
None	Represents an invalid or uninitialized value. MUST NOT be used.

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

```
<xs:simpleType name="ST enmCellSpanType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Merge"/>
    <xs:enumeration value="Spill"/>
    <xs:enumeration value="None"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.54 ST_enmPattern

Referenced by: CT_Interior

A **patterned overlay mask**.

The following table shows the enumeration values for this type.

Value	Meaning
None	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** none enumeration value. MUST NOT be used.
Solid	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** solid enumeration value.
Gray50	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** mediumGray enumeration value.
Gray75	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkGray enumeration value.
Gray25	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightGray enumeration value.
HorzStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkHorizontal enumeration value.
VertStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkVertical enumeration value.
ReverseDiagStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkDown enumeration value.
DiagStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkUp enumeration value.
DiagCross	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkGrid enumeration value.
ThickDiagCross	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** darkTrellis enumeration value.
ThinHorzStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightHorizontal

Value	Meaning
	enumeration value.
ThinVertStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightVertical enumeration value.
ThinReverseDiagStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightDown enumeration value.
ThinDiagStripe	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightUp enumeration value.
ThinHorzCross	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightGrid enumeration value.
ThinDiagCross	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** lightTrellis enumeration value.
Gray125	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** gray125 enumeration value.
Gray0625	Equivalent to the [ISO/IEC29500-1:2011] **ST_PatternType** gray0625 enumeration value.

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

```
<xs:simpleType name="ST_enmPattern">
  <xs:restriction base="xs:string">
    <xs:enumeration value="None"/>
    <xs:enumeration value="Solid"/>
    <xs:enumeration value="Gray50"/>
    <xs:enumeration value="Gray75"/>
    <xs:enumeration value="Gray25"/>
    <xs:enumeration value="HorzStripe"/>
    <xs:enumeration value="VertStripe"/>
    <xs:enumeration value="ReverseDiagStripe"/>
    <xs:enumeration value="DiagStripe"/>
    <xs:enumeration value="DiagCross"/>
    <xs:enumeration value="ThickDiagCross"/>
    <xs:enumeration value="ThinHorzStripe"/>
    <xs:enumeration value="ThinVertStripe"/>
    <xs:enumeration value="ThinReverseDiagStripe"/>
    <xs:enumeration value="ThinDiagStripe"/>
    <xs:enumeration value="ThinHorzCross"/>
    <xs:enumeration value="ThinDiagCross"/>
    <xs:enumeration value="Gray125"/>
    <xs:enumeration value="Gray0625"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.55 ST_percentage

Referenced by: CT_stop, CT_gradient

A percentage specified in decimal form.

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

```
<xs:simpleType name="ST_percentage">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="0.0"/>
    <xs:maxInclusive value="1.0"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.56 ST_databarLengthPercentage

Referenced by: CT_Cell

A positive or negative percentage specified in integer form.

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

```
<xs:simpleType name="ST_databarLengthPercentage">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="-100"/>
    <xs:maxInclusive value="100"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.57 ST_nonNegativeInteger

Referenced by: CT_NamedObject, CT_PivotTable, CT_ChartMetaData, CT_Cell, CT_WebExtensionBinding

An integer value that MUST be greater than or equal to zero.

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

```
<xs:simpleType name="ST_nonNegativeInteger">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.58 ST_nonNegativeDouble

Referenced by: CT_Image, CT_Cell, CT_Slicer, CT_WebExtensionContent, CT_WebExtensionTaskpane

Decimal value that MUST be greater than or equal to zero.

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

```
<xs:simpleType name="ST_nonNegativeDouble">
  <xs:restriction base="xs:double">
    <xs:minInclusive value="0"/>
```

```
        </xs:restriction>
    </xs:simpleType>
```

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

2.4.59 ST_nonPositiveDouble

Referenced by: CT_Cell

Decimal value that MUST be less than or equal to zero.

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

```
    <xs:simpleType name="ST_nonPositiveDouble">
      <xs:restriction base="xs:double">
        <xs:maxInclusive value="0"/>
      </xs:restriction>
    </xs:simpleType>
```

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

2.4.60 ST_nonEmptyString

Referenced by: CT_NamedObject, CT_DataField, CT_PivotTable, CT_Location, CT_Hyperlink, CT_Image, CT_Slicer, CT_WebExtensionBinding, CT_WebExtensionProperty, CT_WebExtension, CT_WebExtensionContent, CT_WebExtensionTaskpane

A non-empty string.

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

```
    <xs:simpleType name="ST_nonEmptyString">
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
      </xs:restriction>
    </xs:simpleType>
```

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

2.4.61 ST_enmConnectionType

2.4.62 ST_Description

Referenced by: CT_Parameter

A description of a workbook parameter.

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

```
    <xs:simpleType name="ST_Description">
      <xs:restriction base="xs:string">
        <xs:maxLength value="255"/>
```

```
    </xs:restriction>
  </xs:simpleType>
```

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

2.4.63 ST_enmWebExtensionType

Referenced by: CT_WebExtension, CT_WebExtensionContent, CT_WebExtensionTaskpane

Types of Office Web Extensions.

Value	Meaning
Content	Indicates a content type Office Web Extension.
Taskpane	Indicates a taskpane type Office Web Extension.

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

```
<xs:simpleType name="ST_enmWebExtensionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Content"/>
    <xs:enumeration value="Taskpane"/>
  </xs:restriction>
</xs:simpleType>
```

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

2.4.64 ST_enmPaneState

3   Structure Examples

This sample structure is a representation of a workbook containing sales information that is passed between a protocol client and protocol server.

```
<Workbook>
  <WorkbookOptions/>
  <Parameters>
    <Parameter IsPivotPageField="1" RequiresConnection="1" Name="Geography"></Parameter>
  </Parameters>
  <NamedObjects>
    <NamedObject DisplayOutlines="1" SheetName="Sheet1" Name="Chart 1" Type="Chart"/>
    <NamedObject DisplayOutlines="1" LastNonEmptyRow="8" LastNonEmptyColumn="6"
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                </Cell>
                <Cell StyleID="9" FormulaBarText="2677338.345">
                    <Data xml:space="preserve">$2,677,338.35 </Data>
                </Cell>
                <Cell StyleID="9" FormulaBarText="3095275.19">
                    <Data xml:space="preserve">$3,095,275.19 </Data>
                </Cell>
                <Cell StyleID="9" FormulaBarText="8999859.5308">
                    <Data xml:space="preserve">$8,999,859.53 </Data>
                </Cell>
            </Row>
            <Row Height="15" HeightPixels="20">
                <Cell StyleID="7" BorderID="-32" HasDrillIndicator="1" Drillable="1"
ExtraIndentSpace="1">
                    <Data>Clothing</Data>
                </Cell>
                <Cell StyleID="8" BorderID="-25"/>
                <Cell StyleID="8" BorderID="-25"/>
                <Cell StyleID="9" BorderID="-25" FormulaBarText="52922.85">
                    <Data xml:space="preserve">$52,922.85 </Data>
                </Cell>
                <Cell StyleID="9" BorderID="-25" FormulaBarText="80585.06">
                    <Data xml:space="preserve">$80,585.06 </Data>
                </Cell>
                <Cell StyleID="9" BorderID="-25" FormulaBarText="133507.91">
                    <Data xml:space="preserve">$133,507.91 </Data>
                </Cell>
            </Row>
            <Row Height="15" HeightPixels="20">
                <Cell StyleID="10" BorderID="-14">
                    <Data>Grand Total</Data>
                </Cell>
                <Cell StyleID="12" BorderID="-13" FormulaBarText="1100549.4498">
                    <Data xml:space="preserve">$1,100,549.45 </Data>
                </Cell>
                <Cell StyleID="12" BorderID="-13" FormulaBarText="2126696.546">
                    <Data xml:space="preserve">$2,126,696.55 </Data>
                </Cell>
                <Cell StyleID="12" BorderID="-13" FormulaBarText="2838512.355">
                    <Data xml:space="preserve">$2,838,512.36 </Data>
                </Cell>
                <Cell StyleID="12" BorderID="-13" FormulaBarText="3324031.16">
                    <Data xml:space="preserve">$3,324,031.16 </Data>
                </Cell>
                <Cell StyleID="12" BorderID="-15" FormulaBarText="9389789.5108">
                    <Data xml:space="preserve">$9,389,789.51 </Data>
                </Cell>
            </Row>
        </Table>
    </Worksheet>
</Workbook>
```

4 Security

4.1 Security Considerations for Implementers

None.

4.2 Index of Security Parameters

None.

5 Appendix A: Full XML Schema

For ease of implementation, this section provides the full W3C XML Schemas for the new elements, attributes, complex types, and simple types specified in the preceding sections.

5.1 SpreadsheetDataXML Schema

```
<xs:schema id="SpreadsheetDataXML" xmlns="" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Workbook" type="CT_Workbook">
    <xs:key name="styleIDKey">
      <xs:selector xpath="./Styles/Style"/>
      <xs:field xpath="@ID"/>
    </xs:key>
    <xs:keyref name="tableStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table"/>
      <xs:field xpath="@StyleID"/>
    </xs:keyref>
    <xs:keyref name="columnStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Column"/>
      <xs:field xpath="@StyleID"/>
    </xs:keyref>
    <xs:keyref name="columnBorderStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Column"/>
      <xs:field xpath="@BorderID"/>
    </xs:keyref>
    <xs:keyref name="rowStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Row"/>
      <xs:field xpath="@StyleID"/>
    </xs:keyref>
    <xs:keyref name="rowBorderStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Row"/>
      <xs:field xpath="@BorderID"/>
    </xs:keyref>
    <xs:keyref name="cellStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Row/Cell"/>
      <xs:field xpath="@StyleID"/>
    </xs:keyref>
    <xs:keyref name="cellBorderStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Table/Row/Cell"/>
      <xs:field xpath="@BorderID"/>
    </xs:keyref>
    <xs:keyref name="imagesBorderStyleIDKeyRef" refer="styleIDKey">
      <xs:selector xpath="./Worksheet/Images/Image"/>
      <xs:field xpath="@BorderID"/>
    </xs:keyref>
  </xs:element>
  <xs:element name="ServerEvents" type="CT_ServerEvents"/>
  <xs:simpleType name="ST_enmServerEventType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="DataEntered"/>
      <xs:enumeration value="OsfBinding"/>
      <xs:enumeration value="OsfSettingsChanged"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="ST_osfBindingType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="unknown"/>
      <xs:enumeration value="text"/>
      <xs:enumeration value="table"/>
      <xs:enumeration value="matrix"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="CT_RowValues">
    <xs:sequence>
      <xs:element name="Column" minOccurs="0" maxOccurs="unbounded" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
```

```
<xs:complexType name="CT_RangeValues">
  <xs:sequence>
    <xs:element name="Row" minOccurs="0" maxOccurs="unbounded" type="CT_RowValues"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CT_ServerEvent">
  <xs:attribute name="ServerEventType" type="ST_enmServerEventType" use="required"/>
</xs:complexType>
<xs:complexType name="CT_ServerEventDataEntered">
  <xs:complexContent>
    <xs:extension base="CT_ServerEvent">
      <xs:sequence>
        <xs:element name="FormattedValues" type="CT_RangeValues"/>
      </xs:sequence>
      <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
      <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="required"/>
      <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="required"/>
      <xs:attribute name="LastColumn" type="ST_excelColNumber" use="required"/>
      <xs:attribute name="LastRow" type="ST_excelRowNumber" use="required"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CT_ServerEventOsfBinding">
  <xs:complexContent>
    <xs:extension base="CT_ServerEvent">
      <xs:sequence>
        <xs:element name="Name" minOccurs="1" maxOccurs="1" type="xs:string"/>
        <xs:element name="BindingType" minOccurs="1" maxOccurs="1"
type="ST_osfBindingType"/>
        <xs:element name="ColCount" minOccurs="1" maxOccurs="1" type="ST_excelColNumber"/>
        <xs:element name="RowCount" minOccurs="1" maxOccurs="1" type="ST_excelRowNumber"/>
        <xs:element name="InstanceId" minOccurs="1" maxOccurs="1" type="xs:string"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CT_ServerEventOsfSettingsChanged">
  <xs:complexContent>
    <xs:extension base="CT_ServerEvent">
      <xs:sequence>
        <xs:element name="InstanceId" minOccurs="1" maxOccurs="1" type="xs:string"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CT_ServerEvents">
  <xs:sequence minOccurs="1" maxOccurs="unbounded">
    <xs:choice>
      <xs:element name="ServerEvent" type="CT_ServerEvent"/>
      <xs:element name="ServerEventDataEntered" type="CT_ServerEventDataEntered"/>
      <xs:element name="ServerEventOsfBinding" type="CT_ServerEventOsfBinding"/>
      <xs:element name="ServerEventOsfSettingsChanged"
type="CT_ServerEventOsfSettingsChanged"/>
    </xs:choice>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CT_SurveyInformation">
  <xs:attribute name="Title" type="xs:string" use="optional"/>
</xs:complexType>
<xs:complexType name="CT_WorkbookOptions">
  <xs:sequence>
    <xs:element name="HideWorkbookTabs" minOccurs="0" maxOccurs="1"/>
    <xs:element name="HidePivotFieldList" minOccurs="0" maxOccurs="1"/>
    <xs:element name="HideSlicerPane" minOccurs="0" maxOccurs="1"/>
    <xs:element name="InteractiveReportUsingExternalData" minOccurs="0" maxOccurs="1"/>
    <xs:element name="enableRefresh" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="ST_ObjectName">
```

```xml
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
        <xs:maxLength value="255"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="ST_SheetName">
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
        <xs:maxLength value="31"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="ST_SheetOrObjectName">
      <xs:union memberTypes="ST_SheetName ST_ObjectName"/>
    </xs:simpleType>
    <xs:simpleType name="ST_Description">
      <xs:restriction base="xs:string">
        <xs:maxLength value="255"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="CT_Parameter">
      <xs:attribute name="Name" use="required" type="ST_ObjectName"/>
      <xs:attribute name="Description" use="optional" type="ST_Description"/>
      <xs:attribute name="IsPivotPageField" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="IsSlicer" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="RequiresConnection" type="xs:boolean" default="false"
use="optional"/>
    </xs:complexType>
    <xs:complexType name="CT_Parameters">
      <xs:sequence>
        <xs:element name="Parameter" minOccurs="1" maxOccurs="255" type="CT_Parameter"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_NamedObject">
      <xs:attribute name="Name" type="ST_ObjectName" use="required"/>
      <xs:attribute name="Type" type="ST_enmNamedObjectType" use="required"/>
      <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
      <xs:attribute name="Width" type="ST_nonNegativeInteger" use="required"/>
      <xs:attribute name="Height" type="ST_nonNegativeInteger" use="required"/>
      <xs:attribute name="DisplayRightToLeft" type="xs:boolean" default="false"
use="optional"/>
      <xs:attribute name="LastNonEmptyRow" type="ST_excelRowNumber1Based" use="optional"/>
      <xs:attribute name="LastNonEmptyColumn" type="ST_excelColNumber1Based" use="optional"/>
      <xs:attribute name="CurrentFirstRow" type="ST_excelRowNumber1Based" use="optional"/>
      <xs:attribute name="FirstVisibleRow" type="ST_excelRowNumber1Based" use="optional"/>
      <xs:attribute name="LastVisibleRow" type="ST_excelRowNumber1Based" use="optional"/>
      <xs:attribute name="CurrentFirstColumn" type="ST_excelColNumber1Based" use="optional"/>
      <xs:attribute name="FirstVisibleColumn" type="ST_excelColNumber1Based" use="optional"/>
      <xs:attribute name="LastVisibleColumn" type="ST_excelColNumber1Based" use="optional"/>
      <xs:attribute name="DisplayOutlines" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="IsPivot" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="ImageId" type="ST_nonEmptyString" use="optional"/>
    </xs:complexType>
    <xs:complexType name="CT_NamedObjects">
      <xs:sequence>
        <xs:element name="NamedObject" minOccurs="1" maxOccurs="unbounded"
type="CT_NamedObject"/>
      </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="ST_Size">
      <xs:restriction base="xs:double">
        <xs:minInclusive value="1.0"/>
        <xs:maxInclusive value="409.0"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="CT_Font">
      <xs:attribute name="Size" default="11" use="optional" type="ST_Size"/>
      <xs:attribute name="FontName" type="xs:string" use="required"/>
      <xs:attribute name="Color" type="ST_rgbTuple" default="#000000" use="optional"/>
      <xs:attribute name="Bold" type="xs:boolean" default="false" use="optional"/>
```

```xml
      <xs:attribute name="Italic" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="StrikeThrough" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="VerticalAlign" type="ST_enmFontVerticalAlignment" default="None"
use="optional"/>
      <xs:attribute name="Underline" type="ST_enmFontUnderline" default="None" use="optional"/>
   </xs:complexType>
   <xs:simpleType name="ST_Rotate">
      <xs:restriction base="xs:int">
        <xs:minInclusive value="-90"/>
        <xs:maxInclusive value="90"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:complexType name="CT_Alignment">
      <xs:attribute name="Horizontal" type="ST_enmHorizontalAlignment" default="Automatic"
use="optional"/>
      <xs:attribute name="WrapText" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="Rotate" default="0" use="optional" type="ST_Rotate"/>
      <xs:attribute name="VerticalText" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="Vertical" type="ST_enmVerticalAlignment" default="Bottom"
use="optional"/>
      <xs:attribute name="ReadingOrder" type="ST_enmReadOrder" default="Context"
use="optional"/>
      <xs:attribute name="ShrinkToFit" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="Indent" type="xs:unsignedInt" default="0" use="optional"/>
   </xs:complexType>
   <xs:complexType name="CT_Interior">
      <xs:attribute name="Color" type="ST_rgbTuple"/>
      <xs:attribute name="Pattern" type="ST_enmPattern" use="optional"/>
      <xs:attribute name="PatternColor" type="ST_rgbTuple" use="optional"/>
   </xs:complexType>
   <xs:complexType name="CT_stop">
      <xs:attribute name="position" type="ST_percentage" use="required"/>
      <xs:attribute name="Color" type="ST_rgbTuple" use="required"/>
   </xs:complexType>
   <xs:simpleType name="ST_degree">
      <xs:restriction base="xs:double">
        <xs:minInclusive value="0.0"/>
        <xs:maxExclusive value="360.0"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:complexType name="CT_gradient">
      <xs:sequence>
        <xs:element name="stop" minOccurs="2" maxOccurs="3" type="CT_stop"/>
      </xs:sequence>
      <xs:attribute name="degree" default="0.0" use="optional" type="ST_degree"/>
      <xs:attribute name="type" type="ST_enmGradientType" default="Linear" use="optional"/>
      <xs:attribute name="left" type="ST_percentage" default="0" use="optional"/>
      <xs:attribute name="right" type="ST_percentage" default="0" use="optional"/>
      <xs:attribute name="top" type="ST_percentage" default="0" use="optional"/>
      <xs:attribute name="bottom" type="ST_percentage" default="0" use="optional"/>
   </xs:complexType>
   <xs:simpleType name="ST_Weight">
      <xs:restriction base="xs:int">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="3"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:complexType name="CT_Border">
      <xs:attribute name="Position" type="ST_enmBorderPosition" use="required"/>
      <xs:attribute name="LineStyle" type="ST_enmBorderLineStyle" default="None"
use="optional"/>
      <xs:attribute name="Weight" use="required" type="ST_Weight"/>
      <xs:attribute name="Color" type="ST_rgbTuple" use="required"/>
   </xs:complexType>
   <xs:complexType name="CT_Borders">
      <xs:sequence>
        <xs:element name="Border" minOccurs="0" maxOccurs="4" type="CT_Border"/>
      </xs:sequence>
   </xs:complexType>
```

```
  <xs:simpleType name="ST_ID">
    <xs:union memberTypes="ST_cellStyleID ST_borderStyleID"/>
  </xs:simpleType>
  <xs:complexType name="CT_Style">
    <xs:sequence>
      <xs:element name="Font" minOccurs="0" maxOccurs="1" type="CT_Font"/>
      <xs:element name="Alignment" minOccurs="0" maxOccurs="1" type="CT_Alignment"/>
      <xs:choice minOccurs="0" maxOccurs="1">
        <xs:element name="Interior" type="CT_Interior"/>
        <xs:element name="gradient" type="CT_gradient"/>
      </xs:choice>
      <xs:element name="Borders" minOccurs="0" maxOccurs="1" type="CT_Borders"/>
    </xs:sequence>
    <xs:attribute name="ID" use="required" type="ST_ID"/>
  </xs:complexType>
  <xs:complexType name="CT_Styles">
    <xs:sequence>
      <xs:element name="Style" minOccurs="1" maxOccurs="unbounded" type="CT_Style"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="CT_WorksheetOptions">
    <xs:attribute name="DoNotDisplayGridlines" type="xs:boolean" default="false"
use="optional"/>
    <xs:attribute name="DoNotDisplayHeadings" type="xs:boolean" use="optional"/>
    <xs:attribute name="DisplayRightToLeft" type="xs:boolean" use="optional"/>
    <xs:attribute name="TabColor" type="ST_rgbTuple" use="optional"/>
    <xs:attribute name="DisplayOutlines" type="xs:boolean" default="false" use="optional"/>
  </xs:complexType>
  <xs:simpleType name="ST_value">
    <xs:restriction base="xs:string">
      <xs:maxLength value="32767"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="CT_Criteria">
    <xs:attribute name="Type" type="ST_enmAutoFilterCriteriaOperationType" default="EQ"
use="optional"/>
    <xs:attribute name="Relation" type="ST_enmAutoFilterCriteriaRelationOperator"
default="Nil" use="optional"/>
    <xs:attribute name="value" use="required" type="ST_value"/>
  </xs:complexType>
  <xs:simpleType name="ST_value1">
    <xs:restriction base="xs:int">
      <xs:minInclusive value="0"/>
      <xs:maxInclusive value="500"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="CT_top10">
    <xs:attribute name="percent" type="xs:boolean" use="required"/>
    <xs:attribute name="top" type="xs:boolean" use="required"/>
    <xs:attribute name="value" use="required" type="ST_value1"/>
  </xs:complexType>
  <xs:complexType name="CT_item">
    <xs:sequence>
      <xs:element name="Criteria" minOccurs="0" maxOccurs="2" type="CT_Criteria"/>
      <xs:element name="top10" minOccurs="0" maxOccurs="1" type="CT_top10"/>
    </xs:sequence>
    <xs:attribute name="Index" type="ST_excelColNumber" default="0" use="optional"/>
    <xs:attribute name="Name" type="xs:string" use="optional"/>
    <xs:attribute name="Top10" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Type" type="ST_enmFilterItemType" default="None" use="optional"/>
    <xs:attribute name="CriteriaType" type="ST_enmAutoFilterItemCriteriaType" default="Nil"
use="optional"/>
    <xs:attribute name="DataType" type="ST_enmAutoFilterItemType" default="Number"
use="optional"/>
    <xs:attribute name="Filter" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Custom" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="Hidden" type="xs:boolean" default="false" use="optional"/>
  </xs:complexType>
  <xs:simpleType name="ST_Type">
```

```xml
      <xs:restriction base="xs:string">
        <xs:enumeration value="Sheet"/>
        <xs:enumeration value="Table"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="CT_autofilter">
      <xs:sequence>
        <xs:element name="item" minOccurs="0" maxOccurs="16384" type="CT_item"/>
      </xs:sequence>
      <xs:attribute name="ID" type="xs:int" default="0" use="optional"/>
      <xs:attribute name="Row" type="ST_excelRowNumber" default="0" use="optional"/>
      <xs:attribute name="ColFirst" type="ST_excelColNumber" default="0" use="optional"/>
      <xs:attribute name="Type" use="required" type="ST_Type"/>
    </xs:complexType>
    <xs:complexType name="CT_autofilters">
      <xs:sequence>
        <xs:element name="autofilter" minOccurs="1" maxOccurs="unbounded"
type="CT_autofilter"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_Operation">
      <xs:attribute name="Type" type="ST_enmPivotRangeOperation"/>
    </xs:complexType>
    <xs:complexType name="CT_Operations">
      <xs:sequence>
        <xs:element name="Operation" minOccurs="1" maxOccurs="unbounded" type="CT_Operation"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_range">
      <xs:sequence>
        <xs:element name="Operations" minOccurs="1" maxOccurs="1" type="CT_Operations"/>
      </xs:sequence>
      <xs:attribute name="FirstColumn" type="ST_excelColNumber" use="optional" default="0"/>
      <xs:attribute name="FirstRow" type="ST_excelRowNumber" use="optional" default="0"/>
      <xs:attribute name="LastColumn" type="ST_excelColNumber" use="optional" default="0"/>
      <xs:attribute name="LastRow" type="ST_excelRowNumber" use="optional" default="0"/>
    </xs:complexType>
    <xs:complexType name="CT_Ranges">
      <xs:sequence>
        <xs:element name="range" minOccurs="0" maxOccurs="unbounded" type="CT_range"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_DataField">
      <xs:attribute name="Name" type="ST_nonEmptyString"/>
      <xs:attribute name="Id" type="ST_nonEmptyString"/>
    </xs:complexType>
    <xs:complexType name="CT_DataFields">
      <xs:sequence>
        <xs:element name="DataField" minOccurs="1" maxOccurs="unbounded" type="CT_DataField"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_CellValues">
      <xs:sequence>
        <xs:element name="CellValue" minOccurs="0" maxOccurs="1048575" type="ST_value"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CT_PivotTable">
      <xs:sequence>
        <xs:element name="Ranges" minOccurs="1" maxOccurs="1" type="CT_Ranges"/>
        <xs:element name="DataFields" minOccurs="0" maxOccurs="1" type="CT_DataFields"/>
        <xs:element name="RowHeaderRange" minOccurs="0" maxOccurs="1" type="CT_range"/>
        <xs:element name="ColumnHeaderRange" minOccurs="0" maxOccurs="1" type="CT_range"/>
        <xs:element name="RowAreaCaptions" minOccurs="0" maxOccurs="1" type="CT_CellValues"/>
      </xs:sequence>
      <xs:attribute name="ExternalSourceIndex" type="ST_nonNegativeInteger" default="0"
use="optional"/>
      <xs:attribute name="AdvancedFilters" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="LocalSource" type="xs:boolean" use="optional" default="false"/>
      <xs:attribute name="Name" type="ST_nonEmptyString"/>
```

```
      <xs:attribute name="DataConnectionName" type="ST_nonEmptyString"/>
      <xs:attribute name="ShowDrillIndicators" type="xs:boolean" default="true"
use="optional"/>
      <xs:attribute name="RequiresConnection" type="xs:boolean" use="optional"
default="false"/>
      <xs:attribute name="FieldListVersion" type="xs:int"/>
      <xs:attribute name="FieldWellVersion" type="xs:int"/>
      <xs:attribute name="IsActionable" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="IsOlap" type="xs:boolean" default="false" use="optional"/>
      <xs:attribute name="SupportsBIExplore" type="xs:boolean" use="optional" default="false"/>
      <xs:attribute name="HideGridLines" type="xs:boolean" use="optional" default="false"/>
      <xs:attribute name="RowTotalIndexes" type="xs:int" default="0" use="optional"/>
      <xs:attribute name="ColumnTotalIndexes" type="xs:int" default="0" use="optional"/>
      <xs:attribute name="RowMemberPropIndexes" type="xs:int" default="0" use="optional"/>
      <xs:attribute name="ColumnMemberPropIndexes" type="xs:int" default="0" use="optional"/>
  </xs:complexType>
  <xs:complexType name="CT_PivotTables">
    <xs:sequence>
      <xs:element name="PivotTable" minOccurs="1" maxOccurs="unbounded"
type="CT_PivotTable"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="CT_Location">
    <xs:attribute name="top" type="ST_excelRowNumber" use="required"/>
    <xs:attribute name="left" type="ST_excelColNumber" use="required"/>
    <xs:attribute name="bottom" type="ST_excelRowNumber" use="required"/>
    <xs:attribute name="right" type="ST_excelColNumber" use="required"/>
    <xs:attribute name="SheetName" type="ST_SheetName" use="required"/>
    <xs:attribute name="Display" type="ST_nonEmptyString" use="optional"/>
    <xs:attribute name="Type" type="ST_enmNamedObjectType" use="optional"
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use="optional"/>
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    <xs:attribute name="HasNoVisibleSeries" type="xs:boolean" default="false"
use="optional"/>
```

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use="optional"/>
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use="optional"/>
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use="optional"/>
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use="optional"/>
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type="ST_DefaultRowHeight"/>
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type="ST_DefaultColumnWidth"/>
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default="0"/>
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use="optional"/>
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use="optional"/>
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```

```
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type="CT_WebExtensionBindings"/>
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```

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```

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            <xs:enumeration value="SortedDesc"/>
            <xs:enumeration value="BothAsc"/>
            <xs:enumeration value="BothDesc"/>
            <xs:enumeration value="Sorted"/>
            <xs:enumeration value="Both"/>
        </xs:restriction>
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    <xs:complexType name="CT_Data">
        <xs:simpleContent>
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```

```
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      <xs:attribute name="StyleID" type="ST_cellStyleID" default="sD" use="optional"/>
      <xs:attribute name="SpanType" type="ST_enmCellSpanType" use="optional" default="None"/>
      <xs:attribute name="SpillOrigin" type="ST_excelColNumber1Based" use="optional"/>
      <xs:attribute name="DatabarLength" type="ST_databarLengthPercentage" default="0"
use="optional"/>
      <xs:attribute name="DatabarColor" type="ST_rgbTuple" use="optional"/>
      <xs:attribute name="DatabarStyle" type="ST_enmDatabarStyle" use="optional"
default="Gradient"/>
      <xs:attribute name="DatabarBorderColor" type="ST_rgbTuple" use="optional"/>
```

```
        <xs:attribute name="DatabarDirection" type="ST_enmReadOrder" use="optional"
default="Context"/>
        <xs:attribute name="DatabarAxisPosition" type="ST_databarLengthPercentage" default="0"
use="optional"/>
        <xs:attribute name="DatabarAxisColor" type="ST_rgbTuple" use="optional"/>
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        <xs:attribute name="KpiSet" use="optional" default="-1" type="ST_KpiSet"/>
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        <xs:attribute name="LastColumn" type="ST_excelColNumber" use="optional" default="0"/>
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use="optional"/>
        <xs:attribute name="YOriginDelta" type="ST_nonPositiveDouble" default="0"
use="optional"/>
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default="None"/>
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        <xs:attribute name="Drillable" type="xs:boolean" use="optional"/>
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        <xs:attribute name="Expanded" type="xs:boolean" use="optional"/>
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use="optional"/>
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        <xs:attribute name="FormulaError" type="xs:boolean" default="false" use="optional"/>
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        <xs:attribute name="FormulaBarText" type="xs:string" use="optional"/>
        <xs:attribute name="HasSparkline" type="xs:boolean" default="false" use="optional"/>
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use="optional"/>
        <xs:attribute name="SparklineClusterOffsetLeft" type="ST_nonNegativeInteger"
use="optional" default="0"/>
        <xs:attribute name="SparklineClusterFirstRow" type="ST_excelRowNumber" use="optional"/>
        <xs:attribute name="SparklineClusterLastRow" type="ST_excelRowNumber" use="optional"/>
        <xs:attribute name="SparklineClusterFirstColumn" type="ST_excelColNumber"
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use="optional"/>
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    <xs:attribute name="PrevHidden" type="xs:boolean" use="optional" default="false"/>
    <xs:attribute name="collapsed" type="xs:boolean" default="false" use="optional"/>
    <xs:attribute name="outlineLevel" type="ST_excelOutlineLevels" use="optional"
default="0"/>
    <xs:attribute name="adjacentOutlineLevel" type="ST_excelOutlineLevels" use="optional"
default="0"/>
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  <xs:complexType name="CT_ColumnAxisItem">
```

```
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  default="0"/>
      <xs:attribute name="adjacentOutlineLevel" type="ST_excelOutlineLevels" use="optional"
  default="0"/>
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      <xs:enumeration value="RightToLeft"/>
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      <xs:enumeration value="Solid"/>
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```

```
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        <xs:maxInclusive value="100"/>
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    </xs:simpleType>
    <xs:simpleType name="ST_nonEmptyString">
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
      </xs:restriction>
```

```
        </xs:simpleType>
    </xs: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.

- Microsoft SharePoint Server 2013

- Microsoft SharePoint Server 2016 Preview

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 2.3.30: Other than the normative definition of this attribute (2), Microsoft Excel Calculation Services 2010 places no additional restrictions on the protocol server with respect to the contents of the Target attribute (2).

7   Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

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

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

- The removal of a document from the documentation set.

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

The revision class **Editorial** means that the formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the technical content of the document is identical to the last released version.

Major and minor changes can be described further using the following change types:

- New content added.

- Content updated.

- Content removed.

- New product behavior note added.

- Product behavior note updated.

- Product behavior note removed.

- New protocol syntax added.

- Protocol syntax updated.

- Protocol syntax removed.

- New content added due to protocol revision.

- Content updated due to protocol revision.

- Content removed due to protocol revision.

- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.

- Protocol syntax removed due to protocol revision.

- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.

- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

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

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
6 Appendix B: Product Behavior	Updated list of supported products.	Y	Content updated due to protocol revision.

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